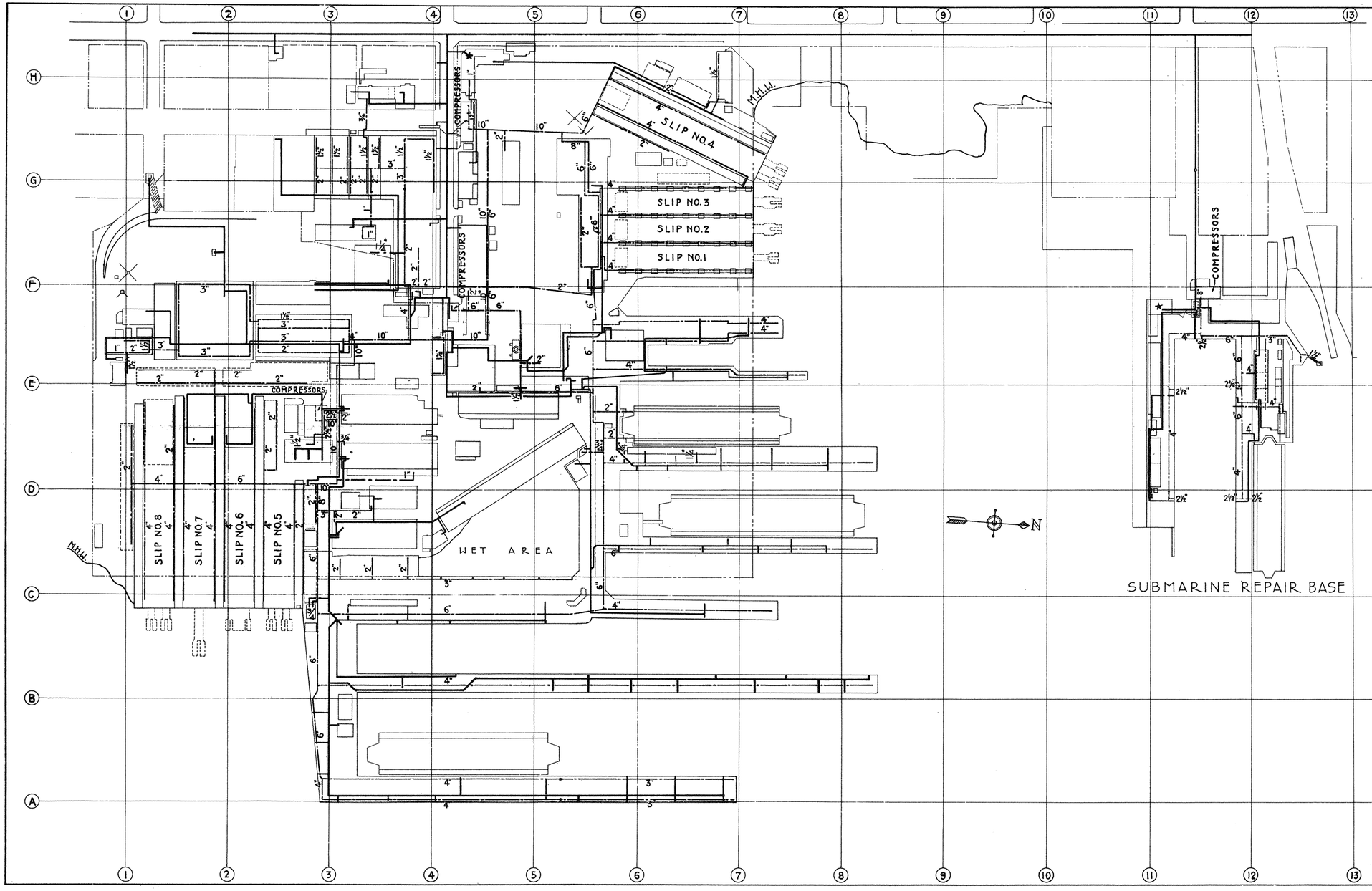


UTILITIES — SHEET 1
AIR & TELEPHONE

LEGEND

AIR LINES ———·———·———

TELEPHONE LINES ———————

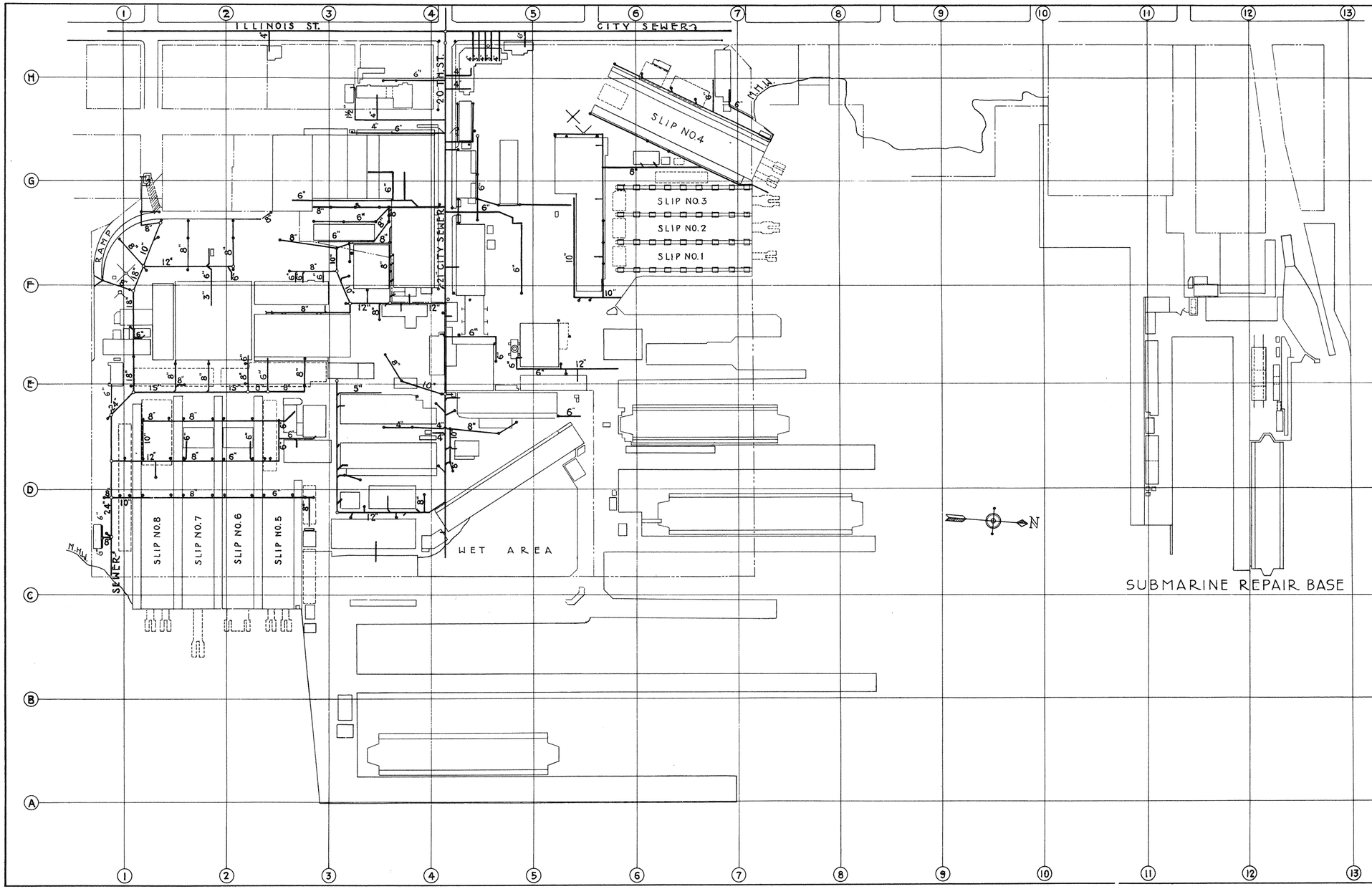
★ TELEPHONE SWITCH BOARD STATION

BETHLEHEM STEEL COMPANY
SHIPBUILDING DIVISION
SAN FRANCISCO YARD, CALIF.

SCALE - 1" = 160'-0" JAN. 1945

GRAPHIC SCALE 0 160 320 480

17348-70-REF



UTILITIES — SHEET 4
STORM & SANITARY SEWER

LEGEND

STORM & SANITARY SEWER LINES

MAN HOLE

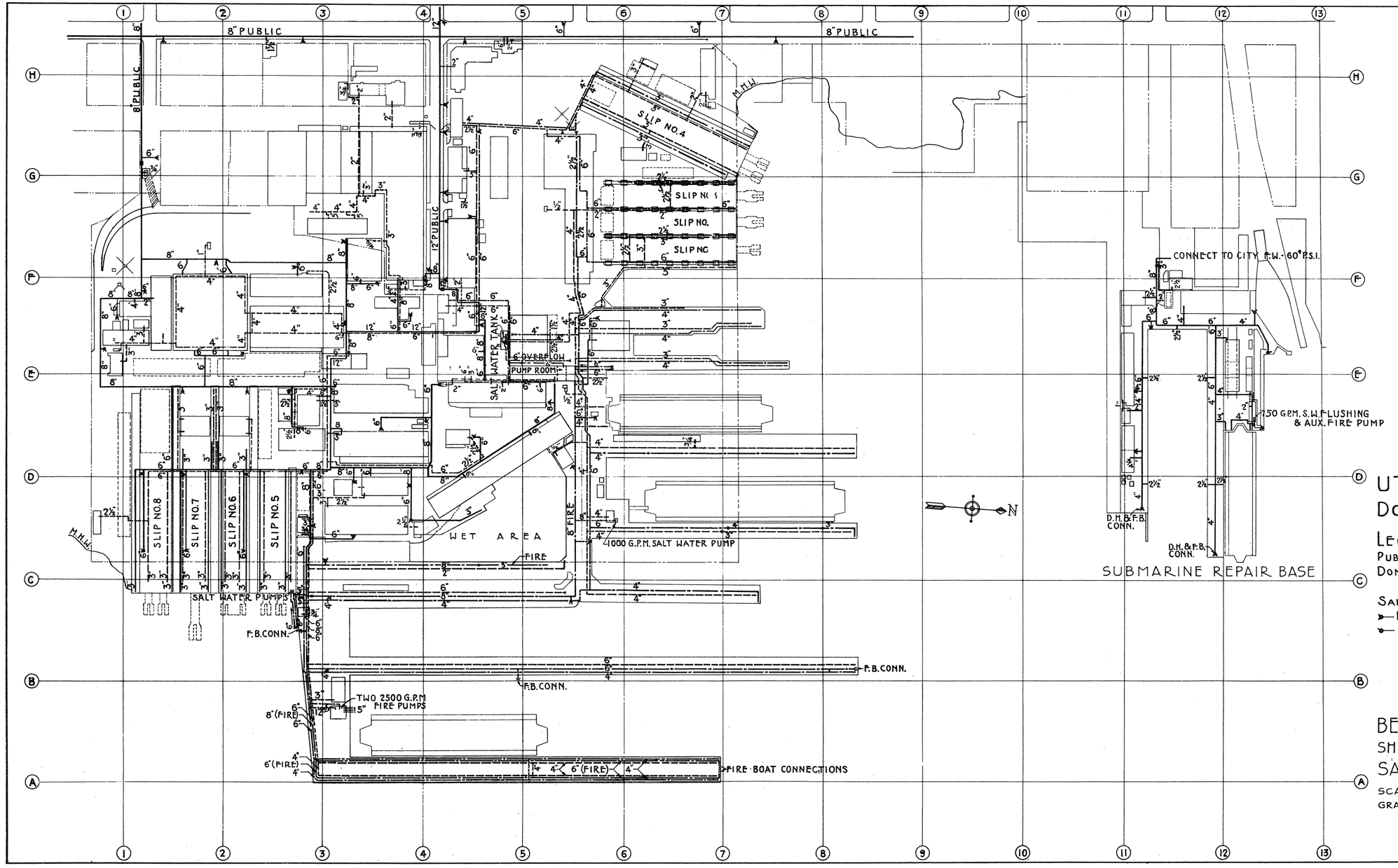
CATCH BASIN

BETHLEHEM STEEL COMPANY
SHIPBUILDING DIVISION
SAN FRANCISCO YARD, CALIF.

SCALE - 1" = 160'-0" JAN. 1945

GRAPHIC SCALE 0 160 320 480

17346-70-REF



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

17347-70-REF

Treadwell&Rollo
A LANGAN COMPANY

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.

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

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.

<u>Suspected vent pipe located in sidewalk on east side of Illinois Street, at 699 Illinois Street</u>

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

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

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

731496301.01 DJS

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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 quantaties 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 distribition lines coming from the USTs trending north to the former boilers in Buidling 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 unkown. See above regarding USTs removed in 1990.	Steam & Fuel Oil line schematic, Bethlehem Steel San Franicisco 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 form 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 Commerical 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

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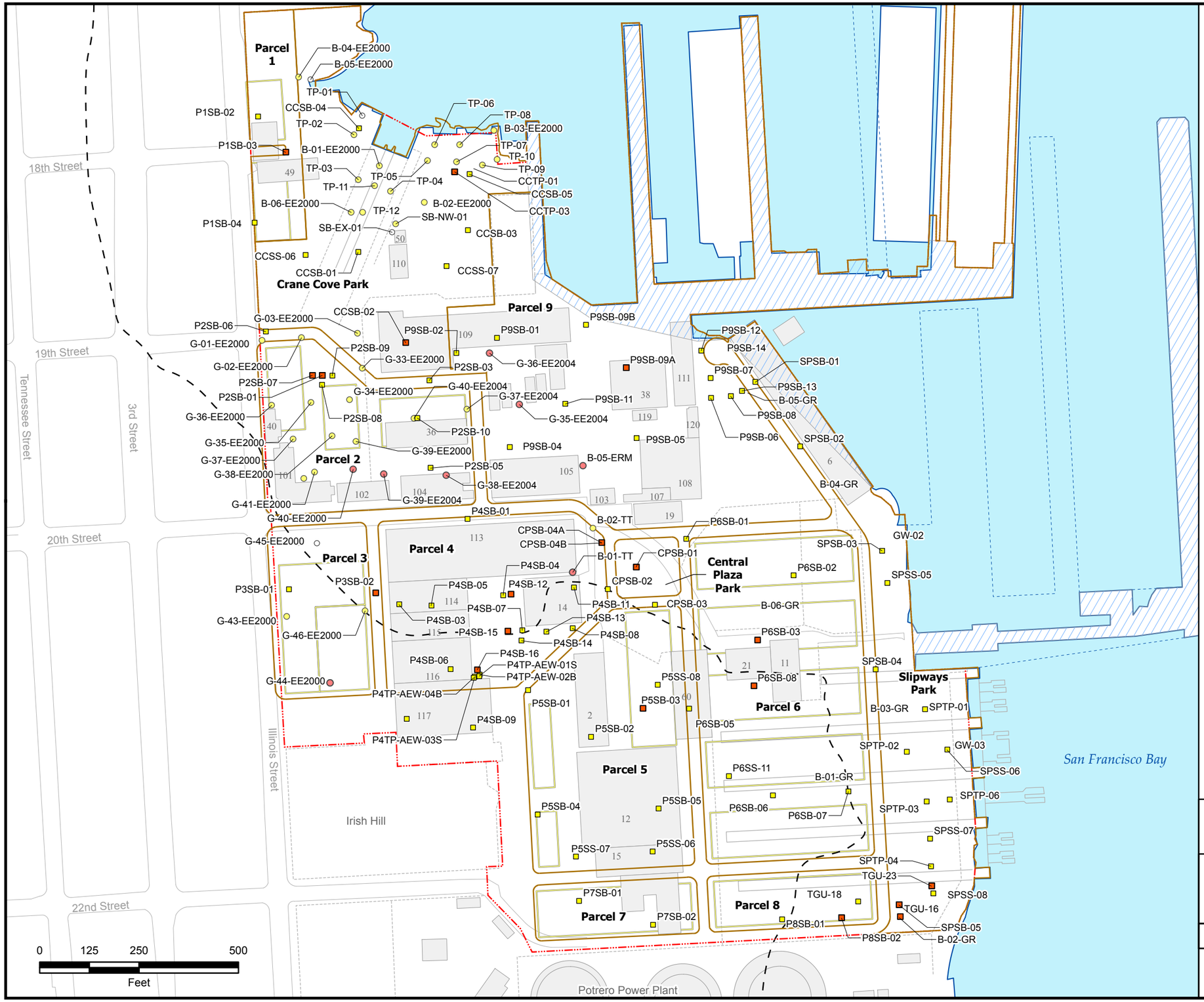
FIGURES



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:

1. 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/.
2. 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.
3. 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.
4. Site boundary, parcels, and acreages from ROMA Design Group, *Pier 70 Draft Preferred Master Plan*, 17 July 2009.
5. Map displayed in California State Plane Coordinate System, Zone III, North American Datum of 1983 (NAD83), US Survey Feet.

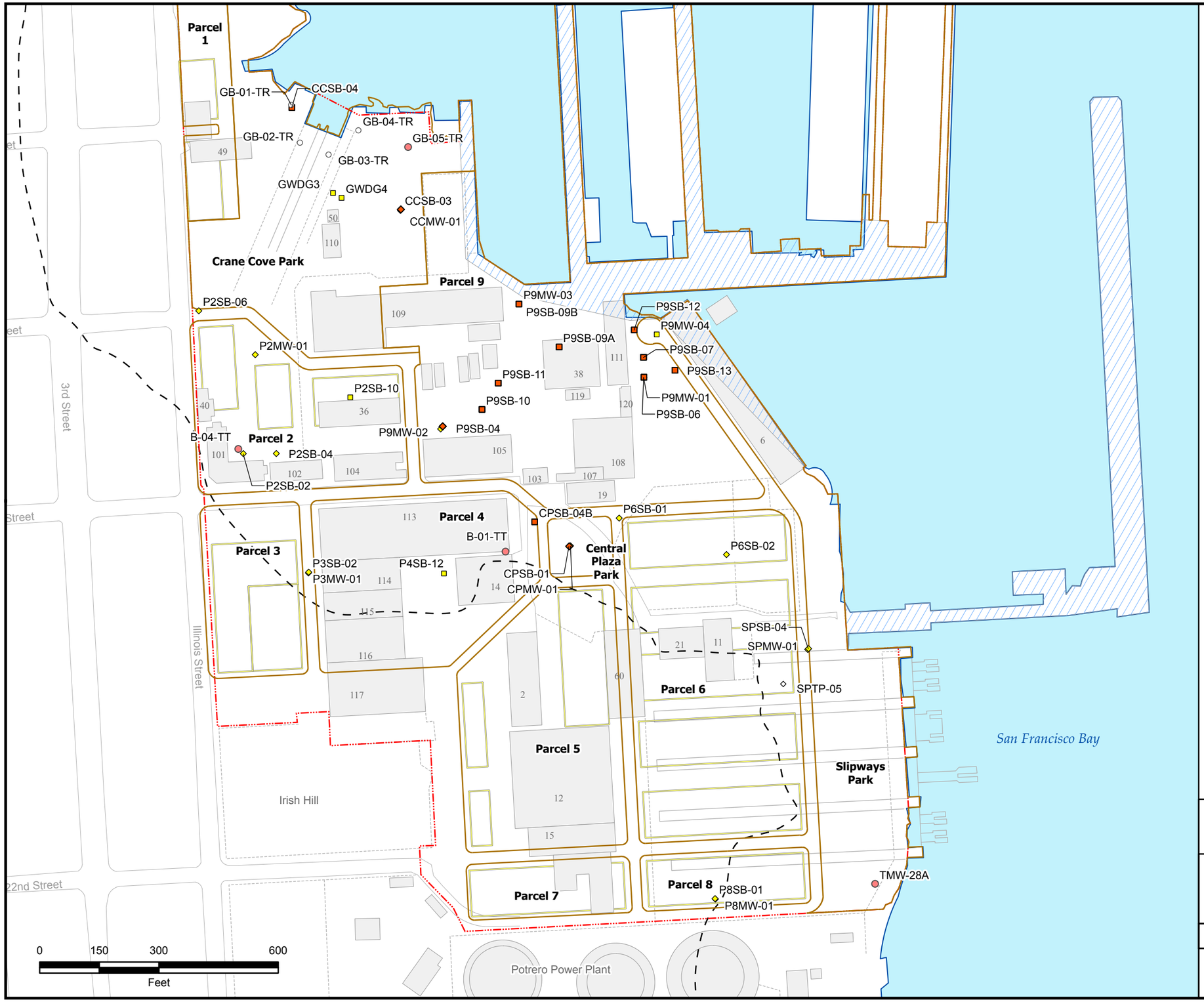
PIER 70 ENVIRONMENTAL SITE INVESTIGATION
San Francisco, California

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

Date 1/3/2011	Project 4963.01	Figure 19

Treadwell&Rollo

Treadwell & Rollo, C:\GIS\4963 - Pier 70\arcmap_doc\2010\4963-01-050.mxd



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...)
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5. 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

Treadwell & Rollo, C:\GIS\4963 - Pier 70\arcmap_doc\2010\4963-01-075.mxd

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.

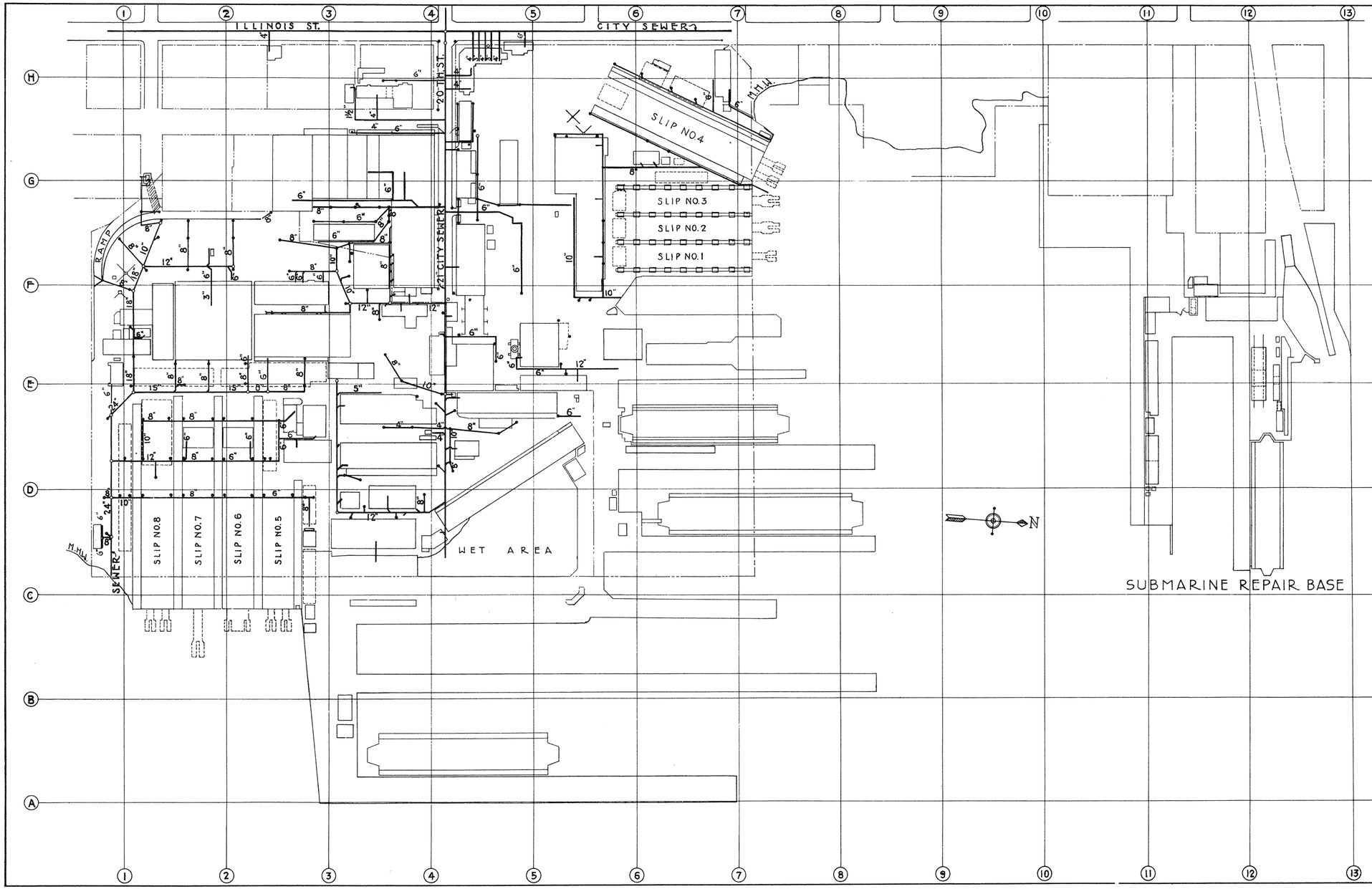
Photo 9 - Continuation of the suspect vent line plunging approximately 11 degrees in the northwest direction towards Illinois Street

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 4
STORM & SANITARY SEWER

LEGEND

STORM & SANITARY SEWER LINES

MAN HOLE

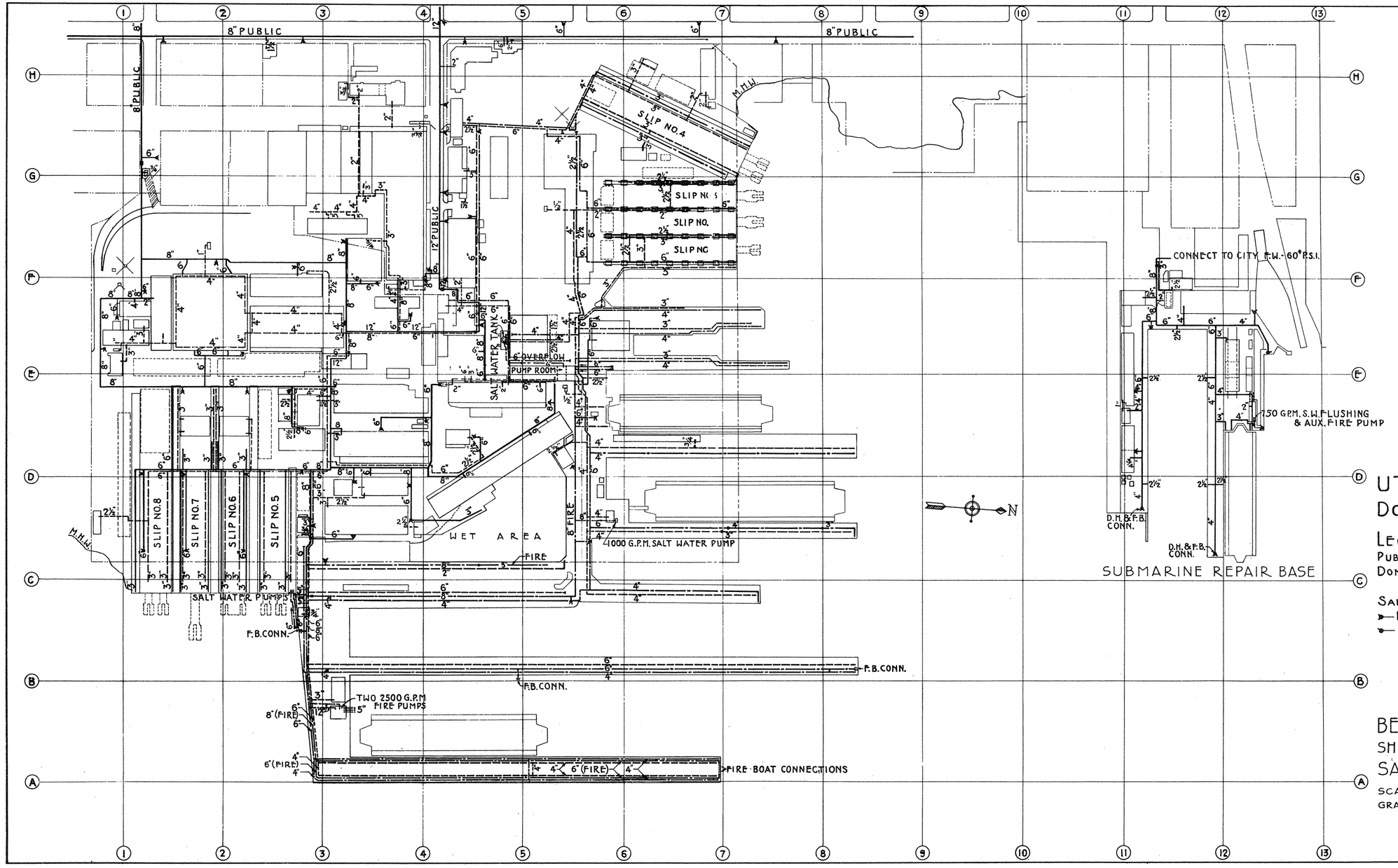
CATCH BASIN

BETHLEHEM STEEL COMPANY
SHIPBUILDING DIVISION
SAN FRANCISCO YARD, CALIF.

SCALE - 1" = 160'-0" JAN. 1945

GRAPHIC SCALE 0 160 320 480

17346-70-REF



UTILITIES — SHEET 5
DOMESTIC & SALT WATER

LEGEND

Public Domestic Water Mains . PUBLIC

Domestic Water for Industrial Use

" " " Fire Connections

Salt Water

Double Hydrant

Single "

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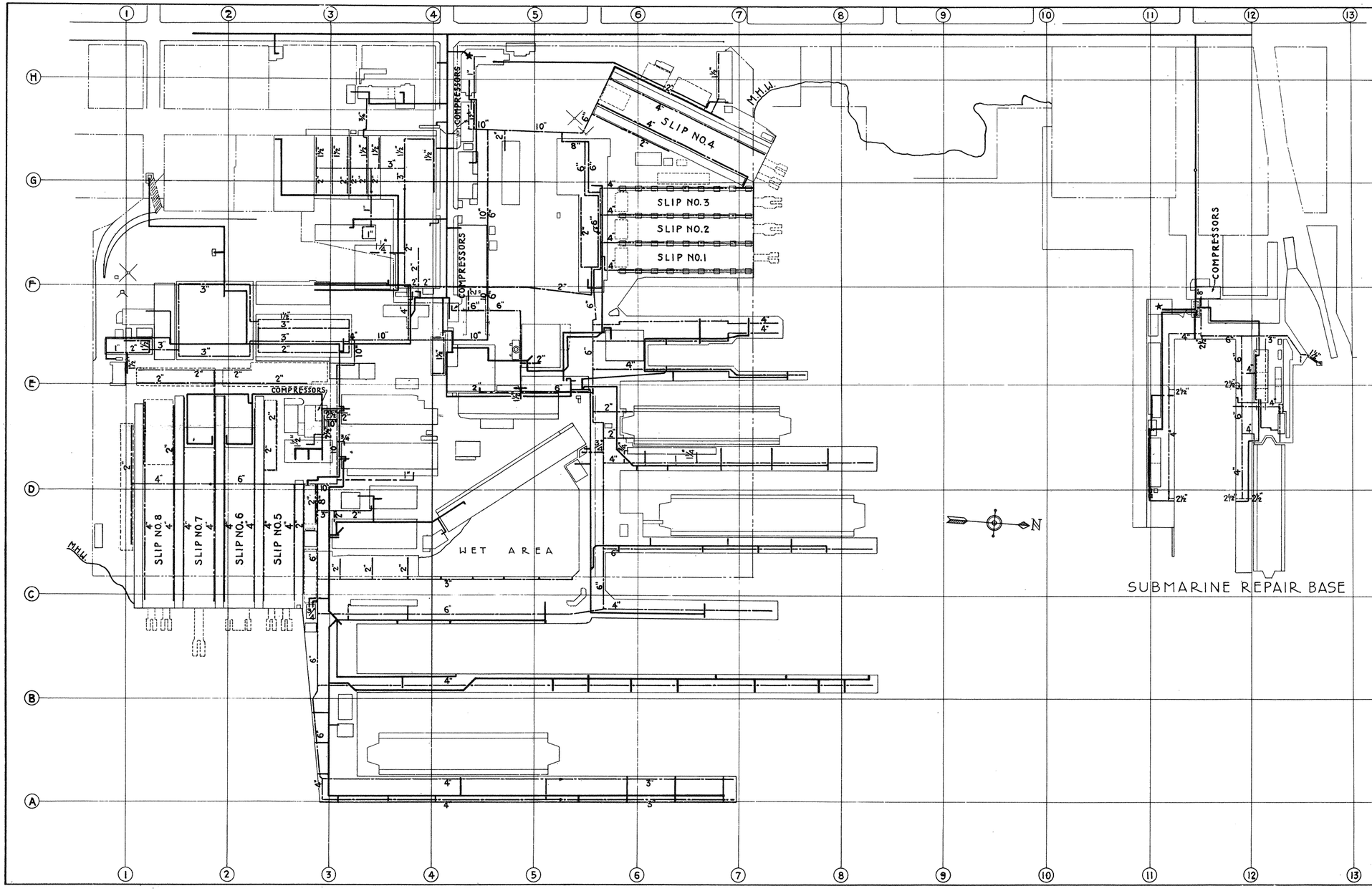


UTILITIES — SHEET 1
AIR & TELEPHONE

LEGEND

AIR LINES ———·———·———

TELEPHONE LINES ———————

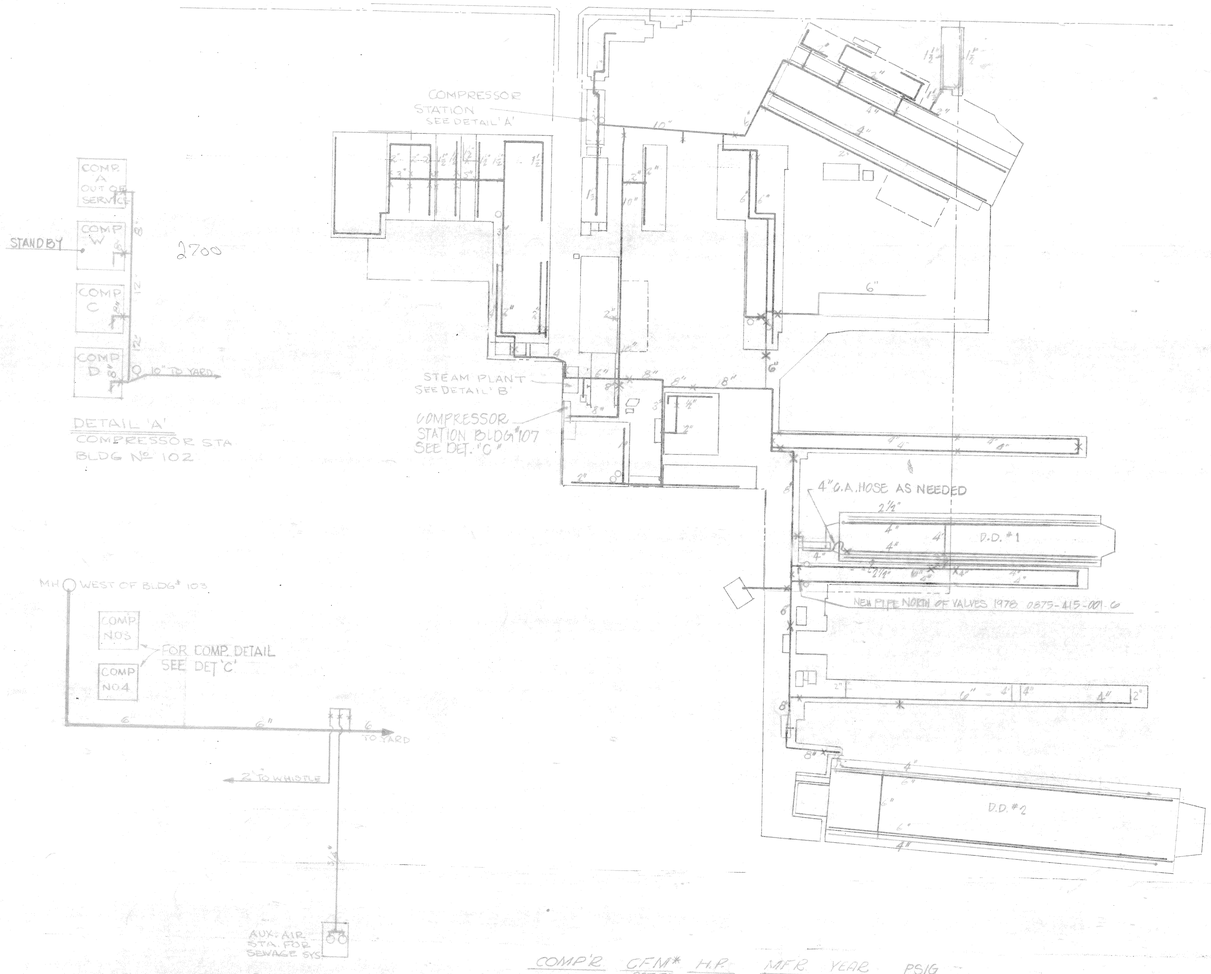
★ TELEPHONE SWITCH BOARD STATION

BETHLEHEM STEEL COMPANY
SHIPBUILDING DIVISION
SAN FRANCISCO YARD, CALIF.

SCALE - 1" = 160'-0" JAN. 1945

GRAPHIC SCALE 0 160 320 480

17348-70-REF



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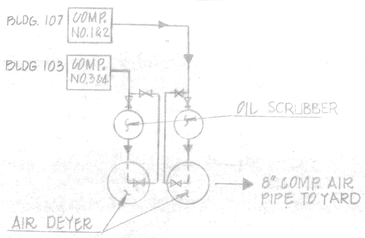


DET. 'C'
COMPRESSOR STATION 1&2
BLDG NO. 107
COMPRESSOR STATION 3&4
BLDG NO. 103

COMP'R.	CFM* RATED	H.P. MOTOR	MFR.	YEAR	PSIG
W	2700	500	C. P.	1942	80-90
1&2	1500	400	SULLAIR	1972	120
3&4	1500	400	SULLAIR	1982	120

UTILITIES — COMPRESSED AIR

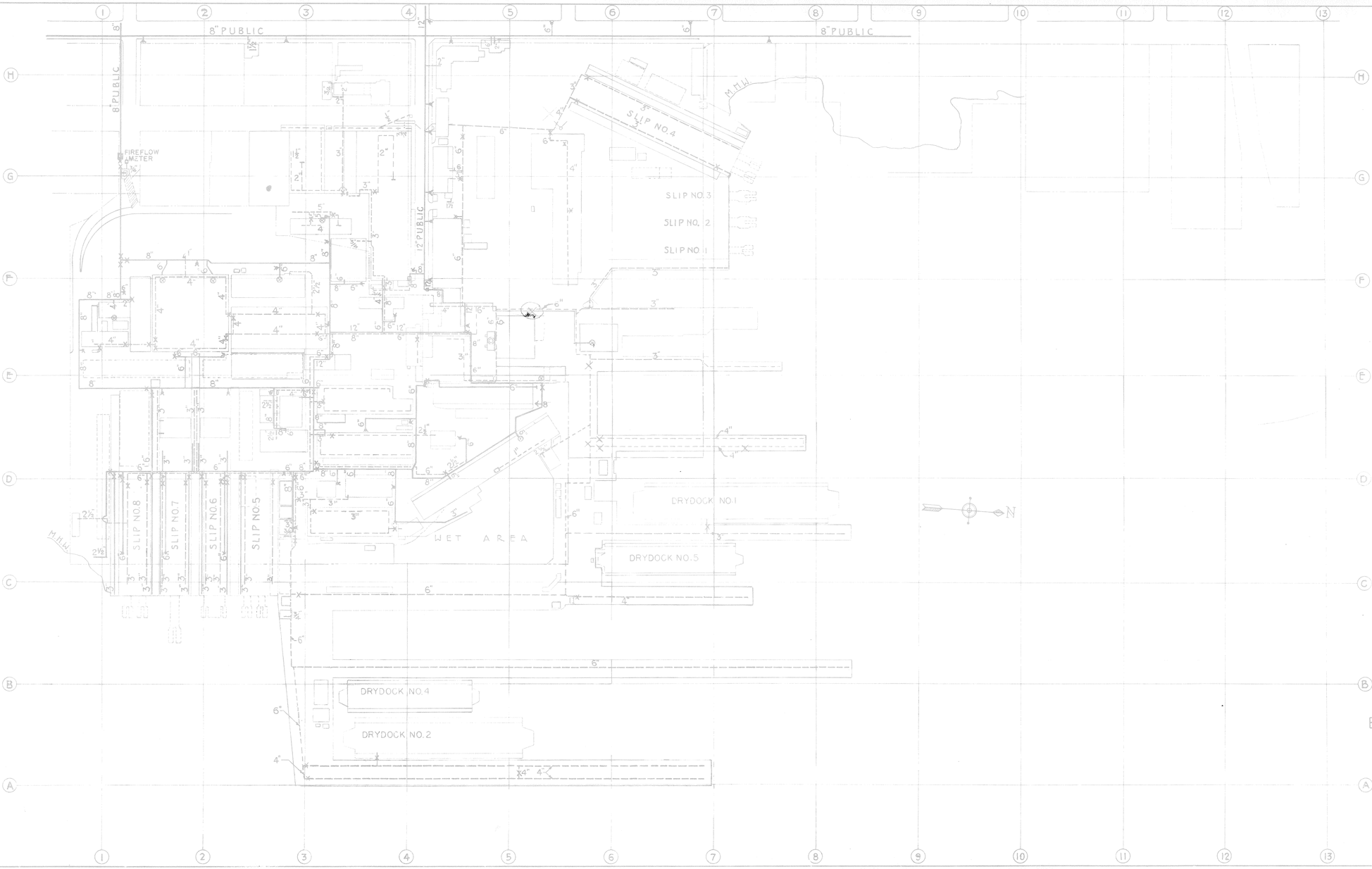
LEGEND
- COMPRESSED AIR LINE
- CHECK VALVE
- LINE VALVE
- MOISTURE SEPARATOR

BETHLEHEM STEEL SAN FRANCISCO YARD

SCALE: 1" = 160'

GRAPHIC SCALE- 0 160 320 480

REV. FEB. 1971, 11-1-77, 8-18-78, 6-1-79, 4-13-82



UTILITIES — SHEET 5

DOMESTIC WATER

LEGEND

PUBLIC DOMESTIC WATER MAINS — PUBLIC

DOMESTIC WATER FOR INDUSTRIAL USE — — — — —

" " " FIRE CONNECTIONS ———

SPRINKLER ⊗

SINGLE HYDRANT

DOUBLE "

VALVE ×

BETHLEHEM STEEL CO.

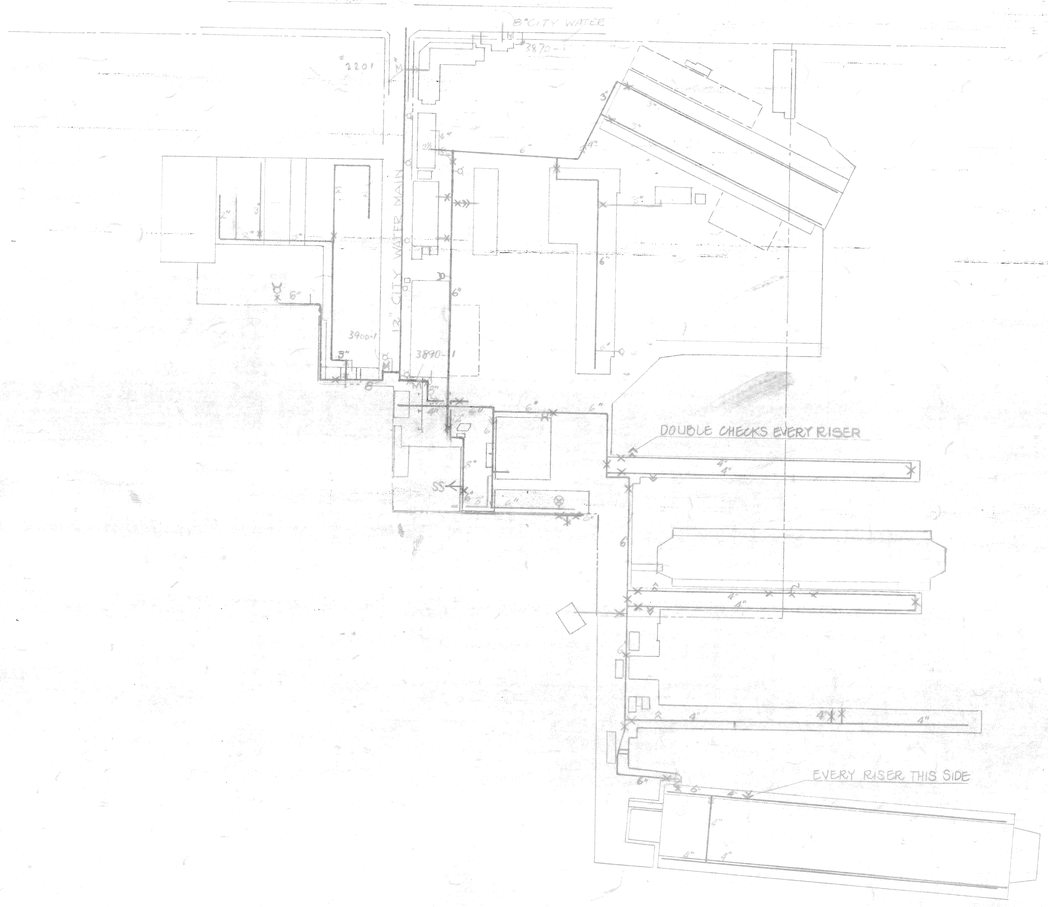
SHIPBUILDING DIVISION

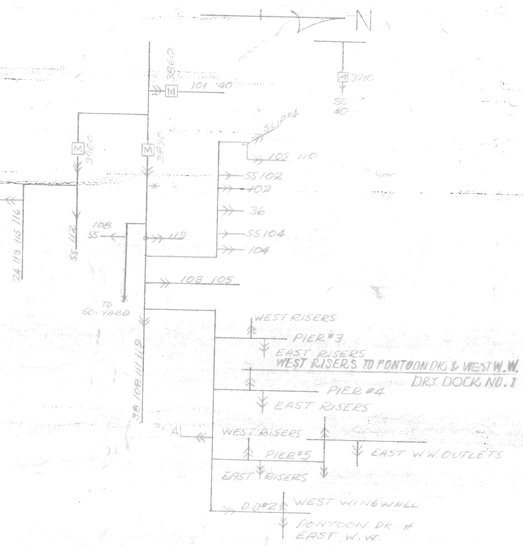
SAN FRANCISCO YARD, CALIF.

SCALE - 1" = 160'-0" JAN. 1945

GRAPHIC SCALE 0 160 320 480

REVISED 7/9/55, 12-23-58, 6-24-59





SCHEMATIC DIAGRAM

NO SCALE

UTILITIES — DOMESTIC WATER

LEGEND

- M 3900 — 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

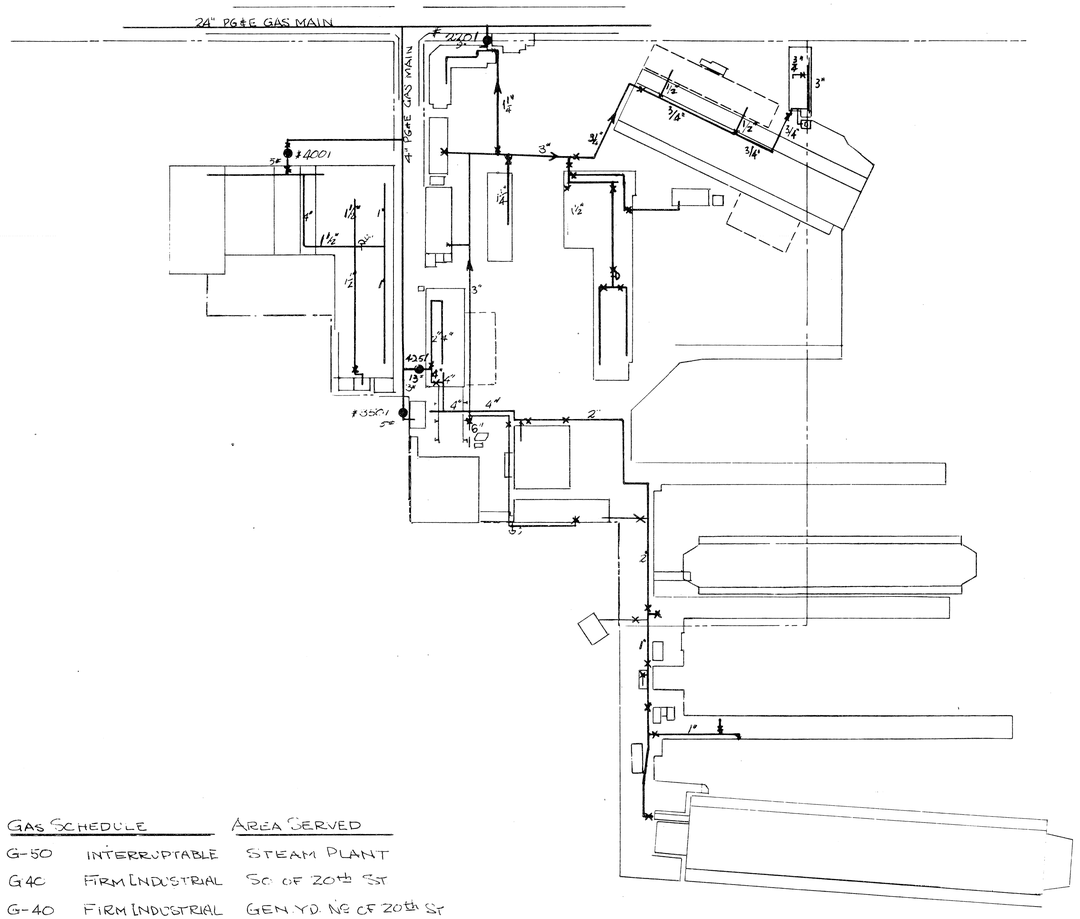
TODD SHIPYARDS CORPORATION

SAN FRANCISCO DIVISION

SCALE: 1" = 160'

GRAPHIC SCALE- 0 160 320 480

REV. JAN. 1971, NOV. 71, 11-1-77, 4-13-82, 7-11-84



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ACCT. #	GAS SCHEDULE		AREA SERVED
3501	G-50	INTERRUPTABLE	STEAM PLANT
4001	G4C	FIRM INDUSTRIAL	SO. OF 20th ST
4251	G-40	FIRM INDUSTRIAL	GEN. YD. NO. OF 20th ST
2201	G-1	GENERAL	KITCHEN, BLDG. 101

UTILITIES — NATURAL GAS

LEGEND

NAT. GAS LINE

LINE VALVE

GAS METER & ACCT. NO. 2201

REGULATOR & DOWNSTREAM PRESSURE

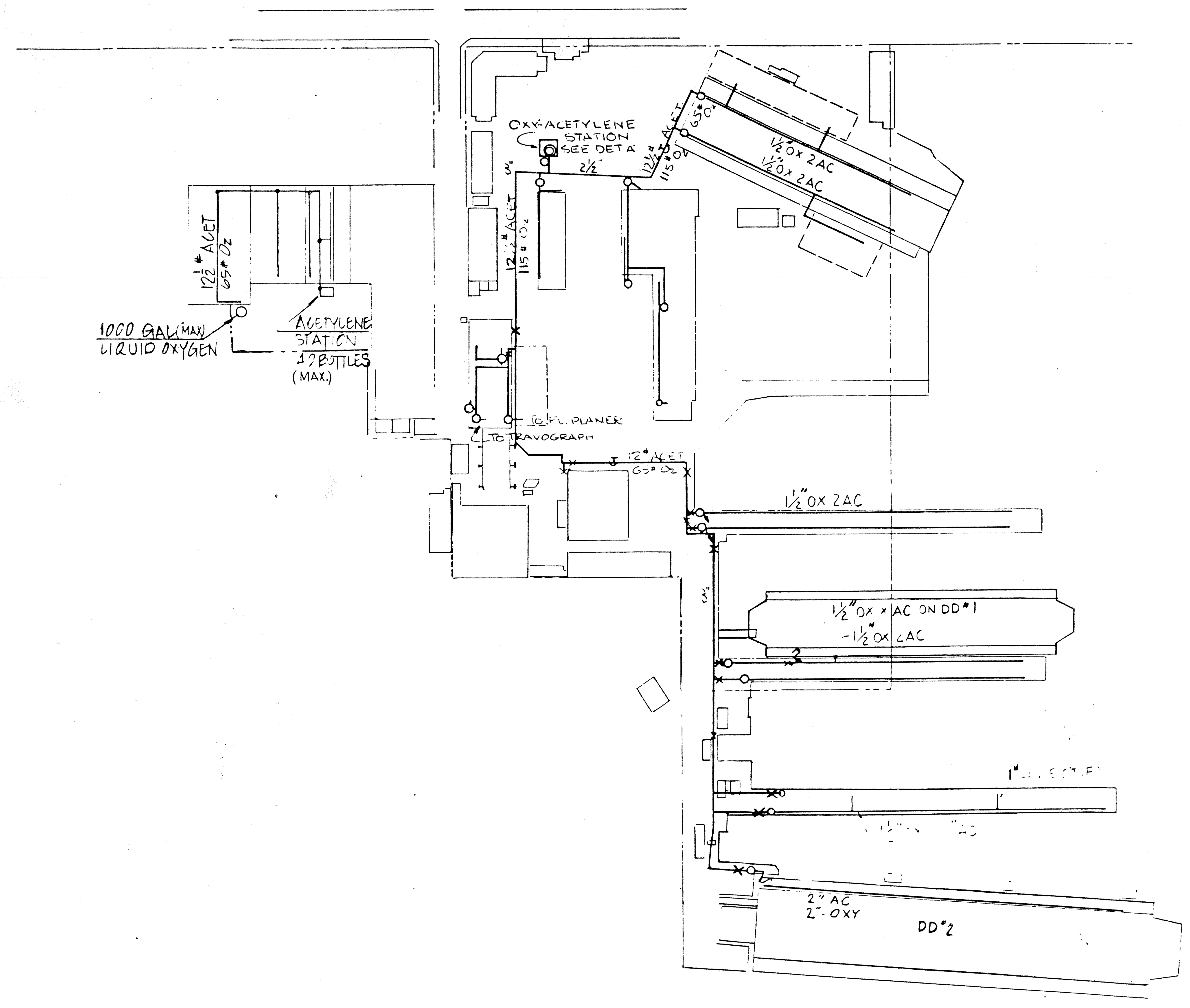
BETHLEHEM STEEL

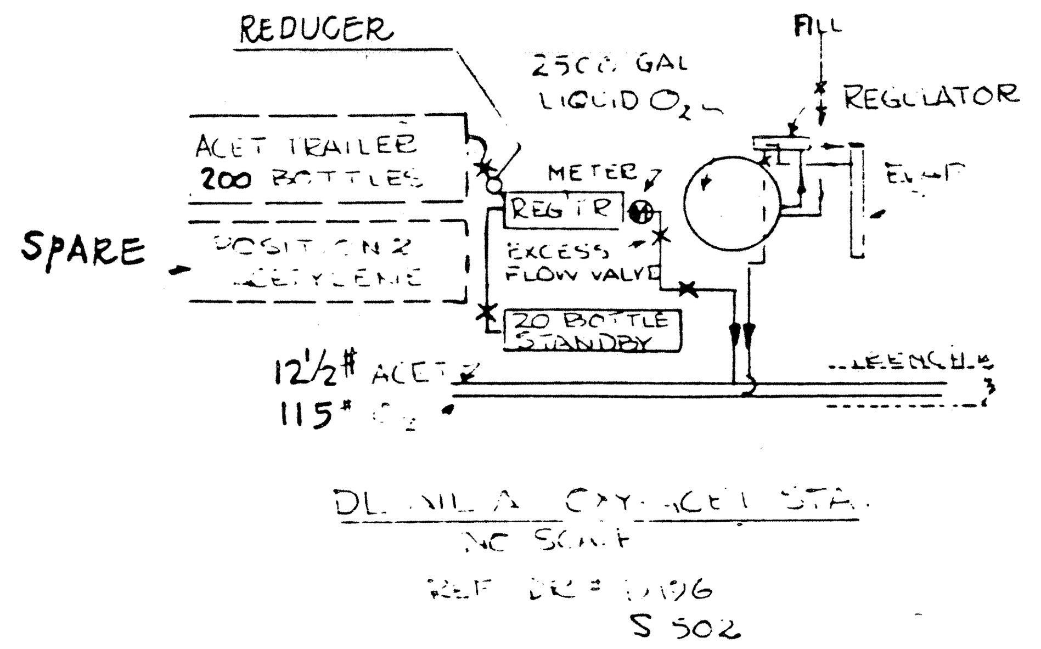
SAN FRANCISCO YARD

SCALE: 1" = 160'

GRAPHIC SCALE- 0 160 320 480

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





N

UTILITIES — OXYGEN & ACETYLENE

LEGEND
- OXY-ACETYLENE LINES
- LINE VALVE
- ACETYLENE FLASHBACK ARRESTER
- OXYGEN PRESSURE REGULATOR
- OXYGEN STORAGE TANK
- FLEXABLE HOSE RISER
- ACETYLENE BURSTING DISC

BETHLEHEM STEEL SAN FRANCISCO YARD

SCALE: 1" = 160'

GRAPHIC SCALE- 0 160 320 480

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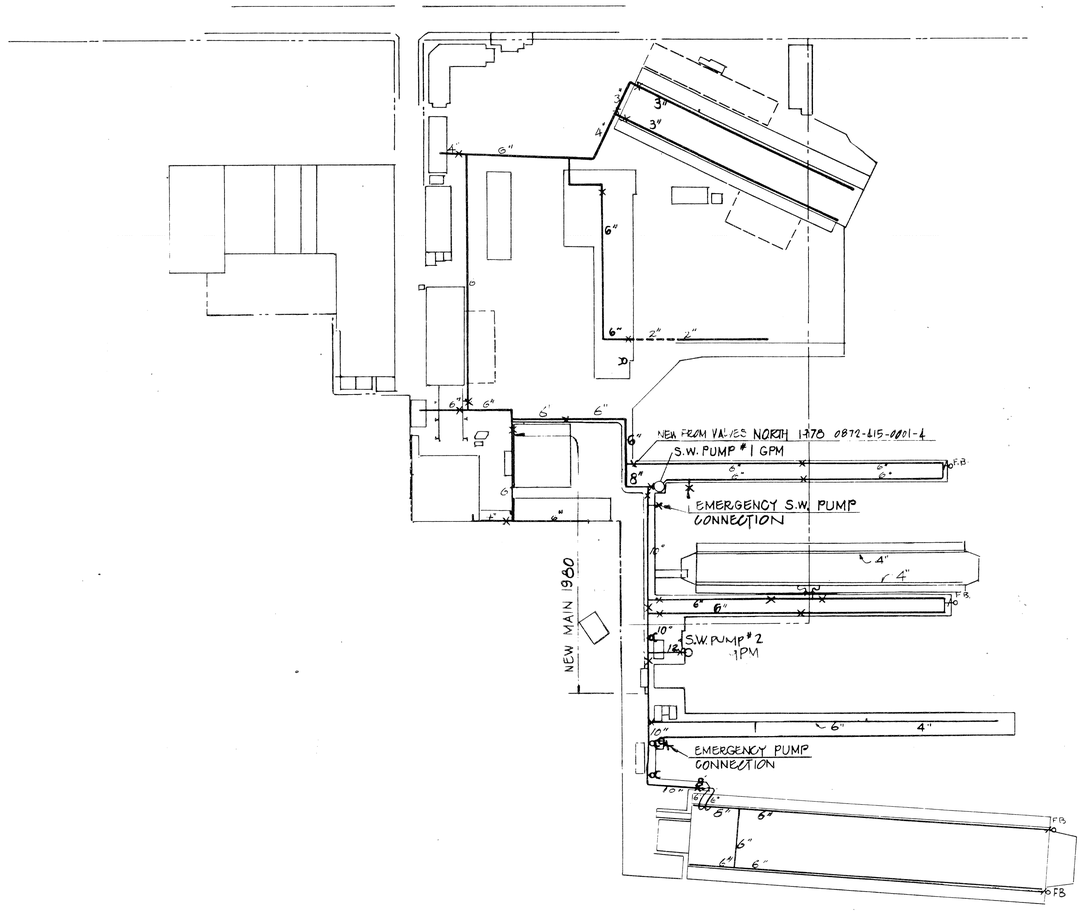
REVISED JAN '71, 11, 71, 11-1-77, 6-1-79, 4-13-82



UTILITIES — SALT WATER

LEGEND

- SALT WATER LINE
- O SALT WATER PUMP
- FB FIRE BOAT CONNECTION
- FIRE HYDRANT
- HOSE RISER TO DRYDOCK

BETHLEHEM STEEL SAN FRANCISCO YARD

SCALE : 1" = 160'

GRAPHIC SCALE- 0 160 320 480

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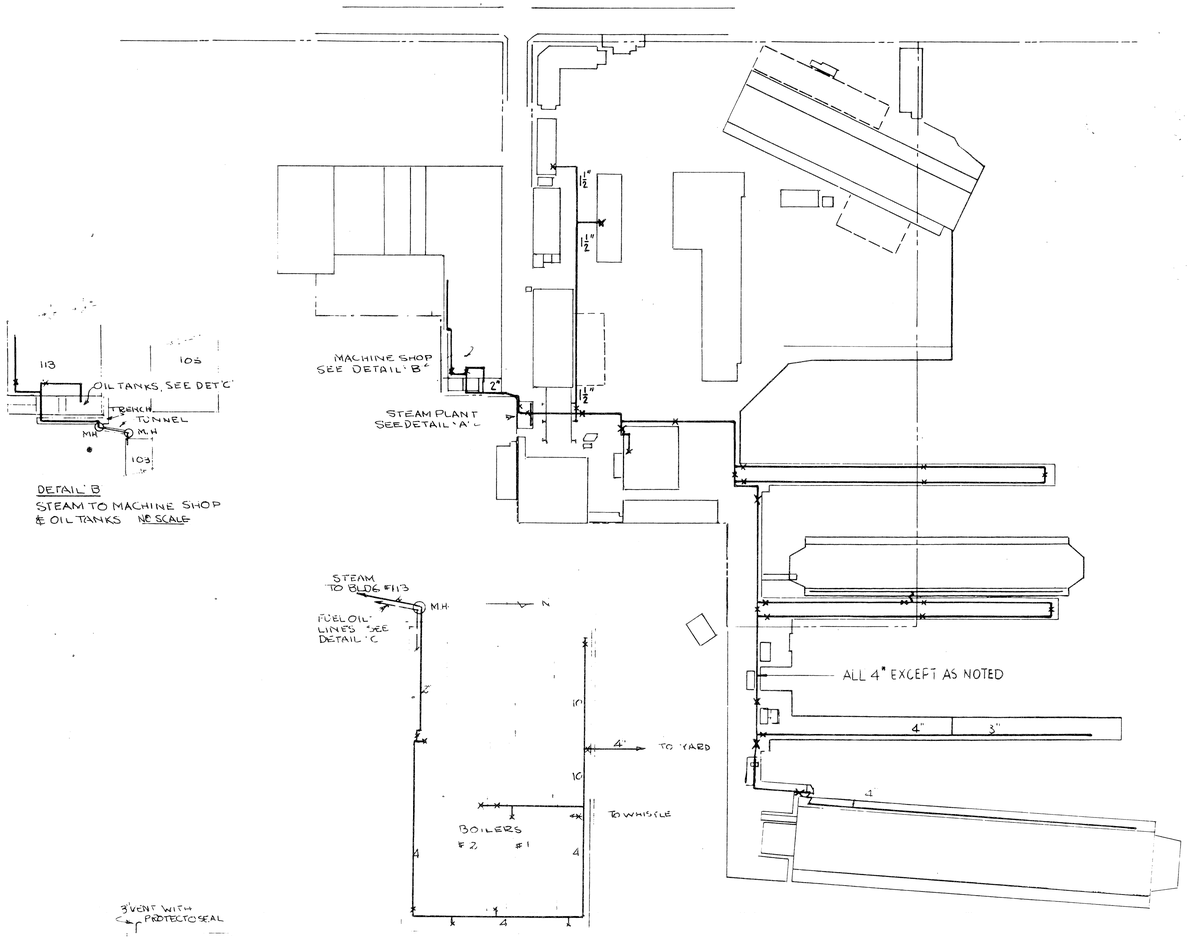
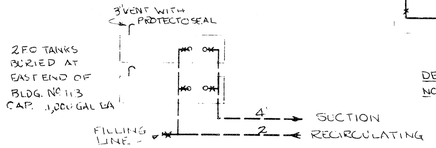
REV. JAN. 1971, 11-1-77, 6-1-79, 4-13-82



DETAIL 'B'
STEAM TO MACHINE SHOP
& OIL TANKS NO SCALE

DETAIL 'A' STEAM PLANT
NO SCALE BLDG. #103



DETAIL C FUEL OIL SYSTEM
(REF DR. # D 38 & TR. # A 7113)
NO SCALE

N

UTILITIES —
STEAM & FUEL OIL

LEGEND

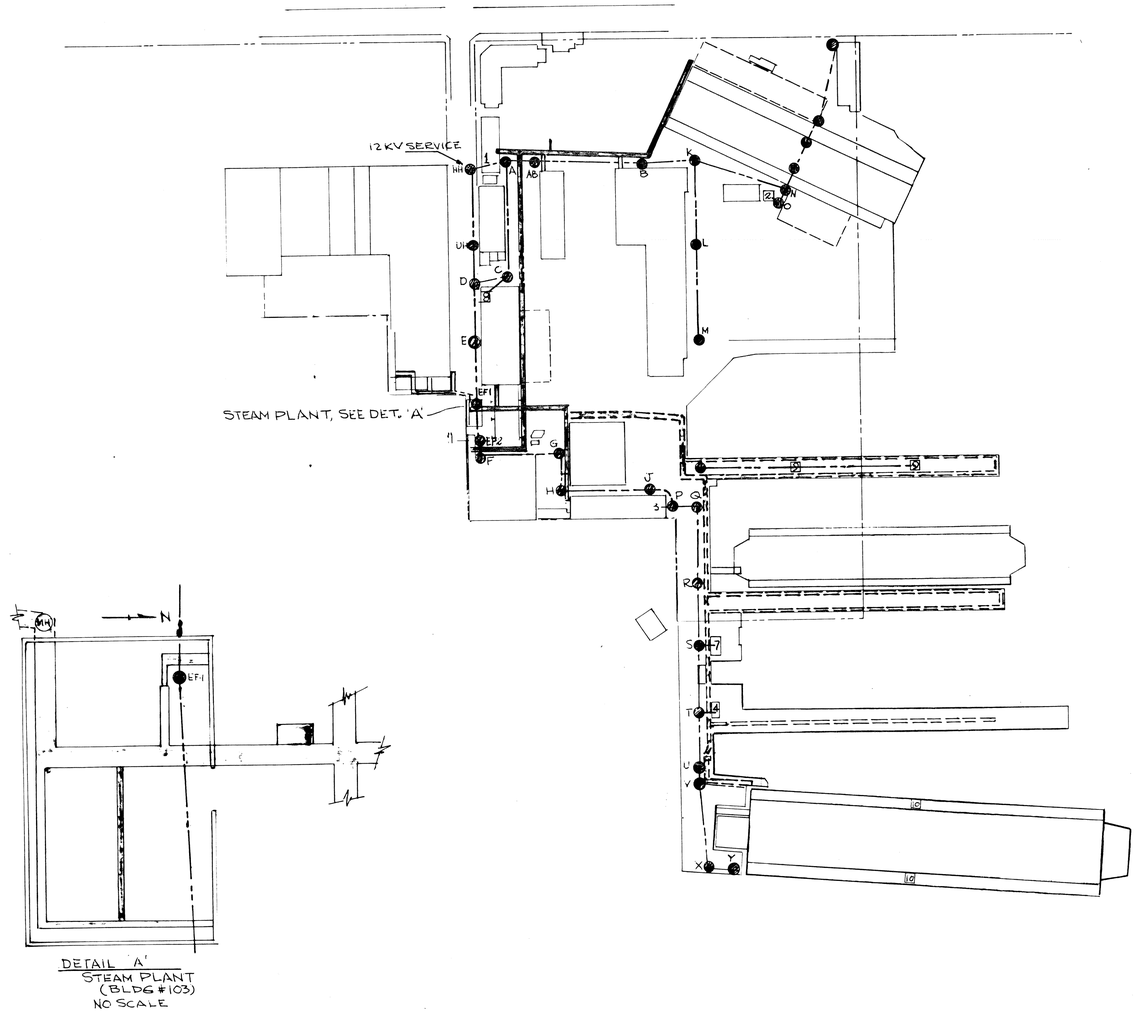
STEAM LINE
FUEL OIL LINE
LINE VALVE
STEAM RISER TO DRY DOCK

BETHLEHEM STEEL
SAN FRANCISCO YARD

SCALE : 1" = 160'

GRAPHIC SCALE- 0 160 320 480

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



N

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

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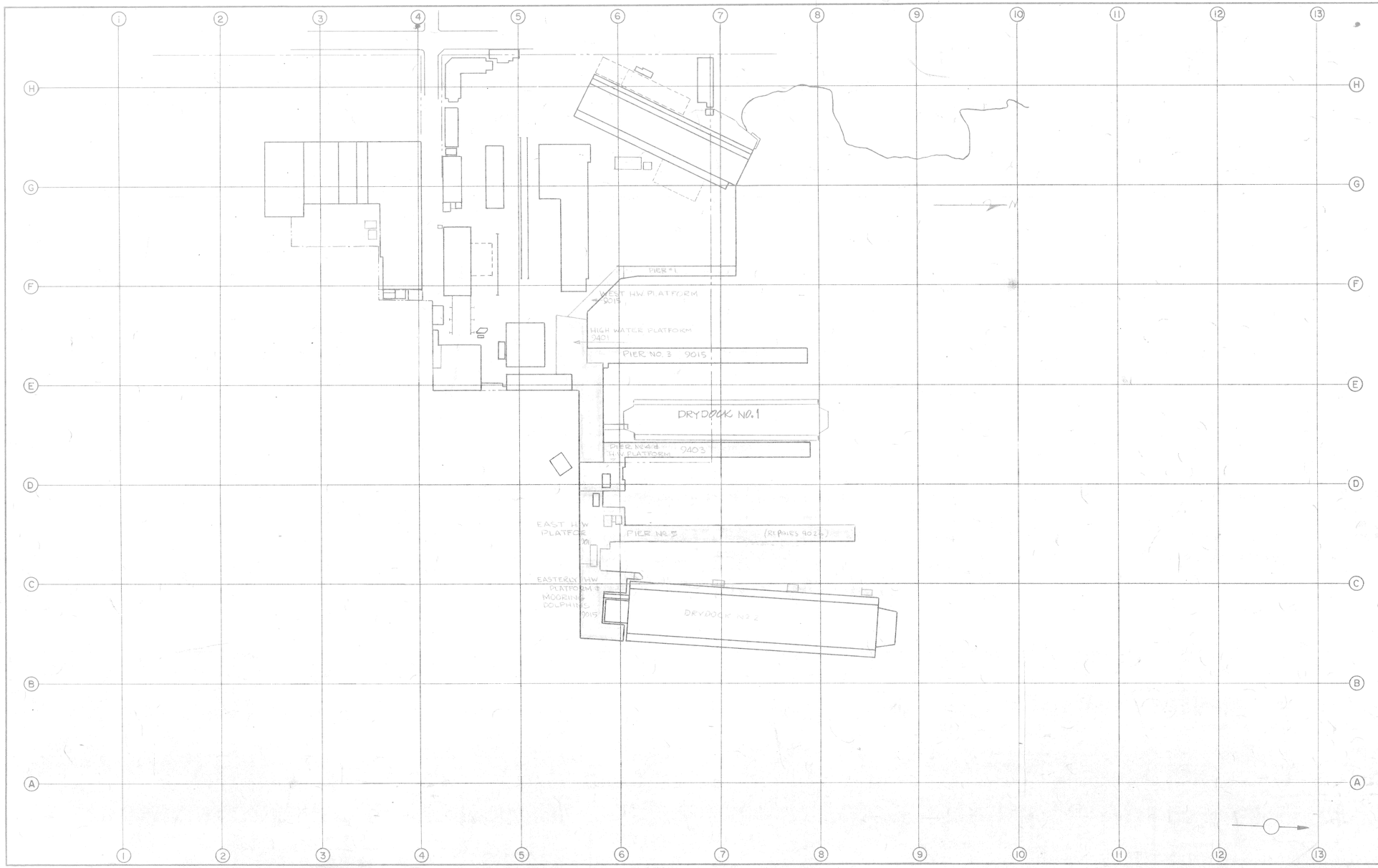
REV. MAR. 1971, 11-1-77



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- 0 160 320 480

REV. FEB 1971, 11-1-77

Port of San Francisco
Sewer & Storm Facilities

N

Legend

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

WHARF 3

PIER 1

ILLINOIS ST

MICHIGAN ST

pump station

not found

covered over nothing/wks found

not found

utility trenches

under cars

utility trench

utility trench

covered by cars

inaccurate

may be under cars

utility trench

inaccurate

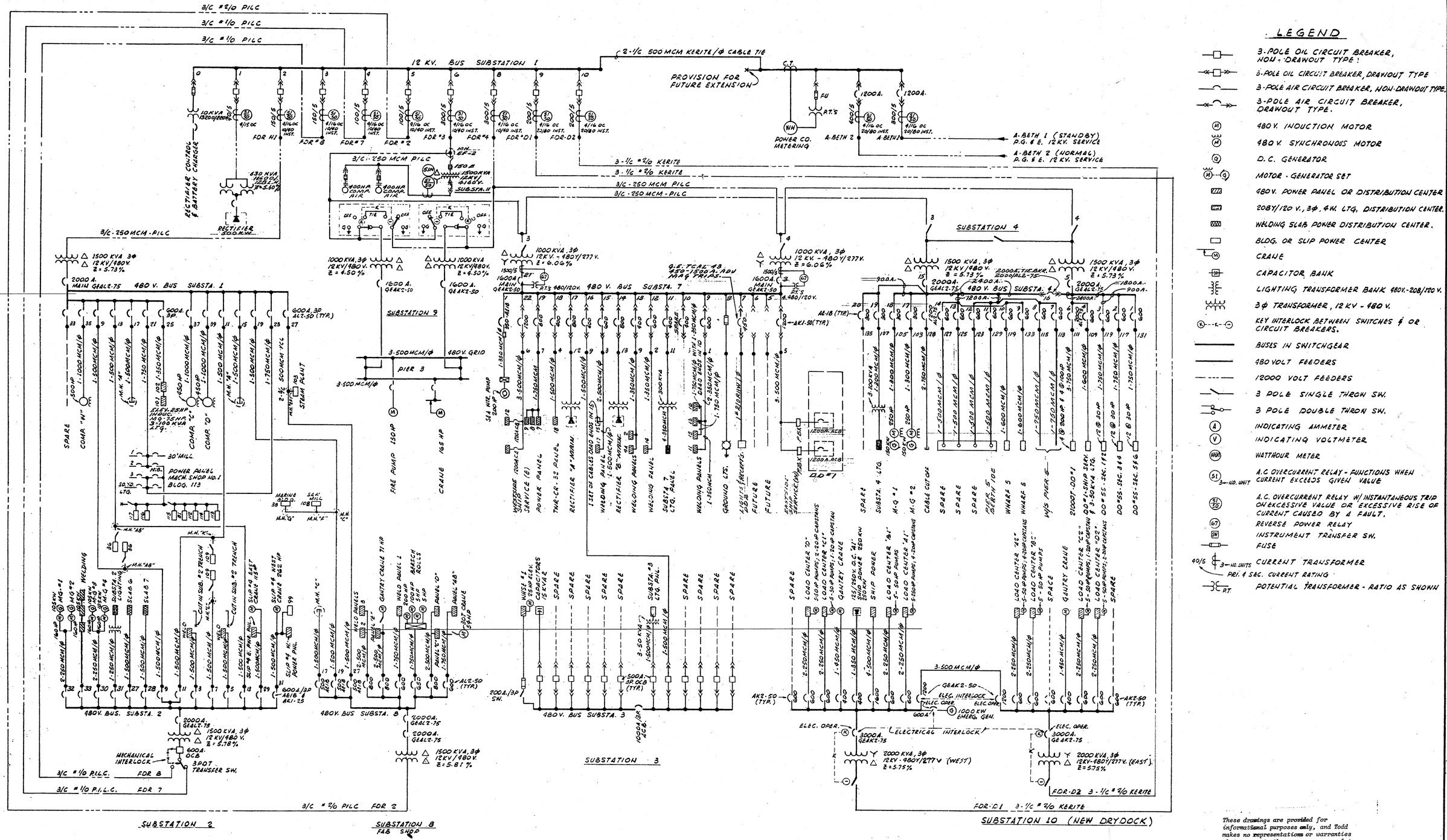
not found: may be buried

features not found

trench drains

inaccurate

not found



LEGEND

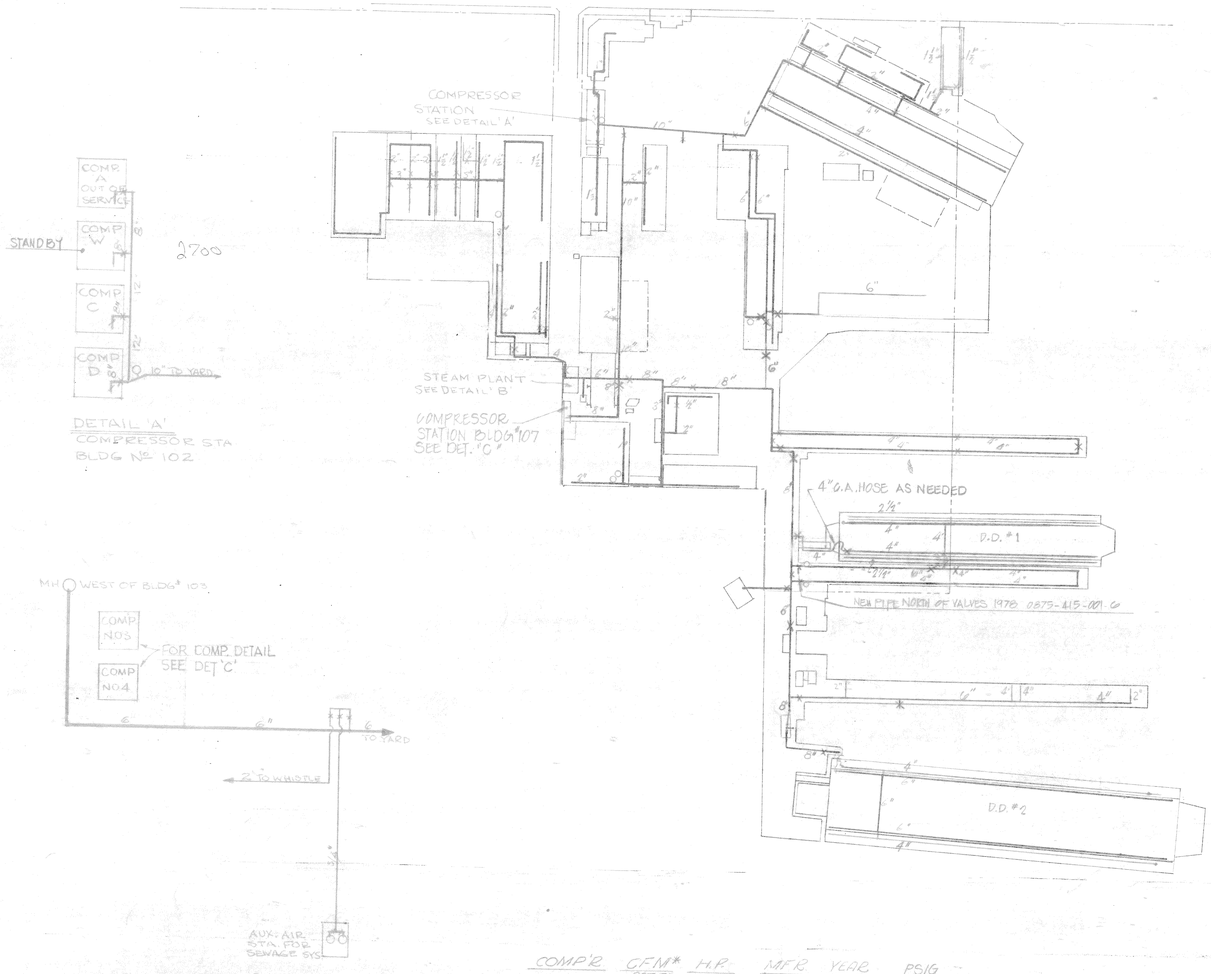
—□—	3-POLE OIL CIRCUIT BREAKER, NON-DRAWOUT TYPE.
—≪□≫—	3-POLE OIL CIRCUIT BREAKER, DRAWOUT TYPE
—⌒—	3-POLE AIR CIRCUIT BREAKER, NON-DRAWOUT TYPE.
—≪⌒≫—	3-POLE AIR CIRCUIT BREAKER, DRAWOUT TYPE.
Ⓜ	480 V. INDUCTION MOTOR
Ⓜ	480 V. SYNCHRONOUS MOTOR
Ⓖ	D.C. GENERATOR
Ⓜ-Ⓖ	MOTOR-GENERATOR SET
▨	480 V. POWER PANEL OR DISTRIBUTION CENTER
▦	208Y/120 V., 3φ, 4W. LTG. DISTRIBUTION CENTER.
▩	WELDING SLAB POWER DISTRIBUTION CENTER.
▭	BLDG. OR SLIP POWER CENTER
Ⓜ	CRANE
	CAPACITOR BANK
	LIGHTING TRANSFORMER BANK 480V.-208/120 V.
	3φ TRANSFORMER, 12 KV - 480 V.
Ⓚ---K---⊖	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
(WHM)	WATTHOUR METER
(51) 3-NO. UNIT	A.C OVERCURRENT RELAY - FUNCTIONS WHEN CURRENT EXCEEDS GIVEN VALUE
(51/50)	A.C. OVERCURRENT RELAY W/ INSTANTANEOUS TRIP ON EXCESSIVE VALUE OR EXCESSIVE RISE OF CURRENT CAUSED BY A FAULT.
(67)	REVERSE POWER RELAY
SW	INSTRUMENT TRANSFER SW.
	FUSE
40/5 3-NO. UNITS	CURRENT TRANSFORMER
PRI. & SEC. CURRENT RATING	
P.T.	POTENTIAL TRANSFORMER - RATIO AS SHOWN

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.

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

DATE: 7-30-69 SCALE: NONE DESIGNED BY: F. REIBIN DRAWN BY: C. W. CHECKED BY: F.M.R. & JON	GARRETSON·ELMENDORF·KLEIN·REIBIN ARCHITECTS • ENGINEERS 124 SPEAR STREET, SAN FRANCISCO, CALIFORNIA 94105 TELEPHONE: 415 · 434 · 3838 APPROVED BY: JOB NO. 1599	BETHLEHEM STEEL CORP. SAN FRANCISCO, CALIFORNIA SWITCHGEAR & FEEDERS - JULY 1978 12 KV & 480 V. POWER DISTRIBUTION SYSTEM	DWG. NO. E-1 REV. NO. 1

L-41



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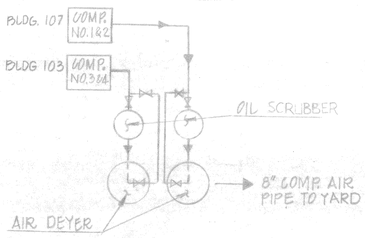


DET. 'C'
COMPRESSOR STATION 1&2
BLDG NO. 107
COMPRESSOR STATION 3&4
BLDG NO. 103

COMP'R.	CFM* RATED	H.P. MOTOR	MFR.	YEAR	PSIG
W	2700	500	C. P.	1942	80-90
1&2	1500	400	SULLAIR	1972	120
3&4	1500	400	SULLAIR	1982	120

UTILITIES — COMPRESSED AIR

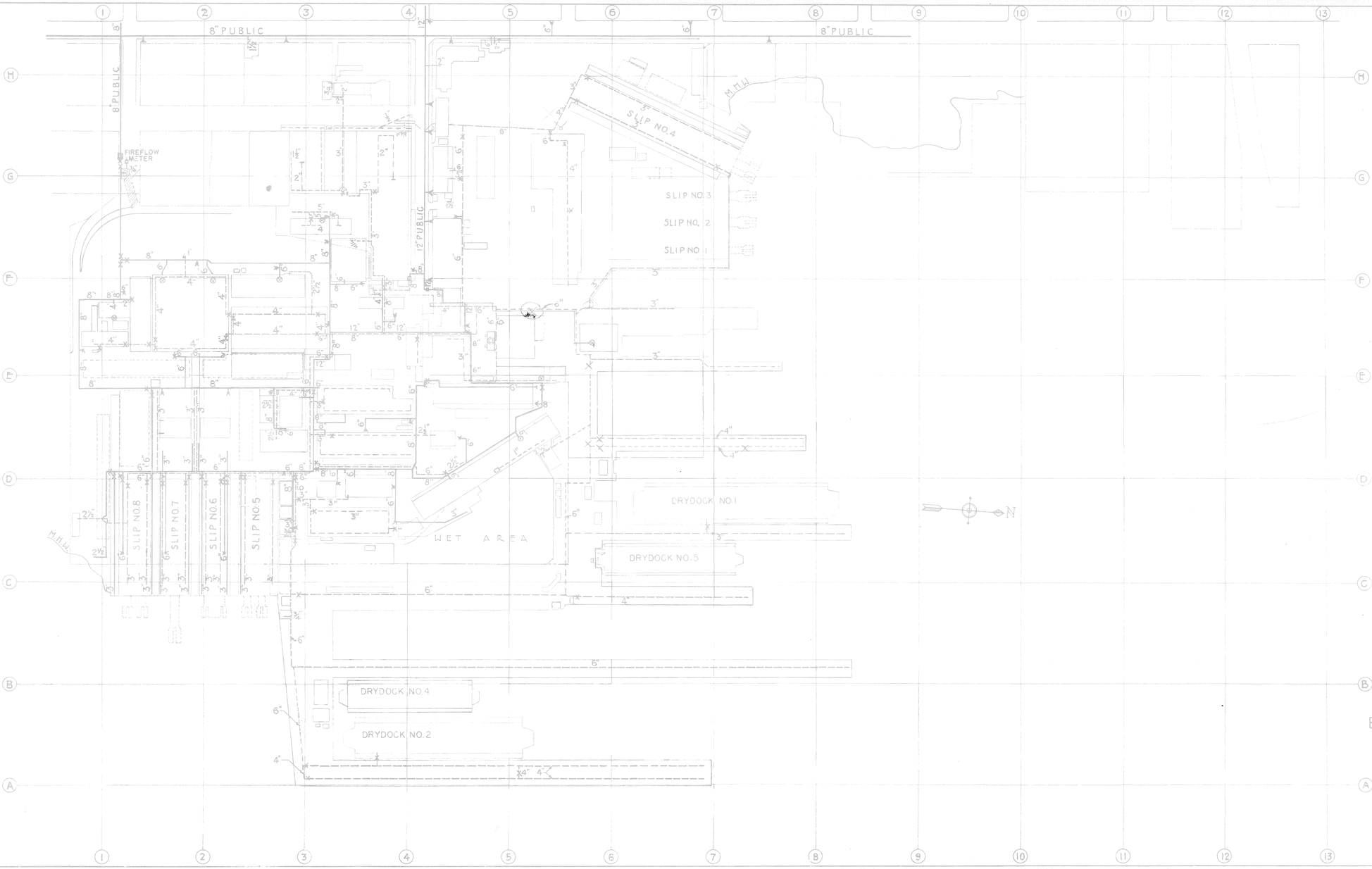
LEGEND
- COMPRESSED AIR LINE
- CHECK VALVE
- LINE VALVE
- MOISTURE SEPARATOR

BETHLEHEM STEEL SAN FRANCISCO YARD

SCALE: 1" = 160'

GRAPHIC SCALE- 0 160 320 480

REV. FEB. 1971, 11-1-77, 8-18-78, 6-1-79, 4-13-82



UTILITIES — SHEET 5

DOMESTIC WATER

LEGEND

PUBLIC DOMESTIC WATER MAINS — PUBLIC

DOMESTIC WATER FOR INDUSTRIAL USE — — — — —

" " " FIRE CONNECTIONS ———

SPRINKLER ⊗

SINGLE HYDRANT

DOUBLE "

VALVE ×

BETHLEHEM STEEL CO.

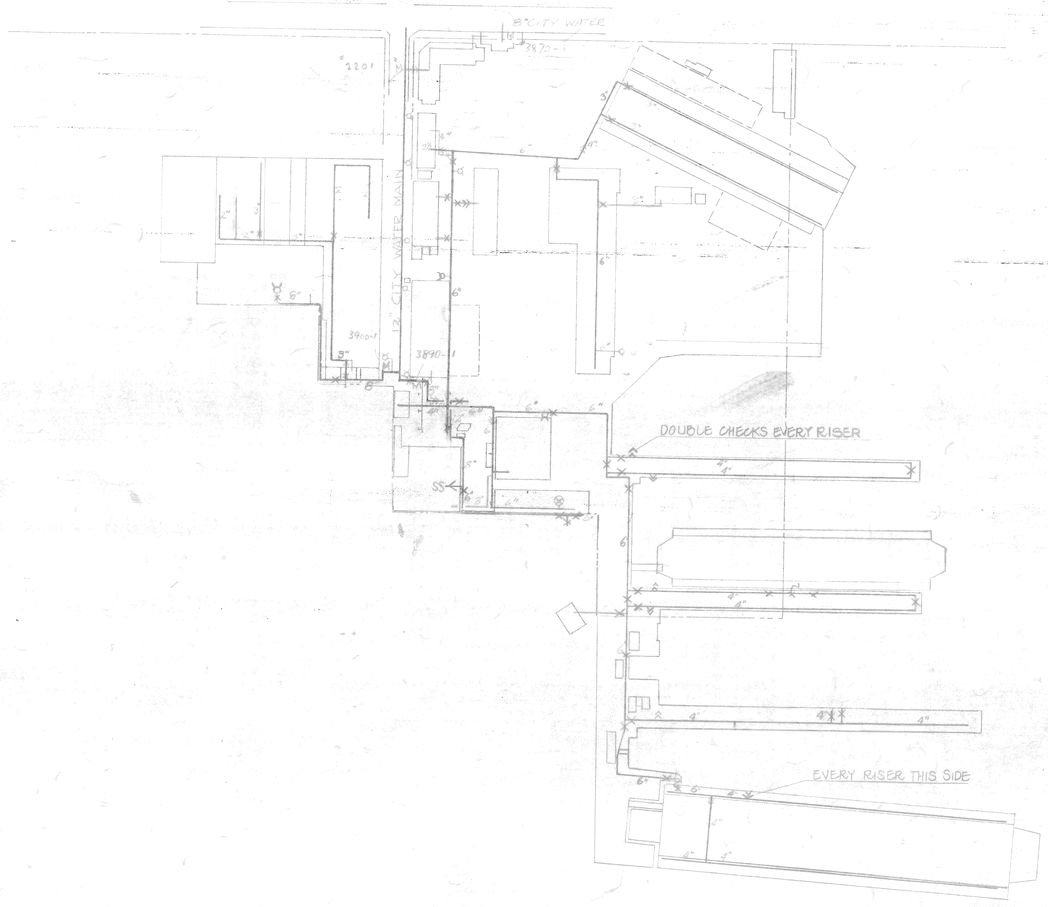
SHIPBUILDING DIVISION

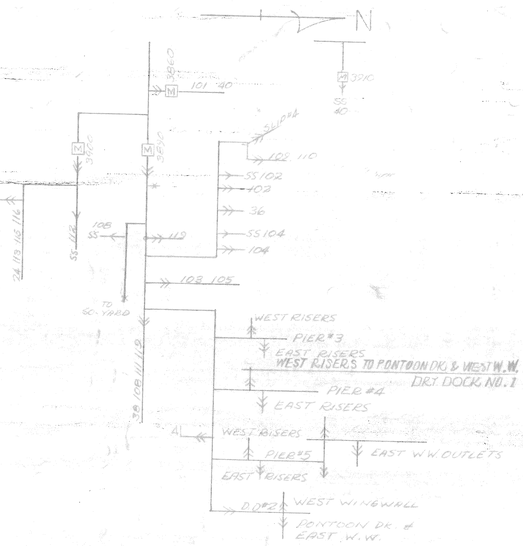
SAN FRANCISCO YARD, CALIF.

SCALE - 1" = 160'-0" JAN. 1945

GRAPHIC SCALE 0 160 320 480

REVISED 7/9/55, 12-23-58, 6-24-59





SCHEMATIC DIAGRAM

NO SCALE

UTILITIES — DOMESTIC WATER

LEGEND

- M 3900 — 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

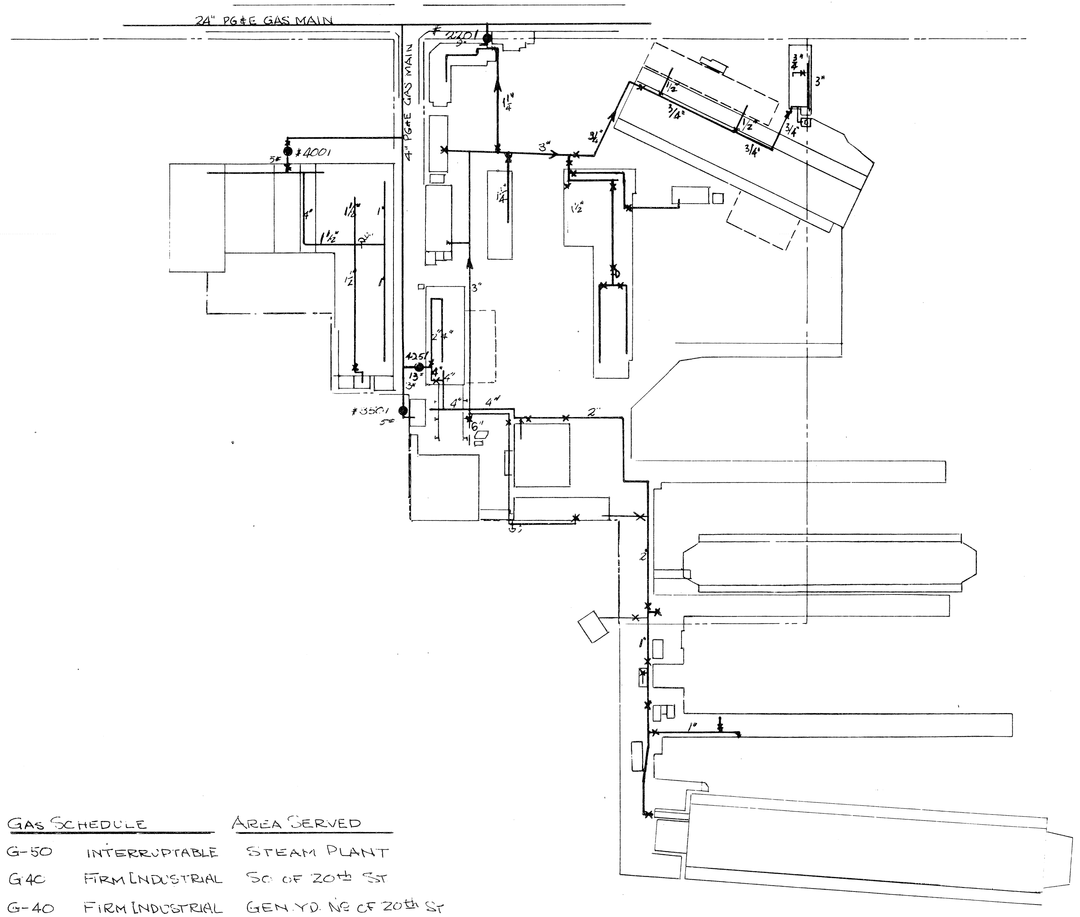
TODD SHIPYARDS CORPORATION

SAN FRANCISCO DIVISION

SCALE: 1" = 160'

GRAPHIC SCALE- 0 160 320 480

REV. JAN. 1971, NOV. 71, 11-1-77, 4-13-82, 7-11-84



ACCT. #	GAS SCHEDULE		AREA SERVED
3501	G-50	INTERRUPTABLE	STEAM PLANT
4001	G4C	FIRM INDUSTRIAL	SO. OF 20th ST
4251	G-40	FIRM INDUSTRIAL	GEN. YD. NO. OF 20th ST
2201	G-1	GENERAL	KITCHEN, BLDG 101

UTILITIES — NATURAL GAS

LEGEND

NAT. GAS LINE

LINE VALVE

GAS METER & ACCT. NO. 2201

REGULATOR & DOWNSTREAM PRESSURE

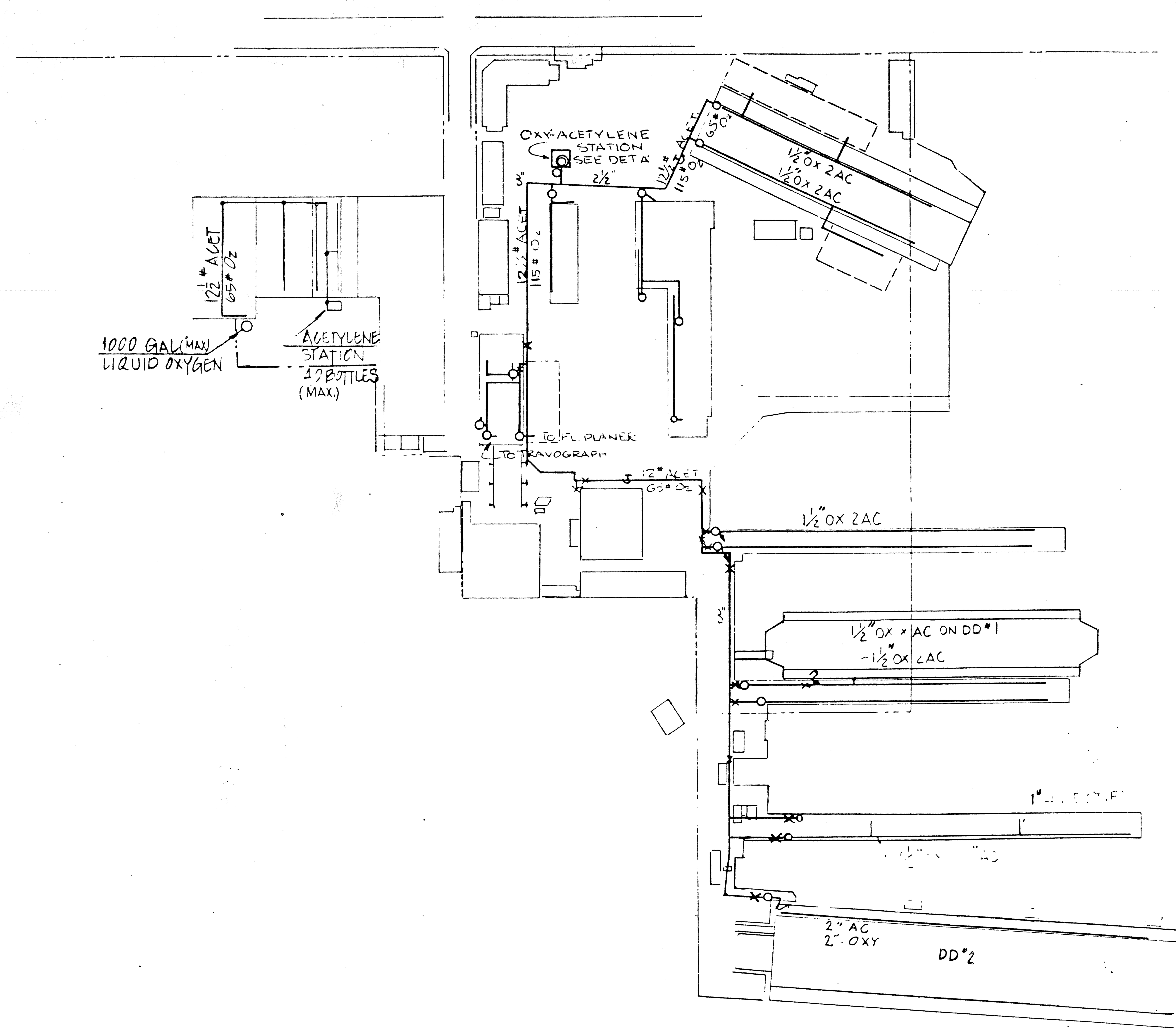
BETHLEHEM STEEL

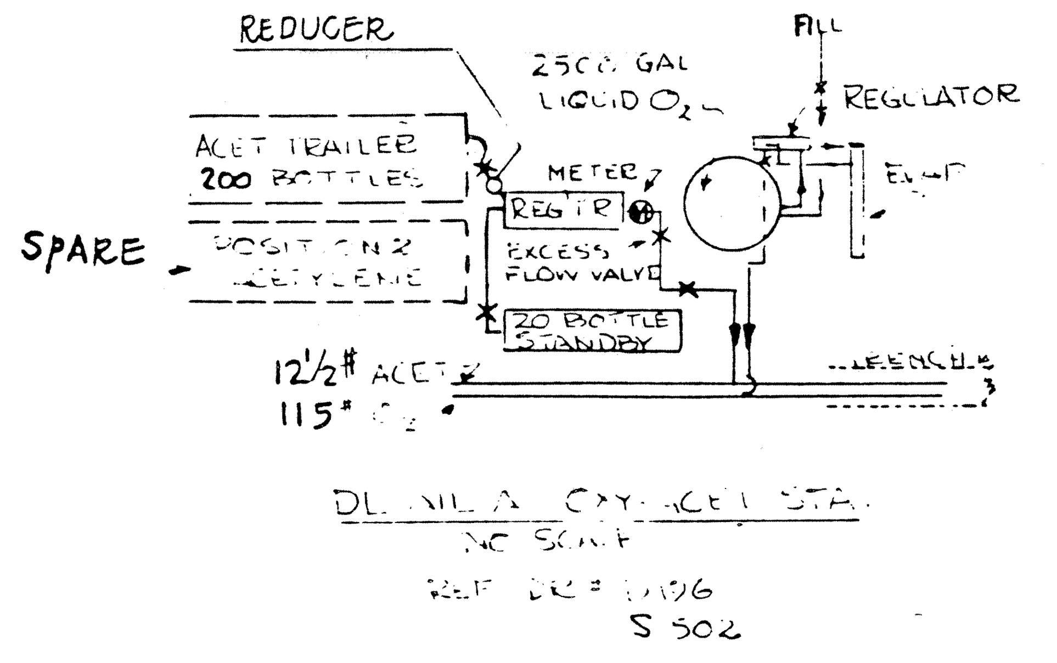
SAN FRANCISCO YARD

SCALE: 1" = 160'

GRAPHIC SCALE- 0 160 320 480

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





UTILITIES —
OXYGEN & ACETYLENE

LEGEND
- ——— OXY-ACETYLENE LINES
- —×— LINE VALVE
- o ACETYLENE FLASHBACK ARRESTER
- ⊕ OXYGEN PRESSURE REGULATOR
- ◎ OXYGEN STORAGE TANK
- FLEXABLE HOSE RISER
- ACETYLENE BURSTING DISC

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

GRAPHIC SCALE- 0 160 320 480

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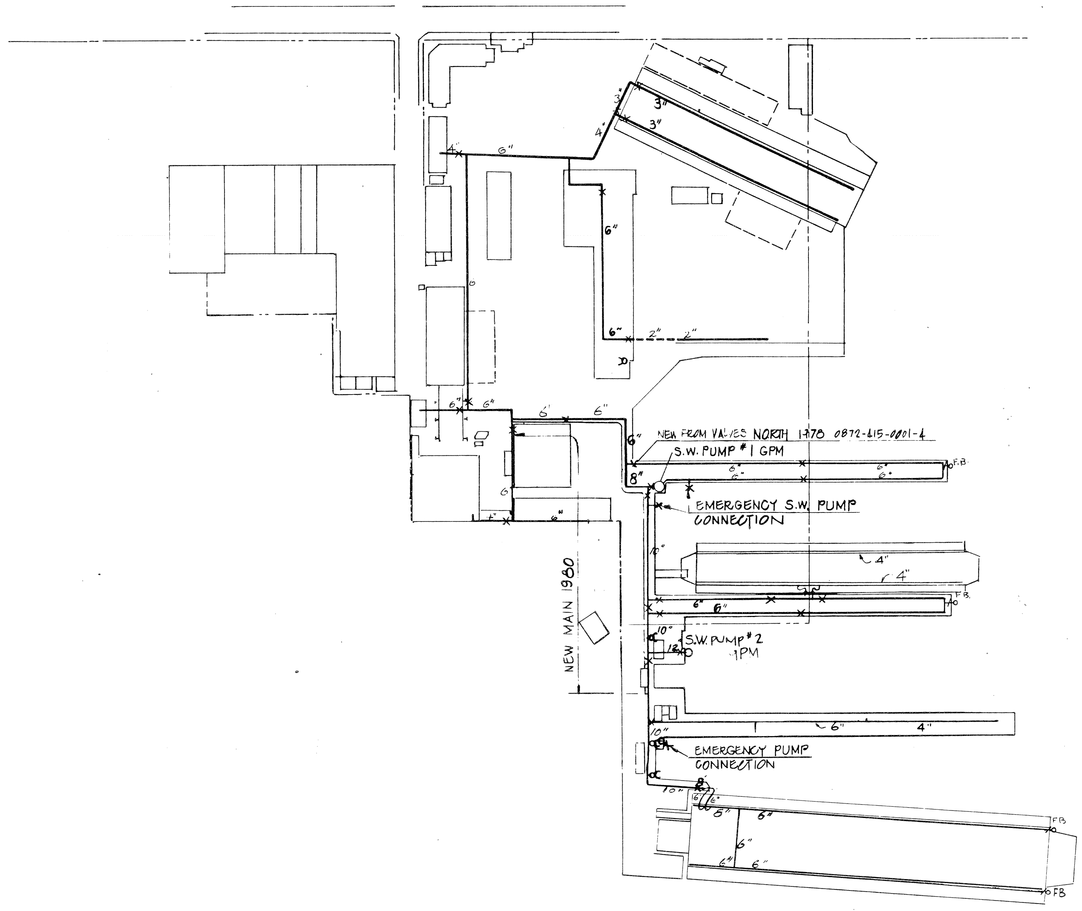
REVISED JAN '71, 11,71, 11-1-77, 6-1-79, 4-13-82



N

UTILITIES — SALT WATER

LEGEND

- SALT WATER LINE
- O SALT WATER PUMP
- FB FIRE BOAT CONNECTION
- FIRE HYDRANT
- HOSE RISER TO DRYDOCK

BETHLEHEM STEEL SAN FRANCISCO YARD

SCALE : 1" = 160'

GRAPHIC SCALE- 0 160 320 480

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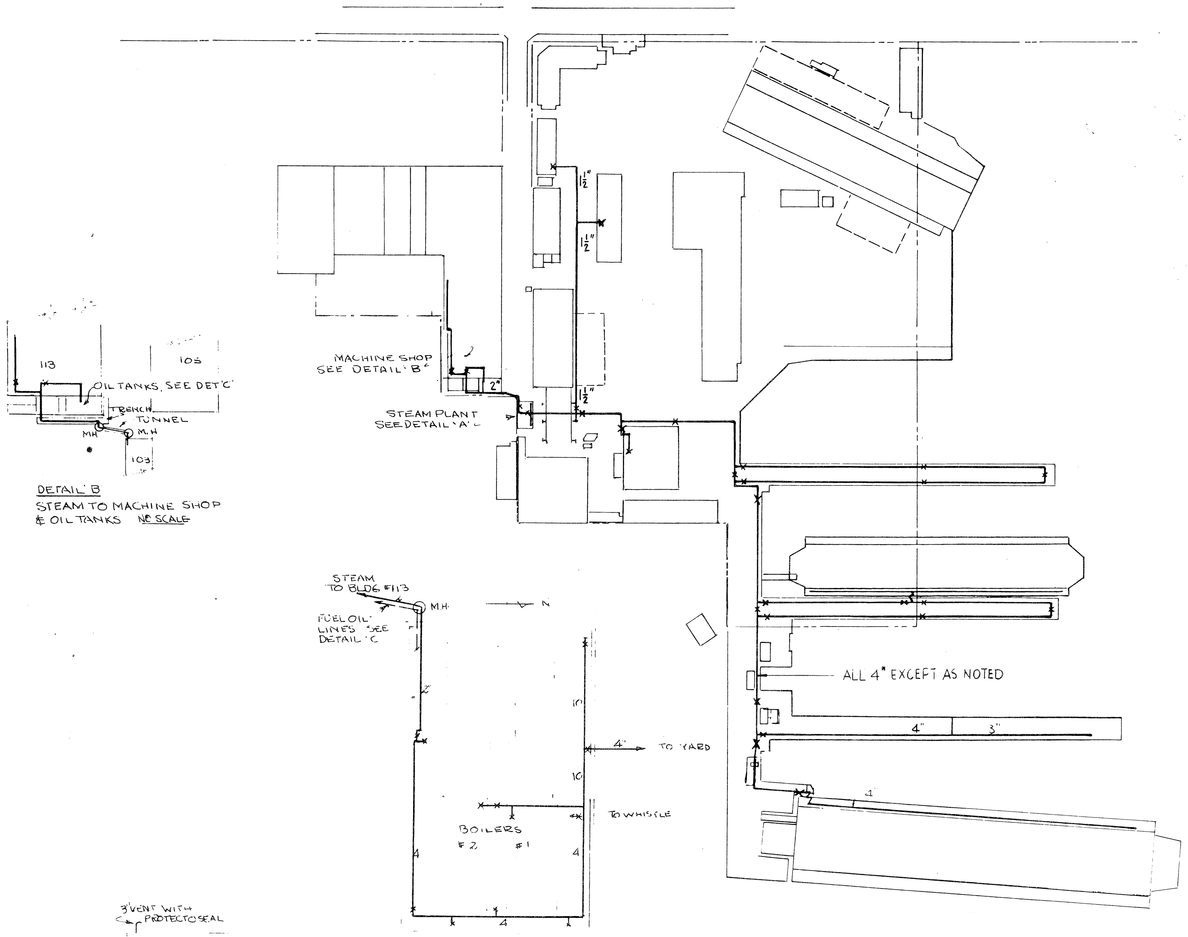
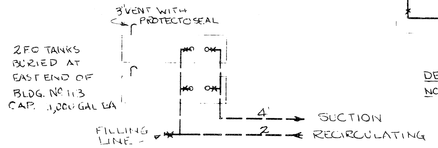


DETAIL 'B'
STEAM TO MACHINE SHOP
& OIL TANKS NO SCALE

DETAIL 'A' STEAM PLANT
NO SCALE BLDG #103



DETAIL C FUEL OIL SYSTEM
(REF DR. # D 38 & TR. # A 7113)
NO SCALE

N

UTILITIES —
STEAM & FUEL OIL

LEGEND

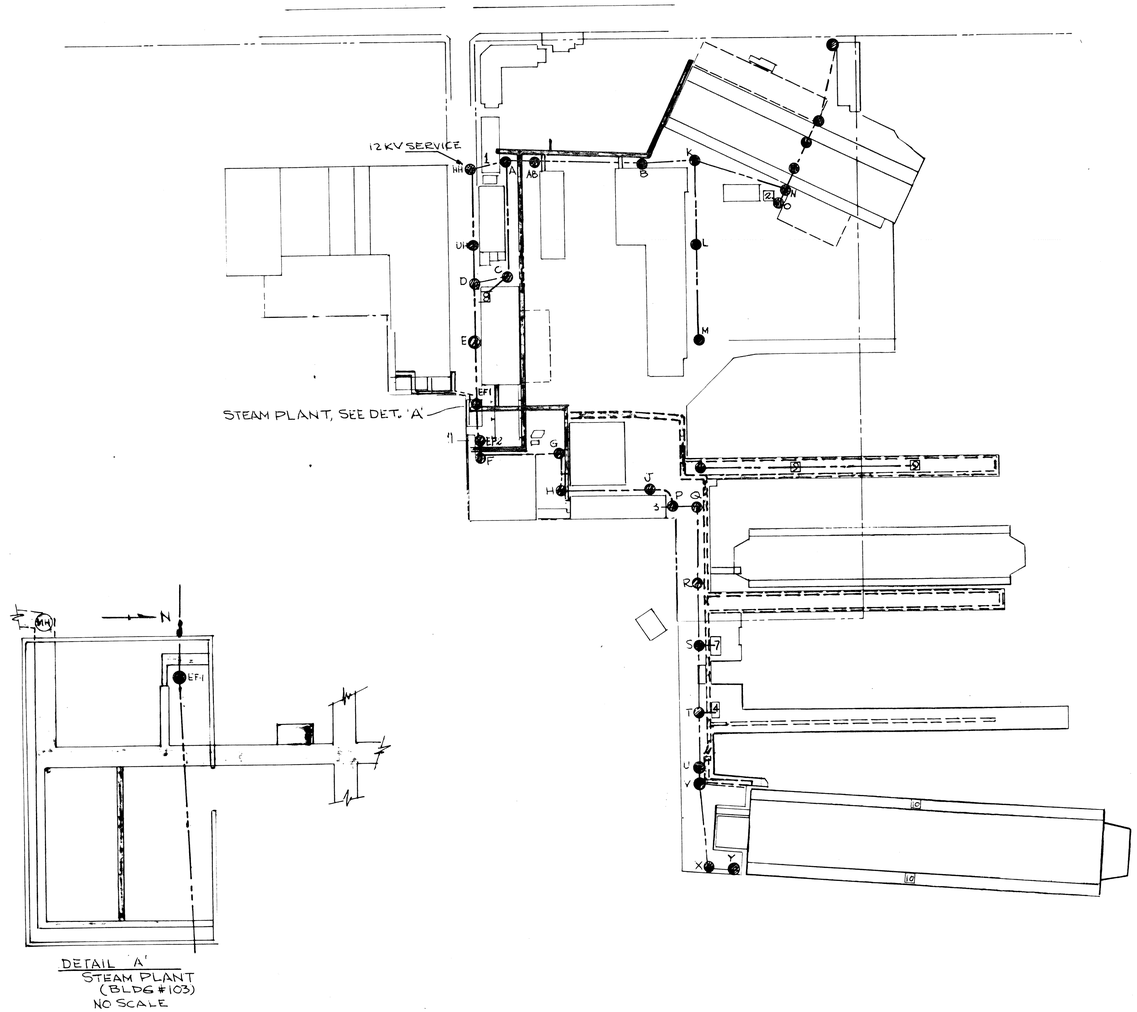
STEAM LINE
FUEL OIL LINE
LINE VALVE
STEAM RISER TO DRY DOCK

BETHLEHEM STEEL
SAN FRANCISCO YARD

SCALE : 1" = 160'

GRAPHIC SCALE- 0 160 320 480

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



N

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

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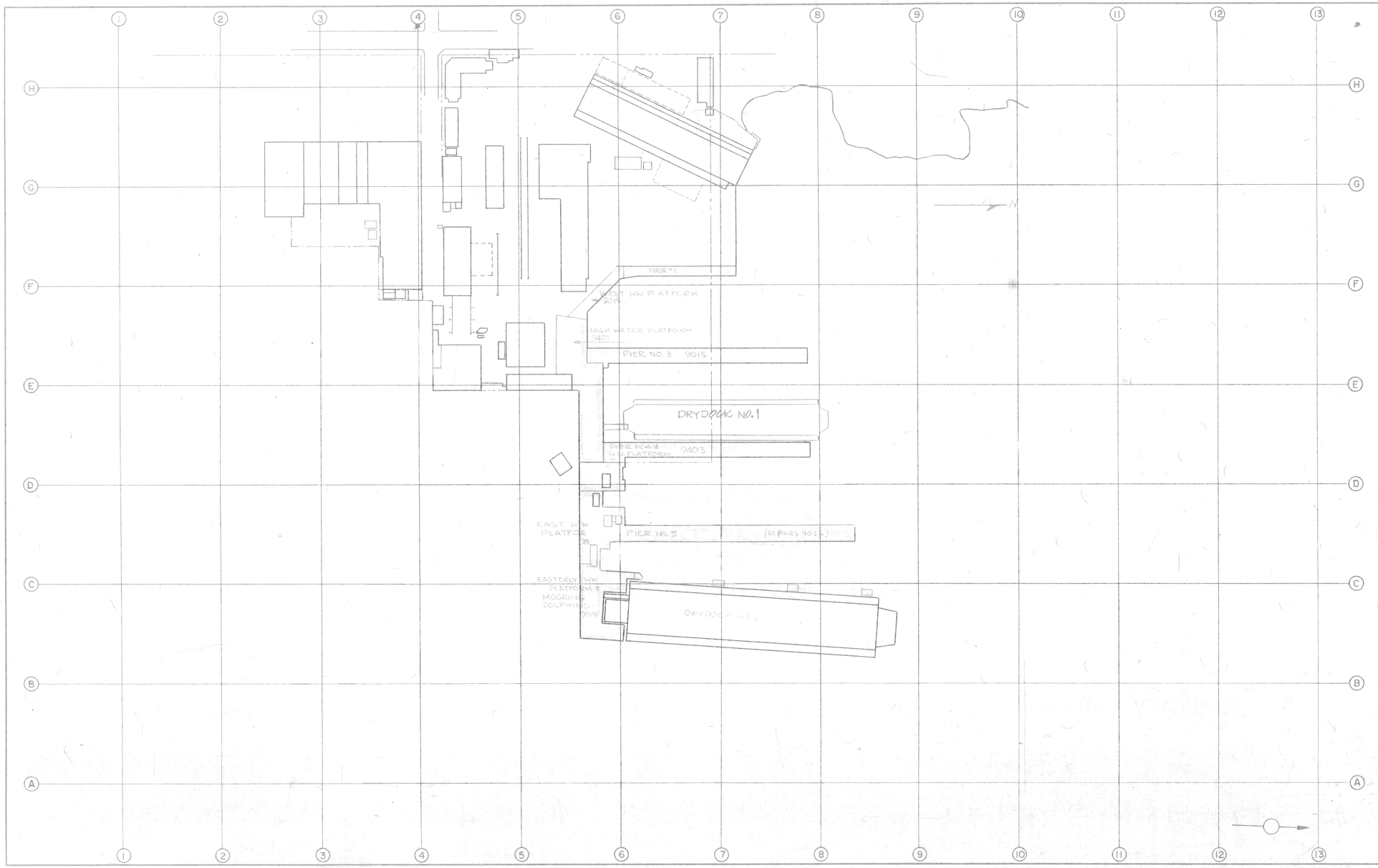
REV. MAR. 1971, 11-1-77



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- 0 160 320 480

REV. FEB 1971, 11-1-77

Port of San Francisco
Sewer & Storm Facilities

N

Legend

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

WHARF 3

PIER 1

ILLINOIS ST

MICHIGAN ST

pump station

not found

covered over nothing/wks found

not found

utility trenches

under cars

utility trench

utility trench

covered by cars

inaccurate

may be under cars

utility trench

inaccurate

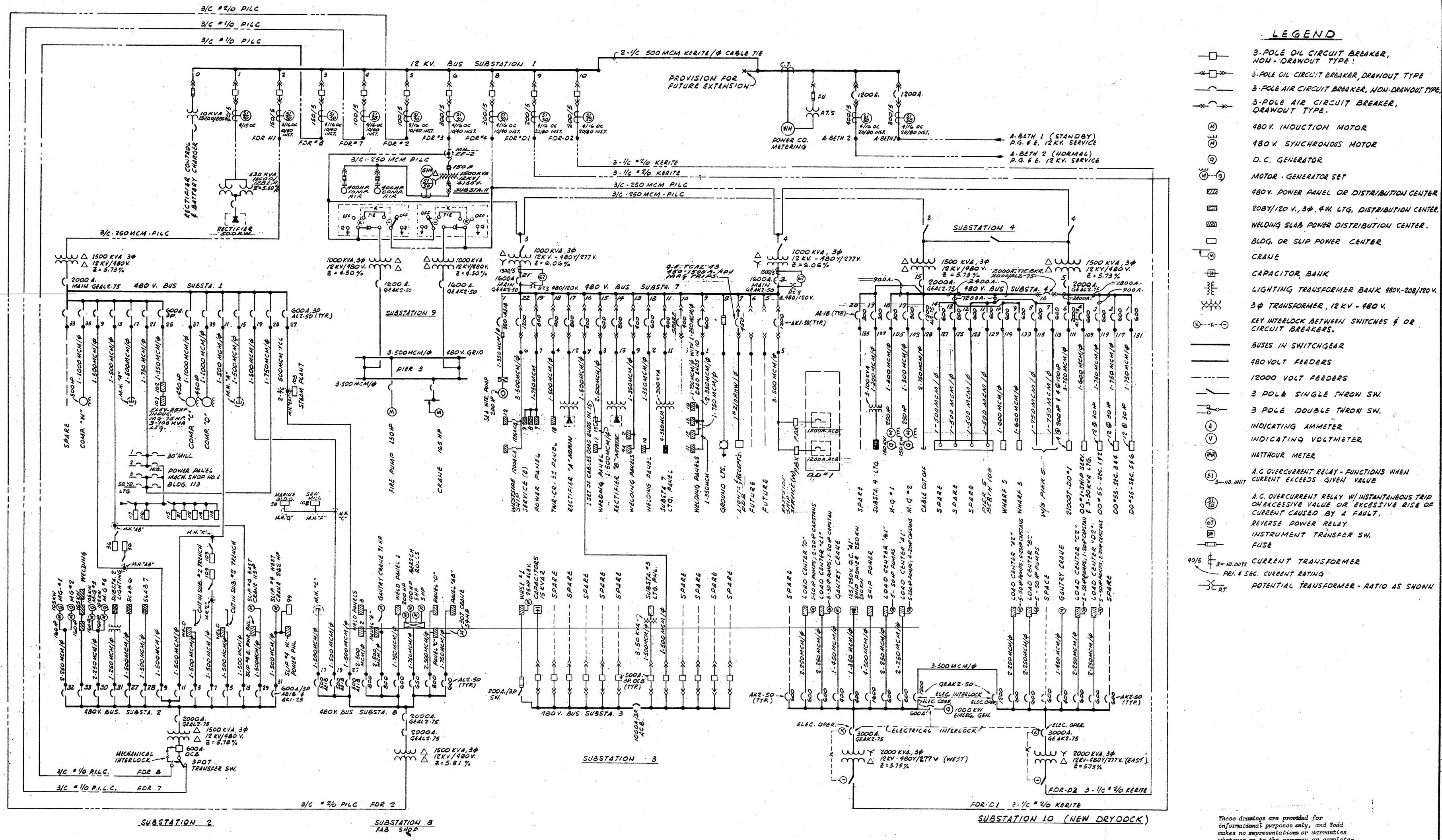
not found: may be buried

features not found

trench drains

inaccurate

not found



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.

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

DATE:	7-30-69
SCALE:	NONE
DESIGNED BY:	F. REIBIN
DRAWN BY:	C. W.
CHECKED BY:	A.M.R. & JON

GARRETSON · ELMENDORF · KLEIN · REIBIN
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APPROVED BY: | JOB NO. 1577

BETHLEHEM STEEL CORP.
SAN FRANCISCO, CALIFORNIA
SWITCHGEAR & FEEDERS - JULY 1978
12 KV & 480 V. POWER DISTRIBUTION SYSTEM

DWG. NO. E-1
REV. NO. 1