

PORT OF OAKLAND

RECEIVED

By lopprojectop at 11:55 am, May 03, 2006

May 1, 2006

Mr. Barney Chan
Hazardous Materials Specialist
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

RE: RO#000010 and RO#0000185 Further Development Plans - Future Port of Oakland Phase 3B Container Terminal Yard Portion of Maritime Support Center - 2277 and 2225 Seventh Street, Oakland, California 2006-04-28

Dear Mr. Chan:

Please find enclosed the following four Port of Oakland (Port) documents for construction of the container terminal yard improvements for a portion of the Port's proposed new Maritime Support Center (MSC), herein collectively referred to as "Plans and Specifications":

Specifications for Construction of Phase 3B, Container Terminal Yard Improvements, Maritime Support Center, Oakland, California, April 2006.

Maritime Support Center Construction of Phase 3B, Container Terminal Yard Improvements, Oakland, California, prepared by HPA, Inc. and YEI Engineers, Inc., March 24, 2006 (Plan Set).

Project Manual for Paving a 21-Acre Container Yard within the Maritime Support Center Area, Oakland, California, April 2006.

Paving a 21-Acre Container Yard within the Maritime Support Center Area, Oakland, California, prepared by HPA, Inc. and YEI Engineers, Inc., April 18, 2006 (Plan Set).

These Plans and Specifications encompass the balance of the area that we have historically referred to as 2225 and 2277 7th Street (collectively, the Site) in Oakland. As you know, the Port has already developed the eastern portion of the Site (approximately 8 acres) as the Harbor Facilities Complex (HFC) building and its associated parking area¹. The remaining western half of the Site (approximately 5 acres), is within the Phase 3B Container Terminal Yard portion of the proposed MSC development, although the overall Phase 3B Container Terminal improvement area covers 21 acres (refer to attached Figure 1, entitled *Site Plan*).

In accordance with Alameda County Health Care Services Agency (County) requirements, we are notifying you of this planned container terminal development work. Further, per County requirements, we will adhere to the same human health risk assessment precautions and mitigation measures as those used for the construction of the HFC. In July 2003, the Port submitted to the County the *Final Human Health Risk Assessment and Abbreviated Phase II Environmental Site Assessment Report, Future Port of*

¹ The Harbor Facilities Complex (HFC) was originally referred to as the Port Field Support Services Complex (PFSSC). Because this PFSSC designation was too lengthy, it was dropped in favor of the current HFC title.

May 1, 2006

Oakland Field Support Services Complex, 2225 and 2277 7th Street, Oakland, California (HHRA) prepared by Iris Environmental and dated July 2003. Both the County and San Francisco Regional Water Quality Control Board (RWQCB) approved this HHRA report². As documented in the County's June 13, 2003, letter to the Port, the Port's reconstruction of the HFC was subject to implementing the following two specific mitigation measures: 1) incorporation of a sub grade venting system beneath the building; and 2) covering all exposed soils with an asphalt cover. As you may recall, the HHRA was very conservative. The cancer risk to an on-site construction worker and future on-site commercial worker was determined to be below 1×10^{-6} .

The small 5-acre portion of the Phase 3B Container Terminal Yard development area that encompasses the Site will be paved with asphaltic concrete. The surface grade will be raised to match the surrounding area. No buildings are currently planned for the Site. In addition, all monitoring wells, product recovery wells, and remedial system structures will be protected and maintained during the Yard development process. Finally, conservative protection will be afforded to both on-site construction workers and future on-site commercial workers during and after construction, as determined by the HHRA.

After you review the enclosed Plans and Specifications, we would be pleased to discuss the proposed new Container Terminal Yard development and/or provide further information. We would appreciate your review and approval by mid May because earthmoving activities are planned to start at that time.

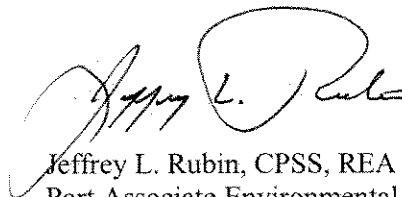
I declare, under penalty of perjury, that the information and/or recommendations contained in the attached documents are true and correct to the best of my knowledge. Please note that the plans are stamped by a Registered Professional Engineer in the State of California.

If you have any questions, please call Jeff Rubin at (510) 627-1134.

Sincerely,



Roberta L. Reinstein
Manager
Environment and Safety



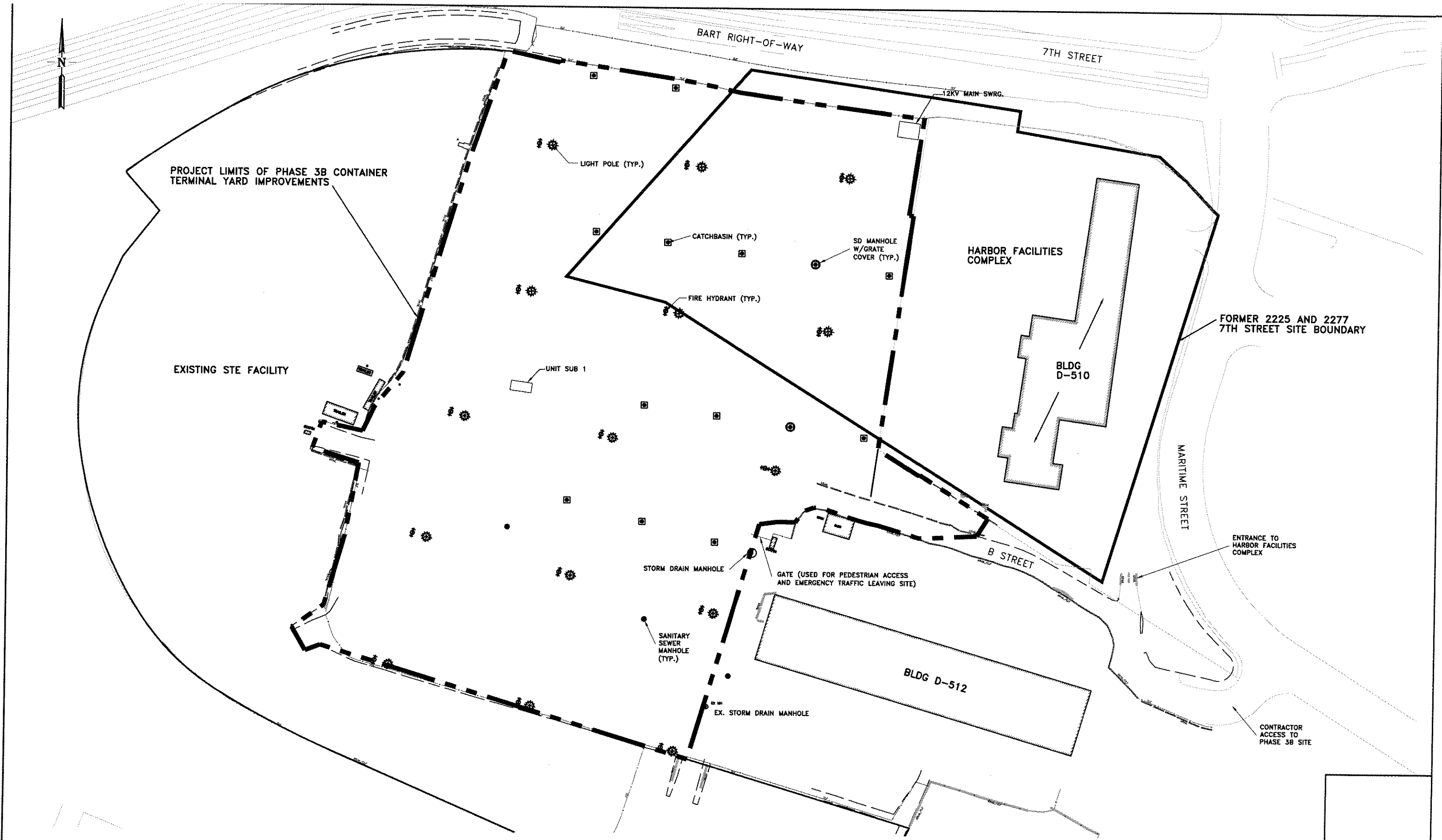
Jeffrey L. Rubin, CPSS, REA
Port Associate Environmental Scientist
Environment and Safety

Enclosures: Figure 1 - *Site Plan* (shows 2225 and 2277 – 7th Street “Site” boundaries relative to the HFC and Phase 3B Container Terminal Yard development area)

“Plans and Specifications” – itemized in text

Cc: Yane Nordhav, Baseline Environmental
Jim McCarty, Baseline Environmental
Glenn Leong, Treadwell & Rollo, Inc.
Jeff Ludlow, Treadwell & Rollo, Inc.
Kathryn Purcell, SAIC
Michele Heffes, Port Legal Department
Barry MacDonnell, Port Engineering
Jeff Jones, Port Environment and Safety Department

² Letter from Mr. Barney Chan (Alameda County Health Care Services Agency) to Mr. Jeff Rubin (Port of Oakland) dated June 13, 2003.



W.O.# 104879

CAUTION: THIS PLAN MAY BE REDUCED ORIGINAL SCALE

REFERENCES:
 PLANS
 FIELD BOOKS
 "PORT OF OAKLAND DATUM"
 IS 3.20' BELOW N.G.V.D. '29
 CAUTION:
 CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

DRAWN BAM
 DESIGNED
 CHECKED
REG. ENGINEER NO.

PORT OF OAKLAND

 530 WATER ST. OAKLAND, CALIFORNIA

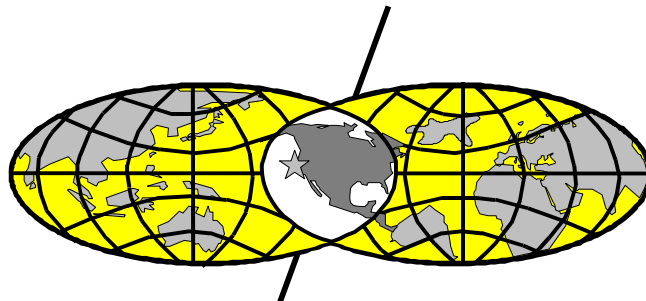
MARITIME SUPPORT CENTER
 LOCATION OF FORMER 2225 AND 2277
 7TH STREET SITE
SITE PLAN

DATE: 04-14-06
 SCALE: 1" = 80'
 SHEET: 1 OF 1 SHEETS
 FIGURE 1

SPECIFICATIONS FOR

CONSTRUCTION OF PHASE 3B CONTAINER TERMINAL YARD IMPROVEMENTS MARITIME SUPPORT CENTER OAKLAND, CALIFORNIA

April, 2006



PORT OF OAKLAND

THE BOARD OF PORT COMMISSIONERS

ROOM 748

530 WATER STREET
OAKLAND, CA 94607

DOCUMENT 00010

**CONSTRUCTION OF PHASE 3B
CONTAINER TERMINAL YARD IMPROVEMENTS,
MARITIME SUPPORT CENTER,
OAKLAND, CALIFORNIA**

NOTE: Sections shown below are new or supersede same numbered sections in the Project Manual. Original sections in the Project Manual not addressed below shall remain in force.

TABLE OF CONTENTS

INTRODUCTORY INFORMATION

00001	Title Page
00010	Table of Contents
00015	List of Plans

BIDDING REQUIREMENTS

00100	Invitation to Bid
00202	Bid Submission Instructions
00320	Geotechnical Data and Existing Conditions
00340	Hazardous Material Surveys dated April 19, 2005
00400	Bid Form
00430	Port of Oakland Subcontractor and Supplier List Form
00455	Construction and Demolition Debris Waste Reduction and Recycling Requirements
00481	Noncollusion Affidavit

CONTRACT FORMS

00800	Supplementary Conditions – Modifications to Standard Contract Provisions
00830	Project Insurance Manual
00831	Construction Safety Standards Manual
00910	Addenda

See Project Manual for Contract under which this work is being performed, for all “Contract Forms” documents.

CONDITIONS OF THE CONTRACT

See Project Manual for Contract under which this work is being performed, for all “Conditions of the Contract” Documents not shown herein above.

SPECIFICATION

DIVISION 1 - GENERAL REQUIREMENTS

01100	Summary of Work
01120	Order of Work
01200	Measurement and Payment
01331	List of Submittals
01340	Safety and Environmental Submittals
01343	Safety Program and Safety Representative Requirements
01556	Traffic Control System
01563	Dust and Air Pollution Control
01730	Special Requirements for the Port's Railroad System Rail and Crane Rail Track Work

See Project Manual for Contract under which this work is being performed, for all Division 1 Sections not shown above.

DIVISION 2 – SITE WORK

02100	Handling, Transportation and Disposal of Hazardous and Contaminated Materials
02111	Handling of Potentially Contaminated Material
02220	Removal of Existing Pavements, Utilities, Pipes, and Structures
02240	Dewatering
02260	Excavation Support and Protection
02315	Excavation, Fill, and Subgrade Preparation
02324	Trenching and Backfilling for Utilities
02370	Erosion and Sedimentation Control
02510	Firewater Distribution System
02530	Storm Drain Systems
02580	Electrical and Communications Structures
02740	Asphalt Concrete Pavement

DIVISIONS 3 - CONCRETE

03300	Cast-in-Place Concrete
03400	Precast Concrete

DIVISION 4: OMITTED

DIVISION 5 – METALS

05050	Metal Materials and Methods
-------	-----------------------------

DIVISIONS 6 THROUGH 8: OMITTED

DIVISION 9 – FINISHES

09900	Painting of Metal Structures
-------	------------------------------

DIVISIONS 10 THROUGH 15: OMITTED

DIVISION 16 – ELECTRICAL

16010	Electrical General Requirements
16030	Electrical Acceptance Testing
16120	Conductors and Cables
16273	Installation of 15KV Metal-Enclosed Switchgear and Unit Substation
16275	Padmounted Vacuum Switchgear
16302	Underground Electrical Work
16315	Outdoor Unit Substation
16325	Medium-Voltage Metal-Enclosed Switchgear
16510	Highmast Lighting System

ATTACHMENT 1 Port Negotiated Bid from Columbia Electric, Inc. for Electrical System Construction at the Maritime Support Center

END OF DOCUMENT

DOCUMENT 00015

LIST OF PLANS

The Plans included with these Specifications and made a part of the Contract Documents are supplied with these Specifications and designated as CONSTRUCTION OF PHASE 3B CONTAINER TERMINAL YARD IMPROVEMENTS, MARITIME SUPPORT CENTER, OAKLAND, CALIFORNIA, Plan File AA-3956. See Index to Plans within the Plans for a further description of the Plans.

END OF DOCUMENT

DOCUMENT 00100

INVITATION TO BID

Your firm is invited to submit a bid for:

**CONSTRUCTION OF PHASE 3B
CONTAINER TERMINAL YARD IMPROVEMENTS,
MARITIME SUPPORT CENTER,
OAKLAND, CALIFORNIA**

The work for this one hundred thirty-six (136) calendar day project/instance of work consists generally of furnishing all labor, materials, appliances, tools, equipment, transportation, services, and supervision required for the construction of container yard improvements for a portion of a 21-acre site within the Maritime Support Center area. The work includes, but is not limited to: demolishing existing pavements, building foundations and slabs, fencing; abandoning existing storm drain system; removal of underground storage tanks; fill placement, and site grading; furnishing and installing new storm drain system, new sewer line, light pole foundations, electrical substation foundations and new fire water system.

The work also includes entering into a subcontract with Columbia Electric, Inc., the Port's designated Phase 3B Electrical Contractor, for performance of the Phase 3B electrical work including, but not limited to, installation of Port furnished high mast light poles, and electrical equipment, construction of electrical telecommunications systems as defined in Section 01100, Summary of Work, and Attachment 1 and as shown on the Plans and specified herein. Upon entering into its subcontract with Columbia Electric, Inc., Contractor will be solely responsible for the work of Columbia Electric, Inc. in the same manner as any other of Contractor's subcontractors.

The Contractor will also be responsible for administering all aspects of the electrical commissioning, equipment installation, and warranty work.

The Engineer's Estimate for this project is \$5,600,000, including electrical work.

The Port will accept sealed bids at the Engineering Services Counter, located at 2nd Floor, 530 Water Street, Oakland, California, until 3:00 p.m. on Tuesday, May 2, 2006.

Refer to Document 00202, Bid Submission Instructions, for additional information.

The Port will conduct a pre-bid meeting at the following time and place:

Time: 10:00 a.m.
Date: Monday, April 17, 2006
Place: Exhibit Room
First Floor, Port of Oakland Building
530 Water Street
Oakland, California

The pre-Bid meeting will last approximately one-half hour, and will address insurance requirements and any other special working conditions for this contract.

The Site is open for inspection. Contact Barry MacDonnell at (510) 627-1383 or by E-mail at

bmacdonn@portoakland.com for details for access.

Work for this project shall be covered under the Port's Owner Controlled Insurance Program (OCIP) which provides General and Excess Liability, Workers' Compensation, Contractor's Pollution Liability and Builders' Risk insurance coverages. The Contractor and its subcontractors will be required to provide Business Automobile Liability coverage for its respective vehicles and equipment and other insurance coverages for off-site project activities.

The Port of Oakland Maritime and Aviation Project Labor Agreement (MAPLA) applies to this Project.

The work of this project is subject to the Port of Oakland Construction and Demolition Debris Waste Reduction and Recycling Requirements, included in these Specifications as Attachment 1 to Document 00455. The City of Oakland Construction and Demolition Debris Waste Reduction and Recycling Plan Form shall be submitted with the bid.

The Engineering Services Counter business hours are from 8:00 a.m. to Noon and 1:00 p.m. to 4:00 p.m., Monday through Friday, holidays excepted.

For information respecting the Bidding Documents, Bidders should contact Barry MacDonnell at (510) 627-1383 or by E-mail at bmacdonn@portoakland.com.

The Port specifically reserves the right, in its sole discretion, to reject any or all Bids, to re-bid, or to waive inconsequential defects in bidding not involving time, price or quality of the Work.

Bidders are solely responsible for the cost of preparing their Bids.

END OF DOCUMENT

DOCUMENT 00202

BID SUBMISSION INSTRUCTIONS

Each Bidder shall submit its Bid in an opaque sealed 10" x 13" envelope containing forms listed herein. The sealed envelope shall be hand delivered to the Chief Engineer of the Port at the Engineering Services Counter, Second Floor, 530 Water Street, Oakland, California. The Bids will be time and date stamped upon receipt. All Bids should be marked as follows:

Chief Engineer
Port of Oakland
530 Water Street
Oakland, California 94607

BID FOR

CONSTRUCTION OF PHASE 3B
CONTAINER TERMINAL YARD IMPROVEMENTS,
MARITIME SUPPORT CENTER,
OAKLAND, CALIFORNIA

The following items must be submitted with the Bid no later than the date and time stated in Document 00100:

- 1) Document 00400, Bid Form
- 2) Document 00430, Port of Oakland Subcontractor and Supplier List Form. If Bidder intends to Employ subcontractors, Bidder must furnish the information required on these forms.
- 3) Completed Document 00455, Attachment 2, City of Oakland Construction and Demolition Debris Waste Reduction and Recycling Plan ("WRRP") form.
- 4) Document 00481, Non-Collusion Affidavit: subscribed and sworn before a notary public.

Bids shall be deemed to include any written responses of a Bidder to any questions or requests for information of the Port made as part of the Bid evaluation process after submission of the Bid.

For Determination of Successful Bidder, refer to Document 00400, Bid Form, Paragraph 3 and BID EVALUATION below.

Port personnel will open the Bids in private.

POST-NOTICE OF AWARD REQUIREMENTS. The apparent successful bidder must execute and submit the following documents after Bids have been opened and duly inspected. The apparent successful bidder's failure to submit these documents properly and timely entitles the Port to reject the Bid as non-responsive.

- a. Submit the following documents to the Port by 5:00 p.m. of the twentieth (20th) day following receipt of the Notice of Award. Execution of contract depends upon approval of these documents:
 - 1) Insurance forms, documents and certificates required by Document 00700, General Conditions, Paragraph 4.2, including, without means of limitation Aon Form-1, Aon Form-2 and Aon Form-3 and ACORD Certificate of Liability Form (as described therein). Port reserves the right to make changes and modifications to the Project Insurance Manual (See Document 00700, General Conditions, Paragraph 4.2 and Document 00830), including the forms to be filed thereunder, as Port may deem necessary from time to time after the bid date, provided that any such modification or change shall not result in an increase in Contractor's cost of providing insurance equivalent to the insurance earlier specified or lessen materially the coverage. In the event there is any modification or change to the Project Insurance Manual after the bid date, then at the election of Port, upon the latter of the Notice of Award of the Contract, the Port will provide the Project Insurance Manual to the successful bidder, which document shall be a Contract Document. In such case, all other copies of the Project Insurance Manual received by Bidder prior to the Contract Award are superseded.
 - 2) Insurance Certificates and Endorsements required by Document 00700, General Conditions, Paragraphs 4.3 and 4.4.

BID EVALUATION. The Port may reject any and all bids and waive any informalities or minor irregularities in the Bids. The Port also reserves the right, in its discretion, to reject any or all Bids and to re-bid the Project. The Port reserves the right to reject any or all nonconforming, non-responsive, unbalanced or conditional Bids, re-bid, and to reject the Bid of any Bidder if the Port believes that it would not be in the best interest of Project to make an award to that Bidder, whether because the Bid is not responsive or the Bidder is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria established by the Port.

- a. In evaluating Bids, the Port will consider the qualifications of Bidders, whether or not the Bids comply with the prescribed requirements, and such unit prices and other data, as may be requested in the Bid Form or prior to the Notice of Award.
- b. The Port may conduct such investigations as the Port deems necessary to assist in the evaluation of any bid and to establish the responsibility, qualifications and financial ability of Bidders, proposed subcontractors, suppliers and other persons and organizations to perform and furnish the Work in accordance with the Contract Documents. The Port shall have the right to communicate directly with Bidder's Surety regarding Bidder's bonds.
- c. Discrepancies between the multiplication of units of Work and the unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of numerals and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between written words and figures, or words and numerals, will be resolved in favor of the words.
- d. In addition to the price, in determining the successful Bidder, consideration shall be given to:

- (i) The ability, capacity and skill of Bidder and its subcontractors to perform the Work required by the Contract Documents within the times specified, without delay;
 - (ii) The character, integrity, reputation, judgment, experience and efficiency of Bidder and its subcontractors;
 - (iii) The quality of Bidder's and its subcontractors performance on previous contracts with the Port of Oakland or City;
 - (iv) The ability of Bidder and its subcontractors to provide future maintenance, repair parts and services for the use of the supplies purchased;
 - (v) Bidder's satisfaction of Port's Non-Discrimination and Small/Local Business Utilization Policy, the responsiveness of information furnished under other applicable requirements.
- e. Bids that are within 10% (ten percent) or \$1,000,000.00 (one million dollars), whichever is less, of the successful bidder's Bid Price, will be reduced by an equivalent percentage for purposes of evaluation to determine the successful bidder's "Modified Bid Amount" in accordance with the applicable paragraphs of Part IV, Section A, of the Non-Discrimination and Small/Local Business Utilization Policy. The Modified Bid Amount is equal to the Bid Price shown on the Bid Form, less the product of "equivalent percentage," and said Bid Price. The "equivalent percentage" calculation is based upon the validated preference points, (i.e., 5 points = 5%).

EXAMPLE:

MBA = Modified Bid Amount

BP = Bid Price (say \$20,000,000)

EP = Equivalent Percentage (e.g., say 5 points = 5% = 5/100)

MBA = BP – EP(BP)

= \$20,000,000 - (5/100) (\$20,000,000)

= \$20,000,000 - \$1,000,000

= \$19,000,000

An additional example is shown below:

<u>Bidder</u>	<u>Bid</u>	<u>Points</u>	<u>Bid Adjustment</u>	<u>Modified Bid Amount¹</u>
A	\$20,000,000	5	\$1,000,000	\$19,000,000
B	\$20,400,000	6	\$1,224,000	\$19,176,000
C	\$21,625,000	8	N.A. ²	

¹ Modified Bid Amount used for bid comparison purposes.

² Bid is more than \$1,000,000 over low bid, so no adjustment is made.

If the bid is accepted and the Contract awarded on the basis of the Modified Bid Amount, the actual amount bid before reduction under these rules will be the amount awarded the Contractor. The Port reserves the right to award the Contract to the successful bidder on the basis of this calculation.

END OF DOCUMENT

DOCUMENT 00320

EXISTING CONDITIONS AND GEOTECHNICAL DATA

1.01 SUMMARY

This document sets forth the terms and conditions under which Contractor may review, study, use or rely upon existing conditions information concerning existing conditions at or near the Site, and geotechnical data at or near the Site. This document, the supplied existing conditions, and the available geotechnical data are not Contract Documents.

1.02 REPORTS AND INFORMATION

- A. Documents providing a general description of the Site and conditions of the Work may have been collected by the Port, its consultants, and prior contractors. These documents may consist of contracts, specifications, tenant improvement contracts, as-built drawings, utility drawings, information regarding Underground Facilities, and geotechnical reports for and around the Site. These documents and other information are not part of the Contract Documents.
- B. Bidders may inspect such available information regarding existing conditions and geotechnical reports in the Port's Engineering Services Counter, located at 530 Water Street, Second Floor, Oakland, CA, and copies may be obtained upon the Bidder's payment for the costs of reproduction and handling. These documents, reports and other information are not part of the Contract Documents.
- C. Information regarding existing conditions and geotechnical data may be included in the Project Manual, but shall not be considered part of the Contract Documents.
- D. The following information regarding existing conditions, Underground Facilities, and geotechnical reports and data, at or contiguous to the Site, are available for review in connection with the Contract:
 - 1. The Port's Emergency Plan of Action for Discoveries of Unknown Historic or Archeological Resources, Port of Oakland, dated June 2002.
 - 2. Final Geotechnical Study Report, Port of Oakland Support Services Complex Project, Maritime Street, Oakland, California, prepared by AGS, Inc., for Michael Willis Architects, dated December 2002.
 - 3. Final Report Geotechnical Engineering Study, Port of Oakland, Vision 2000 Project, Joint Intermodal Terminal, prepared by URS Greiner Woodward Clyde, dated June 1999.
 - 4. Geotechnical Investigation – DFAS Facility (Building 311), Seismic Retrofit Project, Fleet Industrial Support Center, Oakland, California, prepared by Harza Consulting Engineers and Scientists, dated June 1995.

5. Preliminary Geotechnical Study – Vision 2000 Maritime Development, Port of Oakland, Oakland, California, prepared by Geomatrix Consultants, Inc. in associated with Harza Engineering Company, dated August 1997.
6. Geotechnical Engineering Study – Unicold Transload Warehouse, Oakland, California, prepared by Geomatrix Consultants, Inc., dated November 2001.
7. Geotechnical Investigation – Oakland Harbor Navigation Improvement (-50 foot) Project, Port of Oakland, Oakland and Alameda, California, prepared by Subsurface Consultants, Inc., dated February 1999.
8. As-Built Drawings, Transportation Maintenance Shops (P-059), Drawings C13 and C14, catalogued September 5, 1990.

1.03 USE OF INFORMATION ON EXISTING CONDITIONS

- A. Above-Ground Existing Conditions. Under no circumstances shall the Port be deemed to make a warranty or representation of existing above-ground conditions, as-built conditions, or other above-ground actual conditions verifiable by reasonable independent investigation. These conditions are verifiable by the Bidder by the performance of its own independent investigation which the Bidder must perform prior to bidding and the Bidder must not rely on the information supplied by the Port regarding existing conditions. The Bidder represents and agrees that in submitting its bid, it is not relying on any information regarding above-ground existing conditions supplied by the Port.
- B. Underground Facilities. Information supplied regarding existing Underground Facilities at or contiguous to the Site is based on information furnished to the Port by others (e.g., former owners or tenants, the owners or builders of such Underground Facilities or others). Except as expressly set forth in this Document, the Port does not assume responsibility for the accuracy, completeness or thoroughness of this information, and the Bidder is solely responsible for any interpretation or conclusion drawn from this information. For those Underground Facilities that are owned by the Port, the Port will be responsible for the general accuracy of information regarding Underground Facilities. This express assumption of responsibility applies only if the Bidder has conducted the independent investigation required of it and discrepancies were not apparent.

1.04 LIMITED RELIANCE PERMITTED ON CERTAIN INFORMATION

- A. Geotechnical Data. Except as expressly set forth in this Document, the Port does not warrant, and makes no representation regarding, the accuracy, completeness or thoroughness of any geotechnical data. The Bidder represents and agrees that in submitting its bid, it is not relying on any geotechnical data supplied by the Port, except as specifically set forth herein.
- B. The Bidder may rely upon the general accuracy of the "technical data" contained in the geotechnical reports and drawings identified above (if any), but only insofar as it relates to subsurface conditions, provided the Bidder has conducted the independent investigation required of it and discrepancies were not apparent. The

term "technical data" in any referenced reports and drawings shall be limited as follows:

1. The term "technical data" shall include actual reported depths, reported quantities, reported soil types, reported soil conditions, and reported material, equipment or structures, that were encountered during subsurface exploration.
2. The term "technical data" does not include, and the Bidder may not rely upon, any other data, interpretations, opinions or information shown or indicated in such drawings or reports that otherwise relate to subsurface conditions or described structures.
3. The term "technical data" shall not include the location of Underground Facilities.
4. The Bidder may not rely on the completeness of reports and drawings for the purposes of bidding or construction. The Bidder may rely upon the general accuracy of the "technical data" contained in such reports or drawings.
5. The Bidder is solely responsible for any interpretation or conclusion drawn from any "technical data" or any other data, interpretations, opinions or information contained in supplied geotechnical data.

1.05 INVESTIGATIONS

- A. Before submitting a Bid, each Bidder will be responsible to obtain such additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the Site or otherwise, which may affect cost, progress, performance or furnishing of Work or which relate to any aspect of the means, methods, techniques, sequences or procedures of construction to be employed by the Bidder and safety precautions and programs incident thereto or which the Bidder deems necessary to determine its Bid for performing and furnishing the Work in accordance with the time, price and other terms and conditions of Contract Documents.

END OF DOCUMENT

DOCUMENT 00340

HAZARDOUS MATERIAL SURVEYS

1.01 SUMMARY

This Document describes hazardous material surveys included in or with the Contract Documents and use of data therein.

1.02 REPORTS AND INFORMATION

- A. The Port, its consultants, contractors and tenants have prepared documents providing a general description of the Site and locations of hazardous materials subject of the Work. These documents consist of surveys and/or reports included in or with this Project Manual, or made available for review and copying. The surveys and/or reports are the following:

FORMER FLEET AND INDUSTRIAL SUPPLY CENTER

California Department of Toxic Substances Control and the Port of Oakland, October 2000, Remedial Action Plan Onshore Operable Unit, Fleet and Industrial Supply Center Oakland.

PRC Environmental Management, Inc., October 1996, Final Environmental Baseline Survey Report for Fleet and Industrial Supply Center Oakland.

Tetra Tech EMI, August 1998, Final Phase II Remedial Investigation Report Onshore Operable Unit One, Volumes I and II.

2225 AND 2277 SEVENTH STREET SITES:

Alisto Engineering Group, January 30, 1996 Site Investigation Report, Port of Oakland Building C-401, 2277 Seventh Street, Oakland, California.

Iris Environmental, February 19, 2002, Expanded Environmental Site Assessment – Future Field Support Services Complex, Port of Oakland, Oakland, California.

Iris Environmental, June 2002, Phase II Environmental Site Assessment – Future Port Field Support Services Complex, 2225 & 2277 Seventh Street, Oakland, California, Volume I.

Iris Environmental, June 2002, Phase II Environmental Site Assessment – Future Port Field Support Services Complex, 2225 & 2277 Seventh Street, Oakland, California, Volume II – Appendix B.

Iris Environmental, October 2002, Human Health Risk Assessment and Abbreviated Phase II Environmental Site Assessment Report – Future Port of Oakland Field Support Services Complex, 2225 and 2277 Seventh Street, Oakland, California.

Iris Environmental, March 7, 2003, Response Package and Addendum to *Human Health Risk Assessment* for Future Port of Oakland Field Support Services Complex, 2225 and 2277 Seventh St., Oakland, California.

Iris Environmental, July 2003, Final Human Health Risk Assessment and Abbreviated Phase II Environmental Site Assessment Report – Future Port of Oakland Field Support Services Complex, 2225 and 2277 Seventh Street, Oakland, California.

ITSI, September 24, 2001, Replacement Monitoring Well Installation Workplan, 2227 Seventh Street, Oakland, California.

ITSI, November 8, 2001, Workplan for Additional Site Characterization, 2225 and 2227 Seventh Street, Oakland, California.

ITSI, May 2002, Additional Site Characterization and Remedial Action Plan for 2225 and 2277 Seventh Street, Oakland, California.

J R Associates, February 15, 1993 (for Uribe and Associates), Geophysical Investigation at the Imperial Shipping Site, Port of Oakland, Oakland, California.

NESCO, May 31, 1991: Tank Removal Closure Report, ANR Freight 2225 7th Street, Oakland, California

Port of Oakland, August 5, 2002 (draft), Port of Oakland, Field Support Services Complex, Former Shipper's Imperial Site, 7th and Maritime Streets, Port of Oakland Maritime Area, Draft Initial Study/Negative Declaration, Port of Oakland, Oakland, California.

Ramcon, September 10, 1992 Tank Removal Work Summary and Work Plan: ANR Freight 2225 7th Street, Oakland, California 94607.

Ramcon, Soil and Groundwater, October 12, 1992: Tank Removal Summary: Dongary Investments, Truck Maintenance Facility, 2225 7th Street, Oakland, California 94607.

Ramcon, March 18, 1993: Soil and Groundwater Site Assessment: Dongary Investments - Oakland, 2225 Seventh Street, Oakland, California.

SCA Environmental, April 25, 2002, Summary Report, Bulk Asbestos and Lead-Based Paint Survey, Buildings C-401, C-406, & C-407, 2225 and 2277 7th Street @ Middle Harbor Road, Oakland, California.

Treadwell & Rollo, July 2005, Free Product Recovery System Operation and Maintenance Manual, Harbor Facilities Center, Maritime and 7th Streets, Port of Oakland, Oakland, California.

Uribe and Associates, February 23, 1994: Port of Oakland Building C-401, 2277 7th Street, Oakland, Report of Underground Storage Tank Removals

Uribe and Associates, November 10, 1994: Report of Additional Investigation and Groundwater Monitoring Well Installation and Sampling at 2277 Seventh Street, Oakland, California.

Various Quarterly Groundwater Monitoring Reports, prepared by Various Consultants, dated April 1995 through January 2006.

- B. Bidders may inspect such surveys and/or reports at the Port's Engineering Services Counter, located at 530 Water Street, Second Floor, Oakland, CA, and copies may be obtained upon Bidders' payment of costs of reproduction and handling. These surveys and/or reports are not part of Contract Documents.

1.03 USE OF DATA

- A. Data regarding the locations of hazardous materials was obtained only for use of the Port and its consultants, contractors, and tenants for planning and design and are not part of Contract Documents. Bidder may rely on this information for its general accuracy regarding the locations of potentially hazardous materials subject of the Work. Otherwise, the provisions of Document 00320, Existing conditions and geotechnical data, apply to the Work.
- B. The Port does not warrant and makes no representation regarding the accuracy, completeness or thoroughness of any other data regarding existing conditions or hazardous materials, including, but not limited to, quantities, characteristics, volumes, structural features, location of Underground Facilities or connections thereto, or any information verifiable by visual inspection. Bidder represents and agrees that in submitting a Bid it is not relying on any data regarding existing conditions supplied by the Port, except the general location of potentially hazardous materials.

1.04 INVESTIGATIONS

- A. Before submitting a Bid, each Bidder shall be responsible for performing and/or obtaining such additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site or otherwise which may affect cost, progress, performance or furnishing of Work or which relate to any aspect of the means, methods, techniques, sequences or procedures of construction to be employed by Bidder and safety precautions and programs or projects incident thereto or which Bidder deems necessary to determine its Bid for performing and furnishing Work in accordance with the time, price and other terms and conditions of the Contract Documents.
- B. The Port has provided time in the period prior to bidding for Bidder to perform these investigations.

1.05 ACCESS TO SITE

- A. On written request, the Port may provide each Bidder access to Site to conduct such examinations, investigations, explorations, tests and studies as each Bidder deems necessary for submission of a Bid. Bidder must fill all holes and clean up

and restore the Site to its former condition upon completion of such explorations, investigations, tests and studies. Any investigation performed by Contractor to verify hazardous materials/waste conditions must comply with the provisions of Document 00700, General Conditions, and Document 00805, Supplemental General Conditions – Hazardous Materials, including but not limited to the requirements regarding compliance with all laws, permits, giving of all notices, and indemnification. Bidders shall also present Port with proof of insurance with such coverages, policy limits and insurers as are satisfactory to the Port.

- B. Any Bidder requesting access to the Site shall submit a request in writing to the Port at least seven (7) days in advance of the proposed date of access. The Bidder's request for access shall describe the proposed date of access, the location and nature of any physical investigations or explorations, the equipment intended to be used, the identity of the parties who will use the access, the duration of such access, and any other information the Port may reasonably request. The Port will provide access only pursuant to a letter authorizing access. In providing access, the Port may impose such conditions or restrictions on access as it deems necessary and shall have the right to observe the access. Proof of insurance shall accompany such request. The request for access should be made to the Port to Barry MacDonnell at (510) 627-1383 or via E-mail at bmacdonn@portoakland.com, Port of Oakland Engineering, 530 Water Street, Oakland, California 94607.

END OF DOCUMENT

DOCUMENT 00400

BID FORM

To be submitted by date and time noted in Document 00100

PORT OF OAKLAND

To: The Chief Engineer
530 Water Street
Oakland, California 94607

Re: Contract: Performed as instance of work under annual contract.

**CONSTRUCTION OF PHASE 3B
CONTAINER TERMINAL YARD IMPROVEMENTS,
MARITIME SUPPORT CENTER,
OAKLAND, CALIFORNIA**

1. The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an agreement with the City of Oakland, a municipal corporation, acting by and through its Board of Port Commissioners ("Port") in the form included in the Contract Documents, to perform and furnish all Work specified or indicated in the Contract Documents for the Contract Sum and within the Contract Time indicated in this Bid and in accordance with all other terms and conditions of the Contract Documents. The Bidder agrees to enter into an agreement with a Port designated electrical contractor and to work as a Prime Contractor and manage the electrical contractor as a subcontractor in accordance with all other terms and conditions of the Contract Documents.
2. The Bidder accepts all of the terms and conditions of the Contract Documents. This Bid will remain subject to acceptance for sixty (60) calendar days after the day of Bid opening, unless a greater period is authorized by the Board, and may not be withdrawn during that time period.
3. Determination of Successful Bidder. Pursuant to Port Ordinance 1606, Section 5(i), the Board of Port Commissioners have authorized the award of this Contract without lowest-sealed bid procedures, to the Bidder whose Bid best meets the needs of the Port, as determined by the Executive Director. As authorized by the Board, the Port may award the Contract to any Bidder, regardless of price, whose Bid is determined to best meet the needs of the Port. All Bidders are required to submit Bids on all Bid items.
4. In submitting this Bid, the Bidder represents that:
 - (a) Bidder has examined all of the Contract Documents and of the following Addenda (receipt of all of which is hereby acknowledged).

<u>Date</u>	<u>Number</u>
_____	_____
_____	_____

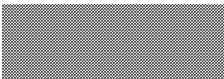
[Attach additional pages if necessary]

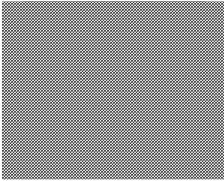
- (b) Bidder has visited the Site and performed all tasks, research, investigation, reviews, examinations, analysis, and given notices, regarding the Project and the Site, as set forth in the Contract Documents.
5. Based on the foregoing, Bidder proposes and agrees to fully perform the Work within the time stated and in strict accordance with the Contract Documents for the following sum of money listed in the following Bid Schedule:

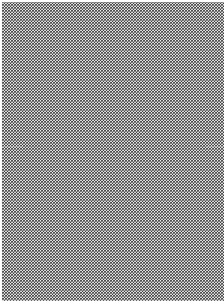
SCHEDULE OF BID PRICES

All bid items, including lump sums, unit prices, and additive alternates must be filled in completely. Bid items are described in Section 01100, Summary of Work. Quote in numerals only, unless words are specifically requested.

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>ESTIMATED QUANTITY</u>	<u>UNIT PRICE (Figures)</u>	<u>TOTAL</u>
1	Mobilization and Demobilization	lump sum		\$ _____.
2	All Contract Work Other than Work Separately Provided for Under Other Bid Items	lump sum		\$ _____.
3	Prepare, Submit, and Implement Safety and Environmental Plans and Programs	lump sum		\$ _____.
4	Demolish Existing Portland Cement Concrete Pavement	7,200 SY	\$ _____.	\$ _____.
5	Demolish Former Building Foundations and Floor Slabs	Lump sum		\$ _____.
6	Demolish Existing Asphalt Concrete Pavement	41,200 SY	\$ _____.	\$ _____.
7	Demolition, Removal, Disposal and Site Preparation	lump sum		\$ _____.
8	Removal and Legal Disposal of Railroad Tracks	600 Track Feet	\$ _____.	\$ _____.

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>ESTIMATED QUANTITY</u>	<u>UNIT PRICE (Figures)</u>	<u>TOTAL</u>
9	Removal and Legal Disposal of Existing Fencing	1,700 LF	\$ _____.	\$ _____.
10	Remove Underground Vaults	4 EA	\$ _____.	\$ _____.
11	Remove Catch Basins And Manholes	40 EA	\$ _____.	\$ _____.
12	Subgrade Preparation	lump sum		\$ _____.
13	Place and Compact On-Site Engineered Fill	40,000 CY	\$ _____.	\$ _____.
14	Place and Compact On-site Port Furnished Aggregate Base	38,000 CY	\$ _____.	\$ _____.
15	Furnish and Install Asphalt Concrete	660 Tons	\$ _____.	\$ _____.
16	Furnish and Install 18-inch Diameter Fusion Welded HDPE Storm Drain Pipe	394 LF	\$ _____.	\$ _____.
17	Furnish and Install 24-inch Diameter Fusion Welded HDPE Storm Drain Pipe	843 LF	\$ _____.	\$ _____.
18	Furnish and Install 30-inch Diameter Fusion Welded HDPE Storm Drain Pipe	342 LF	\$ _____.	\$ _____.
19	Furnish and Install 42-inch Diameter Fusion Welded HDPE Storm Drain Pipe	830 LF	\$ _____.	\$ _____.
20	Furnish and Install Precast Storm Drain Catch Basins	12 EA	\$ _____.	\$ _____.
21	Furnish and Install New Storm Drain Manholes	3 EA	\$ _____.	\$ _____.

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>ESTIMATED QUANTITY</u>	<u>UNIT PRICE (Figures)</u>	<u>TOTAL</u>
22	Construct Light Pole Foundations Complete with Anchor Bolts and Guard Post Assemblies	15 EA	\$ _____.	\$ _____.
23	Furnish and Install Concrete Foundation and Equipment Pads for a Main Substation and a Unit Substation	lump sum		\$ _____.
24	Furnish and Install 12" Diameter Water Meters	2 EA	\$ _____.	\$ _____.
25.	Furnish and Install 6" Diameter PVC Fire Water Pipe	253 LF	\$ _____.	\$ _____.
26	Furnish and Install 12" Diameter PVC Fire Water Pipe	5960 LF	\$ _____.	\$ _____.
27	Furnish and Install Fire Hydrant Assemblies	15 EA	\$ _____.	\$ _____.
28	Furnish and Install 4-Inch Diameter Ductile Iron Sanitary Sewer Pipe	158 LF	\$ _____.	\$ _____.
29	Furnish and Install 6-Inch Diameter Ductile Iron Sanitary Sewer Pipe	104 LF	\$ _____.	\$ _____.
30	Furnish and Install 8-Inch Diameter Ductile Iron Sanitary Sewer Pipe	787 LF	\$ _____.	\$ _____.
31	Furnish and Install Sanitary Sewer Manholes	2 EA	\$ _____.	\$ _____.
32	Remove and Legally Dispose of Underground Storage Tanks as Non-Hazardous Waste	2 EA	\$ _____.	\$ _____.

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>ESTIMATED QUANTITY</u>	<u>UNIT PRICE (Figures)</u>	<u>TOTAL</u>
33	Raise Groundwater Monitoring/Extraction Vaults to Grade	3 EA	\$_____.	\$_____.
34	Enter into Subcontract with Columbia Electric Inc., the Port's Designated Phase 3B Electrical Contractor	lump sum		\$_____.
35	Phase 3B Electrical Subcontractor Bid (Attachment 1 at end of Project Manual.)			\$1,657,440.00
36.	Replace Existing Transite Water Pipe	560 LF	\$_____.	\$_____.
37.	Remove, Haul, and Dispose of Contaminated Materials as California-Hazardous Waste (Class I)	5000 Ton	\$_____.	\$_____.
38.	Remove, Haul, and Dispose of Soil Off-Site as Non-Hazardous Waste (Class II)	5000 Ton	\$_____.	\$_____.
39.	Dispose Water Off-Site (Non-Hazardous)	300,000 Gal	\$_____.	\$_____.
TOTAL BID PRICE				\$_____.

6. Subcontractors and their sub-bids for work included in all bid items are listed on the attached Document 00430, Port of Oakland Subcontractor and Supplier List Form.
7. The undersigned understands that the Port reserves the right to reject this Bid, or all bids.
8. Notice of Award or request for additional information may be addressed to the undersigned at the address set forth below.
9. The undersigned agrees to commence work under the Contract Documents on the date established in Section 01100, Summary of Work, and to complete all work within the times specified in Section 01100, Summary of Work.

10. The undersigned agrees that, in accordance with Document 00700, General Conditions, liquidated damages for failure to complete all Work under the Contract Documents within the times specified in Section 01100, Summary of Work, shall be as set forth in Section 01100, Summary of Work.
11. The attention of the Bidder is directed to the necessity of including in the total for each Bid Item \$0.15 per hour of on-site craft work associated with that Bid Item, to be contributed to the Social Justice Program established under the terms of the Maritime and Aviation Project Labor Agreement. Refer to Document 00825, "Social Justice Labor Management Cooperation Trust Fund."
12. The implementation costs of the Maritime and Aviation Project Labor Agreement Uniform Substance Abuse Policy must be included in the Total Bid Price. These costs are stated in Document 00824, "Port of Oakland Maritime and Aviation Project Labor Agreement Substance Abuse Prevention Policy Drug Testing."
13. The names of all persons interested in the foregoing Bid as principals are:

(IMPORTANT NOTICE: If Bidder or other interested person (including any partner or joint venturer of any partnership or joint venture bidder, respectively) is a corporation, give the legal name of corporation, state where incorporated, and names of president and secretary thereof; if a partnership, give name of the firm and names of all individual co-partners composing the firm; if Bidder or other interested person is an individual, give first and last names in full).

licensed in accordance with an act for the registration of Contractors, and with license number: _____.

BIDDER:

By: _____

[Signature]

[Printed Name]

Its: _____

[If Corporation: Chairman, President or Vice President]

By: _____

[Signature]

[Printed Name]

Its: _____

[If Corporation: Secretary, Assistant Secretary,
Chief Financial Officer or Assistant Treasurer]

NOTE: If the Bidder is a corporation, set forth the legal name of the corporation together with the signature of the officer or officers authorized to sign contracts on behalf of the corporation. If the Bidder is a partnership, set forth the name of the firm together with the signature of the partner or partners authorized to sign contracts on behalf of the partnership.

Business Address:

Telephone Number:

Fax Number:

Date of Bid:

END OF SECTION

DOCUMENT 00430

PORT OF OAKLAND SUBCONTRACTOR AND SUPPLIER LIST FORM

(See Document 00200 for instructions.)

Bidder: _____ Bid Date: _____

1. Submit this Document 00430 with the Bid.
2. Include Prime Bidder, Joint Venture Partners, and first-tier subcontractors performing Work in excess of one-half of one percent (0.5%) of total bid value.
3. List ALL trucking brokers that will participate in the work, regardless of whether the broker's bid will or will not exceed 0.5% of the total bid value.

Name, address, and telephone number of office of Prime Bidder, Subcontractor, Trucking Broker or Supplier	Type or Portion of Work to be Performed or Materials to be Supplied	Contractors License Number (if applicable)			Dollar Amount of Bid of Each Subcontractor, Trucking Broker or Supplier to Prime Bidder
Prime Bidder: _____ Address: _____ City/State/Zip: _____ Phone/Fax #: _____					
SUBCONTRACTORS/TRUCKING BROKERS/SUPPLIERS:					
1. Name: _____ Address: _____ City/State/Zip: _____ Phone/Fax #: _____					

(Bidder to attach additional sheets if necessary)

PORT OF OAKLAND SUBCONTRACTOR AND SUPPLIER LIST FORM

Bidder: _____ Bid Date: _____

Name, address, and telephone number of office of Subcontractor, Trucking Broker or Supplier	Type or Portion of Work to be Performed or Materials to be Supplied	Contractors License Number (if applicable)			Dollar Amount of Bid of Each Subcontractor, Trucking Broker or Supplier to Prime Bidder
2. Name: _____ Address: _____ City/State/Zip: _____ Phone/Fax #: _____					
3. Name: _____ Address: _____ City/State/Zip: _____ Phone/Fax #: _____					
4. Name: _____ Address: _____ City/State/Zip: _____ Phone/Fax #: _____					
5. Name: _____ Address: _____ City/State/Zip: _____ Phone/Fax #: _____					

(Bidder to attach additional sheets if necessary)

PORT OF OAKLAND SUBCONTRACTOR AND SUPPLIER LIST FORM

Bidder: _____ Bid Date: _____

Name, address, and telephone number of office of Subcontractor, Trucking Broker or Supplier	Type or Portion of Work to be Performed or Materials to be Supplied	Contractors License Number (if applicable)			Dollar Amount of Bid of Each Subcontractor, Trucking Broker or Supplier to Prime Bidder
6. Name: _____ Address: _____ City/State/Zip: _____ Phone/Fax #: _____					
7. Name: _____ Address: _____ City/State/Zip: _____ Phone/Fax #: _____					
8. Name: _____ Address: _____ City/State/Zip: _____ Phone/Fax #: _____					
9. Name: _____ Address: _____ City/State/Zip: _____ Phone/Fax #: _____					

(Bidder to attach additional sheets if necessary)

PORT OF OAKLAND SUBCONTRACTOR AND SUPPLIER LIST FORM

Bidder: _____ Bid Date: _____

Name, address, and telephone number of office of Subcontractor, Trucking Broker or Supplier	Type or Portion of Work to be Performed or Materials to be Supplied	Contractors License Number (if applicable)			Dollar Amount of Bid of Each Subcontractor, Trucking Broker or Supplier to Prime Bidder
10. Name: _____ Address: _____ City/State/Zip: _____ Phone/Fax #: _____					
11. Name: _____ Address: _____ City/State/Zip: _____ Phone/Fax #: _____					
12. Name: _____ Address: _____ City/State/Zip: _____ Phone/Fax #: _____					
13. Name: _____ Address: _____ City/State/Zip: _____ Phone/Fax #: _____					

(Bidder to attach additional sheets if necessary)

DOCUMENT 00455

**CONSTRUCTION AND DEMOLITION DEBRIS
WASTE REDUCTION AND RECYCLING REQUIREMENTS**

Attachment 1	Port of Oakland Resolution No. 01197
Attachment 2	City of Oakland Construction & Demolition Debris Waste Reduction and Recycling Plan
Attachment 3A	Construction and Demolition Debris Material Tracking Sheet
Attachment 3B	Construction and Demolition Debris Recycling Planning Sheet
Attachment 4	City of Oakland Construction & Demolition Debris Recycling Summary Report

DM

BOARD OF PORT COMMISSIONERS
CITY OF OAKLAND

RESOLUTION NO. 01197

RESOLUTION ESTABLISHING CONSTRUCTION AND
DEMOLITION DEBRIS WASTE REDUCTION AND
RECYCLING REQUIREMENTS FOR PORT PUBLIC
WORKS PROJECTS.

WHEREAS, the California Integrated Waste Management Act of 1989 (Assembly Bill 939), requires that each city and county in the state reduce material landfilled by fifty percent (50%) by end of the year 2000; and

WHEREAS, each city and county in California, including the City of Oakland (City), could face fines up to \$10,000 a day for not meeting the above mandated goal; and

WHEREAS, the Alameda County Waste Reduction and Recycling Act of 1990 (Measure D), adopted a goal to reduce the weight of discarded materials generated in Alameda County by seventy-five percent (75%) by the year 2010; and

WHEREAS, reusing, salvaging, and recycling construction and demolition (C&D) debris conserves natural resources and reduces the need for landfill space; and

WHEREAS, reusing, salvaging and recycling C&D debris furthers the City's efforts to stimulate markets for recycled materials and may reduce project costs to contractors and developers when compared to landfilling these materials; and

WHEREAS, the City Council of the City of Oakland found and determined that the public interest, health, safety and welfare will be best served if C&D debris is diverted from landfill disposal and that the diversion be monitored by the City; and

WHEREAS, the City Council adopted an Ordinance known as "Construction and Demolition Debris Waste Reduction and Recycling Requirements" as part of the Oakland Municipal Code (Chapter 15.34); and

WHEREAS, the Board of Port Commissioners concurs with, and supports the City Council's determination that the public interest, health, safety and welfare will be best served if C&D debris is diverted from landfill disposal; and

WHEREAS, the Port advocates sustainability goals that will be promoted if C&D debris is diverted from landfill disposal; now, therefore be it

RESOLVED that the Board of Port Commissioners hereby establish the following C&D debris waste reduction and recycling program to be monitored by the Port, similar to that adopted by the City.

SECTION 1: CONSTRUCTION AND DEMOLITION DEBRIS WASTE
REDUCTION AND RECYCLING REQUIREMENTS

The provisions of this resolution shall be known as the Port of Oakland Construction and Demolition Debris Waste Reduction and Recycling Requirements.

SECTION 2: APPLICATION

This resolution applies to all Port-sponsored Public Works projects. Tenant-sponsored projects and other development projects within the Port Area will subject to review by the City of Oakland.

SECTION 3: PURPOSE AND INTENT

The purpose of these provisions is to prescribe requirements designed to meet and further the goals of the California Integrated Waste Management Act of 1989 Assembly Bill 939 and the Alameda County Waste Reduction and Recycling Act of 1990 (Measure D). These requirements shall apply to affected projects as specified in this Resolution.

The intent of these provisions is to divert at a minimum 50% of construction and demolition (C&D) debris from landfills, process and return the materials into the economic mainstream thereby conserving natural resources and stimulating markets for recycled and salvaged materials.

The Executive Director or his/her designee is authorized to develop guidelines to implement the requirements of this Resolution, which may be amended from time to time.

SECTION 4: DEFINITIONS

For the purpose of this Resolution, the following definitions shall apply:

- a. "Addition" means an extension or increase in floor area or height of a building or structure.

- b. "Affected project" means a Port Public Works project that requires a waste reduction and recycling plan (WRRP) because it has a contract (bid) valuation greater or equal to \$50,000.
- c. "Alteration" means any change, addition or modification in construction or occupancy.
- d. "Apartment house" means any building or portion thereof that contains three or more dwelling units and, for the purpose of this Resolution, includes residential condominiums.
- e. "Appeal" means the process outlined in Section 10 of this Resolution.
- f. "Applicant" means the contractor, or representative, bidding on or awarded a Port Public Works contract.
- g. "Construction" means the manner or method of building.
- h. "Construction and demolition debris", "C&D debris", or "construction debris" means waste building materials resulting from construction, addition, remodeling, repair alteration or demolition operations.
- i. "Demolition" means deconstructing, destroying, razing, tearing down, or wrecking any facility including its foundation, covered by this Resolution. As used herein, the word "demolition" shall include any partial demolition and any interior demolition affecting more than ten percent of the replacement value of the structure as determined by the Port Permit Coordinator. Demolition work includes: (1) proper disposal of recyclables, solid waste, and hazardous materials pursuant to applicable regulations and approved plans, if any, (2) termination of utilities serving the premises including permits and final inspections and approvals, (3) removal of driveways and repair of public sidewalks, as required, and (4) site cleanup and restoration including grading, landscaping, and fencing as required.
- j. "Divert", "diverted", or "diversion" means to use C&D debris for any purpose other than disposal in a landfill, incineration facility, or alternative daily cover. Methods to divert materials from landfills include reuse, salvage, and recycling.
- k. "Diversion attainment" means at least fifty percent (50%) by weight of the total C&D debris is diverted on an affected project.
- l. "Hearing Officer" means the Port staff designated by the Executive Director to whom appeals can be made under this Resolution.

33145

"Non-affected projects" means projects that do not require a WRRP. Applicants for non-affected projects shall be encouraged to divert at least fifty percent (50%) of all project-related C&D debris.

"Port Permit Coordinator" means the Port officer or other designated authority charged with the administration and approval of construction and demolition permit applications submitted to the Port for projects in the Port Area. The Permit Coordinator is designated and authorized by the Executive Director and is responsible for implementing this Resolution.

"Recyclables" or "recycle" or "recycling" means residential, commercial, or industrial materials or by-products which are set aside, handled, packaged, or offered for collection in a manner different than solid waste for the purpose of being reused or processed and then returned to the economic mainstream in the form of commodities.

"Reuse" means recovering material for repeated use in the same form. This includes materials that are reused at the same location as they are generated.

"Salvage" means the recovering of C&D debris from a building or demolition site for the purpose of recycling, reuse, or proper storage for future recycling or reuse.

"Source separated" means recyclables that have been segregated from solid waste by or for the generator thereof on the premises at which they were generated for handling different from that of solid waste. This does not require that different types of recyclable commodities be separated from each other, except some organic recyclable material.

"Summary Report" means the report to be submitted to the Permit Coordinator at the conclusion of the affected project and prior to the final inspection, issuance of a temporary certificate of occupancy, or certificate of occupancy.

"Targeted materials" means the C&D debris listed on the WRRP form that could potentially be reused, recycled, or salvaged.

"WRRP" means waste reduction and recycling plan.

"WRRP form" means a form, provided by the Port for the purpose of compliance with this Resolution that must be submitted by the applicant for any affected project.

SECTION 5: SUBMISSION OF A WASTE REDUCTION AND RECYCLING PLAN (WRRP)

WRRP forms: For affected projects, prior to award of a Port Public Works contract, the applicant shall complete and submit a WRRP form to the Port's Permit Coordinator. The completed WRRP form shall delineate all of the following:

- (a) The estimated volume or weight of the affected project, C&D debris to be generated, listed by each type of material; and
- (b) Volume or weight of the C&D debris to be reused, salvaged or recycled listed by each type of material; and
- (c) The estimated volume or weight of C&D debris that will be landfilled listed by each type of material.

SECTION 6: REVIEW OF WRRP

- (a) Notwithstanding any other provision of this Resolution, the Port shall award no Public Works contract for any affected project prior to approval of the WRRP by the Port Permit Coordinator. Approval shall not be required if an emergency demolition is required to protect public health or safety.
- (b) Using the established guidelines, the Port Permit Coordinator shall approve a WRRP only if:
 - (1) The WRRP provides all the information set forth in Section 5 of this Resolution; and,
 - (2) The WRRP indicates that at least fifty percent (50%) by weight of all C&D debris generated by the project will be diverted; or
 - (3) The applicant demonstrates good cause as to why at least fifty percent (50%) by weight of all C&D debris generated by the project will not be diverted.

If the Port Permit Coordinator fails to approve the WRRP, he/she shall explain in writing the basis for denial.

- (c) The contractor shall submit an information copy of the approved WRRP to the City of Oakland when obtaining the building permit for the project.

SECTION 7: SUBMISSION OF A COMPLETED SUMMARY REPORT

(a) Documentation: At the conclusion of each affected project and prior to the final inspection by the Port, the applicant shall submit to the Permit Coordinator a summary report (SR), which contains the following documentation:

- (1) The actual volume or weight of C&D debris that was diverted by type of material, diversion method, and the actual volume or weight of C&D debris that was not diverted;
- (2) Any additional information the applicant believes is relevant to determining its efforts to comply in good faith with this Resolution;
- (3) Any barriers encountered that prohibited diversion of C&D debris; and
- (4) Any recommended actions that would further the efforts to recycle C&D debris.

(b) Determination of diversion: The Port Permit Coordinator shall review the information submitted under Section 7(a) to determine whether the applicant has diverted fifty percent (50%) by weight of the C&D debris based on established guidelines as follows:

- (1) Diversion goal: The applicant shall be found to have achieved a diversion goal if at least fifty percent (50%) by weight of the C&D debris generated by the affected project is diverted, and appropriate documentation as outlined in Section 7(a) is provided.
- (2) Good faith effort: When the Port Permit Coordinator determines that the affected project has not achieved the required diversion goal, he/she shall determine whether the applicant has made a good faith effort to comply with this Resolution. In making this determination, the Port Permit Coordinator may consider information submitted by the applicant, the availability of markets for the C&D debris that was not diverted, the size and type of project, the documented efforts of the applicant to divert C&D debris, and barriers encountered.

- (3) Non-attainment: The Port Permit Coordinator shall determine the affected project to have a non-attainment status if he/she determines that the applicant has not made a good faith effort to achieve diversion attainment or if the applicant fails to submit the documentation required by Section 7(a). The Port Permit Coordinator shall document all non-attainment information including applicant name, type and size of project, and any reason for non-attainment.

SECTION 8: PORT'S RIGHTS TO MONITOR AND INSPECT

- (a) Audit: The Port's Port Permit Coordinator may inspect and monitor all affected projects to determine levels of actual diversion activities and validate the information provided in the WRRP and SR.
- (b) Supporting Documentation: Applicant shall retain the receipts or weight tickets for the quantities of materials reused, salvaged, recycled and landfilled as indicated in the SR form for one year after the final inspection.
- (c) Materials Targeted for Diversion: The Executive Director or his/her designee may change the C&D debris materials targeted for diversion from time to time, based on local markets and conditions to further the intent of this Resolution.

SECTION 9: APPEALS

An appeal of the Port Permit Coordinator's decision not to approve the WRRP shall be made to the Hearing Officer according to the following appeal procedures:

- (a) Within ten calendar days after the date of a written decision by the Port Permit Coordinator to deny the WRRP, an appeal in writing from said decision must be filed with the Port Permit Coordinator by the applicant or any other Port Permit Coordinator by the applicant or any other interested party on a form prescribed by the Port Permit Coordinator. The appeal shall state specifically the error, abuse of discretion, or claim where the decision of the Port Permit Coordinator was not supported by substantial evidence in the record.
- (b) Upon receipt of the appeal, the Hearing Officer shall set the date for consideration thereof and, not less than ten (10) days prior thereto, give a written notice to the applicant

and/or appellant.

(c) In deciding the appeal, the Hearing Officer shall consider the purpose and intent, as well as the letter, of the pertinent provisions of this Resolution, and shall affirm, modify, or reverse the written decision of the Port Permit Coordinator.

(d) The written decision of the Hearing Officer shall be final.

SECTION 10: EVALUATION

The Port will evaluate the Construction and Demolition Debris Reduction and Recycling Resolution to determine its effectiveness in reducing the amount of C&D debris landfilled. In this determination, the Port will consider issues such as the amount of C&D debris landfilled, volume of construction and demolition activity, markets for C&D debris, and other barriers encountered by applicants.

SECTION 11: SEVERABILITY

In case any section or part of any section of this Resolution shall be found to be invalid for any reason, the remainder of the Resolution shall not be invalidated thereby, but in accordance with the intention of the Board hereby expressed, shall remain in full force and effect, all parts of this Resolution being hereby declared to be separable and independent of all others.

SECTION 12: EFFECTIVE DATE

This Resolution shall become effective upon adoption. Enforcement of this Resolution shall commence on May 8, 2001.

At **an adjourned regular meeting held May 8, 2001**

Passed by the following vote:

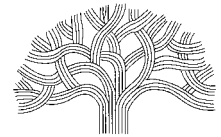
Ayes: **Commissioners Ayers-Johnson, Kiang, Protopappas, Scates, Tagami, Uribe and President Kramer - 7**

Noes: **None**

Absent: **None**

33145

Construction & Demolition Debris Waste Reduction and Recycling Plan (WRRP)



This form must be completed for the following types of projects:

- All New Construction
- Demolition, (excluding single family & duplex)
- Addition/Alteration with construction valuation exceeding \$50,000 (excluding single family & duplex)

CITY OF OAKLAND

NOTE: Building permits for affected projects will not be issued without an approved WRRP. Allow 3-5 business days for WRRP processing. A separate WRRP is required for each building permit issued. Submit WRRP with permit application to the Building Permit Counter, 250 Frank H. Ogawa Plaza, 2nd Floor. If you have questions, please call **(510) 238-SAVE (7283)**.

Application #: _____
 Project Address:(Include floor, suite, etc.): _____
 Contact Name: _____ Title: _____
 Company: _____
 Contact Mailing Address: _____
 Phone: _____ Fax: _____ Email: _____

- 1) Project Type (check one): New Construction Addition/Alteration Demolition
 2) Building Type (check one): Non-residential Single Family/Duplex Apartment
 3) Tenant Improvement (check one): Yes No (condo, live/work)

4) Size of Project _____ sq. ft Project Valuation \$ _____

5) Estimated Start Date ___/___/___ Estimated Completion Date ___/___/___

6) **Briefly** describe project (e.g. renovate warehouse, remodel office, etc.), indicate handling method(s) for scrap/waste materials to ensure salvage/reuse or recycling, and communication method used to inform employees and subcontractors the recycling requirements. (Do not attach additional materials.)

For City Use Only:

Permit No. _____ App Filed ___/___/___ WRRP Submitted ___/___/___

Project Name _____ Permit Counter Staff Initials _____ OT

ESD Staff Initials _____ Received ___/___/___ Approved ___/___/___ Type of Assistance _____

PTS 104 305 DB ___/___/___ Applicant Contacted ___/___/___ Time Spent _____

50% Diversion Good Cause Non-Attainment Hold Placed ___/___/___

Approved Conditional Approval Not Approved Hold Removed ___/___/___

Requirement:

Reduce quantity of materials disposed at landfills by 50% or more by weight.

Instructions: From your materials take-offs estimate the total volume of construction scrap and discard to be generated. Determine how you will reuse or recycle at least 50% of that material. Consult the Builders Guide to Reuse and Recycling for vendors and recycling centers. All items on this list have the potential to be recycled.

Column A – Estimate quantity of waste/scrap for each material type & list in tons. Use Materials Conversion Worksheet, on web or in packet, for units not in tons, i.e., cy, sqft, bdft, etc.

Columns B, C, D –List estimated quantities to be reused, recycled, or disposed. $A=B+C+D$

Column E –name all vendors or facilities you plan to use for reuse, recycle or disposal of materials.

Column Totals – Add up all quantities listed in Column A, B, C and D.

Recycled Mixed Debris – See Instructions on Mixed Debris Worksheet. Do not forget the \$10.00 rebate.

Application #:

Project Address:

Material Type	A Total Quantity Discarded	B Salvage or Reuse*	C Recycling	D Disposal (non-recyclable)	E Proposed Destination(s)
<i>Example: Cardboard</i>	<i>1.5 tons</i>	<i>0.25</i>	<i>1.75</i>		<i>on site packaging & Davis St. Recycling Center</i>
Asphalt & Concrete					
Brick/ Masonry/Tile					
Cabinets/Fixtures/Windows/Doors/ Equipment (circle all that apply)					
Carpet					
Carpet Padding/Foam					
Cardboard					
Ceiling Tile (acoustic)					
Drywall (used/painted)					
Drywall (New, unpainted sheets or scrap)					
Landscape Debris (brush, chips, trees, stumps, etc.)					
Scrap Metal (all types)					
Wood, Pallets, & Lumber clean & unpainted, no pressure treated wood					
Garbage, non recyclable					
Other, indicate					
Recycled Mixed Debris §					
Column Totals(A=B+C+D)	A	B	C	D	

* See instructions for definition of Salvage/Reuse §- see instructions for Mixed Debris and Rebate Program

7. Fill in the blanks below to determine if your plan meets the City's requirement of reducing project waste by 50% or more.

Column Totals B _____ + C _____ = _____ ÷ A _____ = _____ x 100 = _____ %

8. Is the percentage listed in #7 greater than or equal to 50%? YES NO

If NO, explain why _____

Print Name: _____ Signature: _____ Date ____/____/____

Construction & Demolition Debris MATERIAL TRACKING SHEET

Material Type	A Reuse/Salvage	B Recycling	C Disposal	D Destination(s)
Example: Cardboard		1.5 cy, 2.5 cy, 3.5 cy	1.5 cy	Davis Street Recycling Center Davis Street Transfer Station
Asphalt & Concrete				
Brick/ Masonry/Tile				
Building Materials (doors, windows, fixtures, etc.)				
Carpet				
Carpet Padding/Foam (only)				
Cardboard				
Ceiling Tile (acoustic)				
Drywall (used)				
Drywall (new, unpainted sheets or scrap)				
Scrap Metal				
Unpainted Wood & Pallets				
Yard Trimmings, Brush, Trees, Stumps, etc.				
Garbage/Trash				
Other (<i>do not include dirt</i>)				
Mixed Debris Recycling				
Column Totals				

This sheet can be used prior to completing the C&D Debris Recycling Summary Report to help with recording the various materials that will be generated at each major phase of the project. Use of this sheet is optional, not required.

Construction & Demolition Debris RECYCLING PLANNING SHEET

Material Type	A Foundation			B Floor			C Frame			D Final		
	Salvage/ Reuse	Recycling	Disposal	Salvage/ Reuse	Recycling	Disposal	Salvage/ Reuse	Recycling	Disposal	Salvage/ Reuse	Recycling	Disposal
Asphalt & Concrete												
Brick/Masonry/Tile												
Building Materials (doors, Windows, fixtures,etc.)												
Carpet												
Carpet Padding/Foam (only)												
Cardboard												
Ceiling Tile (acoustic)												
Drywall (used)												
Drywall (new, unpainted sheets or scrap)												
Scrap Metal												
Unpainted Wood & Pallets												
Yard Trimmings, Brush, Trees, Stumps, etc.												
Garbage/Trash												
Other (<i>do not include dirt</i>)												
Column Totals												

This sheet can be used prior to completing the Waste Reduction & Recycling Plan (WRRP) to help with estimating the various materials that will be generated at each major phase of the project. Use of this sheet is optional, not required.

**Requirement: Reduce quantity of materials disposed at landfills by 50% or more
(determined by weight)**

Column A – Total all receipts and invoices for actual quantities of materials. List ACTUAL quantities for each material type in tons. Use the Materials Conversion Worksheet provided for units other than tons. For on site reuse please include documentation.

Columns B, C, D – Indicate how items were handled in actual quantities reused, recycled, or disposed.

Column E – Name all vendors or facilities used to reuse, recycle or dispose of material listed.

Column Totals – Add up all quantities listed in Column A. Do the same for Columns B, C and D.

Recycled Mixed Debris This category is only for mixed debris loads that were taken to a recognized facility for recycling (See Mixed Debris Recycling Facilities insert). Invoices must be from approved recycling center and be coded for Mixed Debris Recycling.

Permit # _____

Project Address: _____

Material Type	A Total Quantity Discarded	B Salvage or Reuse*	C Recycling	D Disposal (non-recyclable)	E Proposed Destination(s)
<i>Example: Cardboard</i>	<i>1.5 tons</i>	<i>0.25</i>	<i>1.75</i>		<i>on site packaging & Davis St. Recycling Center</i>
Asphalt & Concrete					
Brick/ Masonry/Tile					
Cabinets/Fixtures/Windows/Doors/ Equipment (circle all that apply)					
Carpet					
Carpet Padding/Foam					
Cardboard					
Ceiling Tile (acoustic)					
Drywall (used/painted)					
Drywall (New, unpainted sheets or scrap)					
Landscape Debris (brush, chips, trees, stumps, etc.)					
Scrap Metal (all types)					
Wood, Pallets, & Lumber.(clean & unpainted, no pressure treated wood)					
Garbage (non recyclable)					
Other (indicate)					
Recycled Mixed Debris §					
Column Totals	A	B	C	D	

* See instructions for definition of Salvage/Reuse §- see instructions for Mixed Debris and Rebate Program

7. Fill in the blanks below to determine if your plan meets the City's requirement of reducing project waste by 50% or more.

Column Totals B _____ + C _____ = _____ ÷ A _____ = _____ x 100 = _____ %

8. Is the percentage listed in #7 greater than or equal to 50%? YES NO

If NO, explain why _____

Print Name: _____ Signature: _____ Date ___/___/___

and by the Secretary, Assistant Secretary, Chief Financial Officer or Assistant Treasurer.)

(If Bidder's affidavit on this form is made outside the State of California, the official position of the person taking such affidavit shall be certified according to law.)

END OF DOCUMENT

DOCUMENT 00800

**SUPPLEMENTARY CONDITIONS
MODIFICATIONS TO STANDARD CONTRACT PROVISIONS**

The Port of Oakland Standard Contract Provisions (October 2004 edition), as modified by this Document 00800, Modifications to Standard Contract Provisions, are hereby incorporated into the Contract Documents for Construction of Phase 3B Container Terminal Yard Improvements, Maritime Support Center, Oakland, California.

Copies of the above-referenced Standard Contract Provisions are available for purchase at the Port's Engineering Services Counter, located at 2nd Floor, 530 Water Street, Oakland, California. The Engineering Services Counter business hours are from 8:00 a.m. to Noon and 1:00 p.m. to 4:00 p.m., Monday through Friday, holidays excepted.

The following are modifications to the Standard Contract Provisions applicable to this work:

1. This document includes requirements that supplement sections of DOCUMENT 00700 GENERAL CONDITIONS.
2. SUPPLEMENT TO, SECTION 2, delete paragraph "2.3 **CONDITIONS SHOWN IN REPORTS AND PLANS SUPPLIED FOR INFORMATIONAL PURPOSES**", in its entirety and replace with the following:

2.3 CONDITIONS SHOWN IN REPORTS AND PLANS SUPPLIED FOR INFORMATIONAL PURPOSES

Reference is made to Document 00320 Existing Conditions and Geotechnical Data for identification of geotechnical reports, "as built" information, and other plans or other documents describing physical conditions in or relating to existing surface or subsurface conditions or structures at or contiguous to the Site. These materials are not Contract Documents and, except for any "technical data" regarding subsurface conditions specifically identified in Document 00320 Existing Conditions and Geotechnical Data, and "Underground Facilities" data (as limited in Document 00320), the Contractor may not in any manner rely on the information in these reports and plans. Subject to the foregoing, the Contractor must make its own independent investigation of all conditions affecting the Work and must not rely on information provided by the Port."

3. SUPPLEMENT TO SECTION 6 **CONSTRUCTION BY PORT OR BY SEPARATE CONTRACTORS.**

Add a new Section 6.4, which reads as follows:

6.4 Port-Furnished Materials and Equipment.

- 6.4.1 Materials and equipment to be furnished by the Port will be available at locations designated in the Contract Documents or if not designated in the Contract Documents will be delivered to the Site. Such Port-furnished

materials and equipment shall be hauled to and properly stored at the place of use by the Contractor at Contractor's sole expense, including all necessary loading and unloading that may be involved. All costs of storing, handling, and installing Port-furnished materials and equipment shall be considered as included in the Contract Price paid for the item involving such Port-furnished materials and equipment.

6.4.2 Contractor shall conduct a reasonable inspection of all Port-furnished materials and equipment. For Port-furnished materials and equipment designated prior to submission of bids, bidder shall be charged with all information and knowledge that a reasonable bidder would ascertain from having performed a reasonable inspection. For Port-furnished materials and equipment not designated prior to submission of bids, Contractor shall conduct a reasonable inspection not more than 21 days following delivery of such Port-furnished materials and equipment. Contractor shall provide the Port with written notice of all defects, omissions, damage, non-conformance, or quantity variations in the Port-furnished materials and equipment.

6.4.3 The Contractor shall be held responsible for all materials and equipment furnished to the Contractor, and shall pay all demurrage and storage charges. If any Port-furnished materials and equipment are lost or damaged from any cause whatsoever after receipt by the Contractor, the Contractor shall be liable to the Port for the cost of replacing or repairing such Port-furnished materials and equipment and the cost thereof may be deducted from any monies due or to become due the Contractor.

4. **SUPPLEMENT TO, SECTION 13.4 NOTICE OF CONCEALED OR UNKNOWN CONDITIONS**, delete paragraph "13.4.1", in its entirety and replace with the following:

"13.4.1 Before commencing work of digging trenches or excavation, the Contractor shall review all information available regarding subsurface conditions, including but not limited to information indicated in the Contract Documents or supplied in Document 00320, Existing Conditions and Geotechnical Data.

(a) In the case of any Underground Facilities which are located on Port property and are used to furnish services on Port property or are under the operation and control of the Port, or in any other case in which the Underground Services Alert does not provide an inquiry notification number and notify its members who have subsurface installations in the area of the proposed excavation, then the Contractor shall be fully responsible for locating the Underground Facilities and protecting such Underground Facilities during excavation. In locating the Underground Facilities Contractor shall investigate all records available at the Port and all other records available to it relative to the location of such Underground Facilities and shall make use of all necessary industry locating techniques and/or engage qualified locating service to perform such services for the Contractor. The

Contractor shall undertake no excavation Work until such time that the Underground Facilities are located and field marked or determined not to be in the area of excavation. Thereafter, subject to the further requirements in the Specifications, Contractor shall determine the exact location of the Underground Facilities by excavating with hand tools within the area of the location of the Underground Facilities. Contractor shall provide the Port with adequate prior written notice of its proposed excavation work in an area containing Port Underground Facilities, and shall submit for Port's approval its plan for locating and protecting the Underground Facility from damage due to the excavation work. The Port's favorable review of such plan shall in no way limit or restrict the responsibility of the Contractor under the Contract Documents and at law and Contractor shall not rely upon the Port's review as a representation of the location of the Underground Facility, the suitability of the plan or its compliance with law.

- (b) Subject to the terms and conditions of these documents, the Contractor shall also comply with Government Code Sections 4216 to 4216.9, and in particular Section 4216.2 which provides, in part:

"Except in an emergency, every person planning to conduct any excavation shall contact the appropriate regional notification center at least two working days, but no more than 14 calendar days, prior to commencing that excavation, if the excavation will be conducted in an area which is known, or reasonably should be known, to contain subsurface installations other than the underground facilities owned or operated by the excavator and, if practical, the excavator shall delineate with white paint or other suitable markings the area to be excavated. The regional notification center shall provide an inquiry identification number to the person who contacts the center and shall notify any member, if known, who has a subsurface installation in the area of the proposed excavation."

The Contractor shall contact the regional notification center, "Underground Service Alert" ("USA"), and schedule the work to allow ample time for the center to notify its members and, if necessary, for any member to field locate and mark its facilities. The Contractor is charged with knowledge of all subsurface conditions reflected in USA records. Prior to commencing excavation or trenching work, the Contractor shall provide the Port with copies of all USA records secured by the Contractor. The Contractor shall advise the Port of any conflict between information provided in Document 00320, Existing Conditions and Geotechnical Data, and that provided by USA records."

5. SUPPLEMENT TO, SECTION 13.4 **NOTICE OF CONCEALED OR UNKNOWN CONDITIONS**, delete paragraph "13.4.7", in its entirety and replace with the

following:

“13.4.7 The cost of all of the following will be included in the Contract Sum and the Contractor shall have full responsibility for:

- (a) Reviewing and checking all available information and data, including but not limited to, Document 00320, Existing Conditions and Geotechnical Data, and information on file at USA and at the Port's utilities department;
- (b) Locating all Underground Facilities shown or indicated in the Contract Documents, available information, or indicated by visual observation, including but not limited to, and by way of example only, engaging qualified locating services and all necessary backhoeing and potholing;
- (c) Coordination of the Work with the owners of such Underground Facilities during construction; and
- (d) The safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.”

6. SUPPLEMENT TO, SECTION 13.4 **NOTICE OF CONCEALED OR UNKNOWN CONDITIONS**, delete paragraph “13.4.9”, in its entirety and replace with the following:

“13.4.9 The Contractor shall be allowed an increase in the Contract Sum or an extension of the Contract Times, or both, to the extent that they are attributable to the existence of any Underground Facility that is owned and was built by the Port only where the Underground Facility:

- (a) Was not shown or indicated in the Contract Documents or in the information supplied pursuant to Document 00320, Existing Conditions and Geotechnical Data, or in information on file at USA; and
- (b) The Contractor did not know of it; and
- (c) The Contractor could not reasonably have been expected to be aware of it or to have anticipated it from the information available. (For example, if surface conditions such as pavement repairs, valve covers, or other markings, indicate the presence of an Underground Facility, then an increase in the Contract Sum or an extension of the Contract Time will not be due, even if the Underground Facility was not indicated in the Contract Documents, in the information supplied to the Contractor pursuant to Document 00320 Existing Conditions and Geotechnical Data, in information on file at USA, or otherwise reasonably available to the Contractor.) “

7. SUPPLEMENT TO, SECTION 13.4 **NOTICE OF CONCEALED OR UNKNOWN CONDITIONS**, delete paragraph “13.4.10”, in its entirety and replace with the

following:

“13.4.10 The Contractor shall bear the risk that Underground Facilities not owned or built by the Port may differ in nature or locations shown in information made available by the Port pursuant to Document 00320, Existing Conditions and Geotechnical Data, in information on file at USA, or otherwise reasonably available to the Contractor. Underground Facilities are inherent in construction involving digging of trenches or other excavations and the Contractor is to apply its skill and industry to verify the information available.”

8. SUPPLEMENT TO DOCUMENT 00805 SUPPLEMENTAL GENERAL CONDITIONS – HARZARDOUS MATERIALS, PARAGRAPH 7, SUPPLEMENT TO SECTION 13.1, delete paragraph “13.1.4 Disposal” in its entirety and replace with the following:

“13.1.4 DISPOSAL. The Contractor has the sole responsibility for determining current waste storage, handling, transportation and disposal regulations for Hazardous Materials, Hazardous Wastes or any other materials or waste at the Site. Contractor shall be responsible for selecting each waste disposal facility from those on the Port’s approved list provided under this Contract. The Contractor must comply fully at its sole cost and expense with these regulations and any applicable Law. Nothing herein shall be interpreted to impose upon Contractor responsibility for the negligence or willful misconduct of the waste disposal facility, if such waste disposal facility is on the Port’s current approved list of disposal sites/designated facilities, as further described below. The Port may, but is not obligated to, require submittals with information regarding the chosen waste disposal facility or the negligence or willful misconduct of the waste disposal facility for it to review consistent with the Contract Documents.

The Contractor shall develop and implement a system acceptable to the Port to track Hazardous Waste from the Site to disposal, including appropriate “Hazardous Waste Manifests” on the EPA form, so that the Port may track the volume of waste it put in each landfill and receive from each landfill a certificate of receipt.

The Contractor shall dispose of Hazardous Waste, designated waste, universal waste, and other contaminated materials removed from Port project sites at disposal sites/designated facilities listed below:

**LIST OF NON-OWNED DISPOSAL SITES / DESIGNATED FACILITIES
included under the Port of Oakland Owner Controlled Insurance Program
(OCIP)**

1	Altamont Landfill and Resource Recovery Facility	10840 Altamont Pass Road Livermore, CA 94550
2	Alviso Independent Oil	5002 Archer Street Alviso, CA 95002
3	B&J Landfill	6426 Hay Road Vacaville, CA 95687

4	California Asbestos Monofill	P.O. Box 127 Obyrness Ferry Copperopolis, CA 95228
5	Chemical Waster Management, Inc.	35251 Old Skyline Road Kettlemen City, CA 93249
6	Clean Harbors Environmental Services, Inc. (all facilities) (formerly Safety Kleen/Laidlaw, Inc.)	2500 West Lokern Raod Buttonwillow, CA 93206 (one landfill location)
7	Crosby & Overton	1630 West 17 th Street Long Beach, CA 90813
8	D/K Environmental	3650 East 26 th Street Vernon, CA 90023
9	ECDC Environmental	1111 West Highway 123 East Carbon, UT 84520
10	Ecology Control Industries (ECI) (formerly Eriksen, Inc.)	255 Parr Boulevard Richmond, CA 94801
11	Evergreen Oil, Inc.	6880 Smith Avenue Newark, CA 94560
12	Filter Recycling Service	180 West Monte Avenue Rialto, CA 92316
13	Forward Landfill	1145 West Charter Way Stockton, CA 95206
14	Lightning Resources, Inc.	805 East Francis Street Ontario, CA 91761
15	Redwood Landfill, Inc.	8950 Redwood Highway Novato, CA 94948
16	Republic Services – Vasco Road Landfill	40001 North Vasco Road Livermore, CA 94550
17	Romic Environmental Technologies	2081 Bay Road East Palo Alto, CA 94303
18	Superior Special Services, Inc. (formerly Salesco Systems USA, Inc.)	5736 West Jefferson Phoenix, AZ 85043
19	SET Environmental, Inc.	5738 Cheswood Houston, TX 77087

The Contractor will be required to use the above-listed disposal sites, whether the Work is covered under OCIP or not.

Please note that this list will be revised from time to time and may not be current. Prior to considering use of any of the listed disposal sites/designated facilities, a current list should be obtained either from the Port Risk Management Department or Environmental and Safety Department.

The Contractor shall obtain documentation of the actual disposal or destruction of waste at a designated facility through a disposal certificate or certificate of destruction and forwarding the original to the Port.

9. SUPPLEMENT TO Document 00810, **PORT OF OAKLAND NON-DISCRIMINATION AND SMALL LOCAL BUSINESS UTILIZATION POLICY.**

SUPPLEMENT TO SECTION II. DEFINITIONS:

After the definition for "Department" add a new definition, which reads:

“Design-Builder” Shall mean any firm entering a contract with the Port in which the scope of work includes both the furnishing of design services for which professional registration is required under the California Business & Professions Code and construction contracting services for which a contractor’s license is required under the California Business & Professions Code.”

SUPPLEMENT TO SECTION III. PROGRAMS:

Add a new section E. Selection of Design Builders, which reads:

“E. Selection of Design-Builders

“Sealed Low Bid awards. For those contracts in which the Design-Builder is selected according to the lowest responsive and responsible bid, preference points will be awarded in the manner described in Part III, Section B, and its implementing regulations.

“Competitive Negotiation or Best Value awards. For those contracts in which the Design-Builder is selected through a process of competitive negotiation or Best Value, the Port will award preference points according to the following method.

“The Port, through its Selection Committee, will evaluate competing design-builder proposals based on a one hundred (100) point scale. Up to eighty-five (85) of the points will be allocated based on an evaluation of technical excellence of the consultant; up to fifteen (15) points will be allocated based on the following factors:

“Proposers may be awarded up to five (5) preference points depending on the proportionate share of work to be done by the prime and the subconsultants/subcontractors located in the LIA or LBA. Proposers may be awarded up to three (3) preference points depending on the proportionate share of prime contract work (all work performed by the prime contractor, whether professional services or construction) to be done by firms located in the LIA or the LBA. Proposers may be awarded up to four (4) preference points depending on the length of time the prime contractor and the subconsultants/subcontractors have been located in the LIA or the LBA. Proposers may be awarded up to three (3) preference points for demonstrating their commitment to Port community values and programs.”

Sections E-S shall now become Sections F-T.

SUPPLEMENT TO SECTION IV. REGULATIONS.

Replace A. Preference Points in Award of Construction and Consultant Contracts with A. Preference Points in Award of Construction, Consultant and Design Build Contracts.

Add a new section 1.6, which reads

“1.6 Preference Points for Design-Builders. In order to receive preference points, all certifications must be complete by the proposal due date. To be certified for a particular project, a contractor must submit a Database Questionnaire and all

supporting documents at least ten (10) business days prior to bid opening or submit a copy of a current City of Oakland Local Business Enterprise (LBE) or Small Local Business Enterprise (SLBE) certification letter with the bid documents.

"1.61 Proposers may be awarded up to five (5) preference points depending on the proportionate share of work to be done by firms (professional services and construction) located in the LIA or the LBA.

- "a. If all the contract work is to be performed by firms (professional services and construction) located within the LIA, the proposer will be awarded 5 points; or
- "b. If all the contract work is to be performed by firms (professional services and construction) located within the LBA, the proposer will be awarded 2.5 points; or
- "c. If the contract work is to be divided among offices within the LIA, LBA, and outside the LBA, the proposer will be awarded proportionate shares of the 5 LIA and 2.5 LBA points depending on the percentage of total work being done by firms (professional services and construction) in each area.

"1.62 Proposers may be awarded up to three (3) preference points depending on the proportionate share of prime contract work (all work performed by the prime contractor, whether professional services or construction) to be done in the LIA or the LBA.

- "a. If all the prime contract work is performed by a LIABE, the proposer will be awarded 3 points; or
- "b. If all the prime contract work is performed by a LBABE, the proposer will be awarded 1.5 points; or
- "c. If the prime contract work is divided among LIABE, LBABE, and/or firms located outside the LBA, as in the case of a joint venture or other form of strategic alliance, the proposers will be awarded proportionate shares of the 3 LIA and 1.5 LBA points depending on the percentage of prime contract work being done in each area.

"1.63 Proposers may be awarded up to four (4) preference points depending on the length of time the prime and the subconsultant/subcontractor have been located in the LIA or the LBA.

- "a. A proportionate share of 2 points will be awarded based on the percentage share of work being done by the prime or the subconsultants/subcontractors who have been located in the LIA or the LBA for more than 2 years but less than 5 years.

- “b. A proportionate share of 4 points will be awarded based on the percentage share of work being done by the prime or the subconsultants/subcontractors who have been located in the LIA or the LBA for 5 or more years.

“1.64 Proposers and their subs may be awarded up to three (3) preference points depending on the proportionate share of work to be done by firms (professional services and construction) for demonstrating their commitment to the Port’s community values and programs. Examples of this commitment may include proposers which do the following:

- “a. Mentor small local firms;
- “b. Commit to hiring local interns, student, or participating in local pre-apprentice and apprentice job training programs;
- “c. Participate in trade fairs or job fairs targeted to LIA businesses and job seekers;
- “d. Participate in other activities which are dedicated to the economic development of LIA businesses, citizens and students.

“1.65 For professional service consultants who will receive LIA or LBA preference points, the work must be performed at the qualifying office.”

10. Delete Document 00821 **SURETY BOND PROGRAM** in its entirety and **replace with Document 00821 SURETY BOND PROGRAM included in this Project Manual.**

END OF DOCUMENT



PORT OF OAKLAND

Owner Controlled Insurance Program
OCIP Projects, Including:

Airport Roadway Project

Vision 2000 Maritime Project

**Metropolitan Oakland International Airport
Terminal Expansion & Roadway Interchange Project**

Project Insurance Manual

AON
Aon Risk Services
Construction Services Group
License Number 0363334



OWNER CONTROLLED INSURANCE PROGRAM

Insurance Manual

Port of Oakland

OCIP Projects

530 Water Street

Oakland, CA 94607

Phone (510) 627-1623 Fax (510) 627-1625

Table of Contents

SECTION 1	OVERVIEW	1
	<i>Project Definitions</i>	
	ABOUT THIS MANUAL.....	3
	WHAT THIS MANUAL DOES	
	WHAT THIS MANUAL DOES NOT DO	
SECTION 2	OCIP PROJECT DIRECTORY	4
	OCIP ADMINISTRATION	
SECTION 3	OCIP INSURANCE COVERAGE.....	5
	COVERED PARTIES	5
	PARTIES NOT COVERED	5
	EVIDENCE OF COVERAGE	5
	DESCRIPTION OF OCIP COVERAGES	
	<i>Workers' Compensation / Employer's Liability</i>	6
	<i>Commercial General Liability</i>	6
	<i>Excess Liability</i>	8
	<i>Contractor's Pollution Legal Liability</i>	9
	<i>Builder Risk</i>	10
	<i>Project-specific Professional Liability</i>	11
	OCIP TERMINATION OR MODIFICATION	13
SECTION 4	CONTRACTOR REQUIRED COVERAGE	14
	CONTRACTOR MAINTAINED COVERAGES	
	<i>Workers' Compensation / Employer's Liability</i>	15
	<i>Commercial General Liability / Umbrella Liability</i>	16
	<i>Ocean Marine Liability</i>	16
	<i>Automobile Liability</i>	16
	<i>Property</i>	17
	<i>Aviation Liability</i>	17
	<i>Environmental/Pollution Liability (Disposal Facility)</i>	17
SECTION 5	CONTRACTOR RESPONSIBILITIES	19
	CONTRACTOR BIDS	20
	ADJUSTMENTS FOR INSURANCE COSTS	20
	ENROLLMENT	21
	SAFETY GUIDELINES	21
	ASSIGNMENT OF RETURN PREMIUMS	21
	PAYROLL REPORTS	22
	INSURANCE COMPANY PAYROLL AUDIT	22
	CHANGE ORDER PROCEDURES ENROLLMENT	22
	CLOSE OUT AND AUDIT PROCEDURES ENROLLMENT	23
SECTION 6	CLAIMS PROCEDURES.....	24
	WORKERS' COMPENSATION CLAIMS	24
	LIABILITY CLAIMS	25
	BUILDERS RISK CLAIMS	25
	AUTOMOBILE CLAIMS	26
	POLLUTION / PROFESSIONAL LIABILITY CLAIMS	26
SECTION 7	FORMS	27

Overview

Welcome to the Port of Oakland's Owner Controlled Insurance Program (OCIP)

The Port of Oakland has arranged for a number of its construction projects to be insured under an Owner Controlled Insurance Program (OCIP). An OCIP is a single insurance program that insures the Port of Oakland, Enrolled Construction Managers, Consultants, Contractors and Subcontractors under Contract with the Port of Oakland and other parties designated by the Port of Oakland for Work performed at the Project Site. Certain Contractors and Subcontractors are excluded from this program. These parties are identified in Section 3 of this manual.

Project Definitions (as used in this Manual)

An **OCIP** is a centrally coordinated insurance program providing certain insurance coverage as generally described in this manual for Work at the Project Site.

The **Work** is operations as fully described in the Contract, performed at or emanating directly from the Project Site. The **Work** also includes the entire completed construction project(s) or the various separately identifiable parts required of the project(s).

The **Project Site** is that certain location(s) generally described in the Project Summary and Project Plans. The **Project Site** also includes areas adjacent to or nearby location(s) where incidental operations are performed, excluding permanent locations of any insured party, other than those of the Port of Oakland.

The term **Contract** refers to a written agreement between the Port of Oakland and Contractor for specific **Work** and also includes any agreement between a Contractor and a Subcontractor of any tier.

The term **Contractor** or **Subcontractor** refers to a person, firm, joint venture, corporation or other party that has entered into a **Contract** with either the Port of Oakland (in the case of a Contractor) or Contractor (in the case of a Subcontractor) to perform **Work** at the **Project Site**.

OVERVIEW

The term *Enrolled* applies to those eligible parties that have submitted all necessary enrollment forms and have been accepted into the OCIP.

The term *Specialty Contractors* applies to those insured parties performing on-site hazardous material/waste remediation activities eligible for all OCIP coverages except Workers' Compensation and Employer's Liability.

OCIP Coverage includes Workers' Compensation, Employer's Liability, Commercial General Liability, Excess Liability, Contractor's Pollution Legal Liability, Project-specific Professional Liability (if applicable to the *Work*), and Builder's Risk insurance.

The Port of Oakland will pay insurance premiums for the OCIP coverage described in this manual. Enrolled Contractors and Subcontractors should notify their respective insurer(s) to delete their coverage provided under the OCIP for on-site activities and the related cost for their respective contracts. **Each bidder is required to exclude in the bid price the normal cost for insurance coverage to be provided by the Port of Oakland OCIP.**

NOTE:

Insurance coverages provided under the OCIP are subject to terms, conditions, and limits stipulated in the OCIP insurance policies and are specific to work performed after enrollment into the OCIP. Each Contractor's/Subcontractor's respective insurance representative should review this information. Any additional coverage will be at the option and expense of the Contractor/Subcontractor.

About This Manual

The Project Insurance Manual was prepared by Aon Risk Services, Inc. of Northern California and the Port of Oakland. Aon is the **OCIP Administrator** for this program. The manual is designed to identify, define and assign responsibilities for the administration of the Port of Oakland OCIP.

What This Manual Does

This Manual:

- Generally describes the structure of the Port of Oakland's OCIP
- Identifies responsibilities of the various parties involved in the project(s)
- Provides a *basic* description of OCIP coverage
- Describes audit and administrative procedures
- Provides answers to basic questions about the OCIP
- Will be updated as necessary

What this Manual Does NOT Do

This Manual does not:

- Provide coverage interpretations
- Provide complete information about coverages
- Provide answers to specific claims questions

Refer questions concerning the OCIP, its administration or coverages to the appropriate party identified in the Project Directory. The Directory immediately follows this introduction.

DISCLAIMER:

The information in this manual is intended to outline the OCIP. If any conflict exists between this manual and the OCIP insurance policies or Contracts between the Port of Oakland and the Contractor, the policies or Contracts will govern.

OCIP Project Directory

The following list includes key insurance personnel involved in the project.

OCIP Administration

Port of Oakland - OCIP Administration Office
Aon Risk Services of Northern California
JLA Insurance Agency
Dealey Renton & Associates

530 Water Street
Oakland, CA 94607

(510) 627-1623 (telephone)
(510) 627-1625 (fax)

Aon - Program Manager – Mimi Lee
Aon - Insurance Administrator - Maria Villafuerte / Mai Hua
Aon - Operations Manager – Willie Nash, Jr.

JLA - Site Safety Representative – Bob Metzger
JLA - Principal – Jonathan Leong

Professional Liability
Dealey - Professional Liability Oversight – Carolyn Isseks
- **Professional Liability Program Mgr** - Michael Marx

Port of Oakland - Risk Management Department

Risk Manager - Jane Keegan
Sr. Risk Mgmt. Analyst - Audree Thomas
Risk Mgmt. Analyst - Jackie Chow

(510) 627-1535 (telephone)
(510) 627-1532 (telephone)
(510) 627-1106 (telephone)

OCIP Insurance Coverage

This chapter provides a brief description of OCIP Coverage, but is not meant to be a detailed analysis of the insurance provided. Refer to the actual policies for details concerning coverage, exclusions and limitations, and other insurance provisions.

Covered Parties

Covered Parties are insureds on the OCIP policies and include the Port of Oakland, Construction Managers, Consultants, Architects and Engineers Enrolled with full-time dedicated staff on the Project site, and Contractors and Enrolled Subcontractors. Parties named as additional insureds include other parties that the Port of Oakland is required under Contract to add as additional insureds. These parties are also referred to as insureds. **Eligible Parties** are those persons or entities that are eligible to become Covered Parties under the OCIP, but have not yet done so.

Excluded Parties

Excluded Parties are those parties connected with the Work that are precluded from OCIP coverage. They include (a) vendors, suppliers, fabricators, material dealers, truckers, haulers, drivers and others who solely transport, pickup, deliver, or carry materials, personnel, parts or equipment or other items or persons to or from the Project Site and (b) Contractors and each of their respective Subcontractors who do not perform any actual labor on the Project Site. The Port of Oakland reserves the right, at its sole discretion, to include or exclude any Contractor or Subcontractor from the OCIP.

Evidence of Coverage

Covered Parties will be issued an individual workers' compensation policy and will receive from the OCIP Administrator a Certificate of Insurance reflecting coverage for Workers'

OCIP INSURANCE COVERAGE

Compensation, Employer’s Liability, Commercial General Liability, Excess Liability, Contractor’s Pollution Legal Liability, Builder’s Risk, and Project-specific Professional Liability insurance (if applicable). A *Certificate of Insurance* is a document providing evidence of existing coverage for a particular insurance policy or policies. Other documentation including forms, posting notices, etc., will be furnished to each Covered Party listed above. Complete copies of policies will be furnished to an authorized representative of each Covered Party on request.

Description of OCIP Coverages

The following sections describe the insurance policies that the Port of Oakland has arranged for this project at its minimum.

Coverage provided by TIG Insurance.

Each Enrolled

Contractor and Subcontractor will be issued a separate workers’ compensation policy

Workers’ Compensation and Employer’s Liability

Part One - Workers’ Compensation:

Statutory Limit

Part Two - Employer’s Liability:

Annual Limits Per Insured

Bodily Injury by Accident, each accident	\$ 2,000,000
Bodily Injury by Disease, each employee	\$ 2,000,000
Bodily Injury by Disease, policy limit	\$ 2,000,000

Policy Enhancements

- Other States Endorsement
- Designated Premises Endorsement
- Waiver of Subrogation Endorsement
- Alternate Employer Endorsement
- Voluntary Compensation Including Athletic Events Endorsement
- USL&H, Maritime/Jones Act and FELA on “if any” basis, including Marine Employer’s Liability

Coverage provided by TIG Insurance.

A single policy will be issued for all Covered Parties. The policy is available for review at the Port’s office upon request.

Commercial General Liability

Limits of Liability Shared by All Insureds

General Aggregate	\$ 4,000,000
Products/Completed Operations Aggregate	\$ 4,000,000
Personal/Advertising Injury Limit	\$ 2,000,000
Each Occurrence Limit	\$ 2,000,000

OCIP INSURANCE COVERAGE

**GENERAL
LIABILITY
CHARGE**

Fire Damage Legal Liability (any one fire) \$ 1,000,000
 Medical Expense Limit (any one person) Excluded

- **Definition of Charge** is the amount the Contractor or Subcontractor is responsible for paying as its contribution for settlement of any insured loss.
- for Contracts \$1,000,000 and over - The charge is up to \$ 10,000 per occurrence caused by Contractor or its Subcontractor of any tier
- for Contracts below \$999,999 - The charge is up to \$ 5,000 per occurrence caused by Contractor or its Subcontractor of any tier
- To the extent the Commercial General Liability insurance provided under the OCIP extends coverage for Contractor's liability for the cost to repair, replace, alter or remove Contractor's Work due to a defect in such Work or that of any of its Subcontractors, Contractor shall be responsible for the full amount of any deductible described in the Commercial General Liability Policy applicable to such insurance coverage.

Policy Enhancements

- Insurance Services Office (ISO) Occurrence Form 1996
- Broad named insured
- Amended contractual liability coverage to include "other easements"
- Amended Bodily injury definition
- 50' railroad limitation deleted
- Worldwide coverage for suits brought in USA, its territories and Canada
- Delete Personal Injury/Advertising Injury contractual liability exclusion
- Fellow employee coverage – supervisory personnel only
- Incidental medical malpractice
- "Silent" on subsidence and punitive damages
- Annual reinstatement of aggregates as defined in policies (except Products/Completed Operations)
- Ten (10) Year Products and Completed Operations Extension beyond final acceptance of the project (Single Aggregate)
- Exclusions apply - See actual OCIP Policy for details. Exclusions include, but are not limited to Personal Property in the Care, Custody, and Control of the Insured; Pollution; Asbestos; Discrimination & Wrongful Termination; ERISA; Owned, Non-Owned and Hired Automobile Liability

NOTE: Protection & Indemnity coverage provided under separate cover on a project-by-project basis by Continental Insurance through MOAC.

Note:
 See General Liability Charge that may apply.

OCIP INSURANCE COVERAGE

Excess Liability

Coverage provided by AIU and other companies.

Each Occurrence Limit
Project Term Aggregate Limit

Limits of Liability
Shared by All Insureds
\$ 300,000,000
\$ 300,000,000

Policy Enhancements

A single policy will be issued for all Covered Parties. The policy is available for review at the Port's office upon request.

- “Following Form” underlying General and Employer’s Liability wording
- “Silent” on Subsidence
- Ten (10) Year Products & Completed Operations Extension beyond final acceptance of the project (Single Aggregate)
- Exclusions apply - See actual OCIP Policy for details. Exclusions include, but are not limited to, Personal Property in the Care, Custody or Control of the Insured; Pollution; Asbestos; Discrimination & Wrongful Termination; ERISA; Architects & Engineers Errors & Omissions; Owned & Non-owned Aircraft, and Automobile Liability; Nuclear Broad Form Liability

Coverage provided by American Int'l Specialty Lines Insurance (AISLIC).

A single policy will be issued for all Covered Parties. The policy is available for review at the Port's office upon request.

POLLUTION LIABILITY DEDUCTIBLE

- **Definition** of *Deductible* is the amount the Contractor or Subcontractor is responsible for paying as its contribution for settlement of any insured loss.
- for Contracts as follows:
 - below \$99,999 - \$10,000 per Loss
 - \$100,000 to \$499,999 \$25,000 per Loss
 - \$500,000 to \$4,999,999 \$50,000 per Loss
 - over \$5,000,000 \$100,000 per Loss up to a maximum of \$500,000
 Policy Aggregate, subject thereafter to \$10,000 per Loss caused by Contractor or its Subcontractor of any tier

Contractor's Pollution Legal Liability

Policy Term Aggregate
Each Loss Limit

Limits of Liability	
Shared by All Insureds	
Policy Term Aggregate	\$ 20,000,000
Each Loss Limit	\$ 20,000,000

- Limits include coverage for Bodily Injury, Property Damage, Clean Up Costs and Claim Expenses for unintentional environmental damage caused by pollution conditions.
- Coverage for both sudden and gradual occurrences arising from work performed under the Project
- Ten (10) Year Completed Operations Extension beyond final acceptance of the project (Single Aggregate)
- Coverage extends to Non-Owned Disposal Sites used for these projects. (*NOTE: Contact OCIP Administrator for notification of proposed Site Location to be used and/or list of disposal sites currently covered under OCIP.)
- Exclusions and limitations may apply - See actual OCIP Policy for details

Note:
See Pollution Liability Deductible that may apply.

Coverage provided by Lexington Insurance.

A single policy will be issued for all Covered Parties. The policy is available for review at the Port's office upon request.

Builder's Risk

Policy Loss Limit
For Risks of Direct Physical Loss or Damage

Limits of Liability
Shared by All Insureds
\$500,000,000

Sublimits of Liability
Shared by All Insureds
Earthquake / Water Damage \$25,000,000
Off-site Storage & Transit* \$10,000,000

BUILDER'S RISK CHARGE

- **Definition** of *Deductible* is the amount the Contractor or Subcontractor is responsible for paying as its contribution for settlement of any insured loss.
- for Contracts \$1,000,000 and over - The deductible is up to \$10,000 per occurrence for damage to work of Contractor or any Subcontractor of any tier including damage to work of other contractors caused by Contractor or its Subcontractor-of any tier
- for Contracts below \$999,999 - The deductible is up to \$5,000 per occurrence for damage to work of Contractor or any Subcontractor of any tier including damage to work of other contractors caused by Contractor or its Subcontractor of any tier's

* Prior to fabricating, transporting, or storing covered materials off-site, the Contractor must request and receive written approval from the Port Risk Management Department or the OCIP Administrator for such off-site coverage.

- Covers damage to materials, equipment and fixtures to be *permanently* incorporated into the work, caused by "Risks of Direct Physical Loss or Damage" subject to normal policy conditions and exclusions. See actual OCIP Policy for details on Exclusions and Limitations that may apply.
- Other sublimits apply for Soft Costs, Expediting Expenses and Delayed Opening. Refer to OCIP policy for details.

Note: Contractors and Subcontractors are advised to arrange their own insurance for hired, owned or leased equipment/machinery and materials not intended for inclusion in the Work. The OCIP will not cover Contractor or Subcontractor personal property.

Note:
See Builder's Risk Deductible that may apply.

Coverage provided by Lexington and Zurich Insurance.

A single policy will be issued for all Covered Parties. The policies are available for review at the Port's office upon request.

PROFESSIONAL LIABILITY CHARGE

- **Definition of Self-Insured Retention (SIR)** is the amount the Contractor or Subcontractor is responsible for paying as its contribution for settlement of any insured loss.
- Each Contractor / Consultant (its Subcontractor/Subconsultant of any tier) is responsible for a SIR in the amount not to exceed \$150,000 per claim, up to a maximum of \$500,000 policy aggregate, subject thereafter to a maximum of \$50,000 per claim, for losses payable under the policy and attributable to Contractor/Consultant or its Subcontractor /Subconsultant of any tier.

SEE following page for SIR amounts by contract value.

Project-specific Professional Liability

Term Aggregate
Per Claim

Limits of Liability Shared by All Insureds

\$ 75,000,000
\$ 75,000,000

- Claims Made Form
- 10 years Extended Reporting Period commencing at end of policy term
- Broad named insured
- Full prior acts coverage
- Deleted Products Exclusion
- Deleted Pollution/Asbestos Exclusions
- Non-cancelable policy
- Panel Defense Counsel
- Waiver of Subrogation

Conditions of Coverage:

- Each Covered Party must consent and agree to joint defense/waiver of cross claims or third party claims for negligence, contribution, indemnification or otherwise, arising out of any incident, circumstance, event or claim under the OCIP Professional Liability Policy, against any other Covered Party.
- Contractor's/Consultant's (including its Subcontractor/Subconsultant of any tier) agreement to waive right to block settlement
- Contractor's/Consultant's (including its Subcontractor/Subconsultant of any tier) Acknowledgment of and Cooperation with Program Manager

Note:

This coverage is limited to Architects, Engineers, Consultants, Construction Managers, Program Managers, Environmental Consultants, Remediation Contractors, and other contractors providing professional services related to the Work.

Note:

See Professional Liability Self-Insured Retention that may apply. Coverage is not automatic with respect to Professional Liability - please contact the OCIP Administrator for additional forms for completion.

Self-Insured Retention (SIR) Professional Liability Insurance

Each Covered Party against whom a professional liability claim is made is responsible for a SIR determined at the time a claim is made, as follows:

- For Contracts under \$14,999 \$5,000 per claim
- For Contracts from \$15,000 to \$499,999 \$10,000 per claim
- For Contracts from \$500,000 to \$999,999 \$25,000 per claim
- For Contracts from \$1,000,000 to \$4,999,999 \$50,000 per claim
- For Contracts from \$5,000,000 to \$9,999,999 \$75,000 per claim
- For Contracts over \$10,000,000 or greater \$150,000 per claim

After the applicable OCIP Insurer acknowledges that self-insured retention's of \$500,000 in the aggregate have been paid pursuant to claims under the Project-specific Professional Liability Policy, the maximum self-insured retention shall thereafter be \$50,000 per claim, and each insured under such policy shall be responsible for a self-insured retention, determined at the time a claim is made, as follows:

- For Contracts under \$14,999 \$2,000 per claim
- For Contracts from \$15,000 to \$499,999 \$3,500 per claim
- For Contracts from \$500,000 to \$999,999 \$8,500 per claim
- For Contracts from \$1,000,000 to \$4,999,999 \$16,500 per claim
- For Contracts from \$5,000,000 to \$9,999,999 \$25,000 per claim
- For Contracts over \$10,000,000 or greater \$50,000 per claim

Self-Insured Retention for Construction Managers

For each Construction Manager, the professional liability SIR is \$5,000 per claim with an aggregate of \$25,000. If the construction manager is a joint venture, SIR will be the sum of \$5,000 for each of the joint venture partners to a maximum of \$25,000 per claim and \$25,000 in the aggregate.

The descriptions on these pages provide a summary of coverages ONLY. Eligible Parties and Covered Parties should refer to the policies for actual terms and conditions.

OCIP Termination or Modification

The Port of Oakland reserves the right to terminate or modify the OCIP or any portion thereof. If the Port of Oakland exercises this right, Covered Parties will be provided notice as required by the terms of their individual Contracts. At its option, the Port of Oakland may procure alternate coverage or may require Covered Parties to procure and maintain alternate insurance coverage.

Contractor Maintained Coverage

Contractors and Subcontractors are required to maintain coverage to protect against losses that occur away from the Site or that are otherwise not covered under the OCIP.

Contractors and Subcontractors are required to maintain insurance coverage for liability that may arise from operations performed away from the Project Sites', from operations not covered by the OCIP, and/or from operations performed by Excluded Parties. (See Section 3 for definition of Excluded Parties.)

Contractors, which are Eligible Parties ("Eligible Contractors"), must provide current Certificates of Insurance evidencing Commercial Automobile Liability, Workers' Compensation/Employer's Liability, and Commercial General Liability insurance for *off-site activities* as per the insurance specifications in the Contract. (See Section 3 for the definition of Eligible Parties.)

Contractors', which are Excluded Parties ("Excluded Contractors"), must provide current Certificates of Insurance evidencing Commercial Automobile Liability, Workers' Compensation/Employer's Liability, and Commercial General Liability insurance for all activities including **both** *on-site* and *off-site* activities as per the insurance specifications in the Contracts. (See Section 3 for the definition of Excluded Parties.)

See Section 7
for sample Certificate of
Insurance.

CONTRACTOR-REQUIRED COVERAGE

Certificate of Insurance

- Prior to mobilization, and within 20 days of renewal, change or replacement of coverage, Contractors and Subcontractors must submit to the OCIP Administrator a Certificate of Insurance evidencing the coverage and limits as specified in this section.
- A 30-day notice of cancellation provision, waiver of subrogation and additional insured status must be shown on the Certificate of Insurance.

Verification of insurance must be submitted to the OCIP Administrator in the form of a Certificate of Insurance on a standard Acord form 25-S, prior to mobilization and within 20 days of any renewal, change or replacement of coverage. A sample of an acceptable Certificate of Insurance is provided in Section 7. Please note requirements for thirty (30) day notice of cancellation, waiver of subrogation and additional insured status.

Contractors are responsible for monitoring their Enrolled Subcontractors' and Excluded Parties' Certificates of Insurance. The Port of Oakland reserves the right to disapprove the use of Contractors or Subcontractors unable to meet the insurance requirements. Certificates of Insurance evidencing compliance must be available to the Port of Oakland, or the OCIP Administrator upon request.

The limits of liability shown for the insurance required of the Contractors and Subcontractors are minimum limits only and are not intended to restrict the liability imposed on any Contractor and Subcontractor for work performed under the Contract.

Contractor Maintained Coverages

Workers' Compensation and Employer's Liability

Eligible Contractors must provide Certificates of Insurance evidencing workers' compensation insurance for off-site activities.

Excluded Contractors must provide Certificates of Insurance evidencing workers' compensation applicable to the project.

Part One - Workers' Compensation:

Statutory Limit

Part Two - Employer's Liability:

Annual Limits:

Bodily Injury by Accident, each Accident:

\$ 1,000,000

Bodily Injury by Disease, each employee

\$ 1,000,000

Bodily Injury by Disease, policy limit:

\$ 1,000,000

Including U.S. Longshoremen & Harborworkers Act, Maritime/Jones Act, and Federal Employer's Liability Act coverage, if applicable.

CONTRACTOR-REQUIRED COVERAGE

Commercial General Liability/Umbrella Liability

Eligible Contractors must provide Certificates of Insurance evidencing commercial general liability insurance for off-site activities.

	<u>Limits of Liability</u>
General Aggregate	\$ 2,000,000
Products/Completed Operations Aggregate	\$ 2,000,000
Personal/Advertising Injury Limit	\$ 1,000,000
Each Occurrence Limit	\$ 1,000,000

Excluded Contractors must provide Certificates of Insurance evidencing commercial general liability insurance applicable to the Project Site(s) and must add the Port of Oakland and other parties, as required by the Port of Oakland, as additional insureds to their policies.

Coverage must be on an occurrence form and apply to bodily injury and property damage for operations (including explosion, collapse and underground hazards), independent contractors, contractual liability, and products and completed operations. Limits may be provided by a combination of a primary Commercial General Liability policy and an Excess or Umbrella Liability policy, as long as any Umbrella or Excess Liability policy provides coverage as broad as the underlying insurance. All Subcontractors are required to maintain the same limits per occurrence and aggregate as Contractors.

Ocean Marine Liability

All Contractors and Subcontractors must maintain an Ocean Marine Liability policy covering all owned, leased or hired and non-owned watercraft used in any fashion for such operations away from the Project Site and which are not otherwise insured under the OCIP. Such coverage must extend to cover liability for bodily injury (including death) and property damage (including loss of use) with minimum combined limits of **\$10,000,000**. Such insurance shall be maintained in the form of a standard Protection and Indemnity policy which includes coverage for wreck removal, unlimited protection and indemnity, pollution liability and Jones Act exposures.

Automobile Liability

All Contractors and Subcontractors must provide Certificates of Insurance evidencing automobile liability insurance. The OCIP does not cover automobile liability.

All Contractors and Subcontractors must maintain a Commercial Automobile Liability policy covering all owned, hired and non-owned automobiles, trucks and trailers with coverage limits not less than **\$1,000,000** combined single limit each accident for Bodily Injury and Property Damage and not less than **\$5,000,000** combined single limit each accident for Bodily Injury and Property Damage for any operations performed at the South Field - the "Aviation Operations Area (AOA)" or any active airfields of the Oakland International Airport. Coverage must apply both on and off the Project Sites. All Subcontractors, vendors, suppliers and materialmen are required to maintain the same **limits of coverage**.

Automobile Liability - related to Hazardous Materials/Waste

Contractors and Subcontractors whose Work involves removal or treatment of hazardous or regulated materials must provide and maintain a Commercial Automobile

CONTRACTOR-REQUIRED COVERAGE

Liability policy covering all owned, hired and non-owned automobiles, trucks and trailers with coverage limits not less than **\$10,000,000 Combined Single Limit** each accident for Bodily Injury and Property Damage. Such coverage must specifically schedule the type of work as defined in the Contract and must be provided on the terms and conditions as required in the Contract. A Certificate of Insurance evidencing such coverage, if applicable, must be submitted to the OCIP Administrator prior to commencing any such work. Such certificate shall include the amendment of the pollution exclusion of ISO Form CA 00 01 06/92 (or its equivalent) in the following manner:

- A) DELETE SECTION a.(1) a.: (POLLUTION) "BEING TRANSPORTED OR TOWED AWAY BY, OR HANDLED FOR MOVEMENT INTO, ONTO OR FROM THE COVERED AUTO.
- B) DELETE SECTIONS a.(1)b.: "OTHERWISE IN THE COURSE OF TRANSIT BY THE INSURED"

Such policy must also include the MCS-90 Endorsement. If the Port of Oakland is scheduled as an additional insured, the policy must be endorsed to specifically limit the reimbursement provisions of the MCS-90 to the Named Insured.

Property Insurance

Contractors and Subcontractors are advised to arrange their own insurance for owned or leased equipment/machinery/tools and materials, whether such equipment is located at or away from a Project Site or "in transit." Contractors and Subcontractors are solely responsible for any loss or damage to their personal property including, without limitation, property or materials created or provided under the Contracts until installed at the Project Site, contractor tools and equipment, scaffolding and temporary structures, whether owned, used, leased or rented. Such personal property is not covered by the OCIP.

Aviation & Watercraft Liability

The operator of watercraft or aircraft of any kind used in connection with the Work or Project Site, must maintain liability insurance naming the Port of Oakland and the respective Contractor and/or Subcontractor as an additional insured with primary and non-contributory wording. In addition, the limit of liability must be satisfactory to the Port of Oakland. Such insurance requirements will be determined by the Port of Oakland as the need arises.

Environmental/Pollution Liability - from Disposal Facility

If the Work involves disposal of hazardous or regulated substances, hazardous or regulated waste, and/or hazardous or regulated materials, the Contractor / Subcontractor shall furnish Certificates of Insurance from the designated disposal facility establishing that the facility owner maintains current Environmental Liability Insurance, in a form acceptable to the Port of Oakland with limits of not less than \$5,000,000 per Loss and \$5,000,000 Annual Aggregate. A Certificate of Insurance evidencing such coverage, if applicable, must be submitted to the OCIP

CONTRACTOR-REQUIRED COVERAGE

Administrator prior to commencing any such work.

Note: Waivers Required

Contractor Workers' Compensation, Commercial General Liability, Automobile Liability Umbrella and/or Excess Liability, Property, Protection and Indemnity, Aviation and Environmental insurers must provide Waivers of Subrogation in favor of the Port of Oakland and other designated parties. Commercial General, Umbrella, Excess Liability, Contractor's Pollution Legal, Business Auto Liability, Protection and Indemnity and Aviation Policies must name the City of Oakland, a municipal corporation, acting by and through its Board of Port Commissioners, and their officers, agents, and employees, consultants and representatives, while acting in the scope of their authority as additional insureds. The policies must also state that coverage is primary and non-contributory.

Contractor Responsibilities

Throughout the course of the Work, Contractors have reporting responsibilities and must maintain certain records as outlined in this section.

The Contractor is required to cooperate with the Port of Oakland and its OCIP Administrator in all aspects of OCIP operation and administration. Each Contractor must:

- Assist in identifying the cost of insurance through providing estimated payroll reports by Workers' Compensation class code and estimated hours for work performed on the Project Site;
- Provide each Subcontractor with a copy of the Insurance Manual and Project Safety Standards;
- Enroll in the OCIP;
- Include OCIP provisions in all subcontracts as appropriate;
- Provide timely Certificates of Insurance to the OCIP Administrator;
- Notify the OCIP Administrator of all subcontracts awarded;
- Maintain and report monthly payroll records;
- Provide all information requested by the OCIP Administrator;
- Comply with insurance, claim and safety procedures;
- Pay contract charges, deductible or retention promptly as required; and
- Notify the OCIP Administrator immediately of any insurance cancellation or non-renewal (Contractor-required insurance).

Contractor Bids

See Section 7 for sample forms that can help identify your insurance costs. See Section 2 for information on contacting the OCIP Administrator.

The Port of Oakland provides insurance for all Enrolled Contractors and Subcontractors under the OCIP for Work performed at the Project Site. The section below, “Adjustments for Insurance Costs” describes the procedures for bidding, and how you must account for insurance costs. Section 7 of this manual contains several worksheets that can help you estimate your insurance costs. The OCIP Administrator can also help with your estimate.

Adjustments for Insurance Costs

Each Contractor/Subcontractor, Consultant/Subconsultant, Architect/Engineer, and all other Eligible Parties are required to *exclude* the cost of insurance in the bid price for the proposed scope of Work (including subcontracted work whether or not the Subcontractor is identified at the time of the bid).

To aid the OCIP Administrator in identifying the insurance costs related to the OCIP, the Eligible Party is also required to submit, within 20 calendar days from the award date, a completed Insurance Credit Worksheet (Aon Form-1), contained in Section 7. A separate form for self-performed work and each identified Subcontractor must be provided under Aon Form-2. The estimated unburdened payroll, associated work hours and projected Contract amount are captured on the Aon Form-1. Should there be full-time dedicated on-site clerical or supervisory staff, the Eligible Party must disclose estimated on-site payrolls and work hours for these staff members as well. This information is also used by the OCIP Administrator to verify the insurance costs. Each Eligible Party will be required to provide copies of the following documents to support its insurance cost calculations:

- Declarations and Rate Pages from each line of coverage for which the Eligible Party may currently have (Workers' Compensation, General Liability and Excess Liability at a minimum)
- 5 Years of Loss Experience (and associated payroll, receipts or rating basis) for each line of coverage in which the Eligible Party retains more than \$5,000 per Occurrence, per Claim or per Loss
- Schedule of Values
- Experience Modification Worksheet

In those instances where the Aon Form-1 and/or Aon Form-2 are not complete or are not specific to the scope of Work, the Eligible Party will be asked to re-complete the forms for their Work, as needed.

Change orders must be priced by the Contractor and its Subcontractors to *exclude* their cost of insurance.

CONTRACTOR RESPONSIBILITIES

Under the Port of Oakland's OCIP, the final Contract value and the final payroll breakdown are determined by the OCIP insurance company audit. The audited contract information will be used to calculate the Covered Party's true insurance costs (in the absence of the OCIP). If the results of this comparison demonstrate that the final payrolls would have produced a significantly different Insurance Credit, an additional Insurance Credit may be withheld from the Covered Party's retention.

Enrollment

See Section 7 for sample OCIP forms.

Each Contractor must provide details about its Subcontractors to the OCIP Administrator as necessary to enroll them in the OCIP. Each Contractor must provide to the OCIP Administrator all of the information requested on the Enrollment Application (Aon Form-3) in Section 7. This form must be completed and submitted to the OCIP Administrator within 20 calendar days after award date, and prior to mobilization to obtain coverage under the OCIP.

A separate Enrollment Application (Aon Form-3) is required for each Eligible Subcontractor of any tier which performs Work at the Project Site. A separate Workers' Compensation policy will be issued to each Enrolled Contractor and Subcontractor.

Each Enrolled Contractor or Subcontractor will receive a **Confirmation Letter** which is a letter issued by the OCIP Administrator that confirms acceptance of the applicant into the Port of Oakland OCIP.

Note: Enrollment is not automatic

Enrollment into the OCIP is required, but not automatic. Eligible Parties, including all Eligible Contractors and all Eligible Subcontractors MUST complete the enrollment forms and participate in the enrollment process for OCIP coverage to apply. Access to the Project Site will not be permitted until enrollment is complete.

Safety Guidelines

Construction Safety Standards establishing minimum standards or guidelines for Contractor safety programs are provided to all participants during the bidding process.

Each Contractor is required to establish a written safety program and to provide a designated safety representative who is on site when any work is in progress. Minimum standards for contractor programs are outlined in the Port of Oakland's Project Safety Standards.

Assignment of Return Premiums

The cost of the OCIP insurance coverage is paid by the Port of Oakland. The Port of Oakland will be the sole recipient of any return OCIP premiums or dividends. All Enrolled Contractors and Subcontractors (including Consultants/Subconsultants, Architects and Engineers) must assign, to the Port of Oakland, all adjustments, refunds,

CONTRACTOR RESPONSIBILITIES

premium discounts, dividends, credits or any other monies due from the OCIP insurer(s). Contractors must assure that each Enrolled Subcontractor has executed such an assignment. The Enrollment Application (Aon Form-3) supplied in Section 7 must be used for this purpose.

Payroll Reports

Each Enrolled Contractor and Subcontractor of every tier must submit and certify monthly payroll reports identifying work hours and payroll for all Work performed at the Project Site. Certified payroll records must be maintained by Contractor and be made available upon request. This information will be used to provide the OCIP Insurer with information required for determining the Port of Oakland's premium.

Monthly payroll reports must be submitted prior to the 10th of the following month. Use the Payroll Report (Aon Form-4) provided in Section 7. The monthly work hour and payroll reports should include supervisory and clerical personnel on-site and cover all Work performed at or emanating directly from the Project Site.

Insurance Company Payroll Audit

Each Enrolled Party (Contractor/Subcontractor, Consultant/Subconsultant, Architect, Engineer) is required to maintain payroll records for each Contract. Such records must allocate the payroll by Workers' Compensation classification(s) and exclude the excess or premium paid for overtime (i.e., only the straight time rate will apply to overtime hours worked). Furthermore, such records must limit the payroll for Executive Officers and Partners/Sole Proprietors to the limitations as stated in the State Manual Rules.

It is important that payrolls be classified properly, as these are reported to the rating bureau for promulgation of future Experience Modifiers for each Contractor and Subcontractor. All Enrolled Parties must make available their books, vouchers, contracts, documents, and records, of any and all kinds, to the auditors of the OCIP insurance carrier(s) or the Port of Oakland's representatives. These records must be made available for the entire policy period, any extension, and during a final audit period as required by the insurance policies.

Note: Failure to submit the payroll reports as required may result in the withholding of payments until required documentation is received.

Change Order Procedures

Change orders must also be priced exclusive of any insurance costs. The Contractor and Subcontractor must identify and provide estimated on-site payrolls and work hours related to each change order so that the OCIP Administrator may identify the cost of insurance for the coverages that are provided by the Port of Oakland.

Close Out and Audit Procedures

The Notice of Work Completion (Aon Form-5) must be submitted when a Contractor and/or an associated Subcontractor has completed its Work at the Project Site and no longer has on-site workers. The Aon Form-5 will initiate the final payroll report and audit of payroll and work hours by the OCIP Insurer. The **OCIP Insurer** is the insurance company(ies) that provides coverage for the OCIP and is named on a policy or certificate of insurance. A copy of the Notice of Work Completion (Aon Form-5) with instructions on the proper method for completion may be found in Section 7.

Final payment will not be released by the Port of Oakland until all necessary forms have been submitted to the OCIP Administrator. Any charges or deductibles for which the Contractor or Subcontractor of any tier is responsible will be considered at the time of close-out. Charges/deductibles will *not* be considered if previously reimbursed.

Claim Procedures

This section describes basic procedures for reporting various types of claims: workers' compensation, liability, and damage to the project, pollution and professional liability.

Workers' Compensation Claims

A Claims Kit will be provided to all Covered Parties. It includes details about claims reporting and is intended for use at the job site.

In the event of any worker injury, the main responsibility for any Contractor and/or Subcontractor is first to see that the injured worker receives immediate medical care. The OCIP Administrator must be notified immediately in the event of a serious injury or accident.

For every worker injury, an Employer's First Report of Injury (Form 5020 or LS-202) must be completed and submitted to the OCIP Carrier and the OCIP Administrator, along with the DWC-1 (Employee's Claim) and a supervisor's Report of Injury form. These forms are contained in the Claims Kit. **Contractor may report a claim telephonically by calling 1-888-844-0015. However, Contractor must request from carrier claim intake representative to provide written confirmation that claim was reported. Such confirmation needs to be provided to the OCIP Administrator.**

The OCIP Administrator will provide Claims Kits to all Enrolled Contractors and Subcontractors. These kits include appropriate claim forms and postings. Additional kits or claims forms may be obtained from the OCIP Administrator or the insurance carrier's claims coordinator.

The OCIP Insurer will arrange with preferred medical providers for treatment of all minor or non-life threatening injuries. A list of these providers will be provided in the Claims Kit.

Contractors and Subcontractors must designate a representative at the Project Site to take injured employees to the medical center, and to report the claim. This individual is to remain with the injured employee at the center while he/she is being treated. The treating physician should provide a written description stating whether or not the injured employee can return to work, a list of restrictions if any, and the estimated length of time he/she will stay on modified duty. The Port of Oakland supports transitional modified work to keep injured workers gainfully employed during recovery.

CLAIMS PROCEDURES

The OCIP insurer will arrange with the local 911 emergency ambulance services for response to any serious traumatic life threatening injuries and will provide information for insertion in this manual and in the Claims Kit.

Modified Duty / Return To Work Policy

All Contractors/Subcontractors are to advise their employees of this procedure and their responsibilities for the Modified Duty and Return to Work Policy.

Each Contractor/Subcontractor agrees to modified duty, and will require supervisors to perform the following tasks:

1. Identify modified work tasks.
2. Send all of your work injuries to the designated medical provider.
3. Be familiar with medical provider location and staff.

Contractors are responsible for notifying the Occupational Safety and Health Administration (Cal-OSHA) when one or more of their employees are seriously injured.

Liability Claims

Report all liability claims to the OCIP Administrator.

Accidents at or around the Project Site resulting in damage to property of others (other than the Contractor's own work product), or bodily injury or death to a member of the public, must be reported immediately to the OCIP Administrator or the OCIP Insurer's claims coordinator. Complete and deliver the General Liability Loss Notice (Acord Form 3) to the OCIP Administrator within 24 hours of the incident.

Do *not* voluntarily admit liability. Each Contractor must cooperate with the Port of Oakland or the OCIP Insurer representatives in the accident investigation.

The Contractor will be assessed a charge for any damages/injuries caused by the Contractor or its Subcontractors to third parties. Refer to Section 3 - OCIP Coverages for amounts that apply.

Builder's Risk Claims

Report all Builder's Risk claims to the OCIP Administrator.

Any damage to your Work or the Work of any other Contractor or Subcontractor must be reported to the OCIP Administrator. In addition, the Property Loss Notice (Acord Form 1) must be completed and submitted it to the OCIP Administrator.

CLAIMS PROCEDURES

Contractor will be assessed a charge for damage to Contractor's Work or the Work of any other Contractor caused by Contractor or Subcontractors of any tier. Refer to Section 3 - OCIP Coverages for amounts that apply.

Automobile Claims

Report all auto claims to your insurance carrier and the OCIP Administrator.

No coverage is provided for automobile accidents under the OCIP. It is the sole responsibility of each Contractor and Subcontractor to report accidents/claims involving their automobiles to their own auto insurers.

HOWEVER, all accidents, including vehicular accidents, occurring in or around the job site must be reported to the OCIP Administrator. Accident investigations will focus on liability arising out of the project construction activities that could result in future claims (i.e. due to the conditions of the roads, etc.) Each Contractor and Subcontractor must cooperate in the investigation of all automobile accidents.

Pollution Claims

The Port of Oakland's OCIP will provide a Contractor's Pollution Legal Liability policy. All known or suspected pollution incidents or claims must be immediately reported to the Port's Project Manager and the OCIP Administrator. Complete and deliver the General Liability Loss Notice (Acord Form 3) to the OCIP Administrator.

Professional Liability Claims

All known or suspected incidents or claims must be immediately reported to the Port's Project Manager and the OCIP Administrator. Complete and deliver the General Liability Loss Notice (Acord Form 3) to the OCIP Administrator.

Forms

This section contains the forms needed for reporting claims, reporting payroll and administration of the OCIP.

This section contains the following forms:

Aon 1	Insurance Credit Worksheet
Aon 2	Insurance Summary
Aon 3	Enrollment Application
Aon 4	Payroll Report
Aon 5	Notice of Work Completion
Aon 6	On-Site Workhours / Incident Report
Claim Forms	Contractor Accident Investigation Form Form 5020 (CA) - Employer's Report of Employee Injury Form LS-202 (Fed) - Employer's Report of Employee Injury Acord-3 - Liability Notice of Occurrence Acord-1 - Property Loss Notice Acord-2 - Automobile Loss Notice
ERM-14	Experience Rating Plan Manual Form
Exhibit 1	Sample Certificate of Insurance

Note

For assistance in completing these forms, please contact:

Port of Oakland - OCIP Administrator (510) 627-1623

Aon Risk Services / JLA Insurance Agency

1. Contractor Information:

Federal ID No.: _____

▼ **Business Information** (headquarters)

▼ **Contact Information** (address questions to..)

Company Name & dba /
Contact Name & Title: _____

Address: _____

City, State Zip Code: _____

Telephone: _____

Fax: _____

2. Bid Information:

Bid Package No.: _____

Scope of Work: _____

Proposed Contract Price: _____

Amount of Self Performed Work: _____

Are you a: Contractor
Subcontractor

If Subcontractor,
identify under contract with: _____

Workers' Compensation Insurance Information:

③ State	③ Class Code	④ Description	⑤ Rate (per \$100 payroll)	⑥ Work hours	⑦ Payroll	⑧ WC Premium (Payroll * Rate / 100)
9. Totals						

10. Your Company's Workers' Compensation Experience Modifier: _____

11. Modified Premium (Total WC Premium multiplied by line 10): _____

12. a) Employers Liability Rate: _____ b) Employers Liability Premium: _____

13. a) Modification Premium Factors: _____ b) Rate _____ c) Amount _____

USL&H / Maritime Surcharge: _____

Modifier 2: _____

Total Modification Amount: _____

14. Total Workers' Compensation Premium (line 11 plus 12 minus 13): _____

15. a) Liability Rate (GL): _____ b) Based On: Payroll Per \$100
incl. P&I/ Aviation / Receipt Per \$1,000
Pollution Other _____

16. a) Builder's Risk (BR) /Installation Floater Rate _____

17. a) Excess/Umbrella Rate: _____ b) Based On: Payroll Per \$100
Receipts Per \$1,000
Other _____

18. Total of all Insurance Premiums (total of lines 14, 15, 16 & 17): _____

19. Overhead & Profit on Insurance Prem. %: _____ O/H & Profit Amount: _____

20. **Total Initial Insurance Credit** (Total of lines 18 & 19): _____

21. **Initial Insurance Composite Rate** (line 20 divided by total payroll in line 9): _____

Name: _____
(please print)

Date: _____

Title: _____

Signature: _____

Completion of this form is a required part of your contract and must be submitted within 20 calendar days of your contract award date. Complete a separate form for each contractor, known subcontractor(s) and trades not currently awarded to a subcontractor. Duplicate this form as needed.

INSTRUCTIONS FOR INSURANCE CREDIT WORKSHEET (AON FORM-1)

Complete a separate form for each contractor, known subcontractor and trade not currently awarded to a subcontractor. Completion of this form is a required part of your contract and must be submitted within 20 calendar days of your contract award date. Duplicate this form as needed.

1. Contractor Information:

- Provide your company's Federal Id Number.
- Provide your Business Information including the Company Name, Address, City, State, Zip Code, Telephone and Fax in the column.
- Provide the name of your employee that can answer insurance questions. If this person's Business Address, Telephone and Fax is different, enter this information accordingly.

2. Bid Information:

- Provide the Bid Package Number assigned by the Port of Oakland.
- Provide a brief description of the work your firm will perform.
- Identify your proposed contract price.
- Identify the amount your firm will self-perform (*100% if no subcontractors are used; otherwise, your proposed contract price less the amount to be subcontracted out*)
- Check the box that applies to your status on this bid.
- Identify with whom you are contracting - The Port of Oakland or the name of the contractor or subcontractor.

Workers' Compensation Insurance Information:

Description of Worker's Compensation Column Information

- ③ **State & Class Code** – provide the state in which the work will be performed and the workers' compensation classification codes that are applicable to the scope of your work.
 - ④ **Description** – Provide the workers' compensation descriptions that apply to the classification codes.
 - ⑤ **Rate** – enter rate your firm pays for coverage for each class code. This information can be obtained from your workers' compensation policy.
 - ⑥ **Work hours** – Provide your estimated work hours, by class code, for work that will be performed *on-site*.
 - ⑦ **Payroll** – Provide your estimated payroll, by class code, for work that will be performed *on-site*.
 - ⑧ **WC Premium** – For each classification code you entered, multiply the Payroll by the Rate and divide by 100.
9. **Totals** – Calculate totals for columns numbered ③, ⑦ and ⑧.
10. **Workers' Compensation Experience Modifier** - Enter your experience modification factor. This number is located on your workers compensation policy or on the Bureau's rating sheets. If you do not have an experience modifier, use 1.00.
11. **Modified Premium** – Multiply the total workers' comp premium on line 9 by your workers' compensation experience modifier.
12. **Employers Liability Rate** – a) Enter your Employer's Liability Rate located on your workers' compensation policy and b) calculate by multiplying the Modified Premium by the rate.
13. **Modification Premium Factors** – Identify the premium modification factors that apply to your workers' compensation policy. These factors may include a "Scheduled Credit" or a "Premium Discount". a) Identify the name of the Modifier, b) enter the **Rate**, c) compute the **Amount** by calculating the Modified Premium by the Rate. Total the amount computed in column 13.c). Enter the total in d). This includes any USL&H / Maritime surcharges that would apply.
14. **Total Workers' Compensation Premium** – Add the Modified Premium and the Employer's Liability Premium (line 11 and 12). Subtract the Premium Modifications identified and totaled in line 13d).

Other Insurance Items:

- 15. **Liability** – a) Enter the General Liability rate, b) identify the basis the rate applies to by checking the *box (if the basis is "Other", identify in the space provided)*, c) Check whether the rate factor is \$100 or \$1,000. Compute the General Liability Premium by using the formula (rate basis * rate / rate factor). Identify and include any associated P&I / Aviation / Pollution Legal Liability charges.
- 16. **Builder's Risk/Installation Floater** – a) Enter the rate and b) apply to the Proposed Contract Cost identified in the Bid Information Section.
- 17. **Excess/Umbrella Liability** – a) Enter your Excess or Umbrella Liability rate, b) identify the basis the rate applies to by checking the *box (if the basis is "Other", identify in the space provided)*, c) Check whether the rate factor is \$100 or \$1,000. Compute the Excess or Umbrella Liability Premium by using the formula (rate basis * rate / rate factor).

Total Insurance Premiums:

- 18. **Total of all Insurance Premiums** – Add lines 14, 15, 16 and 17.
- 19. **Overhead & Profit** - a) Identify your percentage of Overhead & Profit included in your pricing structure, b) apply the percentage to Overhead & Profit to the Total of all Insurance Premiums.
- 20. **Total Initial Insurance Credit** – Add lines 18 and 19.
- 21. **Initial Insurance Composite Rate** - Divide the Total Initial Insurance Credit (*line 20*) by the Total Payroll (*column 9*). **As the preparer, complete the bottom portion of the form by providing your name, title, date prepared and your signature.**

Please provide copies of the following documents to support your insurance cost calculations:

- | | |
|--|---|
| <input checked="" type="checkbox"/> Schedule of Values | <input checked="" type="checkbox"/> General Liability declaration and rate pages |
| <input checked="" type="checkbox"/> Workers' Compensation declaration and rate pages | <input checked="" type="checkbox"/> Umbrella/Excess Liability declaration and rate pages |
| <input checked="" type="checkbox"/> Experience Modification worksheet | <input checked="" type="checkbox"/> 5 years-actual loss experience for each line of coverage in which Contractor retains more than \$5,000 per Occurrence or Loss |

INSTRUCTIONS FOR INSURANCE SUMMARY (AON FORM-2)

Make a separate entry on the Aon Form-2 for each contractor, know subcontractor and trade not currently awarded to a subcontractor. Attach an Aon Form-1 to support each line entry. Completion of this form is a required part of your bid and must accompany your bid documents. Duplicate this form as needed:

General Information

1. **Name of Contractor** – Enter the name of the Contractor or Subcontractor that is being summarized on the form.
2. **Bid Package No.** – Enter the Bid Package No. that The Port of Oakland assigned to the bid.
3. **Proposed Contract Cost** – Enter the Proposed Contract Cost for the Contractor or Subcontractor being summarized.

Contractor Specific Information

4. **Contractor** – Enter the Contractor or Subcontract that is being summarized (*include only self-performed work from the Aon Form-1*)
 - b) Estimated Work hours (line 9 and column⑥)
 - c) Estimated Payroll (line 9 and column⑦)
 - d) Initial Insurance Credit (line 21).
5. **Known Subcontractors** – for each Subcontractor summarize their work and the work of lower level tiers. Information will be obtained from either an Insurance Summary Aon Form-2, if lower level tiers were used, or the Aon Form-1. The Aon Form-1 reference numbers are supplied below:
 - a) Amount of Contract – The Proposed Contract Cost from Bid Information Section (2).
 - b) Estimated Work hours - the work performed by the subcontractor and all lower level subcontractors. Information from line 9 and column⑥.
 - c) Estimated Payroll - the work performed by the subcontractor and all lower level subcontractors. Information from line 9 and column.
 - d) Initial Insurance Credit - the work performed by the subcontractor and all lower level tiers. Information obtained from line 21.
6. **Identified Trades NOT yet assigned to a subcontractor** – for each trade, not yet assigned to a subcontractor, estimate the amount of work and insurance costs on Aon Form-1s.
 - a) Amount of Contract – The Estimated cost to subcontract the work. Information is obtained from the Proposed Contract Cost from Bid Information Section (2).
 - b) Estimated Work hours - the estimated on-site trade work hours. Information from line 9 and column⑥.
 - c) Estimated Payroll - the estimated on-site trade payroll. Information from line 9 and column⑦.
 - d) Initial Insurance Credit - the computed insurance costs for the trade based on estimated subcontract cost, including Contract Amount, Work hours and Payroll. The OCIP Administrator is available to provide reasonable insurance rates for computing the insurance costs on the Aon Form-1. Information obtained from line 21.
7. **Total Estimates for Contract** – The total amount entered in column a, b, c, and d.
8. **Composite Rate for Contract** – The Total Initial Insurance Credit divided by the Total Estimated Payroll (*line 7d / 7c*).

It is suggested that you examine your current Workers' Compensation and General Liability Policies or contact your Insurance Agent to assist you with completing this form. ***** NOTICE ***** Enrollment is not automatic and requires the satisfactory completion of the Aon Form-1, Form-2 and Form-3. In addition, you must submit a Certificate of Insurance providing evidence of your *off-site* coverage. Please refer to the Insurance Manual for coverage requirements.

1. Contractor Information: Federal ID No. _____

▼ Business Information (headquarters)	▼ Contact Information (address questions to ...)
Company Name & dba / Contact Name & Title: _____	_____
Address: _____	_____
City, State Zip Code: _____	_____
Telephone: _____	_____
Fax: _____	_____
Entity: _____	_____
Sole Proprietor Partnership	Corporation Other: _____

2. Provide your current Workers' Compensation Information:

Anniversary Rating Date:	Experience Modification:	Bureau File Number:

Your WC Insurance Carrier: _____

Policy #: _____ Effective Date: _____ Expiration Date: _____

3. Contract Information:

Contract #: _____ Contract Description: _____

Location of Work: _____ Status on Project: Prime Subcontractor Sub-Subcontractor Other _____

Contract Award Date: _____ **If you are a Sub, Identify who your contract is with:** _____

Provide Payroll by Class Code in the following space provided (*attach a separate sheet if necessary*)

State	Class Code	Description	Work hours	Payroll
Totals				

Contacts:

Position	Name & Title	Phone	Fax	e.mail address
Project Mngr:				
Safety Rep:				
Residnt Engrn:				
Contract Admin:				
Payroll:				
Claims:				

Start Date: _____ Actual Estimated _____ Completion Date: _____ Actual Estimated _____

Contract Amount: _____

4. Subcontract Information: List any subcontractors that will be working for you on this project (complete the information in the following table). Use additional paper if necessary:

Subcontractor	Address	Subcontract \$	Phone	Contact Person

- 5. Will you have any off-site location(s) 100% dedicated to this project? Yes No If yes, please contact the OCIP Administrator to obtain pre-approval. Please provide address and purpose of this off-site location:

- 6. If you are a subsidiary and/or division of another company, complete an ERM-14 Form. If you are a participant as a joint venture partner, you must also complete an ERM-14 form.
- 7. Please check if: a) Any Aircraft b) Any Watercraft c) Any Waterborne Activities
If a) or b) are checked, please list on separate page watercraft / aircraft to be used, its respective ID numbers, and attach the most recent seaworthy surveys. If c) is checked, please identify and describe activities on a separate page.
- 8. Is your firm signatory to the Port's Project Labor Agreement (PLA) with the Unions? Yes No
- 9. Will you be performing services at the South Field or within the Aviation Operations Area (AOA) of the Oakland International Airport?
Yes No If YES, will you be required to drive any company-owned or employee-owned vehicle on AOA? Yes No
- 10. Does your firm provide or intend to provide Design Professional Services? Yes No
- 11. Will your firm be providing pollution remediation work? Yes No If yes, please identify scope of work and provide contract value associated with this work. _____

WARRANTY

Workers' Compensation, General Liability, Excess Liability and Contractor's Pollution Legal Liability coverages, as stated in the Contract Documents, are provided by the Port of Oakland. The undersigned agrees and warrants:

- 12. It is the Contractor's responsibility to notify its own insurance carrier to exclude from its regular insurance all Work to be performed at the Project Site under this Contract
- 13. The statements in this insurance application are true to the best of my knowledge.
- 14. Contractor certifies that the insurance costs, including any administration/overhead costs, have been excluded from the bid and contract.
- 15. Contractor agrees to be solely responsible for the cost of the premiums for non-OCIP insurance specified in the contract.
- 16. Contractor acknowledges that the Port of Oakland is not an agent, partner or guarantor of the insurance companies providing coverage under the OCIP, and that the Port is not responsible for any claims or disputes between or among Contractor, its Subcontractors, and any OCIP insurance companies.
- 17. The costs of premiums for the coverage provided by the OCIP shall be paid by the Port of Oakland. The Port of Oakland will receive or pay, as the case may be, all adjustments to such costs, whether by way of dividends, retrospective rating adjustments, return premiums, audits or otherwise. Each Contractor and each of its Subcontractors shall execute any instruments of assignment as may be necessary to permit the Port of Oakland to receive such adjustments, unless otherwise provided in the Contract Documents.

Date: _____ Name: _____
 Title: _____ Signature: _____
 (please print)

INSTRUCTION FOR ENROLLMENT APPLICATION (AON FORM-3)

This form must be completed and submitted by each successful Contractor and Subcontractor of any tier within 20 calendar days after contract award and prior to Site mobilization **for each contract awarded**. The Contractor and Subcontractor will submit the completed form to Aon Risk Services. Upon receipt of this form, Aon will issue, to the Contractor or Subcontractor, a Certificate of Insurance evidencing coverage in the Controlled Insurance Program. The completed Certificate of Insurance and workers compensation insurance policy will be mailed to the Enrolled party.

1. **Contractor Information** – Supply the Federal ID Number, Legal Company Name (include the doing business as, dba if applicable), mailing address and phone numbers. Identify the individual that will answer questions and be responsible for your OCIP Worker’s Compensation policy. Also identify the legal structure of your company by check one of the boxes. If you choose Other, write the structure in the space provided
2. **Provide your current Workers’ Compensation Information** –
 - a) Enter information concerning your Workers’ Compensation Experience Modifier in the table. Refer to your copy of the Bureau’s Rating Calculation, contract or agent.
 - i) The Anniversary Rating Date is the effective date of your unique Experience Modifier.
 - ii) The Experience Modification Factor is calculated by the Bureau based on your loss experience and payroll.
 - iii) The Bureau File Number is your identification number with the Bureau. It may also be referred to as a Risk Identification Number.
 - b) Enter information concerning your current Worker’s Compensation Policy. This information is available on the Declaration or Information page.
3. **Contract Information** –
 - a) Provide the contract number that was assigned by the Port of Oakland or the party you contract with.
 - b) Provide a brief description of your work under this contract number.
 - c) Identify the location of your job. This could be an area, phase, sub-project description that the Port uses to group several contract together. (Maritime Berth #, Airport – South or North Fields / Terminal # are examples.)
 - d) Identify your status by checking on of the boxes provided. If you select “Other”, identify what type of a contractor you are.
 - e) Identify the effective date of your contract.
 - f) If you are a Subcontractor, identify with whom you contract.
 - g) Contacts – communication is key to a successful OCIP. Identify the key contacts for each function listed and provide the information requested. If a single individual handles multiple job duties, be sure to list them for those functions that apply.
 - h) Provide the Start Date and the Completion Date. Identify if these are the actual dates or have been estimated.
 - i) Provide the amount of your contract. If you have a time and materials contract, provide a reasonable estimate of your anticipated activity.
4. **Subcontract Information** - List subcontractors that will perform work on-site during the term of your Contract. Enrollment is *NOT* automatic. If you add or change subcontracting firms during the course of your contract, be sure to notify the OCIP Administrator.
5. Indicate if you have off-site location(s), including warehouses, that are dedicated to this project by checking the appropriate box. If the answer is yes, provide the purpose of the off-site location and its address. If additional room is needed, attach a separate sheet. Be sure to include the Address, City, State and Zip Code.
6. ERM-14 forms are available in this Section.
7. Check the appropriate box if you will be using aircraft or watercraft. If so, please attach copies of the most recent watercraft/aircraft surveys. If you will be performing waterborne activities, please identify and describe activities.
8. Indicate if your company is signatory to the Port's Project Labor Agreement with the Unions.
9. Indicate whether your company will be working at the Aviation Operations Area (AOA) of the Oakland Airport. If the answer is YES, please review requirements for working on AOA.
10. Indicate if your company is intending to or will provide Design Professional Services under this contract.
11. Indicate if your company is intending to or will provide Pollution Remediation work under this contract. If the answer is yes, provide the type of services to be performed and the associated contract value.

Read the Warranty statements completely. Sign the Aon Form-3 and return to the OCIP Administrator using the information supplied at the bottom of the form. This form has been designed to fit in a standard window envelope for your convenience.

**Mail to: Port of Oakland
 Attn: OCIP Administrator
 530 Water Street
 Oakland, CA 94607**

Phone: 510-627-1623

Fax: 510-627-1625

Delay in providing this report may result in payments being withheld.

1. Period Beginning: _____ Period Ending: _____ Year: _____

2. Contractor: _____

3. Under Contract to: _____

4. Contract / Resolution #: _____

5. State	6. Workers' Compensation Class Code	7. Work Description <small>(Circle as Appropriate)</small>	8. Workhours		9. # of Employees	10. Reportable Payroll *		11. Total Gross Wages less Benefits
			Reg	O/T		Straight Time (Regular)	Overtime	
		Journeyman Apprentice						
		Journeyman Apprentice						
		Journeyman Apprentice						
		Journeyman Apprentice						
		Journeyman Apprentice						
		Journeyman Apprentice						
		Journeyman Apprentice						
		Journeyman Apprentice						
		Journeyman Apprentice						
TOTALS:								

*Do not include premium (excess) overtime wages, use straight time wage rates only. CHECK IF THIS IS THE FINAL PAYROLL REPORT

I CERTIFY THAT THE DATA SHOWN ABOVE IS CORRECT.

12 Signed _____
(must be signed by an Officer of the Company)
Phone _____

Title: _____
Date: _____

Mail to: Port of Oakland - OCIP Administrator
530 Water Street
Oakland, CA 94607

Fax to: Port of Oakland - OCIP Administrator
Fax: (510) 627-1625
Phone: (510) 627-1623

INSTRUCTION FOR ON-SITE PAYROLL REPORT (AON FORM-4)

This form must be completed each month by the Contractor and every Subcontractor of any tier performing work at the Project Site for each Contract awarded. The Contractor/Subcontractor must attach the completed report to their monthly pay request in order to receive interim payment. Contractors will be responsible for the submission of this form by their Subcontractors. Aon Risk Services can forward a supply of these forms to your company.

COMPLETION INSTRUCTIONS

1. **Reporting Period** - Fill in the month ending date for this report.
2. **Name of Contractor/Subcontractor** - Your firm's name
3. **Your Contract with** - The Contractor if you are a subcontractor; your subcontractor if you are sub-Subcontractor
4. **Contract / Resolution Number** - Contract number of the Work you are performing and associated Resolution # (# is the same as that noted on your OCIP Approvals)
5. **State** – Identify the State in which the work occurred.
6. **Workers' Compensation Classification Code** – Use the Classification codes approved on the Aon Verified Insurance Credit Worksheet.
7. **Work Description** - Provide a brief description of the work. Refer to your Workers' Compensation policy. Circle the worker category that applies.
8. **Work Hours** - List work hours for each class code. Separate regular/straight time from overtime hours.
9. **# of Employees** - List the number of employees for each class code.
10. **Payroll** – List payroll for each class code for *on-site* work. Separate regular payroll and overtime payroll. **NOTE:** List only straight time / unburdened payroll (overtime as straight time). List one cumulative monthly figure for all employees who fall under each class code.
11. **Total Gross Wages less Benefits** - Identify Total Gross Wages paid for each class code. Do not include benefits.
12. **Signature** - Please have appropriate officer of the company sign and date the completed form. Please include your telephone number in the event that a question arises on your payroll report.

- 1. Contractor Name: _____
- 2. Contract / Resolution #: _____
- 3. Description of Work Performed: _____
- 4. Date this Contract Completed: _____
- 4. Date Work Completed: _____

5. The following Subcontractors have completed their Work at the Site: (Add attachment if more space is needed)

NAME	CONTRACT #	CONTRACT COMPLETED	WORK COMPLETED

6. Location of your payroll audit records:

Address: _____

Contact/Phone #: _____

The undersigned acknowledges request for termination of coverage under the OCIP as of the date indicated above for the specified Contract. Should the undersigned return to the work Site, the undersigned will be working under his own insurance program and must provide the Sponsor with a Certificate of Insurance showing his own coverage as outlined in our contract.

7. Signed by: _____

Title

Date

8. Approved by: _____

Construction Manager

Date

Mail to: Port of Oakland – OCIP Administrator
 530 Water Street
 Oakland, CA 94607


Fax to: Port of Oakland - OCIP Administrator
 Fax: (510) 627-1625
 Phone: (510) 627-1623

INSTRUCTION FOR NOTICE OF WORK COMPLETION (AON FORM-5)

This form will be completed and returned to the OCIP Administrator by the contractor or subcontractor whenever work is completed for each Contract. The Contractor will receive the final payment after all Contractor and Subcontractor information is complete.

COMPLETION INSTRUCTIONS

1. Contractor Name: If you are a Subcontractor, the name of the Contractor. If you are a Sub-Subcontractor, the name of the Subcontractor.
2. Contract / Resolution #: The Contract or Specification number(s) relating to the Work at the Project Site and the associated Resolution # (same as that noted on your OCIP Approvals)
3. Description of Work Performed: Type of work performed under your contract.
4. Date Contract Completed: Fill in appropriate date.
5. Date Total Work Completed: Fill in appropriate date.
6. Subcontractor of all tiers included in the work: Names Subcontractors of all tiers associated with the close-out.
7. Final Audits Payroll Records: List name of terminating Contractor and applicable Subcontractors.
8. Signature: The Signature of the Contractor Closing-out
9. Approved by: The Signature of The Port of Oakland or the Construction Manager.

 Form-6	ON-SITE WORK HOURS/INCIDENT REPORT	Port of Oakland Page 1 of 1																																			
1. Contractor Name: _____ 2. Under Contract to: _____ 3. Contract / Resolution #: _____ 4. Period Beginning: _____ Period Ending: _____ Year: _____																																					
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #e0e0e0;"> <th style="padding: 5px;">Information Description</th> <th style="padding: 5px;">This Month</th> <th style="padding: 5px;">Totals Year-To-Date</th> <th style="padding: 5px;">Totals Project-To- Date</th> <th style="padding: 5px;">Comments</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">5. Total Hours Worked</td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 45%;"></td> </tr> <tr> <td style="padding: 5px;">6. Number of First Aid Cases</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding: 5px;">7. Number of OSHA Recordable Cases</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding: 5px;">8. Number of Lost Work Day Cases</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding: 5px;">9. Number of Lost Work Days</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding: 5px;">10. Number of Restricted Work Days</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Information Description	This Month	Totals Year-To-Date	Totals Project-To- Date	Comments	5. Total Hours Worked					6. Number of First Aid Cases					7. Number of OSHA Recordable Cases					8. Number of Lost Work Day Cases					9. Number of Lost Work Days					10. Number of Restricted Work Days					* Attach a copy of you OSHA 200 Log or complete items 6 through 8. If none, please state so. I VERIFY THAT THE DATA SHOWN ABOVE IS CORRECT.	
Information Description	This Month	Totals Year-To-Date	Totals Project-To- Date	Comments																																	
5. Total Hours Worked																																					
6. Number of First Aid Cases																																					
7. Number of OSHA Recordable Cases																																					
8. Number of Lost Work Day Cases																																					
9. Number of Lost Work Days																																					
10. Number of Restricted Work Days																																					
11. Signed: _____ (must be signed by an Officer of the Company)	Title: _____ Date: _____																																				

Mail to: Port of Oakland - OCIP Administrator
 530 Water Street
 Oakland, CA 94607

Fax to: Port of Oakland - OCIP Administrator
 Fax: (510) 627-1625
 Phone: (510) 627-1623

OCIP CONSTRUCTION PROJECT

ACCIDENT/INCIDENT INVESTIGATION FORM*

PERSONAL INFORMATION

1. Name of Injured _____ Date of Hire ___/___/___ Date of Birth ___/___/___
 Prime Contractor _____ Subcontractor _____
 Address _____
 Job Title _____ SS# _____ - _____ - _____ Rate of Pay \$ _____
 HR/MNTHLY _____ Telephone # _____ - _____ - _____

2. Injury Date: ___/___/___ Time: ___:___ am/pm Work Shift Start: ___:___ am/pm
3. Medical Care? Y/N _____
 Treating Hospital/Clinic/Physician? _____
 Has employee returned to work? (Y/N, restricted duty, date & time) _____

3. Accident Location: (Specific Site Location with reference points): _____

4. Type of Injury: _____

	Body Part(s)	Signs/Symptoms
--	--------------	----------------

5. Word Being Done: _____

	Type of Work	Equipment, tools, material in use
--	--------------	-----------------------------------

6. Employee trained for work? Yes__ No__ When? _____
 Date _____ Trainer: Name/Title _____
7. Employee authorized for work? Yes__ No__ If yes, _____
 Authorizing Person: Name/Title _____

ACCIDENT DESCRIPTION

8. Accident Description: (who, when, where, how, why) _____

9. Result of Site Investigation: (area coned off, new procedures) _____

10. Result of Tool/Equipment Investigation: (defective, wrong tool) _____

11. Primary Accident Cause(s) & Contributing Factors: _____

WITNESS(ES)

- 12. Name & job position: _____
Relation to injured party: _____
Description of incidents leading to injury/illness: (one on one interview) _____

RECOMMENDATIONS

- 13. Job covered by: a. Job Hazard Analysis? _____ Bulletin, Document, Manual, Instruct.
b. Safety rule/regulation: _____ Handbook, Bulletin (Citation)

14. Is the procedure/rule/regulation adequate? Yes__ No

15. If no, recommended change(s): _____

16. Recommendation to prevent similar accidents: _____

17. Investigator(s): _____
Date: _____

18. Reviewed by: _____
Title _____
Date __/__/__ __/__/__ __/__/__

19. Project management review & analysis: (suggestions for prevention of reoccurrence) _____

20. New procedures/training/controls implemented? Date __/__/__ List changes _____

Additional information and/or comments: _____

Mail to: Port of Oakland - OCIP Administrator
530 Water Street
Oakland, CA 94607

Fax to: Port of Oakland - OCIP Administrator
Fax: (510) 627-1625
Phone: (510) 627-1623

ACORD®		CERTIFICATE OF LIABILITY			DATE (MM/DD/YY)
PRODUCER Broker Name Broker Address		THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.			
INSURED Contractor Name Contractor Address City/State/Zip code		COMPANIES AFFORDING COVERAGE			
		COMPANY A	Insurance Carrier Name - AM Best Rated A-X or higher		
		COMPANY B	Insurance Carrier Name - AM Best Rated A-X or higher		
		COMPANY C	Insurance Carrier Name - AM Best Rated A-X or higher		
		COMPANY D			
COVERAGES THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY INDICATED, NOT WITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENTS WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID					
Co Ltr	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS
A	GENERAL LIABILITY				GENERAL AGGREGATE \$2,000,000
	<input checked="" type="checkbox"/> COMMERCIAL GENERAL				PRODUCTS-COMP/OP AGG \$2,000,000
	<input type="checkbox"/> CLAIMS <input checked="" type="checkbox"/> OCCUR				PERSONAL & ADV INJURY \$1,000,000
	<input type="checkbox"/> OWNER'S & CONTRACTOR'S PROT				EACH OCCURRENCE \$1,000,000
	<input checked="" type="checkbox"/> GENERAL AGGREGATE PER PROJECT				FIRE DAMAGE (Any one Fire)
					MED EXP (Any one Person)
A	AUTOMOBILE LIABILITY				COMBINED SINGLE LIMIT \$1,000,000
	<input type="checkbox"/> ANY AUTO				BODILY INJURY (Per Person)
	<input checked="" type="checkbox"/> ALL OWNED AUTOS				BODILY INJURY (Per Accident)
	<input checked="" type="checkbox"/> SCHEDULED AUTOS				PROPERTY DAMAGE
	<input checked="" type="checkbox"/> HIRED AUTOS				
<input checked="" type="checkbox"/> NON-OWNED AUTOS					
		\$5,000,000 Limit required for any operations performed at the South Field, the "Aviation Operations Area" of the Oakland International Airport, including any work performed under the Airport Roadway Project.			
	GARAGE LIABILITY				AUTO ONLY - EA ACCIDENT
	<input type="checkbox"/> ANY AUTO				OTHER THAN AUTO ONLY:
		For GENERAL LIABILITY and AUTO LIABILITY, The City of Oakland, a municipal corporation, acting by and through its Board of Port Commissioners, and their officers, agents, and employees, consultants and representatives, while acting in their scope of their authority are added as Additional Insured per endorsements equivalent to ISO Form 2010 (11/85).			
		FOR ALL POLICIES, Coverage is primary and non-contributory. Waiver of Subrogation applies for all policies per Endorsement # ___ attached.			
	EXCESS LIABILITY				EACH OCCURRENCE
	<input type="checkbox"/> UMBRELLA FORM				AGGREGATE
	<input type="checkbox"/> OTHER THAN UMBRELLA FORM				
B	WORKERS' COMPENSATION AND EMPLOYERS' LIABILITY				<input checked="" type="checkbox"/> STATUTORY LIMITS
	<input type="checkbox"/> THE PROPRIETOR/PARTNERS/EXECUTIVE OFFICERS ARE:				EACH ACCIDENT \$ 1,000,000
					DISEASE - POLICY LIMIT \$ 1,000,000
					DISEASE - EACH EMPLOYEE \$ 1,000,000
	OTHER				
DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/SPECIAL ITEMS For Eligible Parties - General Liability and Workers' Compensation applies for all off-site operations For Excluded Parties - All coverage applies for all operations occurring both on and off the Project Site.					
CERTIFICATE HOLDER Port of Oakland Attn: Risk Management / OCIP Administration 530 Water Street Oakland, CA 94607			CANCELLATION SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE EXPIRATION DATE THEREOF, THE ISSUING COMPANY WILL MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT.		
			AUTHORIZED REPRESENTATIVE 209250000		
ACORD 25-S (3/93)			©ACORD CORPORATION 1993		

POLICY NUMBER: **XXXXXXXXXXXX**
CONTRACTOR NAME

COMMERCIAL GENERAL LIABILITY

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

**ADDITIONAL INSURED — OWNERS, LESSEES OR
CONTRACTORS (FORM B)**

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART.

SCHEDULE

Name of Person or Organization:

The City of Oakland, a municipal corporation, acting by and through its Board of Port Commissioners, and their officers, agents, and employees, consultants and representatives, while acting in the scope of their authority

(If no entry appears above, information required to complete this endorsement will be shown in the declarations as applicable to this endorsement.)

WHO IS AN INSURED (Section II) is amended to include as an insured the person or organization shown in the Schedule, but only with respect to liability arising out of "your work" for that insured by or for you.

RE: Port of Oakland - [PROJECT NAME AND CONTRACT #]

PRIMARY INSURANCE: This insurance will be primary for the additional insured but only with respect to liability arising out of your work for that additional insured by or for your.

NOTE: This policy to include a WAIVER OF SUBROGATION.

POLICY NUMBER **XXXXXXXX**
CONTRACTOR NAME

COMMERCIAL AUTO

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY

ADDITIONAL INSURED

This endorsement modifies insurance provided under the following:

- BUSINESS AUTO COVERAGE FORM
- GARAGE COVERAGE FORM
- TRUCKERS COVERAGE FORM
- BUSINESS AUTO PHYSICAL DAMAGE COVERAGE FORM

This endorsement changes the policy effective on the inception date of the policy unless another date is indicated below.

Endorsement effective	
Named Insured	Countersigned by

(Authorized Representative)

SCHEDULE

Who is an insured is changed to includes as an "insured" the named insured listed below.

Insurance Company:

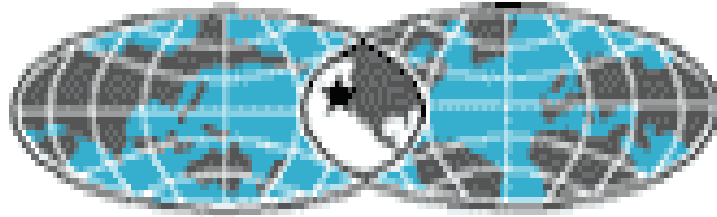
Additional Insured: **The City of Oakland, a municipal corporation, acting by and through its Board of Port Commissioners, and their officers, agents, and employees, consultants and representatives, while acting in the scope of their authority**

Address:

Description of operations/vehicle **As respects to all operations performed for or on behalf of the Additional Insured**

NOTE: Policy needs to reflect that THIS COVERAGE IS PRIMARY AND NON-CONTRIBUTORY and that a WAIVER OF SUBROGATION applies

DOCUMENT 00831



PORT OF OAKLAND



Owner Controlled Insurance Program

CONSTRUCTION SAFETY STANDARDS MANUAL

NOVEMBER 1999

00831-1

PORT CONSTRUCTION SAFETY STANDARDS

TABLE OF CONTENTS SAFETY AND HEALTH MANUAL

	<u>Page</u>
I. PORT OF OAKLAND CONSTRUCTION SAFETY STANDARDS	4
II. DEFINITIONS	
ACCOUNTABILITY & RESPONSIBILITY	
A. PORT OF OAKLAND	6
B. CONTRACTOR	7
C. ALL CONTRACTORS	8
D. AON RISK SERVICES	9
E. INSURANCE CARRIER	10
III. CODE OF SAFE PRACTICES	
1. SITE SPECIFIC HEALTH & SAFETY RULES	12
2. HOUSEKEEPING	14
3. PERSONAL PROTECTIVE EQUIPMENT	15
4. FALL PREVENTION	17
5. TOOLS	20
6. ELECTRICAL	21
7. EQUIPMENT	23
8. LADDERS	25
9. MATERIAL HANDLING	26
10. EXCAVATION/TRENCHING	27
11. CONCRETE & MASONRY	29
12. CRANES	30
13. RIGGING	32
14. SCAFFOLDS	34
15. STEEL ERECTION	35
16. ROOFING	36
17. FIRE PREVENTION & HAZARDOUS CHEMICALS	37
18. CONFINED SPACE	39
19. SITE VEHICLES	40
20. TRAFFIC CONTROL & FLAGGERS	42
IV. AVIATION CODE OF SAFE PRACTICES FOR AIRPORTS	
1. AIRPORT SAFETY AND SECURITY	43
2. FAA ADVISOR CIRCULAR 150/5370-2E - SAFETY DURING CONSTRUCTION	44
V. MARITIME CODE OF SAFE PRACTICES	
1. MARINE TERMINAL SAFETY PRECAUTIONS	67
2. WATER SAFETY, WORKING NEAR WATER	68
3. DREDGING REQUIREMENTS	69
VI. ACCIDENT INVESTIGATION POLICY & REPORTING PROCEDURES	83
VII. JOB HAZARD ANALYSIS POLICY & FORM	87
VIII. BACK TO WORK POLICY & PROGRAM	89
IX. NEW EMPLOYEE ORIENTATION POLICY & DOCUMENTATION	90

- X. APPENDICES**
 - A. CONTRACTOR SAFETY QUESTIONNAIRE
 - B. SUBSTANCE ABUSE PROGRAM (SAMPLE)
 - C. PRE-CONSTRUCTION EXPOSURE ANALYSIS

PORT OF OAKLAND

CONSTRUCTION SAFETY AND HEALTH POLICY

The Port of Oakland is committed to providing a safe, healthful and secure work environment for all persons directly involved in our construction activities. We are also committed to providing protection to the public from the hazards associated with on-site and off-site construction activities.

It is the intent of Port Management to require the Contractor to foster, and promote the mission of an **injury free workplace**. This calls for the elimination of unsafe acts, unsafe conditions, and the elimination of near miss incidents, which can be accomplished through:

- Teamwork between the Port, the Program Manager, the Construction Manager, the Contractors & all Subcontractors.
- Personal commitment to the success of this project.
- Ownership of the work product by the workers.

Pursuant to this goal, all workers on this project are empowered as follows:

1. To conduct their work in a safe manner.
2. To stop work immediately in order to correct any unsafe condition.
3. To take corrective action so that work may proceed in a safe manner.

All contractors and subcontractor tiers are required to implement measures to create a universal awareness which promotes safe practices at the work site, and strives towards the achievement of **Zero Incidents**.

Each Contractor that performs work on this project shall prepare and submit, for review and comment, their own project-specific Injury & Illness Prevention and Safety Plan. This plan shall be tailored to the specific contract work to be performed on the project by their work force and their subcontractor's work force. The Safety Plan shall be in conformance with the PORT contract documents and the requirements and standards of all applicable governing regulatory agencies.

This Project will operate under what is termed an Owner Controlled Insurance Program (OCIP). The OCIP will result in a single insurance policy written for the duration of the project providing Workers' Compensation & Employers Liability, Commercial General Liability, Excess Liability and Builder's Risk insurance coverage to all enrolled contractors. The Owner, Contractors, all Subcontractors, the OCIP Insurance Carrier(s), and Aon Risk Services will team-up to ensure that strong safety measures are incorporated by all workers into each work task.

Safety and loss prevention must be an integral part of each job. Full participation, cooperation and support is necessary and required to ensure the safety and health of all persons and property involved in the project.

CONSTRUCTION SAFETY STANDARDS MANUAL

All construction activities will be conducted in accordance with each contractor's Health & Safety Plan and the Construction Injury & Illness Prevention Manual, and must fully comply with all applicable OSHA and ANSI standards, and any manufacturers' recommended guidelines.

Those contractors whose safety practices and guidelines exceed current OSHA, ANSI, manufacturers and Port Construction safety guidelines may abide by their more stringent internal requirements.

This Manual is not all-inclusive - other elements may be added, or may be conveyed individually to contractors to whom they may expressly apply. There are other essential elements which the contractor, by nature of the specific type of work being performed, must integrate within their own safety program.

The communication of the Safety Program elements will be achieved through the new employee orientation, weekly tool box contractor trade safety meetings, pre-construction contractor trade safety management meetings, and through the completion and weekly use of the Job Hazard Analysis policy and procedures.

Site safety signs, posters, barricades, danger tape, and employee/contractor safety incentive programs will also be present in order to enhance safety awareness and safety communications.

A safety suggestion box will also be placed on-site so employees may anonymously submit suggestions for site safety issue improvements. The safety suggestions will be addressed in the monthly safety coordination meetings with action items listed within the meeting notes.

DEFINITIONS (as used in this Manual)

Contractor or Subcontractor refers to a person, firm, joint venture, corporation or other party that has entered into a *Contract* with either the Port of Oakland (in the case of a Contractor) or Contractor (in the case of a Subcontractor) to perform *Work* at the *Project Site*.

Work is operations as fully described in the *Contract*, performed at or emanating directly from the *Project Site*. This term also includes the entire completed construction project or various separately identifiable parts required of the Project.

Contract refers to a written agreement between the Port of Oakland and Contractor for specific *Work* and also includes any agreement between a *Contractor* and a *Subcontractor* of any tier.

Project Site or Work Site is that certain location(s) generally described in the Project Summary and Project Plans. It also includes areas adjacent to or nearby the above location where incidental operations are performed, excluding permanent locations of any insured party, other than those of the Port of Oakland.

Pre-Task Safety Planning Meeting is a meeting identifying and documenting those tasks required to perform construction activities in a safe manner.

Competent Safety Representative or Person is that individual who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to the employees. This individual designated by the *Contractor* or *Subcontractor* with authority to take prompt corrective measures to eliminate such unsafe hazards or working conditions.

Construction Management Team consists of those individuals hired by *Contract* or employed to manage or oversee the Contractor's construction activities.

ACCOUNTABILITY & RESPONSIBILITIES

It is imperative that site management and job foremen exercise positive leadership in orienting and motivating their employees toward performing their jobs effectively, efficiently, and with a high regard for safety.

A. PORT OF OAKLAND

The Port Construction Management Team's role in achieving construction safety and health objectives includes oversight management responsibility for site safety. This responsibility does not supersede, override or take precedence over that of Contractors and individual workers, who are ultimately responsible for safety and health of their personnel and protection of property.

The key function of the Port's Construction Management Team, as it relates to construction safety and health, is to assure contractor compliance with the safety and health standards required by law through monitoring and oversight of contractors' activities. In addition, the Port's Construction Management Team administers and enforces the conditions of the Contract pertaining to safety.

B. CONTRACTOR

The Contractor will have the overall responsibility for insuring that all contractors and their employees incorporate safety and health standards into all design and construction phases of the Project, and that this attitude is reflected in all agreements and contracts, and by all contractors,

subcontractors, supervision and employees, vendors, visitors and security guards, and anyone else connected with this Program.

The Contractor will also:

1. Keep the Port Construction Managers informed on events, project statistics and progress pertaining to safety issues.
2. Monitor development of their Safety Manual and confirm that the following items are adequately addressed: Occupational Safety, Employee Orientation & Training, Security, Potential Hazards, Accident Investigations, Documentation for Site Audits, Equipment Inspections, Disciplinary Programs, and Emergency Contingency Plans.
3. Confirm contractors safety education and orientation requirements are met.
4. Assure weekly safety briefings for Construction Staff personnel are conducted.
5. Conduct weekly on-site safety audits, records and compliance reviews at the site.
6. Review the results of the audits for compliance, recommendations made for correction and prevention of recurrence, and follow-up measures taken to ensure compliance.
7. Monitor and document compliance by contractors of mandatory safety and health laws, regulations, standards and codes.
8. Monitor records of all accidents experienced by contractors in assigned Project Area of responsibility.
9. In conjunction with engineering and scheduling personnel, develop and implement specific safety and health procedures for effective work practices.
10. Provide a Safety Representative/Coordinator as identified in Section 01343 of the Project Manual (Bid Specifications).
11. The Contractor's Safety Program should consist of:
 - a) Establishing a firm and positive accident prevention policy that includes the supplying of tangible items like hard hats, good ladders, first aid materials, and safety devices on equipment.
 - b) Insure that capable, responsible supervisors make regular inspections of all excavations, forms, scaffolds, stairs, ladders, structures, machinery, and equipment at frequent intervals; take immediate corrective measures to eliminate hazards directly under control of the employer, or report violations of Safety Orders and safe practices to the responsible employer.
 - c) Assurance that the site foremen assume their share of the responsibility for accidents, and require a written report from them on each. Require that each report suggests a feasible means of avoiding future accidents of a similar nature.
 - d) Monthly, or more frequent, meetings of all foremen should be held under direction of the superintendent for a discussion of safety problems and accidents that have occurred. Have something specific ready for discussion, such as safety regulations, or any changes in equipment and methods that are to be adopted for safety reasons.
 - e) Display safety posters and warning signs. A sign indicating how many consecutive accident-free days have passed is often worthwhile.
 - f) Consider the advisability of posting a list of all foremen who have kept their crews accident free for a certain period of time.
 - g) Consider the advisability of establishing various forms of safety competition, including suitable rewards or recognition to individuals and crews with good records.
 - h) Require foremen to give individual safety instructions and orders, as needed, to new workers and those found to be working in an unsafe manner.
 - i) Assure the job site foremen call short "toolbox" or "tail-gate" safety meetings with their crews about once a week on the job, to emphasize some particular safety problem that needs special attention.
 - j) Keep track of your safety record and keep everyone posted as to progress. A graph or chart, indicating gains or losses, is good for this purpose.
 - k) Encourage safety suggestions from all workers and, if the suggestion cannot be followed promptly, explain why to the worker.
 - l) Consider the advisability of giving each worker a copy of certain important safety rules that they are expected to follow.

- m) Arrange for frequent and regular field safety inspections.

C. ALL CONTRACTORS SHALL:

1. As a condition of their contract, assume responsibility for the safety/health of their employees & subcontractors employees, and other persons on the Work Site.
2. Assign a **Competent Safety Representative/Coordinator** (as defined in Section 2 of this Manual and pursuant to Section 01343 of the Project Manual (Bid Specifications)) for each Contract whose duties include the protection of persons and property and the administration of the Contractor's safety program.
3. Investigate accidents and near miss incidents to determine root cause and develop/implement corrective actions to prevent reoccurrence. Accident investigation reports are to be completed and turned into the Port's Project Manager within 12 hours of the occurrence.
4. Comply with all applicable OSHA laws, regulations, ordinances, conditions of contract, rules or orders of any public authority having jurisdiction relating to safety of persons or property.
5. Ensure that all employees, subcontractors and their employees, are briefed on the Port's Construction Safety Standards. Contractors shall, in accordance with law, adopt procedures providing that any employee who carelessly or callously disregards these rules or other applicable safety and health regulations shall be subject to disciplinary action or discharge.
6. Have their safety representative participate in the weekly safety walk-through meetings and pre-construction coordination meetings.
7. Ensure that:
 - a) Prior to the performance of any work, each employee involved in the construction knows and understands each of the safety and security rules which apply to the job site in which he/she is performing for the Project.
 - b) **Personal protective equipment (inclusive of mandatory ANSI approved hard hat and eye protection with appropriate foot wear) shall be used on site at all times, worn properly, and maintained in proper condition.** Appropriate footwear includes general construction shoes with ankle high support, no tennis shoes and/or leather soled shoes on site.
 - c) Employees shall not engage in practical jokes and/or horseplay.
 - d) An employee is not to undertake any work which he or she are not properly qualified or equipped to do. In this regard, each employee shall be required to attend safety toolbox meetings weekly and sign an attendance sheet.
 - e) All site personnel shall be made aware that the use of intoxicating or unlawful substances during working hours is forbidden and any violation will result in immediate dismissal. Employees reporting for work while under the influence of intoxicating or unlawful substances will not be allowed to assume their duties.
 - f) Each contractor is to provide training and documentation to site management that their employees have been provided with information and training on the Hazard Communication Standard. In addition, each contractor is responsible for making provisions to provide copies of Material Safety Data Sheets (MSDS's), and provide information on measures that need to be taken for personnel protection to all affected employees and workers within the vicinity of the hazardous substance.
 - g) Contractors are responsible for maintenance of clean working areas and debris removal.
 - h) Each employee must always know where he or she is in relation to work in progress, and avoid hazardous situations around equipment or construction in progress. Employees must advise supervisory personnel of their work location. They should not work alone in an isolated area until arrangements have been made for periodic contact with another employee or supervision.
8. All OCIP enrolled contractors will participate in the light duty - early return to work program and identify in writing, the site modified duty tasks within their realm of work. If an incident occurs which restricts a persons ability to perform their normal duties, the Contractor will work with the medical provider and the OCIP Team to return that individual to modified work when at all possible.

D. AON RISK SERVICES

Aon Risk Services will provide a full time/part time professional construction safety consultant to the project to provide site safety program administration and exposure control oversight. The safety professional will report directly to the Port Project Management Team and work hand in hand with the Port's Safety Administrator and the Contractor's and Subcontractor's safety representatives.

The Aon safety professional does not assume the responsibility for the development, implementation, design, or ongoing activities involved with the site safety management program.

Services provided to the construction site through the safety professional include:

1. Development of the site safety manual listing the minimum requirements for the project safety management plan.
2. Review the Contractors written safety plan to assure compliance with applicable codes and the Port safety plan.
3. Development of the Port contract language assigning the accountability and responsibility for the safety program implementation and monitoring to the Contractor.
4. Development of a site risk assessment report to Port and the Contractor so as to pre-plan safety and assure the upcoming construction activities are planned/designed with safety of the workers and liability prevention in mind.
5. Attendance and participation in the pre-construction safety planning meetings with the Contractor and subs to assure safety is designed into all phases of construction.
6. Assistance and participation in the development and implementation of the site orientation for all employees who work and/or visit the site.
7. Attendance and participation in the weekly contractors safety meetings.
8. Site presence. Physical site surveys and observations of the construction work at hand to assure regulatory agency and OCIP safety guidelines program compliance.
9. Assist and participate in the Contractors and sub contractors accident investigations to assure the root cause of the incident is determined and corrective measures are taken to prevent re-occurrence.
10. Technical expertise to the Port, the Contractor and all Subcontractors in regards to construction safety management. Standards and manufacturers' guidelines interpretation.
11. Serve as a training resource to the Port, the Contractor and their Subcontractors' employees.
12. Organize and trend the sites loss history on a monthly basis to provide Port & the Contractor with the necessary statistics to monitor goals, compare with like construction projects, and measure program performance.
13. Provide the Port and the Contractor with weekly written reports outlining any contractor safety program deficiencies and unsafe acts and conditions noted and abated during the physical site tours.
14. Update the Port's written Construction Safety Standards Manual as needed.
15. Assist the Contractor in the development of suggested light duty work and prompt the use of the light duty - early return to work program.
16. Supervise and direct the safety services provided through the insurance carrier so as to provide the Project with a focused and consistent approach to safety management.

E. INSURANCE CARRIER

The Insurance Carrier will provide bi-monthly site safety service visits to the construction site. The Insurance Carrier's safety/loss control representative will report directly to Aon as their subcontractor and will provide written reports on the unsafe acts and conditions noted during the physical survey of the construction activities.

The observations and recommendations as a result of the site safety survey visit will be discussed with the appropriate Port, contractors and their safety representatives in a closing conference prior to departing the site.

Additional services provided through the carrier which may be called upon include:

1. Accident investigation visits to identify unsafe acts and/or conditions.
2. Quarterly written reports summarizing safety consultants claims and loss prevention activities.
3. Attendance/participation at the pre-construction & weekly safety toolbox meetings.
4. Technical review and interpretation of standards/regulations.
5. Attendance/participation in training sessions for the competent safety people.
6. Claims and near miss trending.
7. Provide monthly status reports to Management listing Safety Compliance Records of project status for contractors, subcontractors, and other project participants and/or statistical comparisons of contractors to national averages and to each other and/or claims cost and loss ratio comparisons of contractors.

CODE OF SAFE PRACTICES

A. GENERAL

PURPOSE

The purpose of this Section is to assist all contractors and subcontractors in establishing basic safety and health rules for this OCIP Project. Strict enforcement of and compliance with California & Federal OSHA Safety and Health rules and manufacturers guidelines will aid in keeping personnel injuries, occupational illnesses, and equipment and property damage to a minimum.

APPLICABILITY

The rules listed below apply to all onsite contractors, subcontractors and vendors, including employees with supervisory and non-supervisory assignments. The General Safety and Health rules shall be used by the Contractor and their sub-contractors to promote accident prevention through indoctrination, safety and health training and on-the-job application.

All contractors' and subcontractors' employees shall receive new hire and project jobsite orientation to better understand the Port's Construction Safety Standards and other applicable Port-specific safety requirements.

INDIVIDUAL CRAFT SAFETY AND HEALTH RULES

As a minimum requirement, superintendents, foremen and all employees must learn and abide by the General Rules plus the Safety and Health Rules which are applicable to their particular trade or occupation. These rules should be incorporated into pre-work indoctrination.

Individual Trade Safety and Health rules apply not only to supervisors and to the workers, but also to helpers, assistants, apprentices and to anyone else who might be in the work area. Supervisors shall ensure that new workers or visitors are made aware of and abide by the safety and health rules that are in effect.

JOBSITE SAFETY AND HEALTH RULES

1. SITE SPECIFIC HEALTH & SAFETY RULES

- a) All persons shall follow these safe practices rules, render every possible aid to enhance the safety of the construction operations at hand, and report all unsafe conditions or acts to the foreman, superintendent, safety coordinator or owners representatives.
- b) Foremen shall insist on employees observing and obeying every rule, regulation, and order as is necessary to ensure the safe conduct of the work, and shall take such action as is necessary to obtain compliance with the program safety policy.
- c) All employees shall be given frequent accident prevention instructions consistent with upcoming construction activities and exposures to loss. Instructions shall be given at least weekly, documented and copied to the Contractors Safety Coordinator.
- d) Anyone known to be under the influence of drugs or intoxicating substances which impair the employee's ability to safely perform the assigned duties shall not be allowed on the job site while in that condition.
- e) Horseplay, scuffling, and other acts which tend to have an adverse influence on the safety or well-being of the employees shall be prohibited.
- f) Work shall be well planned and supervised to prevent injuries in the handling of materials and in working together with equipment. All contractor supervisors shall participate in Pre-Task Safety Planning Meetings (as defined in Section 2 of this Manual) which will be held two weeks prior to the contractors presence on-site. The construction phase exposure analysis guide in the Appendix will serve as a baseline to pre-plan work activities with safety in mind.
- g) No one shall knowingly be permitted or required to work while the employee's ability or alertness is so impaired by fatigue, illness, or other causes that it might unnecessarily expose the employee or others to injury.
- h) Employees shall not enter manholes, underground vaults, chambers, tanks, silos, or other similar places that receive little ventilation, unless it has been determined that it is safe to enter under a Confined Space Entry Program.
- i) Employees shall be instructed to ensure that all guards and other protective devices are in proper places and adjusted, and shall report deficiencies promptly to the foreman or superintendent.
- j) Crowding or pushing when boarding or leaving any vehicle or other conveyance shall be prohibited.
- k) Workers shall not handle or tamper with any electrical equipment, machinery, or air or water lines in a manner not within the scope of their duties, unless they have received instructions from their foreman.
- l) All injuries shall be reported promptly to the foreman or superintendent so that arrangements can be made for medical or first aid treatment.
- m) When lifting heavy objects, mechanical means should be used, otherwise, buddy-up with a partner and share the load. When manually lifting, the large muscles of the leg instead of the smaller muscles of the back shall be used.
- n) Appropriate footwear for the construction site includes construction grade boots/shoes with ankle supports. Steel toe shoe use is recommended.
- o) Materials, tools, or other objects shall not be thrown from buildings or structures.
- p) "Red Danger Taped areas" or areas enclosed with barricades and/or snow fencing are considered danger zones and shall be respected as such. Admittance to or passage through such areas is prohibited without permission except to those employees working within the barricaded area.
- q) When work requires barricades or floor opening covers to be temporarily removed, keep area secured until the work is finished and then re-install the barricade or floor covering immediately.
- r) Firearms and explosives are prohibited within the project areas, or on equipment and other facilities.

- s) Do not touch or guide moving cables or running wires with any part of your body. Keep your hands and fingers away from blocks and sheaves. Stand clear of all cables, wires and lines which are under strain.
- t) Do not try to place speed above safety. An efficient, safe worker is better than a speedy, careless one.
- u) Throwing or dropping materials from one area or floor level to another or the ground below is prohibited unless every precaution is taken to eliminate the possibility of damaging equipment or injuring persons. Precautions to include Red Danger Tape or Snow Fencing with supervision about the Danger area.
- v) Be alert for and heed all warning signs at all times.

2. HOUSEKEEPING

- a) Clean-Up. Keep your work area clean and safe at all times. Always keep yourself, the equipment you operate or are using and your place of work as clean as practicable. All contractors are responsible for clean “**broom swept**” areas. Dust control is the responsibility of all contractors. **Poor housekeeping practices may result in costly chargebacks prompted through site management. The Port’s Construction Management Team has Zero tolerance for poor housekeeping practices.**
- b) Employee Facilities. Cooperate in keeping change rooms, toilets, first aid and drinking facilities in clean, sanitary condition.
- c) Good Housekeeping. Good housekeeping will reduce confusion on the project and will result in a safer, more efficient operation.
- d) Nails & Exposed Re-bar. Protruding nails, re-bar, screws or other metal in form lumber, boards, etc., must be immediately removed, bent over or capped to prevent puncture injuries.
- e) Oily Rags and Wastes. Oily rags, waste or other combustible debris shall be kept in metal container provided for that purpose.
- f) Removal of Debris/Garbage. When cleaning up, do not throw or drop materials from elevated levels to lower levels unless the area below is properly barricaded and adequate warnings are posted.
- g) Slipping Hazards. Clean up or eliminate slipping hazards such as grease, oil, water, ice, snow or other liquids on walkways, ladders, stairways, scaffolds or other access ways or working areas.
- h) Trash and Debris. Deposit trash, refuse, debris, lunch papers and other waste in the proper refuse containers.
- i) Tripping Hazards. Help keep the work area, especially roadways, access ways, aisles, stairways, scaffolds and ladders, clear of obstructions which may cause tripping or other accident hazards.

3. PERSONAL PROTECTIVE EQUIPMENT

This site requires 100% ANSI Z89.1-1969 & ANSI Z89.2-1970 approved hard hat wear at all times. Hearing protection and ANSI Z87.1-1968 approved safety eye glass wear is required in construction work areas where hearing and eye exposures exist.

- a. PPE Policy. All contractors shall provide and use the protective equipment prescribed by the Port's Construction Safety Standards Manual, regulatory authorities such as Cal-OSHA, and the Contractors rules and regulations to control or eliminate any hazard or other exposure to illness or injury. Any employee who willfully refuses to use the prescribed protective equipment designed to protect him or her or willfully damages such equipment shall be subject to disciplinary action which may lead to his or her immediate termination.
- b. Ear Plugs or Muffs. Appropriate hearing protection shall be worn in work areas where noise levels exceed established local, state or federal standards.
- c. Goggles, Safety Glasses, Face Shield, and Helmets. Approved welding helmets and appropriate protective eye wear is required on-site by all contractors during machinery activities which require appropriate protection.

Eye and face protection must meet ANSI Z87.1-1968 requirements and must be worn at all times. Employees with corrective lenses shall wear goggles or spectacles as required, and equipment must be labeled to indicate ANSI testing.

- d. Hard Hats. All construction areas will be considered "hard hat areas" during active work periods. All employees and visitors must wear company approved hard hats (bill forward) during work hours while inside construction areas.

Head protection must meet ANSI Z89.1-1969 & Z89.2-1970 testing requirements for impact, penetration and electrical exposure.

- e. Respirators. Approved respirators will be used when excessive dusts, mists, fumes, gases or other atmospheric impurities are determined to be harmful to health. Contractors are responsible to provide a written respiratory protection program to the Project Manager if respirators are on site. The respirator program should be in accordance with Cal-OSHA and MSHA regulations.
- f. Safety Harnesses, Lifelines & Lanyards. Full Body Safety harnesses and approved lanyards will be used by **all employees** (including steel workers) working from unguarded surfaces where falls from 6 feet or more to a different level present a hazard. Each employee will also wear a safety harness with a safety lanyard secured to a separate lifeline while working from swing scaffolds, boatswain chairs or other suspended work platforms where a falling hazard is present.

Safety harnesses, lifelines and lanyards will be subject to actual loading or load testing and shall be secured to a point above the employee to an anchor capable of supporting 5,400 lb. Safety lanyards shall be a maximum length to limit a fall to no more than 6 feet and have a nominal breaking strength of 5,400 lb.

Safety belts shall be used for positioning only. Full body harnesses will be used for fall arrest. (Refer to "Fall Protection" - Item 4)

- g. Footwear. All employees working in construction areas should wear stout working boots. In areas such as tunnels where there is danger of falling rocks, timbers or other objects, hard toe safety boots or shoes shall be worn.

- h. Dress Code. Employees working in construction areas are required to wear clothing for the appropriate season. Shirts shall have a minimum of 4" sleeves. Tank tops and sleeveless shirts are not allowed. Pants should be long enough to cover the top of appropriate foot wear. Winter clothing should be sufficient to protect against cold related injuries, i.e., hypothermia and frostbite.

4. FALL PREVENTION

All contractors have the duty to provide fall protection for all workers potentially exposed to a fall situation. Full body harnesses are the only acceptable means of personal protective equipment fall arrest equipment permitted on this site, the use of safety body belts is not acceptable for fall protection.

All workers on the this Project are required to be protected from the hazard of falls whenever work is being completed at heights of six feet (6') or greater measured from the work platform to the bottom of the sole of foot. The six-foot rule, at minimum, applies to the following conditions:

- When working from ladders
- Hoist areas
- Formwork and reinforcing steel
- Ramps, runways, and other walkways
- Overhand bricklaying and related work
- Steel Erection
- Masonry Work
- Unprotected sides and edges
- Holes
- Excavations
- Dangerous equipment
- Precast concrete erection
- Scaffolding Work
- Wall openings

The practice of utilizing a safety zone at an unprotected LEADING EDGE is not recognized as a method of fall protection.

Personal Fall Arrest Systems

Personal fall arrest systems are designed to control the fall of a worker and minimize the injury once a worker has fallen. Fall arrest systems consist of the following components:

- Full body harness (body wear)
- Shock absorbing lanyard (connecting device)
- Tie off point (anchorage point)
- Training

Specific Requirements:

- Retractable lanyards are preferred for this project
- All contractors must provide safety harness when Personal protective Equipment (PPE) fall protection is required.
- All lanyards must be equipped with locking snap hooks.
- Only shock absorbing lanyards will be used for fall protection unless the fall protection system is a retractable type lanyard where no other lanyard is needed.
- Lanyards will be removed from service when evidence of wear is detected or if the lanyard has had a load applied.
- The anchorage (tie off point) must be capable of withstanding a minimum 5,400 lb. tensile strength *per* worker tied off.
- Anchorage, tie off, must generally be above the worker's head.

- Anchorage must be high enough that the worker will not strike any lower level should a fall occur.

Training

Contractors and subcontractors of any tier shall provide as a minimum, and conducted by a competent person, the following training. Documentation of training must be forwarded to the Contractors safety office. Training must include, at a minimum:

1. The nature of the fall hazards in the work area;
2. The correct procedure for erecting, maintaining, disassembling, and inspecting the fall protection systems to be used;
3. The use and operations of guardrail systems, personal fall arrest systems, safety net systems, warning line systems, safety monitoring systems, controlled access zones, and other protection to be used;
4. The role of each worker in the safety monitoring system when this system is used;
5. The limitations on the use of mechanical equipment during the performance of roofing work on low-sloped roofs;
6. The correct procedures for the handling and storage of equipment and materials and the erection of overhead protection; and
7. The role of workers in fall protection plans.

Safety Harnesses and Lifelines

Each contractor and subcontractor of any tier shall be responsible for providing and requiring the use of safety harnesses, lifelines and lanyards when workers are exposed to a fall of 6 feet or greater. *Safety harness is the only acceptable means of personal fall arrest system permitted on this site, the use of safety body belts is not acceptable for fall protection.*

Specific plans for rescue of workers shall be developed and rehearsed prior to initiating work requiring the use of fall protection safety harnesses. Rescue plans and the basic work plan shall be submitted to the Project Superintendent and Contractor's Project Safety Manager for review and comment. Concerns expressed by the Contractor, Project Superintendent, the Site Safety Coordinator, or any other reviewing authority shall be addressed fully prior to exposing any worker to the elevated work area.

Any safety harness, lifeline or lanyard actually subjected to in-service loading shall be immediately removed from service and shall not be used again for worker safeguarding. All safety harnesses, lifelines and lanyards shall meet or exceed OSHA standards. Safety harness lanyards shall be a minimum of 1/2 inch nylon, or equivalent, with a maximum length to arrest a fall in no greater than 6 feet. The rope shall have a nominal breaking strength of 5,400 lb..

Lifelines shall be secured above the point of operation to an anchorage or structural member capable of supporting a minimum dead weight of 5,400 pounds.

Safety Nets

Safety nets will comply with CAL OSHA 1671 requirements. Safety plan for use of nets must be submitted and reviewed by Contractor safety prior to use.

Safety nets shall be provided by the subcontractor or tiered subcontractor when work places are more than 25 feet above the ground or other surfaces where the use of ladders, scaffolds, catch platforms, temporary floors, safety lines or safety harnesses are impractical. When safety net protection is required, operations shall not be undertaken until the net is in place and has been tested.

Safety nets shall extend 8 feet beyond the edge of the work surfaces where workers are exposed and shall be installed as close under the work surface as practical. In no case shall the safety net be more than 25 feet below the work surface. Nets shall be hung with sufficient clearance to prevent the user's contact with surfaces or structures below. Clearances shall be determined by impact load testing.

The mesh size of the nets shall not exceed 6 inches by 6 inches. All nets shall meet accepted standards of 17,500 foot pounds minimum impact resistance, as determined and certified by the manufacturer, and shall bear a label of proof test. Edge ropes shall have a minimum breaking strength of 5,000 pounds. Forged steel safety hooks or shackles shall be used to fasten the net to its supports. Connections between net panels shall develop the full strength of the net.

5. TOOLS

All tools shall be maintained, whether furnished by your employer or employee, in a safe condition. When power tools are designed for guards; they shall be equipped when in use. All hand held power tools shall be equipped with a constant pressure switch that will shut off the power when pressure is released.

- a. Damaged or Defective Tools. Do not use broken, defective, burned or mushroomed tools. report defective tools to your supervisor and turn tool in for replacement.
- b. Hard Facing. Do not strike two hardened steel surfaces together; i.e. two hammers or a hammer and hardened steel shafts bearings, etc.
- c. Power Tools. Only assigned, qualified operators will operate power, explosive actuated or air driven tools. Electric power tools shall either be of the approved double insulated type or grounded in accordance with applicable regulations.
- d. Proper Tool. Always use the proper tool and equipment for any task you may be assigned to do.
- e. Storage. Keep tools in their proper storage place when not in use. Do not leave tools where they might present a tripping hazard, fall on somebody or be stolen. Do not carry sharp edged tools in your pockets.
- f. Air Powered Tools. Pneumatic power tools shall be secured to the hose or whip by some positive means to prevent the tool from becoming accidentally dislodged. Safety clips or retainers shall be securely installed and maintained on pneumatic impact tools to prevent attachments from being accidentally expelled. Compressed air shall not be used for cleaning purposes unless the pressure is less than 30 psi and then only with effective chip guarding.

6. ELECTRICAL

- a. Danger Signs and Tags. Locate and mark buried utilities before drilling or excavating. Be alert to and strictly obey all warning and danger signs around electrical apparatus. Do not close a switch that has a danger tag on it signed by or placed there by someone else.

Before work is begun your employer shall ascertain whether any part of an electric power circuit, exposed or concealed, is so located that the performance of the work may bring any person, tool, or machine into physical or electrical contact therewith. Employees shall be advised of the hazards and warning signs shall be posted and maintained.

- b. Electrical Hazards. Do not use extension cords or any power tools or equipment when the cords are frayed, worn out or the wires are bare. report such hazards to your foreman or turn the equipment in for repair. Do not run electric cords through water puddles or concealed spaces nor stand in water when operating electrical devices. Do not place cords where vehicular traffic may damage the insulation.

Maintain at least a 20 foot clearance from overhead power lines. Contact the utility company for information regarding minimum clearance from high voltage power lines.

No contractor shall permit an employee to work in such proximity to any part of an electric power circuit that he may contact the same in the course of his/her work unless the employee is protected against electric shock by de-energizing the circuit and grounding it or by guarding it by effective insulation or other means. Temporary power lines, switch boxes receptacle boxes, metal cabinets, and enclosures around equipment shall be plainly marked to indicate the maximum operating voltage.

Plugs and receptacles shall not be interchangeable between circuits with different voltage and current ratings.

- c. Grounded. Do not use electric power tools or equipment that is not properly grounded. Use only three wire grounded receptacles and extension cords. All Portable generators and lights which supply power to exterior equipment shall be grounded in accordance with the manufactures and Cal OSHA regulations. Use Ground Fault Circuit Interrupters (GFCI's) for outdoor electrical equipment. All 120-volt single-phase 15 and 20 amp outlets used by employees shall have ground fault circuit interrupters.

Assured equipment grounding programs will be used to serve GFCI distribution boxes.

- d. Qualification. Only qualified electricians are permitted to install, repair or remove electrical wiring or equipment. Obtain permits, licenses, or right of entry as required through local or state authorities.

All electrical wire apparatus and equipment shall be of a type listed by the Underwriter's Laboratories, Inc. or Factory Mutual Laboratories for the specific application.

All installation shall comply with the National Electrical Safety Code, National Electrical Code. Live parts of wiring or equipment shall be effectively guarded to protect all persons or objects from harmful contact.

- e. Temporary Lighting. report all unguarded or broken light bulbs. Do not hang lights by their cords unless the light was designed to be suspended in that manner.

Temporary lighting shall be equipped with guards to prevent contact with heavy-duty electric cords. Their cords shall not suspend them, unless so designed for that purpose. Temporary lighting to conform to local agency requirements.

- f. Welding. Switching equipment for shutting down the welding machine shall be provided on or near the welding machine.

The noncurrent carrying metal parts of electrical driven welding machines shall be grounded. The equipment shall be shut down when the leads are unattended. Cables with splices or repaired insulation within 10 feet of the holder shall not be used.

Welding supply cables shall not be placed in proximity to power supplies or other high tension wires. Welding leads shall not be permitted to contact metal parts supporting suspended scaffolds. Circuits from welding machines used for other than welding tools shall be grounded

7. EQUIPMENT

Only authorized persons shall operate machinery or equipment. A list of anticipated site equipment with the names of trained and authorized workers shall be provided to Contractors Safety Coordinator prior to work activities.

- a. Contractors will ensure that all mobile equipment such as trucks, cars, cranes, fork-lifts, manlifts, JLG's etc., be maintained and in good operating condition prior to entry onto the Project.
 - i. Equipment and vehicles shall be so constructed as to prevent material being transported from falling off the equipment onto runways & roadways. It shall be the Contractor's responsibility to remove the material from roadways should it fall from their equipment.
 - ii. Contractors shall be responsible for removing material (mud & waste concrete) tracked onto existing roadways.
 - iii. When mobile equipment is not in use, it shall be positioned where it will not obstruct roadways, electrical lines, emergency exits, firefighting equipment and temporary ways. All equipment not in use shall be secured or positioned to prevent movement or operations. Mobile cranes shall not be parked with the boom suspended over roadways, vehicles, electrical or mechanical equipment or buildings. If loads are left suspended, barricades are to be placed around the area under the load.
 - iv. Employees within manlifts/JLG's are required to wear full body safety harnesses and tie off to the railing via safety lanyards.
 - v. Workers shall not be permitted to work or pass under a suspended load unless the load is effectively blocked.
 - vi. All mobile and tower crane operations will adhere to the requirements set forth by Cal OSHA and this manual's Crane section.
 - vii. The work platform for a scissors lift and JLG/manbasket shall be entered and exited at ground level only.
 - viii. The basket of a scissors lift and/or JLG/manbasket shall not be used as a material hoist.
 - ix. The manufacturers guidelines shall serve as the required safety practices in conjunction with the safe operation of equipment.
- b. Elevated Loads. Be alert to avoid swinging suspended loads over workers. Keep yourself and your fellow workers in the clear at all times.
- c. Hoists and Elevators. Ride only on authorized personnel hoists or elevators. Do not ride on a material hoist, forks, et.
- d. Jumping. Jumping on or off equipment or vehicles, either moving or stationary, is prohibited. When climbing on or off machinery, face the unit and use secure hand and foot holds to prevent slips or falls. Look before you step down.
- e. Mechanical Guards. No machine shall be operated until all guards are in place. Guards are not to be removed except when necessary to make repairs and are to be replaced before equipment is again put into operation.
- f. Operating Machinery. Only authorized and properly trained, licensed, and supervised personnel are permitted to operate equipment, vehicles, valves, electrical switches and other similar machinery.

Loose or frayed clothing, or long hair, dangling ties, finger rings, etc., shall not be worn around moving machinery or other sources of entanglement.

Machinery shall not be serviced, repaired or adjusted while in operation, nor shall oiling of moving parts be attempted, except on equipment that is designed or fitted with safeguards to protect the person performing the work.

- g. Seat Belts. If vehicle or equipment is equipped with seat belts, the operator and the passengers shall use them.
- h. Transportation. Ride only in vehicles designated for transporting personnel. Do not ride on running boards, fenders or other projections and do not extend legs, feet, arms, hands or other body parts over the edge of the truck bed.
- f. Fall Protection. Full body safety harnesses and lanyards tied off to the cage will be required whenever workers are elevated in manbaskets/JLG's.

8. LADDERS

This project does not allow the use of conductive ladders (i.e., steel and aluminum).

- a. Ascending and Descending. Face the ladder and use both hands when going up and down ladders. Materials and tools should be lowered or raised by a rope or other mechanical means.
- b. Good Condition. Select the right ladder for the job. Do not use a ladder with missing or defective rungs, split side rails or other weaknesses.
- c. Painting. Do not paint wood ladders as this may cover up defects.
- d. Placing and Securing.
 - i. The ladder should be placed so that it extends at least 3 feet beyond the top landing.
 - ii. Make sure the base of the ladder is tied off or otherwise secured to prevent slipping or falling.
 - iii. Base of ladder should be set out at least one-fourth of the ladder height measured from bottom to point of bearing.
- e. Work Safely. When working from ladder, do not overreach or work beyond the second rung from the top. A frame ladders shall not be utilized to enter and egress trench areas.
- f. Job Made Ladders. Job Made ladders shall comply with Cal OSHA requirements.

9. MATERIAL HANDLING

- a. Access. When storing materials remember to leave adequate access ways. Do not block aisles or exits.
- b. Heavy Loads. Do not attempt to lift heavy loads without assistance. Learn how to lift properly by bending your knees and keeping your feet together. Avoid strain by lifting with your legs and arms, not your back.
- c. Life Lines. When working on material stored in silos, hoppers, tanks or from open floor areas, employees must wear a full body safety harness and lanyard attached to an approved support point.
- d. Non-compatible Materials. Avoid stacking non-compatible materials in the same pile.
- e. Cumulative Trauma Injury Prevention. When at all possible, employees who experience repetitive stress type tasks, which involve an extended duration (< 4 hr.) of force, frequency of tasks, vibration, and abnormal body postures should be rotated to other tasks with dis-similar muscle movements so as to minimize the possibility of Repetitive Stress Injury (RSI) claims.

10. EXCAVATION & TRENCHING

Before a contractor or subcontractor conducts excavation or trenching operations on site, a work permit shall be made available at the Contractor's office. Items to check are:

- Permit for excavation activities
- Excavations and Trenching
- Name Competent Person
- Submit Excavation Plan

Excavation/Trenching Plan

The excavation/trenching plan provides an overall scope to the excavation/trenching activities. This must be completed before any work begins, by the competent person, and reviewed with Contractor site management.

Daily inspections of excavations, the adjacent areas, and protective systems shall be made by a competent person for evidence of a situation that could result in possible cave-ins, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions. An inspection shall be conducted by the competent person prior to the start of work and as needed throughout the shift. Inspections shall also be made after each rain storm or other hazards increasing occurrence. These inspections are only required when worker exposure can be reasonable anticipated.

Where the competent person finds evidence of a situation that could result in a possible cave-in, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions, exposed workers shall be removed from the hazardous area until the necessary precautions have been taken to ensure their safety.

An "Excavation Checklist" is an inspection to be completed by the competent person on a periodic basis. Periodic is an uncommitted term, but since each project varies in schedule of excavation activities, the frequency will also vary. The project safety team needs to determine what is sufficient for defining periodic. This inspection form covers general requirements and adequacy of protective measures for excavation activities.

The Daily Excavation/Trenching Log is the documentation required to comply with state and federal regulations. Copies of this should be forwarded to Contractor Safety Coordinator along with a weekly safety inspection forms.

The Soils Analysis Checklist must be completed when the soil type(s) have been determined. A separate analysis must be performed if the excavation/trench is stretched over a distance where soil type changes.

Key points for excavations/trenching regulations:

- Surface encumbrances shall be safe guarded.
- Underground utilities.
- Access, egress.
- Vehicular traffic.
- Falling loads.
- Warning systems/mobile equipment.
- Hazardous atmospheres. Less than 19.5% oxygen. Emergency rescue.
- Water accumulations.
- Stability of adjacent structures.

- Loose rock, soil.
- Inspections.
- Fall protection.

Requirements for protective systems:

Shoring or sloping system required, except:

- Stable rock.
- Less than 5 feet and no indications of cave-in by the competent person.

Sloping, benching systems.

- Allowable configurations and slopes.
- Determination of slopes and configurations using OSHA appendices A and B.
- Designs using other tabulated data.
- Designs by a registered professional engineer.

Support systems, shield systems and other protective systems.

- Timber.
- Manufactured protective systems.
- Self made using tabulated data. (Approved by a Professional Engineer (PE)).
- Designs by a registered professional engineer.
- Materials and equipment free from damage or defects.
- Installation and removal of support systems.
- Workers not allowed to work on face of slope above others.
- Shield systems.
- Never subject shields to excessive loads.
- Never allow workers in shields when being installed, removed or moved vertically.

Sloping and Benching

- Definitions: Actual slope, distress, maximum allowable slope, short term exposure.
- Requirements: Soil classification per OSHA Appendix A.

Sloping and Benching

- Definitions: Actual slope, distress, maximum allowable slope, short term exposure.
- Requirements: Soil classification per OSHA Appendix A.
- Maximum allowable slope
- Actual slope
- Configurations

Stable Rock	Vertical	90 degrees	20 ft. maximum
Type A	3/4:1	53 degrees	20 ft. maximum
Type A	1/2:1	63 degrees	12 ft. maximum (short term)
Type B	1:1	45 degrees	20 ft. maximum
Type C	1 1/2:1	34 degrees	20 ft. maximum

11. CONCRETE & MASONRY

All concrete and masonry work will be conducted in a safe manner, consistent with the general and specific rules listed below within this Section 3 - Code of Safe Practices.

Site specific policies and procedures include the following:

- Appropriate personal protective equipment such as hard-hats, protective eye wear with side shields, gloves, boots, in-line respirators, et, will be required by all site personnel and delivery contractors/vendors when the exposure warrants such use.
- Job Hazard Analysis forms will be completed prior to all major pours identifying proposed equipment set-up area, employee safe access and egress, lighting, truck staging area, wash off areas, and pertinent pre-planning for safety issues, etc.
- All concrete pumpers will operate with the outriggers fully extended. Dunnage (wood pads 1/3 larger that outrigger pad base) will be provided under the outriggers in all cases.
- All impalement exposures such as reinforcement re-bar shall be capped prior to conducting work within or around the exposure.
- Fall protection requirements consistent with [Section #3, Subsection 4] of this manual shall be adhered to at all times. Positioning belts are not considered adequate fall protection unless utilized in conjunction with full body harnesses and lanyards attached to an approved anchorage point.
- All concrete and re-bar material handling activities shall comply with Section #3, Subsections #12 & #13 of this manual.

All concrete and masonry construction activities should adhere to California OSHA regulations as listed below:

- a) Concrete mixers equipped with 1-yard, or larger, loading skips shall be provided with a device to clear the skip of material. Skip clearing shall not be done by a worker standing under or near a raised skip while striking it with a hand-held implement.
- b) On concrete mixers of 1 year capacity, or larger, guardrails of pipe or similar material shall be provided on each side of the dangerous area under the raised skip.
- c) Handles on bull floats shall be constructed of nonmetallic and non-conductive material.
- d) Concrete troweling machines--of the powered, rotating-blade type--that are guided manually shall be equipped with a control or switch that will automatically shut off the power whenever the operator's hands are removed from the equipment handles.
- e) Mortar, Plaster or Fireproofing Mixers.
 - (1) Grid guards on mortar, plaster or fireproofing mixers of 1 yard capacity of smaller shall have a grid opening not to exceed 4 inches square with a minimum clearance of 5 inches from the top of the grid guard to the top of the mixing paddles.
 - (2) All mortar, laster or fireproofing mixers of 1 yard capacity or smaller ordered or purchased after the effective date of this regulation shall be equipped with grid guards with an opening not to exceed 4 inches square with a minimum clearance of 5 inches from the top of the grid guard to the top of the mixing paddles.
- f) Tremies. Sections of tremies and similar concrete conveyances shall be secured with wire rope in addition to the regular couplings or connections.

12. CRANES

- a. Critical Lift Guidelines. This procedure provides guidance for control of lifts with cranes which are considered to be "critical" lifts and not repetitive lifts. Lifts that fall into this category are those lifts which:
- i. Exceed 75% of the crane's rated capacity for the crane configuration.
 - ii. Require two cranes to make the lift.
 - iii. Are located such that the load or the crane boom could fall onto electric power lines, transformers, pipelines, or vessels or reactors containing flammable, explosive, or hazardous gases or liquids, etc.
 - iv. Utilize poles and derricks that have been erected for a specific lift.

Crane configuration as used in this procedure refers to variable parts of the crane such as boom length, boom angle, counterweight, outriggers extended and set, tracks extended or retracted, and various attachments (jib, headache ball, load block, lifting devices, etc.). All these items affect the gross capacity of the crane and shall be taken into consideration prior to lift.

A "Crane Lift" Permit will be completed by all Contractors prior to making any "critical lift". After the permit has been completed by the supervisor, Aon and District Safety personnel will review the lift permit with the contractors safety representative in the order listed on the permit. A copy of the permit will be placed in the cab of the lift-crane and the original will be filed in the contractors Project Managers office.

If, in completing the permit, it is determined the lift equals or exceeds 95% of the crane configuration capacity for the greatest radius the load will achieve during pick, swing or set, the lift will not be made. If, changing the crane configuration within the manufacturing specifications, a greater gross capacity may be gained, the change shall be made. If not, a larger capacity crane shall be ordered and used.

- b. Other Hazards. For any electrical or other hazard(s) involved or associated with the operations, the appropriate hazard permit(s) will also be completed prior to the lift.
- c. Operation of Any Crane.

The Contractor shall:

- i. Ensure that only crane operators who have experience and are qualified with a particular piece of equipment be assigned to perform lifting operations.
- ii. Survey the specific area where the crane will be operating, making certain that all interfering conditions and factors are pointed out to the operator, and that appropriate preventive action is taken prior to the start of operation.
- iii. Provide adequate job instruction to the operator.
- iv. Specifically instruct the operator that if any Portion of the machine does not function properly, the machine is to be stopped, the Supervisor is to be contacted, and further instructions will be delivered.
- v. Instruct the operator that he/she must be able to see the boom tip at all times. Be certain to keep height of rig below the limits established by the
- vi. Ensure proper operating and mechanical condition of the machine.
- vii. Exercise extremely good judgment about being present, and directly contributing to the handling of extremely heavy or difficult lifts.
- viii. Have the swing radius of the counterweight barricaded with red Danger tape.
- ix. Keep two pairs of orange gloves or vests on the crane to be used by flagmen to distinguish themselves from other personnel.
- x. Outriggers will be fully extended on all lifts and appropriate blocking (4X4' blocks - size 1/3 larger than the pads) will be required when safety management deems necessary.

The Crane Operator and/or Oilman shall also:

- i. Survey the specific area in which the crane will be working making certain that all interfering conditions and factors are noted and that appropriate preventative action is planned and implemented before starting operation.
- ii. Give adequate job instructions to all personnel concerned (especially the riggers).
- iii. Assign a flagman (or more if required) who is knowledgeable about rigging practices, crane capacity and operating procedures to provide all signals to the crane operator.
- iv. Fully instruct the flagman as to the planned use of the crane. In all cases involving assignment of one flagman or multiple flagmen, ensure that each understands his/her responsibilities.
- v. Whenever there is any question that the weight of a load to be handled or that the handling requirements of a particular load might overload the crane, the foreman shall have the weight of the load confirmed (by contacting the vendor directly or by some other means).

The flagman must be present at all times whenever:

- i. The crane is to be working within a boom's length of an electric power line(s).
- ii. The operator cannot clearly see the hook or load at times or when the rig is being backed up.

The flagman shall also:

- i. Position himself/herself in full view of the operator and, if using hand signals be close enough for the signals to be seen clearly. His/her position shall allow a full view of the load and equipment at all times, yet be such that there is no danger of being injured.
- ii. Be fully qualified by experience, knowledgeable in the operation, and able to coordinate actions with the crane operator by signals.
- iii. Be responsible for keeping all authorized personnel beyond the crane's operating radius.
- iv. Direct the load, ensuring that it never passes over other personnel.
- v. Stay in constant communication with the crane operator by either using approved hand signals, radio, sound-powered phones, or equivalent means of communication.

Cranes - Crawlers, Truck and Wheel Mounted. Contractor shall ensure and provide certification information as required by OSHA for all cranes prior to site entry. Certification information shall verify that a thorough, annual inspection of the equipment has been made by a competent person. Equipment owners are required by OSHA to maintain a record of the dates and results of inspections for each hosting machine and piece of equipment.

Operators - Cranes shall be operated by designated operators licensed by an approving agency, trainees under the direct supervision of the designated operator, Inspectors certified for crane inspection, and test and maintenance personnel when necessary. No one other than the crane operator shall be in or on the crane when in operation. Exceptions are oilers whose duties may require their presence.

Prior to lifting loads over workers, the operator shall sound his/her horn and warn others of overhead loads.

13. RIGGING

- a. General. This procedure provides guidance for the protection of personnel engaged in rigging operations.
- b. Wire Rope. Reels of wire rope must not be dropped from a car or truck. To keep the wire rope clean and dry during storage, it should be coated with a protective material (LEPRO) to seal out air and moisture. Whether in storage or in use, all wire rope should be kept well lubricated. Wire rope will not be stored where it might be exposed to acid fumes or other corrosive agents.

All rigging material will be required to be visually inspected for damage and excessive wear prior to each lift, and, if found defective, removed from site.

To avoid kinks, the reel of wire rope must be mounted on jacks or a turntable to allow it to revolve as rope is pulled off. During installation, the rope should be made to turn the same direction off the reel as onto the drum to avoid reverse bends. During the break in period, the new rope should be run without a load. The first load should be gradually increased to set the wire.

Wire rope will be discarded when found to contain: Six randomly distributed broken wires in one rope lay, three broken wires in one strand of one rope lay, or when the rope shows signs of excessive wear, kinks, corrosion, or other defects. Wire ropes with splices will not have less than three tucks. "U" bolt wire rope clips will be applied so that the "U" section is in contact with the "dead end" of the rope.

- c. Slings. All slings and their fittings and fastenings shall be inspected prior to use, and as necessary during use, by a competent person for evidence of overloading, excessive wear, or other damage.

Defective slings shall immediately be removed from service and destroyed.

Proper storage shall be provided for slings, etc.

Protection shall be provided between the sling and any sharp, unyielding surfaces.

- d. Drums and Sheaves. The size of drums and sheaves will vary according to the size and flexibility of the cable. The sheaves will be of the proper size and flexibility of the cable.

The sheaves will be of the proper size so as not to pinch the cable. The grooves of drums and sheaves should be kept smooth, free of burrs or defects. Sheaves, drums, and rollers should be properly aligned. Misalignment causes excessive wear to the cable and, over a period of time, may wear off an entire flange of sheaves. Overwinding and cross-winding should be avoided; either will abrade and distort the rope.

Check the groove diameter of all sheaves with a "groove gauge". Using wire rope in an oversized sheaves causes the rope to become flattened or distorted; using undersized grooves will pinch and tear the strands of wire. Check the sheaves and blocks for worn bearings. Allowing the sheaves to wobble on the pins will cause the wire rope to rub and wear the sides of the sheaves' throat.

- e. Rigging Operations. When temporary rigging such as wire rope lashing, come-along, chain falls, etc., are used for support during all erection sequences for machines, piping, platforms, walkways, and steel members such rigging shall not be removed until all leveling and alignment is complete and the item is secured in its permanent location.

Rigging equipment will be inspected before each use, and as necessary during its use, to ensure that it is sound. All rigging equipment including, but not limited to, slings (wire and nylon), chain-falls, come-along, spreaders, lifting beams, etc., shall be inspected on a quarterly basis. Records will be maintained and copied to the Safety Coordinator. The inspection shall be performed by a competent person and the rigging equipment color coded in accordance with the Ground Fault Protection suggested color code for the quarter.

Defective rigging equipment will be removed from service immediately and repaired or destroyed.

Rigging equipment, including shackles and hooks, will not be loaded in excess of its manufacturer's recommended safe working load. Special custom designed grabs, hooks, clamps, etc., shall be marked to indicate safe working loads and shall be proof-tested prior to use to 125 percent of their rated loads.

Job or shop hooks formed from bolts, rods, re-bar, etc., will not be used. No "Christmas Treeing" shall be allowed on the Project.

14. SCAFFOLDS

- a. Avoid Overloading. Do not overload a scaffold. A safety factor of 4 shall be used for support loads. Footing and or anchorage shall be sound, rigid and capable of carrying the maximum intended load without settling or displacement.
- b. Guardrails. Do not work on scaffolds without adequate guard rails and toeboards. Guardrails and toeboards shall be installed on all open sides and ends of platforms more than 6 feet above the ground or floor. Scaffolds 4 feet to 6 feet in height, having a minimum horizontal dimension in either direction of less than 45 inches, shall have standard guardrails installed.

Guardrails shall be 2x4 inches wood stud or steel tubing, approximately 42 inches high, with a 1x6 inch or metal tubing midrail. The top rail must be capable of supporting a 200 lb. load (vertical & horizontal) and the midrail must be capable of withstanding a 150 lb. load (vertical & horizontal) without failure. supports shall not be spaced more than 8 feet apart. Toeboards shall be a minimum of 4 inches high.

- c. Inspection. Inspect the scaffold before you use it to be sure it is safe and without defects. Do not work on slippery or snow-covered scaffolding until it is cleared or sanded. No scaffolding shall be moved, erected, dismantled or altered except under the supervision of competent persons.
- d. Makeshift Scaffolds. Makeshift scaffolds are not permitted. Scaffolds shall be constructed in a safe manner using approved scaffold planking or other material. Make certain the scaffold is placed on a firm footing. All load carrying timber members of scaffold framing shall be a minimum of 1500 fiber construction grade lumber. All scaffolding shall be "Scaffolding Grade."

Scaffolding planks shall extend over their end supports not less than 6 inches or more than 12 inches. All planking shall overlap a minimum of 12 inches or be secured from movement.

A minimum of 2 planks shall be placed together to provide use. Single plank operations are forbidden. Planks must be at least 12 inches wide and free of defects.

- e. Rolling Scaffolds. Dismount scaffold when it is to be moved. Be sure to lock the wheels before remounting. Also remove or secure tools and materials before moving scaffold. Outriggers shall be used on all sides of the scaffolding when working from scaffolds which exceed the 3 to 1 height/width ratio.
- f. Access. An access ladder or equivalent safe access shall be provided. Employees are not to climb up the side of the scaffold unless the scaffold structure is designed for ladder use.

15. STEEL ERECTION

All steel erection work will be conducted in a safe manner, consistent with the general and specific rules listed within the Code of Safe Practices, as relating to tools/equipment use and safe practices.

All steel erection construction activities should adhere to CAL OSHA Article 29 regulations as listed below:

- a) During the final placing of solid web structural members, the load shall not be released from the hoisting line until the members are secured with not less than two bolts, or the equivalent at each connection to keep members from rolling and to sustain anticipated loads. Bolts shall be drawn up wrench tight.
- b) Open web steel joists shall not be placed on any structural steel framework unless such framework is safely bolted or welded.
- c) In steel framing where bar joists are utilized and columns are not framed in at least two directions with structural steel members, a bar joist shall be field-bolted at columns to provide lateral stability during construction.
- d) Where longspan joists or trusses, 40 feet or longer, are used rows of bridging shall be installed to provide lateral stability during construction prior to slacking of hoisting line.
- e) No load shall be placed on open web steel joists until these requirements are met.
- f) Permanent Flooring--Skeleton Steel Construction in Tiered Buildings.
- g) The permanent floors shall be installed as the erection of structural members progresses, and there shall be not more than eight stories between the erection floor and the uppermost permanent floor, except where the structural integrity is maintained as a result of the design.
- h) At no time shall there be more than four floors or 48 feet of unfinished bolting or welding above the foundation or uppermost permanently secured floor.
- i) Where skeleton steel is being erected, a tightly planked and substantial floor shall be maintained within two stories or 30 feet, whichever is less, below and directly under that Portion of each tier of beams on which any work is being performed. EXCEPTION: When gathering and stacking temporary floor planks on a lower floor in preparation for transferring planks for use on an upper floor.
- j) When gathering and stacking temporary floor planks, the planks shall be removed successively, working toward the last panel of the temporary floor so that the work is always done from the planked floor.
- k) When gathering and stacking temporary floor planks from the last panel, the employees assigned to such work shall be protected by full body safety harnesses with safety lines attached to a catenary line or other substantial anchorage.
- l) All steel workers, including connectors, shall adhere to the 100% - 6 foot fall protection program.
- m) Pendant lines, catenary lines and other lines used to secure workers shall be capable of supporting a minimum weight of 5400 pounds.
- n) If the procedure specified in (1) above is impractical, perimeter safety nets shall be installed at a distance of no more than 25 feet below the work surface and extend at least 8 feet beyond the perimeter of the building or structure. Nets shall meet the requirements set forth in accordance with [Sections 1671 and 1672] of Cal-OSHA Article as stated above.

16. ROOFING

All roofing work will be conducted in a safe manner, consistent with the general and specific rules listed within the Code of Safe Practices, as relating to tools/equipment use and safe practices.

Site specific policies and procedures include the following:

- No knotted hand lines shall be used.
- Roofers tending kettles or carrying buckets of hot tar shall wear gloves that fit snugly at the wrists and long sleeved shirts fastened at the wrists.
- At no time while handling or exposed to injury from hot tar, should a roofer work without a shirt or appropriate footwear.
- Appropriate Portable fire extinguishers shall be kept at or near the kettle, attached, if practicable, to the tongue of the kettle, away from the danger zone.
- Kettle covers should be equipped with a handle that projects at least 14 inches away from the surface of the cover or lid.
- Kettle covers shall be closed and latched when in transit and the kettle should be slop-proof when cover is closed.
- When parked, means shall be provided to prevent inadvertent movement of the kettle.
- Ladders should be used with great caution, and roof gutters should not be depended upon for support.
- Safe access and egress to the work area shall be provided with fall protection measures consistent with [Section 3, Subsection 4] of this manual.
- Workers handling buckets of hot tar should not carry anything that will interfere with the safety of **this operation**.

17. FIRE PREVENTION AND HAZARDOUS CHEMICALS

Material Safety Data Sheets (MSDS) must be provided to Project Management one week prior to any hazardous substance being brought on site. Project Management will review the MSDS and comment on storage practices/location and practices surrounding use.

- a. Cleaning Agents. Explosive liquids will not be used as cleaning agents. Use only approved cleaning fluids.
- b. Combustible Materials. Gasoline and similar combustible liquids Will be stored in secure "approved" containers and in an area free from burning hazards.

Extreme caution must be used when handling or working around corrosive liquids. In low concentrations, these chemicals can be simply washed from skin or clothing. Higher concentrations can burn skin and dissolve some fabrics. Corrosives splashed in the eye should be considered a potentially serious injury and the injured person examined by the physician as soon as possible after initial first aid.

- (1) Check the label of any chemical product before using.
 - (2) Protective equipment **must be worn** when transferring or working with liquid corrosives.
 - Chemical splash-proof goggles with a face shield
 - Rubber high-gauntlet gloves
 - Rubber boots
 - An approved respirator for the chemical being handled, if required. NOTE: Respirator use is carefully regulated by the Port.
 - (3) Seek first aid or medical treatment for exposure.
 - (4) Avoid breathing dust, gases, or vapors.
 - (5) Locate the nearest safety deluge shower and eye wash fountain to your work area before handling corrosive solutions or solids. A garden hose can be used in an emergency in remote locations.
 - (6) Do not mix household chlorine bleach (sodium hypochlorite) with other cleaners. Mixing with other acidic cleaners (e.g. toilet cleaners) may generate dangerous chlorine gas.
 - (7) Refer to MSDS for information on chemicals.
 - (8) When diluting acid with water always add the concentrated acid to the water slowly. Do not add water to acid for strength adjustments.
 - (9) Lead-acid batteries (car, truck, and auxiliary power supplies) must be handled with care. The electrolyte is sulfuric acid (H₂SO₄). Avoid contact on clothing, skin or in eyes. In the case of exposure, flush with clean water for 15 minutes and seek medical attention.
- c. Combustible Materials. Keep all heat sources away from combustible liquids, gases or other flammable materials. When not in use, store combustible materials in a well ventilated, cool place.
 - d. Fire Extinguisher. A Portable fire extinguisher, rated not less than 2A, shall be provided for each 3,000 square feet of floor area. Travel distance from any point of the protected area to the nearest fire extinguisher shall not exceed 75 feet.

Do not remove or tamper with fire extinguisher installed on equipment or vehicles or in other locations unless authorized to do so or in case of fire. Portable approved fire extinguishers will be required on site and within the areas involving of all welding, cutting, soldering and roofing operations.

- e. Fire Fighting Equipment. Fire fighting equipment must be kept free from obstacles, equipment, materials and debris that could delay emergency use of such equipment. Familiarize yourself with the location and use of the project's fire fighting equipment.

- f. Smoking and Fires. Smoking is prohibited within the structures. Extinguish all matches, cigarettes, cigars and pipe tobacco before discarding. Do not smoke while fueling equipment or while in close proximity to refueling areas. Never leave open fires unattended.
- g. Storage. Storage of flammable substances on equipment or vehicle is prohibited unless such unit has adequate storage area designed for such use.
- h. Hot Work & Cutting Permits. All welding, barbecues, hot work, cutting, and ignition producing construction activities will be required to undergo a "Hot Work/Cutting Permit" system.

NOTE: The Port of Oakland does not expect any employee to put their physical well-being in danger by trying to extinguish a fire. If there is any threat to your personal safety, leave the area and wait for the Fire Department to arrive.

18. **CONFINED SPACE**

Each contractor is responsible for evaluating all potential confined spaces and developing an entry permit program based upon the Cal-OSHA standards.

A written confined space program should be within the Contractor's or sub-contractors safety manual and be consistent with CAL-OSHA regulations. A detailed plan of work and exposure mitigation shall be submitted to Contractor one week prior to actual confined space entry operations.

The Contractor's Safety representative will actively review and approve the confined space entry permit procedures.

19. SITE VEHICLE OPERATIONS

The OCIP Insurance Program does not provide coverage for contractor nor vendor owned and operated vehicles.

Personal passenger vehicles shall remain off the construction site and within designated parking areas. Personal passenger trucks will be allowed to transport material to the work site, however, parking of the vehicle on the construction site is prohibited unless approved through the Project Superintendent.

Site speed limits will be posted and enforced.

Employees are not allowed to ride within vehicles on site unless an adequate number of seat belts are provided in relation to the number of riders. Employees are not allowed to ride in the back of truck beds at any time.

Vehicles shall have a service brake system, an emergency brake system, and a parking brake system. These systems may use common components, and shall be maintained in operable condition.

Whenever visibility conditions warrant additional light, all vehicles, or combinations of vehicles, in use shall be equipped with at least two headlights and two taillights in operable condition.

All vehicles, or combination of vehicles, shall have brake lights in operable condition regardless of light conditions.

Vehicles with cabs shall have windshields and powered windshield wipers. Cracked or broken windshields shall be replaced promptly. Where fogging or frosting of windshields is prevalent, operable defogging or defrosting equipment shall be required.

Tools and material shall be secured to prevent movement when transported in the same compartment with employees.

Vehicles used to transport employees shall have seats firmly secured and adequate for the number of employees to be carried.

Vehicles on construction sites, not covered by the provisions of 1596 (g) or applicable provisions of the State of California Motor Vehicle Code shall have installed seat belts and anchorage's meeting the requirements of 49 CFR Part 571 (Department of Transportation, Federal Motor Vehicle Safety Standards).

The employer shall require the use of seat belts.

Vehicles excluded from provisions of 1591 and the State of California Motor Vehicle Code shall be equipped with fenders or, if vehicle is not designed for fenders, mud flaps.

Vehicles not covered under other sections shall be checked at the beginning of each shift to assure that the following parts, equipment, and accessories are in safe operating condition and free of apparent damage that could cause failure while in use: service brakes, including trailer brake connections; parking system (hand brake); emergency stopping system (brakes); tires; horn; steering mechanism; coupling devices; seat belts; operating controls; and safety devices. All defects shall be corrected before the vehicle is placed in service. These requirements also apply to equipment such as lights, reflectors, windshield wipers, defrosters, fire extinguishers, etc., where such equipment is necessary.

Where vehicles are operated, temporary covers for conduits, trenches and manholes and their supports, when located in roadways and vehicular aisles, shall be designed to carry at least 2 times the maximum intended vehicular live load and they shall be designed and installed as to prevent accidental displacement.

20. TRAFFIC CONTROL & FLAGGERS

Where a hazard exists to employees because of traffic or haulage conditions at work sites that encroach upon public streets or highways, a system of traffic controls in conformance with the "Manual of Traffic Controls for Construction and Maintenance Work Zones—1996."

Additional means of traffic control, such as continuous patrol, detours, barricades, or other techniques for the safety of employees may be employed. Criteria for position, location and use of traffic control devices described in the "Manual" should be utilized as a guide for the correct placement of safety devices.

Employees (on foot) exposed to the hazard of vehicular traffic shall wear orange, strong yellow-green, or fluorescent versions of these colored warning garments such as vests, jackets, or shirts. During rainy weather, employees exposed to the hazard of vehicular traffic may wear orange, strong yellow-green, or yellow rainwear.

During hours of darkness, warning garments shall be reflective. The reflective material shall be visible at a minimum of 1,000 feet. The reflective clothing, or the reflective material added to the clothing, shall have a minimum of one horizontal stripe around the torso. White outer garments with reflective material that meets the above requirements may be worn during hours of darkness in lieu of colored vests, jackets and/or shirts.

Flaggers shall be utilized at locations on a construction site where barricades and warning signs cannot control the moving traffic.

When flaggers are required, they shall be placed in relation to the equipment or operation so as to give effective warning.

Placement of warning signs shall be according to the "Manual of Traffic Controls for Construction and Maintenance Work Zones--1996", published by the State Department of Transportation.

Flaggers shall wear orange, strong yellow-green, or fluorescent versions of these colored warning garments such as vests, jackets, or shirts. Rainwear, when worn, shall be orange, strong yellow-green, or yellow.

During the hours of darkness, flaggers' stations shall be illuminated such that the flagger will be clearly visible to approaching traffic and flaggers shall be outfitted with reflectorized garments. The reflective material shall be visible at a minimum distance of 1,000 feet. The reflective clothing, or the reflective material added to the clothing, shall have a minimum of one horizontal stripe around the torso. White outer garments with reflective material that meets the above requirements may be worn during hours of darkness in lieu of colored vests, jackets and/or shirts.

Flaggers shall be trained in the proper fundamentals of flagging moving traffic before being assigned as flaggers.

AVIATION CODE OF SAFE PRACTICES FOR AIRPORTS

The Airport emergency telephone number is 911.

SECURITY

Anybody (Port employees, contractors, or the public) working in areas inside security checkpoints or in the Aircraft Operating Area (AOA) must pass security clearance, receive training, and wear an appropriate badge visible at all times. Security clearance is controlled by the Airport Badge Office. Contractors will obtain approval for such clearance by the Port's Department of Engineering.

Anyone with security clearance has the right and obligation to question individuals in restricted areas who do not display the proper badge. It is the responsibility of all badged parties, particularly Port employees, to help maintain Airport Security. Immediately report suspicious persons, activities, or circumstances to Airport Operations.

Security gates and doors must be completely closed and secure. Wait for automatic gate closure systems to close and ensure that no unauthorized vehicles or individuals have entered.

Refer to Security requirements as provided in the Contract specifications.

DRIVING AND GENERAL SAFETY

Airport driving rules can be found in "Airport Vehicle Safety Rules" which governs vehicle operation in the Aircraft Operating Area (AOA). Anyone driving an unescorted vehicle on AOA must pass a written test. Clearance to drive is displayed on the security badge. In general, the following rules apply:

1. Aircraft always have the right of way.
2. Port vehicles will activate flashers when driving on the AOA. All vehicles must have identifying signs on both sides (magnetic signs are OK). Properly equipped Port vehicles can escort vehicles not so equipped. Escorted vehicles must remain close to the escort at all times.
3. The speed limit is 15 mph; less, if conditions warrant.
4. Work that could obstruct or endanger air traffic must be lighted and flagged in accordance with FAA Advisory Circular 70/7460-1F.
5. Maintain radio communication with the control tower when driving on or near active runways and taxiways. Obey any tower instructions.
6. Where vision is restricted, a guide-person is required.
7. Do not park or drive under any portion of an aircraft or lading bridge.
8. Maintain the following clearances behind running jet engines:
 - 747, 757, 767, DC-10, DM-11: 400 feet
 - All others: 200 feet
9. All hot work (welding, torch, cutting, etc.) must first be cleared with Airport Operations and the Port's Department of Engineering and a fire watch must be posted.

NOTE: The following information was provided by the U.S. Department of Transportation's Federal Aviation Administration for safe practices while performing operations on the Airport facilities of the Port of Oakland.



U.S. Department
of Transportation
**Federal Aviation
Administration**

Advisory Circular

Subject: OPERATIONAL SAFETY ON AIRPORTS
DURING CONSTRUCTION

Date: 1/17/03

AC No: 150/5370-2E

Initiated by: AAS-300

Change:

1. THE PURPOSE OF THIS ADVISORY CIRCULAR (AC).

Aviation safety is the primary consideration at airports, especially during construction. This AC sets forth guidelines for operational safety on airports during construction. It contains major changes to the following areas: "Runway Safety Area," paragraph 3-2; "Taxiway Safety Areas/Object-Free Areas," paragraph 3-3; "Overview," paragraph 3-4; "Marking Guidelines for Temporary Threshold," paragraph 3-5; and "Hazard Marking and Lighting," paragraph 3-9.

2. WHAT THIS AC CANCELS.

This AC cancels AC 150/5370-2D, *Operational Safety on Airports During Construction*, dated May 31, 2002.

3. READING MATERIAL RELATED TO THIS AC.

Appendix 1 contains a list of reading materials on airport construction, design, and potential safety hazards during construction, as well as instructions for ordering these documents. Many of them, including this AC, are available on the Federal Aviation Administration (FAA) Web site.

4. WHO THIS AC AFFECTS.

This AC assists airport operators in complying with 14 Code of Federal Regulations (CFR), part 139, Certification and Operation: Land Airports Serving Certain Air Carriers, and with the requirements of airport construction projects receiving funds under the Airport Improvement Program or from the Passenger Facility Charge Program. While the FAA does not require noncertificated airports without grant agreements to adhere to these guidelines, we recommend that they do so as it will help these airports maintain a desirable level of operational safety during construction.

5. ADDITIONAL BACKGROUND INFORMATION.

Appendix 2 contains definitions of terms used in this AC. Appendix 3 provides airport operators with boilerplate format and language for developing a safety plan for an airport construction project. Appendix 4 is a sample Notice to Airmen form.

6. HAZARD LIGHTING IMPLEMENTATION TIME LINE.

Supplemental hazard lighting must be red in color by October 1, 2004. See paragraph 3-9 for more information.

DAVID L. BENNETT

Director, Office of Airport Safety and Standards

CONTENTS

<u>Paragraph</u>	<u>Page</u>
CHAPTER 1. GENERAL SAFETY REQUIREMENTS AND RESPONSIBILITIES	1
1-1. Overview.....	1
1-2. Who Is Responsible for Safety During Construction.....	1
CHAPTER 2. SAFETY PLANS	3
Section 1. Basic Safety Plan Considerations.....	3
2-1. Overview.....	3
2-2. Safety Plan Checklist.....	3
Section 2. Safety and Security Measures.....	4
2-3. Overview.....	4
2-4. Vehicle Operation and Marking and Pedestrian Control.....	4
2-5. Construction Employee Parking Areas.....	5
2-6. Construction Vehicle Equipment Parking.....	5
2-7. Radio Communication Training.....	5
2-8. Fencing and Gates.....	5
Section 3. Notification of Construction Activities	5
2-9. General.....	5
2-10. Assuring Prompt Notifications.....	6
2-11. Notices to Airmen (NOTAMs).....	6
2-12. Aircraft Rescue and Fire Fighting (ARFF) Notification.....	6
2-13. Notification to the FAA.....	6
2-14. Work Scheduling and Accomplishment.....	6
CHAPTER 3. SAFETY STANDARDS AND GUIDELINES	7
Section 1. Runway and Taxiway Safety Areas, Obstacle-Free Zones, and Object-Free Areas	7
3-1. Overview.....	7
3-2. Runway Safety Area (RSA)/Obstacle-Free Zone (OFZ).....	7
3-3. Taxiway Safety Areas/Object-Free Areas.....	7
Section 2. Temporary Runway Thresholds	8
3-4. Overview.....	8
3-5. Marking Guidelines for Temporary Threshold.....	8
3-6. Lighting Guidelines for Temporary Threshold.....	9
Section 3. Other Construction Marking and Lighting Activities	10
3-7. Overview.....	10
3-8. Closed Runway and Taxiway Marking and Lighting.....	10
3-9. Hazard Marking and Lighting.....	10
3-10. Construction Near Navigational Aids (NAVAIDs).....	11
3-11. Construction Site Access and Haul Roads.....	11
3-12. Construction Material Stockpiling.....	11
3-13. Other Limitations on Construction.....	11
3-14. Foreign Object Debris (FOD) Management.....	12
Section 4. Safety Hazards and Impacts	12
3-15. Overview.....	12

Appendices

APPENDIX 1. RELATED READING MATERIAL **A-1**

APPENDIX 2. DEFINITIONS OF TERMS USED IN THE AC **A-2**

APPENDIX 3. AIRPORT CONSTRUCTION SAFETY PLANNING GUIDE..... **A-3**

APPENDIX 4. SAMPLE NOTAM..... **A-7**

CHAPTER 1. GENERAL SAFETY REQUIREMENTS AND RESPONSIBILITIES

1-1. OVERVIEW.

Hazardous practices and marginal conditions created by construction activities can decrease or jeopardize operational safety on airports. To minimize disruption of normal aircraft operations and to avoid situations that compromise the airport's operational safety, the airport operator must carefully plan, schedule, and coordinate construction activities. While the guidance in this AC is primarily used for construction operations, some of the methods and procedures described may also enhance day-to-day maintenance operations.

1-2. WHO IS RESPONSIBLE FOR SAFETY DURING CONSTRUCTION.

An airport operator has overall responsibility for construction activities on an airport. This includes the predesign, design, preconstruction, construction, and inspection phases. Additional information on these responsibilities can be found throughout this AC.

a. Airport operator's responsibilities—

- (1) Develop internally or approve a construction safety plan developed by an outside consultant/contractor that complies with the safety guidelines in Chapter 2, "Safety Plans," and Appendix 3, "Airport Construction Safety Planning Guide," of this AC.
- (2) Require contractors to submit plans indicating how they intend to comply with the safety requirements of the project.
- (3) Convene a meeting with the construction contractor, consultant, airport employees, and, if appropriate, tenant sponsor to review and discuss project safety before beginning construction activity.
- (4) Ensure contact information is accurate for each representative/point of contact identified in the safety plan.
- (5) Hold weekly or, if necessary, daily safety meetings to coordinate activities.
- (6) Notify users, especially aircraft rescue and fire fighting (ARFF) personnel, of construction activity and conditions that may adversely affect the operational safety of the airport via Notices to Airmen (NOTAMs) or other methods, as appropriate. Convene a meeting for review and discussion if necessary.
- (7) Ensure that construction personnel know of any applicable airport procedures and of changes to those procedures that may affect their work.

(8) Ensure that construction contractors and subcontractors undergo training required by the safety plan.

(9) Develop and/or coordinate a construction vehicle plan with airport tenants, the airport traffic control tower (ATCT), and construction contractors. Include the vehicle plan in the safety plan. See Chapter 2, section 2, of this AC for additional information.

(10) Ensure tenants and contractors comply with standards and procedures for vehicle lighting, marking, access, operation, and communication.

(11) At certificated airports, ensure that each tenant's construction safety plan is consistent with 14 CFR part 139, Certification and Operations: Land Airports Serving Certain Air Carriers.

(12) Conduct frequent inspections to ensure construction contractors and tenants comply with the safety plan and that altered construction activities do not create potential safety hazards.

(13) Resolve safety deficiencies immediately.

(14) Ensure construction access complies with the security requirements of 49 CFR part 1542, Airport Security.

(15) Notify appropriate parties when conditions exist that invoke provisions of the safety plan (e.g., implementation of low-visibility operations).

b. Construction contractor's responsibilities—

- (1) Submit plans to the airport operator on how to comply with the safety requirements of the project.
- (2) Have available a copy of the project safety plan.
- (3) Comply with the safety plan associated with the construction project and ensure that construction personnel are familiar with safety procedures and regulations on the airport.
- (4) Provide a point of contact who will coordinate an immediate response to correct any construction-related activity that may adversely affect the operational safety of the airport.
- (5) Provide a safety officer/construction inspector familiar with airport safety to monitor construction activities.
- (6) Restrict movement of construction vehicles to construction areas by flagging and barricading, erecting temporary fencing, or providing escorts, as appropriate.

(7) Ensure that no construction employees, employees of subcontractors or suppliers, or other persons enter any part of the air operations areas (AOAs) from the construction site unless authorized.

c. Tenant's responsibilities if planning construction activities on leased property—

(1) Develop a safety plan, and submit it to the airport operator for approval prior to issuance of a Notice to Proceed.

(2) Provide a point of contact who will coordinate an immediate response to correct any

construction-related activity that may adversely affect the operational safety of the airport.

(3) Ensure that no tenant or construction employees, employees of subcontractors or suppliers, or any other persons enter any part of the AOA from the construction site unless authorized.

(4) Restrict movement of construction vehicles to construction areas by flagging and barricading or erecting temporary fencing.

CHAPTER 2. SAFETY PLANS

Section 1. Basic Safety Plan Considerations

2-1. OVERVIEW.

Airport operators should coordinate safety issues with the air carriers, FAA Airway Facilities, and other airport tenants before the design phase of the project. The airport operator should identify project safety concerns, requirements, and impacts before making arrangements with contractors and other personnel to perform work on an airport. These safety concerns will serve as the foundation for the construction safety plan and help maintain a high level of aviation safety during the project.

The airport operator should determine the level of complexity of the safety plan that is necessary for each construction project and its phases. The safety plan may be detailed in the specifications included in the invitation for bids, or the invitation for bid may specify that the contractor develop the safety plan and the airport operator approve it. In the latter case, the invitation for bid should contain sufficient information to allow the contractor to develop and determine the costs associated with the safety plan. In either case, safety plan costs should be incorporated into the total cost of the project. The airport operator has final approval authority and responsibility for all safety plans.

Coordination will vary from formal predesign conferences to informal contacts throughout the duration of the construction project.

Details of a specified safety plan, or requirements for a contractor-developed safety plan, should be discussed at the predesign and preconstruction conferences and should include the following, as appropriate:

- a. Actions necessary before starting construction, including defining and assigning responsibilities.
- b. Basic responsibilities and procedures for disseminating instructions about airport procedures to the contractor's personnel.
- c. Means of separating construction areas from aeronautical-use areas.
- d. Navigational aid (NAVAID) requirements and weather.
- e. Marking and lighting plan illustrations.
- f. Methods of coordinating significant changes in airport operations with all the appropriate parties.

2-2. SAFETY PLAN CHECKLIST.

To the extent applicable, the safety plan should address the following:

- a. Scope of work to be performed, including proposed duration of work.
- b. Runway and taxiway marking and lighting.
- c. Procedures for protecting all runway and taxiway safety areas, obstacle-free zones (OFZs), object-free areas (OFAs), and threshold citing criteria outlined in AC 150/5300-13, *Airport Design*, and as described in this AC. This includes limitations on equipment height and stockpiled material.
- d. Areas and operations affected by the construction activity, including possible safety problems.
- e. NAVAIDs that could be affected, especially critical area boundaries.
- f. Methods of separating vehicle and pedestrian construction traffic from the airport movement areas. This may include fencing off construction areas to keep equipment operators in restricted areas in which they are authorized to operate. Fencing, or some other form of restrictive barrier, is an operational necessity in some cases.
- g. Procedures and equipment, such as barricades (identify type), to delineate closed construction areas from the airport operational areas, as necessary.
- h. Limitations on construction.
- i. Required compliance of contractor personnel with all airport safety and security measures.
- j. Location of stockpiled construction materials, construction site parking, and access and haul roads.
- k. Radio communications.
- l. Vehicle identification.
- m. Trenches and excavations and cover requirements.

- n. Procedures for notifying ARFF personnel if water lines or fire hydrants must be deactivated or if emergency access routes must be rerouted or blocked.
- o. Emergency notification procedures for medical and police response.
- p. Use of temporary visual aids.
- q. Wildlife management.
- r. Foreign object debris (FOD) control provisions.
- s. Hazardous materials (HAZMAT) management.
- t. NOTAM issuance.
- u. Inspection requirements.
- v. Procedures for locating and protecting existing underground utilities, cables, wires, pipelines, and other underground facilities in excavation areas.

- w. Procedures for contacting responsible representatives/points of contact for all involved parties. This should include off-duty contact information so an immediate response may be coordinated to correct any construction-related activity that could adversely affect the operational safety of the airport. Particular care should be taken to ensure that appropriate Airways Facilities personnel are identified in the event that an unanticipated utility outage or cable cut occurs that impacts FAA NAVAIDS.
- x. Vehicle operator training.
- y. Penalty provisions for noncompliance with airport rules and regulations and the safety plan (e.g., if a vehicle is involved in a runway incursion).
- z. Any special conditions that affect the operation of the airport and will require a portion of the safety plan to be activated (e.g., low-visibility operations, snow removal).

Section 2. Safety and Security Measures

2-3. OVERVIEW.

Airport operators are responsible for closely monitoring tenant and construction contractor activity during the construction project to ensure continual compliance with all safety and security requirements. Airports subject to 49 CFR part 1542, Airport Security, must meet standards for access control, movement of ground vehicles, and identification of construction contractor and tenant personnel. In addition, airport operators should use safety program standards, as described in Chapter 3 of this AC, to develop specific safety measures to which tenants and construction contractors must adhere throughout the duration of construction activities.

General safety provisions are contained in AC 150/5370-10, *Standards for Specifying Construction of Airports*, paragraphs 40-05, "Maintenance of Traffic"; 70-08, "Barricades, Warning Signs, and Hazard Markings"; and 80-04, "Limitation of Operations." At any time during construction, aircraft operations, weather, security, or local airport rules may dictate more stringent safety measures. The airport operator should ensure that both general and specific safety requirements are coordinated with airport tenants and ATCT personnel. The airport operator should also include these parties in the coordination of all bid documents, construction plans, and specifications for on-airport construction projects.

2-4. VEHICLE OPERATION AND MARKING AND PEDESTRIAN CONTROL.

Vehicle and pedestrian access routes for airport construction projects must be controlled to prevent inadvertent or unauthorized entry of persons, vehicles, or animals onto the AOA. This includes aircraft movement and nonmovement areas. The airport operator should develop and coordinate a construction vehicle plan with airport tenants, contractors, and the ATCT. The safety plan or invitation for bid should include specific vehicle and pedestrian requirements.

The vehicle plan should contain the following items:

- a. Airport operator's rules and regulations for vehicle marking, lighting, and operation.
- b. Requirements for marking and identifying vehicles in accordance with AC 150/5210-5, *Painting, Marking, and Lighting of Vehicles Used on an Airport*.
- c. Description of proper vehicle operations on movement and nonmovement areas under normal, lost communications, and emergency conditions.
- d. Penalties for noncompliance with driving rules and regulations.
- e. Training requirements for vehicle drivers to ensure compliance with the airport operator's vehicle rules and regulations.
- f. Provisions for radio communication training for construction contractor personnel engaged in construction activities around aircraft movement areas. Some drivers,

such as construction drivers under escort, may not require this training.

g. Escort procedures for construction vehicles requiring access to aircraft movement areas. A vehicle in the movement area must have a working aviation-band, two-way radio unless it is under escort. Vehicles can be in closed areas without a radio if the closed area is properly marked and lighted to prevent incursions and a NOTAM regarding the closure is issued.

h. Monitoring procedures to ensure that vehicle drivers are in compliance with the construction vehicle plan.

i. Procedures for, if appropriate, personnel to control access through gates and fencing or across aircraft movement areas.

2-5. CONSTRUCTION EMPLOYEE PARKING AREAS.

Designate in advance vehicle parking areas for contractor employees to prevent any unauthorized entry of persons or vehicles onto the airport movement area. These areas should provide reasonable contractor employee access to the job site.

2-6. CONSTRUCTION VEHICLE EQUIPMENT PARKING.

Construction employees must park and service all construction vehicles in an area designated by the airport operator outside the runway safety areas and OFZs and never on a closed taxiway or runway. Employees should also park construction vehicles outside the OFA when not in use by construction personnel (e.g., overnight, on weekends, or during other periods when construction is not active). Parking areas must not obstruct the clear line of sight by the ATCT to any taxiways or runways under air traffic control nor obstruct any runway visual aids, signs, or navigational aids. The FAA must also study those areas to determine effects on 14 CFR part 77, *Objects Affecting Navigable Airspace*, surfaces (see paragraph 2-13 for further information).

2-7. RADIO COMMUNICATION TRAINING.

The airport operator must ensure that tenant and construction contractor personnel engaged in activities involving unescorted operation on aircraft movement

areas observe the proper procedures for communications, including using appropriate radio frequencies at airports with and without ATCTs. Training of contractors on proper communication procedures is essential for maintaining airport operational safety. When operating vehicles on or near open runways or taxiways, construction personnel must understand the critical importance of maintaining radio contact with airport operations, ATCT, or the Common Traffic Advisory Frequency, which may include UNICOM, MULTICOM, or one of the FAA Flight Service Stations (FSS), as directed by airport management.

Vehicular traffic crossing active movement areas must be controlled either by two-way radio with the ATCT, escort, flagman, signal light, or other means appropriate for the particular airport. Vehicle drivers must confirm by personal observation that no aircraft is approaching their position when given clearance to cross a runway. In addition, it is the responsibility of the escort vehicle driver to verify the movement/position of all escorted vehicles at any given time.

Even though radio communication is maintained, escort vehicle drivers must also familiarize themselves with ATCT light gun signals in the event of radio failure (see the FAA safety placard "Ground Vehicle Guide to Airport Signs and Markings"). This safety placard may be ordered through the Runway Safety Program Web site at <http://www.faaersp.org> or obtained from the Regional Airports Division Office.

2-8. FENCING AND GATES.

Airport operators and contractors must take care to maintain a high level of safety and security during construction when access points are created in the security fencing to permit the passage of construction vehicles or personnel. Temporary gates should be equipped so they can be securely closed and locked to prevent access by animals and people (especially minors). Procedures should be in place to ensure that only authorized persons and vehicles have access to the AOA and to prohibit "piggybacking" behind another person or vehicle. The Department of Transportation (DOT) document DOT/FAA/AR-00/52, *Recommended Security Guidelines for Airport Planning and Construction*, provides more specific information on fencing. A copy of this document can be obtained from the Airport Consultants Council, Airports Council International, or American Association of Airport Executives.

Section 3. Notification of Construction Activities

2-9. GENERAL.

In order to maintain the desired levels of operational safety on airports during construction activities, the safety

plan should contain the notification actions described below.

2-10. ENSURING PROMPT NOTIFICATIONS.

The airport operator should establish and follow procedures for the immediate notification of airport users and the FAA of any conditions adversely affecting the operational safety of an airport.

2-11. NOTICES TO AIRMEN (NOTAMS).

The airport operator must provide information on closed or hazardous conditions on airport movement areas to the FSS so it can issue a NOTAM. The airport operator must coordinate the issuance, maintenance, and cancellation of NOTAMS about airport conditions resulting from construction activities with tenants and the local air traffic facility (control tower, approach control, or air traffic control center. Refer to AC 150/5200-28, *Notices to Airmen (NOTAMs) for Airport Operators*, and Appendix 4 in this AC for a sample NOTAM form. Only the FAA may issue or cancel NOTAMS on shutdown or irregular operation of FAA-owned facilities. Only the airport operator or an authorized representative may issue or cancel NOTAMS on airport conditions. (The airport owner/operator is the only entity that can close or open a runway.) The airport operator must file and maintain this list of authorized representatives with the FSS. Any person having reason to believe that a NOTAM is missing, incomplete, or inaccurate must notify the airport operator.

2-12. AIRCRAFT RESCUE AND FIRE FIGHTING (ARFF) NOTIFICATION.

The safety plan must provide procedures for notifying ARFF personnel, mutual aid providers, and other emergency services if construction requires shutting off or otherwise disrupting any water line or fire hydrant on the airport or adjoining areas and if contractors work with hazardous material on the airfield. Notification procedures must also be developed for notifying ARFF and all other emergency personnel when the work performed will close or affect any emergency routes. Likewise, the procedures must address appropriate notifications when services are restored.

2-13. NOTIFICATION TO THE FAA.

For certain airport projects, 14 CFR part 77 requires notification to the FAA. In addition to applications made for Federally funded construction, 14 CFR part 157, Notice of Construction, Alteration, Activation, and

Deactivation of Airports, requires that the airport operator notify the FAA in writing whenever a non-Federally funded project involves the construction of a new airport; the construction, realigning, altering, activating, or abandoning of a runway, landing strip, or associated taxiway; or the deactivation or abandoning of an entire airport. Notification involves submitting FAA Form 7480-1, Notice of Landing Area Proposal, to the nearest FAA Regional Airports Division Office or Airports District Office.

Also, any person proposing any kind of construction or alteration of objects that affect navigable airspace, as defined in 14 CFR part 77 must notify the FAA. This includes construction equipment and proposed parking areas for this equipment (i.e., cranes, graders, etc.). FAA Form 7460-1, Notice of Proposed Construction or Alteration, can be used for this purpose and submitted to the FAA Regional Airports Division Office or Airports District Office. (See AC 70/7460-2, *Proposed Construction or Alteration of Objects that May Affect the Navigable Airspace*.)

If construction operations require a shutdown of an airport owned NAVAID from service for more than 24 hours or in excess of 4 hours daily on consecutive days, we recommend a 45-day minimum notice prior to facility shutdown. Coordinate work for a FAA owned NAVAID shutdown with the local FAA Airways Facilities Office. In addition, procedures that address unanticipated utility outages and cable cuts that could impact FAA NAVAIDs must be addressed.

2-14. WORK SCHEDULING AND ACCOMPLISHMENT.

Airport operators—or tenants having construction on their leased properties—should use predesign, prebid, and preconstruction conferences to introduce the subject of airport operational safety during construction (see AC 150/5300-9, *Predesign, Prebid, and Preconstruction Conferences for Airport Grant Projects*). The airport operator, tenants, and construction contractors should integrate operational safety requirements into their planning and work schedules as early as practical. Operational safety should be a standing agenda item for discussion during progress meetings throughout the project. The contractor and airport operator should carry out onsite inspections throughout the project and immediately remedy any deficiencies, whether caused by negligence, oversight, or project scope change.

CHAPTER 3. SAFETY STANDARDS AND GUIDELINES

Section 1. Runway and Taxiway Safety Areas, Obstacle-Free Zones, and Object-Free Areas

3-1. OVERVIEW.

Airport operators must use these safety guidelines when preparing plans and specifications for construction activities in areas that may interfere with aircraft operations. The safety plan should recognize and address these standards for each airport construction project. However, the safety plan must reflect the specific needs of a particular project, and for this reason, these safety guidelines should not be incorporated verbatim into project specifications. For additional guidance on meeting safety and security requirements, refer to the planning guide template included in Appendix 3 of this AC.

3-2. RUNWAY SAFETY AREA (RSA)/ OBSTACLE-FREE ZONE (OFZ).

A runway safety area is the defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway (see AC 150/5300-13, *Airport Design*). Construction activities within the standard RSA are subject to the following conditions:

a. Runway edges.

(1) No construction may occur closer than 200 feet (60m) from the runway centerline unless the runway is closed or restricted to aircraft operations, requiring an RSA that is equal to the RSA width available during construction, or 400 feet, whichever is less (see AC 150/5300-13, Tables 3-1 through 3-3).

(2) Personnel, material, and/or equipment must not penetrate the OFZ, as defined in AC 150/5300-13.

(3) The airport operator must coordinate the construction activity in the RSA as permitted above with the ATCT and the FAA Regional Airports Division Office or appropriate Airports District Office and issue a local NOTAM.

b. Runway ends.

(1) An RSA must be maintained of such dimensions that it extends beyond the end of the runway a distance equal to that which existed before construction activity, unless the runway is closed or restricted to aircraft operations for which the reduced RSA is adequate (see AC 150/5300-13). The temporary use of declared distances and/or partial runway closures may help provide the necessary RSA.

In addition, all personnel, materials, and/or equipment must remain clear of the applicable threshold siting surfaces, as defined in Appendix 2, "Threshold Siting Requirements," of AC 150/5300-13.¹ Consult with the appropriate FAA Regional Airports Division Office or Airports District Office to determine the appropriate approach surface required.

(2) Personnel, material, and/or equipment must not penetrate the OFZ, as defined in AC 150/5300-13.

(3) The safety plan must provide procedures for ensuring adequate distance for blast protection, if required by operational considerations.

(4) The airport operator must coordinate construction activity in this portion of the RSA with the ATCT and the FAA Regional Airports Division Office or appropriate Airports District Office and issue a local NOTAM.

c. Excavations.

(1) Construction contractors must prominently mark open trenches and excavations at the construction site with red or orange flags, as approved by the airport operator, and light them with red lights during hours of restricted visibility or darkness.

(2) Open trenches or excavations are not permitted within 200 feet (60m) of the runway centerline and at least the existing RSA distance from the runway threshold while the runway is open. If the runway must be opened before excavations are backfilled, cover the excavations appropriately. Coverings for open trenches or excavations must be of sufficient strength to support the weight of the heaviest aircraft operating on the runway.

3-3. TAXIWAY SAFETY AREAS/OBJECT-FREE AREAS.

a. Unrestricted construction activity is permissible adjacent to taxiways when the taxiway is restricted to aircraft such that the available taxiway safety area is equal

¹If a full safety area cannot be obtained through declared distances and partial closures, or other methods such as alternate runway use, construction activity may operate in the RSA as long as conditions cited in paragraph 3-1b(2) thru (4) are met. In addition, various surfaces outlined in AC 150/5300-13 and Terminal Instrument Procedures (TERPS) must be protected through an aeronautical study.

to at least ½ of the widest wingspan of the aircraft expected to use the taxiway and the available taxiway object-free area is equal to at least .7 times the widest wingspan plus 10 feet. (See AC 150/5300-13 for guidance on taxiway safety and object-free areas.)

Construction activity may be accomplished closer to a taxiway, subject to the following restrictions:

- (1) The activity is first coordinated with the airport operator.
- (2) Appropriate NOTAMs are issued.
- (3) Marking and lighting meeting the provisions of paragraph 3-9 are implemented.
- (4) Adequate clearance is maintained between equipment and materials and any part of an aircraft. If such clearance can only be maintained if an aircraft does not have full use of the entire taxiway width (with its

main landing gear at the edge of the pavement), then it will be necessary to move personnel and equipment for each passing aircraft. In these situations, flag persons will be used to direct construction equipment, and wing walkers may be necessary to guide aircraft. Wing walkers should be airline/aviation personnel rather than construction workers.

b. Construction contractors must prominently mark open trenches and excavations at the construction site, as approved by the airport operator, and light them with red lights during hours of restricted visibility or darkness

c. Excavations and open trenches may be permitted up to the edge of a structural taxiway and apron pavement provided the dropoff is marked and lighted per paragraph 3-9, "Hazard Marking and Lighting."

Section 2. Temporary Runway Thresholds

3-4. OVERVIEW.

Construction activity in a runway approach area may result in the need to partially close a runway or displace the existing runway threshold. In either case, locate the threshold in accordance with Appendix 2 of AC 150/5300-13, *Airport Design*. Objects that do not penetrate these surfaces may still be obstructions to air navigation and may affect standard instrument approach procedures. Coordinate these objects with the FAA's Regional Airports Office or appropriate Airports District Office, as necessary. Refer to the current edition of AC 150/5300-13 for guidance on threshold siting requirements. The partial runway closure, the displacement of the runway threshold, as well as closures of the complete runway and other portions of the movement area also requires coordination with appropriate ATCT personnel and airport users.

Caution regarding partial runway closures: When filing a NOTAM for a partial runway closure, clearly state to FSS personnel that the portion of pavement located prior to the threshold is not available for landing and departing traffic. In this case, the threshold has been moved for both landing and takeoff purposes (this is different than a displaced threshold).

Example NOTAM: "North 1,000 feet of Runway 18/36 is closed; 7,000 feet remain available on Runway 18 and Runway 36 for arrivals and departures." There may be situations where the portion of closed runway is available for taxiing only. If so, the NOTAM must reflect this condition.

Caution regarding displaced thresholds: Implementation of a displaced threshold affects runway length available for aircraft landing over the displacement. Depending on the reason for the displacement (to provide obstruction clearance or RSA),

such a displacement may also require an adjustment in the landing distance available and accelerate-stop distance available in the opposite direction. If project scope includes personnel, equipment, excavation, etc. within the RSA of any usable runway end, we do not recommend a displaced threshold unless arrivals and departures toward the construction activity are prohibited. Instead, implement a partial closure.

3-5. MARKING GUIDELINES FOR TEMPORARY THRESHOLD.

Ensure that markings for temporary displaced thresholds are clearly visible to pilots approaching the airport to land. When construction personnel and equipment are located close to any threshold, a temporary visual NAVAID, such as runway end identifier lights (REIL), may be required (even on unlighted runways) to define the new beginning of the runway clearly. A visual vertical guidance device, such as a visual approach slope indicator (VASI), pulse light approach slope indicator (PLASI), or precision approach path indicator (PAPI), may be necessary to assure landing clearance over personnel, vehicles, equipment, and/or above-grade stockpiled materials. If such devices are installed, ensure an appropriate descriptive NOTAM is issued to inform pilots of these conditions. The current edition of AC 150/5340-1, *Standards for Airport Markings*, describes standard marking colors and layouts. In addition, we recommend that a temporary runway threshold be marked using the following guidelines:

a. Airport markings must be clearly visible to pilots; not misleading, confusing, or deceptive; secured in place to prevent movement by prop wash, jet blast, wing vortices, or other wind currents; and constructed of

materials that would minimize damage to an aircraft in the event of inadvertent contact.

(1) Pavement markings for temporary closed portions of the runway should consist of yellow chevrons to identify pavement areas that are unsuitable for takeoff/landing (see AC 150/5340-1). If unable to paint the markings on the pavement, construct them from any of the following materials: double-layered painted snow fence, colored plastic, painted sheets of plywood, or similar materials. They must be properly configured and secured to prevent movement by prop wash, jet blast, or other wind currents.

(2) It may be necessary to remove or cover runway markings, such as runway designation markings and aiming point markings, depending on the length of construction and type of activity at the airport.

(3) When threshold markings are needed to identify the temporary beginning of the runway that is available for landing, use a white threshold bar of the dimensions specified in AC 150/5340-1.

(4) If temporary outboard elevated or flush threshold bars are used, locate them outside of the runway pavement surface, one on each side of the runway. They should be at least 10 feet (3m) in width and extend outboard from each side of the runway so they are clearly visible to landing and departing aircraft. These threshold bars are white. If the white threshold bars are not discernable on grass or snow, apply a black background with appropriate material over the ground to ensure the markings are clearly visible.

(5) A temporary threshold may also be marked with the use of retroreflective, elevated markers. One side of such markers is green to denote the approach end of the runway; the side that is seen by pilots on rollout is red. See AC 150/5345-39, *FAA Specification L-853, Runway and Taxiway Retroreflective Markers*.

(6) At 14 CFR part 139 certificated airports, temporary elevated threshold markers must be mounted with a frangible fitting (see 14 CFR part 139.309). However, at noncertificated airports, the temporary elevated threshold markings may either be mounted with a frangible fitting or be flexible. See AC 150/5345-39.

b. The application rate of the paint to mark a short-term temporary runway threshold may deviate from the standard (see Item P-620, "Runway and Taxiway Painting," in AC 150/5370-10, *Standards for Specifying Construction of Airports*), but the dimensions must meet the existing standards, unless coordinated with the appropriate offices.

c. When a runway is partially closed, the distance remaining signs for aircraft landing in the opposite direction should be covered or removed during the construction.

3-6. LIGHTING GUIDELINES FOR TEMPORARY THRESHOLD.

A temporary runway threshold must be lighted if the runway is lighted and it is the intended threshold for night landings or instrument meteorological conditions. We recommend that temporary threshold lights and related visual NAVAIDs be installed outboard of the edges of the full-strength pavement with bases at grade level or as low as possible, but not to exceed 3 inches (7.6cm) above ground. When any portion of a base is above grade, place properly compacted fill around the base to minimize the rate of gradient change so aircraft can, in an emergency, cross at normal landing or takeoff speeds without incurring significant damage (see AC 150/5370-10). We recommend that the following be observed when using temporary runway threshold lighting:

a. Maintain threshold and edge lighting color and spacing standards as described in AC 150/5340-24, *Runway and Taxiway Edge Lighting System*. Battery-powered, solar, or portable lights that meet the criteria in AC 150/5345-50, *Specification for Portable Runway Lights*, may be used. These systems are intended primarily for visual flight rules (VFR) aircraft operation but may be used for instrument flight rules (IFR) aircraft operations, upon individual approval from the Flight Standards Division of the applicable FAA Regional Office.

b. When the runway has been partially closed, disconnect edge and threshold lights with associated isolation transformers on that part of the runway at and behind the threshold (i.e., the portion of the runway that is closed). Alternately, cover the light fixture in such a way as to prevent light leakage. Avoid removing the lamp from energized fixtures because an excessive number of isolation transformers with open secondaries may damage the regulators and/or increase the current above its normal value.

c. Secure, identify, and place any temporary exposed wiring in conduit to prevent electrocution and fire ignition sources.

d. Reconfigure yellow lenses (caution zone), as necessary. If the runway has centerline lights, reconfigure the red lenses, as necessary, or place the centerline lights out of service.

e. Relocate the visual glide slope indicator (VGSI), such as VASI and PAPI; other airport lights, such as REIL; and approach lights to identify the temporary threshold. Another option is to disable the VGSI or any equipment that would give misleading indications to pilots as to the new threshold location. Installation of temporary visual aids may be necessary to provide adequate guidance to pilots on approach to the affected runway. If the FAA owns and operates the VGSI,

coordinate its installation or disabling with the local Airway Facilities Systems Management Office.

f. Issue a NOTAM to inform pilots of temporary lighting conditions.

Section 3. Other Construction Marking and Lighting Activities

3-7. OVERVIEW.

Ensure that construction areas, including closed runways, are clearly and visibly separated from movement areas and that hazards, facilities, cables, and power lines are identified prominently for construction contractors. Throughout the duration of the construction project, verify that these areas remain clearly marked and visible at all times and that marking and lighting aids remain in place and operational. Routine inspections must be made of temporary construction lighting, especially battery-powered lighting since weather conditions can limit battery life.

3-8. CLOSED RUNWAY AND TAXIWAY MARKING AND LIGHTING.

Closed runway markings consist of a yellow "X" in compliance with the standards of AC 150/5340-1, *Standards for Airport Markings*. A very effective and preferable visual aid to depict temporary closure is the lighted "X" signal placed on or near the runway designation numbers. This device is much more discernible to approaching aircraft than the other materials described. If the lighted "X" is not available, construct the marking of any of the following materials: double-layered painted snow fence, colored plastic, painted sheets of plywood, or similar materials. They must be properly configured and secured to prevent movement by prop wash, jet blast, or other wind currents. In addition, the airport operator may install barricades, traffic cones, activate stop bars, or other acceptable visual devices at major entrances to the runways to prevent aircraft from entering a closed portion of runway. The placement of even a single reflective barricade with a "do not enter" sign on a taxiway centerline can prevent an aircraft from continuing onto a closed runway. If the taxiway must remain open for aircraft crossings, barricades or markings, as described above or in paragraph 3-9, should be placed on the runway.

a. Permanently closed runways.

For runways and taxiways that have been permanently closed, disconnect the lighting circuits. For runways, obliterate the threshold marking, runway designation marking, and touchdown zone markings, and place "X's" at each end and at 1,000-foot (300-m) intervals. For taxiways, place an "X" at the entrance of the closed taxiway.

b. Temporarily closed runway and taxiways.

For runways that have been temporarily closed, place an "X" at the each end of the runway. With taxiways, place an "X" at the entrance of the closed taxiway.

c. Temporarily closed airport.

When the airport is closed temporarily, mark the runways as closed and turn off the airport beacon.

d. Permanently closed airports

When the airport is closed permanently, mark the runways as permanently closed, disconnect the airport beacon, and place an "X" in the segmented circle or at a central location if no segmented circle exists.

3-9. HAZARD MARKING AND LIGHTING.

Provide prominent, comprehensible warning indicators for any area affected by construction that is normally accessible to aircraft, personnel, or vehicles. Using appropriate hazard marking and lighting may prevent damage, injury, traffic delays, and/or facility closures. Hazard marking and lighting must restrict access and make specific hazards obvious to pilots, vehicle drivers, and other personnel. Barricades, traffic cones (weighted or sturdily attached to the surface), or flashers are acceptable methods used to identify and define the limits of construction and hazardous areas on airports.

Provide temporary hazard marking and lighting to prevent aircraft from taxiing onto a closed runway for takeoff and to identify open manholes, small areas under repair, stockpiled material, and waste areas. Also consider less obvious construction-related hazards and include markings to identify FAA, airport, and National Weather Service facilities cables and power lines; instrument landing system (ILS) critical areas; airport surfaces, such as RSA, OFA, and OFZ; and other sensitive areas to make it easier for contractor personnel to avoid these areas.

The construction specifications must include a provision requiring the contractor to have a person on call 24 hours a day for emergency maintenance of airport hazard lighting and barricades. The contractor must file the contact person's information with the airport.

a. Nonmovement areas.

Indicate construction locations on nonmovement areas in which no part of an aircraft may enter by using barricades that are marked with diagonal, alternating orange and white stripes. Barricades may be supplemented with alternating

orange and white flags at least 20 by 20 inches (50 by 50 cm) square and made and installed so they are always in an extended position, properly oriented, and securely fastened to eliminate jet engine ingestion. Such barricades may be many different shapes and made from various materials, including railroad ties, sawhorses, jersey barriers, or barrels. During reduced visibility or night hours, supplement the barricades with red lights, either flashing or steady-burning, which should meet the luminance requirements of the State Highway Department (yellow lights are not acceptable after October 1, 2004). The intensity of the lights and spacing for barricade flags and lights must adequately and without ambiguity delineate the hazardous area.

b. Movement areas.

Use orange traffic cones; red lights, either flashing or steady-burning, which should meet the luminance requirements of the State Highway Department (yellow lights are not acceptable after October 1, 2004); collapsible barricades marked with diagonal, alternating orange and white stripes; and/or signs to separate all construction/maintenance areas from the movement area. All barricades, temporary markers, and other objects placed and left in safety areas associated with any open runway, taxiway, or taxilane must be as low as possible to the ground; of low mass; easily collapsible upon contact with an aircraft or any of its components; and weighted or sturdily attached to the surface to prevent displacement from prop wash, jet blast, wing vortex, or other surface wind currents. If affixed to the surface, they must be frangible at grade level or as low as possible, but not to exceed 3 inches (7.6cm) above the ground. Do not use nonfrangible hazard markings, such as concrete barriers and/or metal-drum-type barricades, in aircraft movement areas. Do not use railroad ties on runways.

Use highly reflective barriers with flashing or steady-burning red lights to barricade taxiways leading to closed runways. Evaluate all operating factors when determining how to mark temporary closures that can last from 10 to 15 minutes to a much longer period of time. However, we strongly recommend that, even for closures of relatively short duration, major taxiway/runway intersections be identified with barricades spaced no greater than 20 feet (6m) apart. Mark the barricades with a flashing or steady-burning red light. At a minimum, use a single barricade placed on the taxiway centerline.

3-10. CONSTRUCTION NEAR NAVIGATIONAL AIDS (NAVAIDS).

Construction activities, materials/equipment storage, and vehicle parking near electronic NAVAIDS require special consideration since they may interfere with signals essential to air navigation. Evaluate the effect of construction activity and the required distance and direction from the NAVAID for each construction project. Pay particular attention to stockpiling material, as well as

to movement and parking of equipment that may interfere with line of sight from the ATCT or with electronic emissions. Interference from construction may require NAVAID shutdown or adjustment of instrument approach minimums for IFR. This condition requires that a NOTAM be filed. Construction activities and materials/equipment storage near a NAVAID may also obstruct access to the equipment and instruments for maintenance. Before commencing construction activity, parking vehicles, or storing construction equipment and materials near a NAVAID, consult with the nearest FAA Airway Facilities Office.

3-11. CONSTRUCTION SITE ACCESS AND HAUL ROADS.

Determine the construction contractor's access to the construction sites and haul roads. Do not permit the construction contractor to use any access or haul roads other than those approved. Construction contractors must submit specific proposed routes associated with construction activities to the airport operator for evaluation and approval as part of the safety plan before beginning construction activities. These proposed routes must also provide specifications to prevent inadvertent entry to movement areas. Pay special attention to ensure that ARFF right of way on access and haul roads is not impeded at any time and that construction traffic on haul roads does not interfere with NAVAIDS or approach surfaces of operational runways.

3-12. CONSTRUCTION MATERIAL STOCKPILING.

Stockpiled materials and equipment storage are not permitted within the RSA and OFZ of an operational runway. The airport operator must ensure that stockpiled materials and equipment adjacent to these areas are prominently marked and lighted during hours of restricted visibility or darkness. This includes determining and verifying that materials are stored at an approved location to prevent foreign object damage and attraction of wildlife.

3-13. OTHER LIMITATIONS ON CONSTRUCTION.

Contractors may not use open-flame welding or torches unless adequate fire safety precautions are provided and the airport operator has approved their use. Under no circumstances should flare pots be used within the AOA at any time. The use of electrical blasting caps must not be permitted on or within 1,000 feet (300m) of the airport property (see AC 150/5370-10, *Standards for Specifying Construction of Airports*).

3-14. FOREIGN OBJECT DEBRIS (FOD) MANAGEMENT.

Waste and loose materials, commonly referred to as FOD, are capable of causing damage to aircraft landing gears, propellers, and jet engines. Construction contractors must

not leave or place FOD on or near active aircraft movement areas. Materials tracked onto these areas must be continuously removed during the construction project. We also recommend that airport operators and construction contractors carefully control and continuously remove waste or loose materials that might attract wildlife.

Section 4. Safety Hazards and Impacts

3-15. OVERVIEW.

The situations identified below are potentially hazardous conditions that may occur during airport construction projects. Safety area encroachments, unauthorized and improper ground vehicle operations, and unmarked or uncovered holes and trenches near aircraft operating surfaces pose the most prevalent threats to airport operational safety during airport construction projects. Airport operators and contractors should consider the following when performing inspections of construction activity:

- a. Excavation adjacent to runways, taxiways, and aprons.
- b. Mounds of earth, construction materials, temporary structures, and other obstacles near any open runway, taxiway, or taxilane; in the related object-free area and aircraft approach or departure areas/zones; or obstructing any sign or marking.
- c. Runway resurfacing projects resulting in lips exceeding 3 inches (7.6cm) from pavement edges and ends.
- d. Heavy equipment (stationary or mobile) operating or idle near AOAs, in runway approaches and departures areas, or in OFZs.
- e. Equipment or material near NAVAIDs that may degrade or impair radiated signals and/or the monitoring of navigational and visual aids. Unauthorized or improper vehicle operations in localizer or glide slope critical areas, resulting in electronic interference and/or facility shutdown.
- f. Tall and especially relatively low-visibility units (i.e., equipment with slim profiles)—cranes, drills, and similar objects—located in critical areas, such as OFZs and approach zones.
- g. Improperly positioned or malfunctioning lights or unlighted airport hazards, such as holes or excavations, on any apron, open taxiway, or open taxilane or in a related safety, approach, or departure area.
- h. Obstacles, loose pavement, trash, and other debris on or near AOAs. Construction debris (gravel,

sand, mud, paving materials, etc.) on airport pavements may result in aircraft propeller, turbine engine, or tire damage. Also, loose materials may blow about, potentially causing personal injury or equipment damage.

- i. Inappropriate or poorly maintained fencing during construction intended to deter human and animal intrusions into the AOA. Fencing and other markings that are inadequate to separate construction areas from open AOAs create aviation hazards.

- j. Improper or inadequate marking or lighting of runways (especially thresholds that have been displaced or runways that have been closed) and taxiways that could cause pilot confusion and provide a potential for a runway incursion. Inadequate or improper methods of marking, barricading, and lighting of temporarily closed portions of AOAs create aviation hazards.

- k. Wildlife attractants—such as trash (food scraps not collected from construction personnel activity), grass seeds, or ponded water—on or near airports.

- l. Obliterated or faded markings on active operational areas.

- m. Misleading or malfunctioning obstruction lights. Unlighted or unmarked obstructions in the approach to any open runway pose aviation hazards.

- n. Failure to issue, update, or cancel NOTAMs about airport or runway closures or other construction-related airport conditions.

- o. Failure to mark and identify utilities or power cables. Damage to utilities and power cables during construction activity can result in the loss of runway/taxiway lighting; loss of navigational, visual, or approach aids; disruption of weather reporting services; and/or loss of communications.

- p. Restrictions on ARFF access from fire stations to the runway-taxiway system or airport buildings.

- q. Lack of radio communications with construction vehicles in airport movement areas.

- r. Objects, regardless of whether they are marked or flagged, or activities anywhere on or near an airport

that could be distracting, confusing, or alarming to pilots during aircraft operations.

s. Water, snow, dirt, debris, or other contaminants that temporarily obscure or derogate the visibility of runway/taxiway marking, lighting, and pavement edges. Any condition or factor that obscures or diminishes the visibility of areas under construction.

t. Spillage from vehicles (gasoline, diesel fuel, oil, etc.) on active pavement areas, such as runways, taxiways, ramps, and airport roadways.

u. Failure to maintain drainage system integrity during construction (e.g., no temporary drainage provided when working on a drainage system).

v. Failure to provide for proper electrical lockout and tagging procedures. At larger airports with multiple maintenance shifts/workers, construction contractors should make provisions for coordinating work on circuits.

w. Failure to control dust. Consider limiting the amount of area from which the contractor is allowed to strip turf.

x. Exposed wiring that creates an electrocution or fire ignition hazard. Identify and secure wiring, and place it in conduit or bury it.

y. Site burning, which can cause possible obscuration.

z. Construction work taking place outside of designated work areas and out of phase.

APPENDIX 1. RELATED READING MATERIAL

1. Obtain the latest version of the following free publications from the FAA on its Web site at <http://www.faa.gov/arp/>. In addition, these ACs are available by contacting the U.S. Department of Transportation, Subsequent Distribution Office, SVC-121.23, Ardmore East Business Center, 3341 Q 75th Avenue, Landover, MD 20785.
 - a. AC 150/5200-28, *Notices to Airmen (NOTAM) for Airport Operators*. Provides guidance for the use of the NOTAM System in airport reporting.
 - b. AC 150/5200-30, *Airport Winter Safety and Operations*. Provides guidance to airport owners/operators on the development of an acceptable airport snow and ice control program and on appropriate field condition reporting procedures.
 - c. AC 150/5200-33, *Hazardous Wildlife Attractants On or Near Airports*. Provides guidance on locating certain land uses having the potential to attract hazardous wildlife to public-use airports.
 - d. AC 150/5210-5, *Painting, Marking, and Lighting of Vehicles Used on an Airport*. Provides guidance, specifications, and standards for painting, marking, and lighting vehicles operating in the airport air operations areas.
 - e. AC 150/5220-4, *Water Supply Systems for Aircraft Fire and Rescue Protection*. Provides guidance for the selection of a water source and standards for the design of a distribution system to support aircraft rescue and fire fighting service operations on airports.
 - f. AC 150/5340-1, *Standards for Airport Markings*. Contains FAA standards for markings used on airport runways, taxiways, and aprons.
 - g. AC 150/5340-14B, *Economy Approach Lighting Aids*. Describes standards for the design, selection, siting, and maintenance of economy approach lighting aids.
 - h. AC 150/5340-18, *Standards for Airport Sign Systems*. Contains FAA standards for the siting and installation of signs on airport runways and taxiways.
 - i. AC 150/5345-28, *Precision Approach Path Indicator (PAPI) Systems*. Contains the FAA standards for PAPI systems, which provide pilots with visual glide slope guidance during approach for landing.
 - j. AC 150/5380-5, *Debris Hazards at Civil Airports*. Discusses problems at airports, gives information on foreign objects, and explains how to eliminate such objects from operational areas.
 - k. AC 70/7460-2, *Proposed Construction or Alteration of Objects that May Affect the Navigable Airspace*. Provides information to persons proposing to erect or alter an object that may affect navigable airspace and explains the need to notify the FAA before construction begins and the FAA's response to those notices, as required by 14 CFR part 77.
2. Obtain copies of the following publications from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Send a check or money order made payable to the Superintendent of Documents in the amount stated with your request. The Government Printing Office does not accept C.O.D. orders. In addition, the FAA makes these ACs available at no charge on the Web site at <http://www.faa.gov/arp/>.
 - a. AC 150/5300-13, *Airport Design*. Contains FAA standards and recommendations for airport design, establishes approach visibility minimums as an airport design parameter, and contains the object-free area and the obstacle free-zone criteria. (\$26. Supt. Docs.) SN050-007-01208-0.
 - b. AC 150/5370-10, *Standards for Specifying Construction of Airports*. Provides standards for construction of airports. Items covered include earthwork, drainage, paving, turfing, lighting, and incidental construction. (\$18. Supt. Docs.) SN050-007-0821-0.

APPENDIX 2. DEFINITIONS OF TERMS USED IN THE AC

- 1. AIR OPERATIONS AREA (AOA).** Any area of the airport used or intended to be used for the landing, takeoff, or surface maneuvering of aircraft. An air operations area includes such paved or unpaved areas that are used or intended to be used for the unobstructed movement of aircraft in addition to its associated runways, taxiways, or aprons.
- 2. CONSTRUCTION.** The presence and movement of construction-related personnel, equipment, and materials in any location that could infringe upon the movement of aircraft.
- 3. CERTIFICATED AIRPORT.** An airport that has been issued an Airport Operating Certificate by the FAA under the authority of 14 CFR part 139, Certification and Operation: Land Airports Serving Certain Air Carriers, or its subsequent revisions.
- 4. FAA FORM 7460-1, NOTICE OF PROPOSED CONSTRUCTION OR ALTERATION.** The form submitted to the FAA Regional Air Traffic or Airports Division Office as formal written notification of any kind of construction or alteration of objects that affect navigable airspace, as defined in 14 CFR part 77, Objects Affecting Navigable Airspace (see AC 70/7460-2, *Proposed Construction or Alteration of Objects that May Affect the Navigable Airspace*, found at <http://www.faa.gov/arp/>).
- 5. FAA FORM 7480-1, NOTICE OF LANDING AREA PROPOSAL.** Form submitted to the FAA Airports Regional Division Office or Airports District Office as formal written notification whenever a project without an airport layout plan on file with the FAA involves the construction of a new airport; the construction, realigning, altering, activating, or abandoning of a runway, landing strip, or associated taxiway; or the deactivation or abandoning of an entire airport (found at <http://www.faa.gov/arp/>).
- 6. MOVEMENT AREA.** The runways, taxiways, and other areas of an airport that are used for taxiing or hover taxiing, air taxiing, takeoff, and landing of aircraft, exclusive of loading ramps and aircraft parking areas (reference 14 CFR part 139).
- 7. OBSTRUCTION.** Any object/obstacle exceeding the obstruction standards specified by 14 CFR part 77, subpart C.
- 8. OBJECT-FREE AREA (OFA).** An area on the ground centered on the runway, taxiway, or taxilane centerline provided to enhance safety of aircraft operations by having the area free of objects except for those objects that need to be located in the OFA for air navigation or aircraft ground maneuvering purposes (see AC 150/5300-13, *Airport Design*, for additional guidance on OFA standards and wingtip clearance criteria).
- 9. OBSTACLE-FREE ZONE (OFZ).** The airspace below 150 feet (45m) above the established airport elevation and along the runway and extended runway centerline that is required to be clear of all objects, except for frangible visual NAVAIDs that need to be located in the OFZ because of their function, in order to provide clearance protection for aircraft landing or taking off from the runway and for missed approaches (refer to AC 150/5300-13 for guidance on OFZs).
- 10. RUNWAY SAFETY AREA (RSA).** A defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway, in accordance with AC 150/5300-13.
- 11. TAXIWAY SAFETY AREA.** A defined surface alongside the taxiway prepared or suitable for reducing the risk of damage to an airplane unintentionally departing the taxiway, in accordance with AC 150/5300-13.
- 12. THRESHOLD.** The beginning of that portion of the runway available for landing. In some instances, the landing threshold may be displaced.
- 13. DISPLACED THRESHOLD.** The portion of pavement behind a displaced threshold that may be available for takeoffs in either direction or landing from the opposite direction.
- 14. VISUAL GLIDE SLOPE INDICATOR (VGS).** This device provides a visual glide slope indicator to landing pilots. These systems include precision approach path indicators (PAPIs), visual approach slope indicators (VASIs), and pulse light approach slope indicators (PLASIs).

APPENDIX 3. AIRPORT CONSTRUCTION SAFETY PLANNING GUIDE

Aviation Safety Requirements During Construction

PURPOSE. *This appendix provides airport operators with boilerplate format and language for developing a safety plan for an airport construction project. Adapt this appendix, as applicable, to specific conditions found on the airport for which the plan is being developed. Consider including a copy of this safety plan in the construction drawings for easy access by contractor personnel. Plans should contain the following:*

1. GENERAL SAFETY REQUIREMENTS.

Throughout the construction project, the following safety and operational practices should be observed:

- Operational safety should be a standing agenda item during progress meetings throughout the construction project.
- The contractor and airport operator must perform onsite inspections throughout the project, with immediate remedy of any deficiencies, whether caused by negligence, oversight, or project scope change.
- Airport runways and taxiways should remain in use by aircraft to the maximum extent possible.
- Aircraft use of areas near the contractor's work should be controlled to minimize disturbance to the contractor's operation.
- Contractor, subcontractor, and supplier employees or any unauthorized persons must be restricted from entering an airport area that would be hazardous.
- Construction that is within the safety area of an active runway, taxiway, or apron that is performed under normal operational conditions must be performed when the runway, taxiway, or apron is closed or use-restricted and initiated only with prior permission from the airport operator.
- The contracting officer, airport operator, or other designated airport representative may order the contractor to suspend operations; move personnel, equipment, and materials to a safe location; and stand by until aircraft use is completed.

2. CONSTRUCTION MAINTENANCE AND FACILITIES MAINTENANCE.

Before beginning any construction activity, the contractor must, through the airport operator, give notice [using the

Notice to Airmen (NOTAM) System] of proposed location, time, and date of commencement of construction. Upon completion of work and return of all such areas to standard conditions, the contractor must, through the airport operator, verify the cancellation of all notices issued via the NOTAM System. Throughout the duration of the construction project, the contractor must—

- a. Be aware of and understand the safety problems and hazards described in AC 150/5370-2, *Operational Safety on Airports During Construction*.
- b. Conduct activities so as not to violate any safety standards contained in AC 150/5370-2 or any of the references therein.
- c. Inspect all construction and storage areas as often as necessary to be aware of conditions.
- d. Promptly take all actions necessary to prevent or remedy any unsafe or potentially unsafe conditions as soon as they are discovered.

3. APPROACH CLEARANCE TO RUNWAYS.

Runway thresholds must provide an unobstructed approach surface over equipment and materials. (Refer to Appendix 2 in AC 150/5300-13, *Airport Design*, for guidance in this area.)

4. RUNWAY AND TAXIWAY SAFETY AREA (RSA AND TSA).

Limit construction to outside of the approved RSA, as shown on the approved airport layout plan—unless the runway is closed or restricted to aircraft operations, requiring a lesser standard RSA that is equal to the RSA available during construction (see AC 150/5370-2 for exceptions). Construction activity within the TSA is permissible when the taxiway is open to aircraft traffic if adequate wingtip clearance exists between the aircraft and equipment/material; excavations, trenches, or other conditions are conspicuously marked and lighted; and local NOTAMs are in effect for the activity (see AC 150/5300-13 for wingtip clearance requirements). The NOTAM should state that, "personnel and equipment are working adjacent to Taxiway ____."

a. Procedures for protecting runway edges.

- Limit construction to no closer than 200 feet (60m) from the runway centerline—unless the runway is closed or restricted to aircraft operations, requiring a lesser standard RSA

- that is equal to the RSA available during construction.
- Prevent personnel, material, and/or equipment, as defined in AC 150/5300-13, Paragraph 306, "Obstacle Free Zone (OFZ)," from penetrating the OFZ.
- Coordinate construction activity with the Airport Traffic Control Tower (ATCT) and FAA Regional Airports Division Office or Airports District Office, and through the airport operator, issue an appropriate NOTAM.

Complete the following chart to determine the area that must be protected along the runway edges:

Runway	Aircraft Approach Category*	Airplane Design Group*	RSA Width in Feet Divided by 2*
	A, B, C, or D	I, II, III, or IV	
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

*See AC 150/5300-13, *Airport Design*, to complete the chart for a specific runway.

b. Procedures for protecting runway ends.

- Maintain the RSA from the runway threshold to a point at least the distance from the runway threshold as existed before construction activity—unless the runway is closed or restricted to aircraft operations, requiring an RSA that is equal to the RSA length available during construction in accordance with AC 150/5300-13. This may involve the use of declared distances and partial runway closures (see AC 150/5370-2 for exceptions).
- Ensure all personnel, materials, and/or equipment are clear of the applicable threshold siting criteria surface, as defined in Appendix 2, "Threshold Siting Requirements," of AC 150/5300-13.
- Prevent personnel, material, and/or equipment, as defined in AC 150/5300-13, from penetrating the obstacle-free zone.
- Ensure adequate distance for blast protection is provided, as needed.
- Coordinate construction activity with the ATCT and FAA Regional Airports Division Office or Airports District Office, and through the airport operator, issue an appropriate NOTAM.
- Provide a drawing showing the profile of the appropriate surfaces of each runway end where construction will take place. Where operations by turbojet aircraft are anticipated, review takeoff procedures and jet blast characteristics of aircraft and incorporate safety measures for construction workers in the contract documents.

Complete the following chart to determine the area that must be protected before the runway threshold:

Runway End Number	Airplane Design Group* I, II, III, or IV	Aircraft Approach Category* A, B, C, or D	Minimum Safety Area Prior to the Threshold*	Minimum Unobstructed Approach Slope
_____	_____	_____	_____ : FEET	_____ : 1 to (threshold)
_____	_____	_____	_____ : FEET	_____ : 1 to (threshold)
_____	_____	_____	_____ : FEET	_____ : 1 to (threshold)
_____	_____	_____	_____ : FEET	_____ : 1 to (threshold)

*See AC 150/5300-13, *Airport Design*, to complete the chart for a specific runway.

5. MARKING AND LIGHTING FOR TEMPORARY THRESHOLDS.

Marking and lighting for a temporary threshold is ___/is not ___ required. The airport owner or contractor, as specified in the contract, will furnish and maintain markings for temporary thresholds. Precision approach path indicators (PAPIs) or runway end identification lights (REIL) are ___/are not ___ required. The airport owner or contractor, as specified in the contract, will furnish and install all temporary lighting. Include appropriate items per AC 150/5370-2, Chapter 3, "Safety Standards and Guidelines." *If marking and lighting for the temporary threshold is not required, delete this section of the safety plan. If visual aids and/or markings are necessary, provide details. (Include applicable 14 CFR part 77 surfaces in the contract documents.)*

6. CLOSED RUNWAY MARKINGS AND LIGHTING.

The following must be specified for closed runways. Closed runway marking are ___/are not ___ required. Closed runway markings will be as shown on the plans ___/as furnished by the airport owner ___/other ___ (specify). Barricades, flagging, and flashers are ___/are not ___ required at Taxiway ___ and Runway ___ and will be supplied by the airport ___/other ___ (specify).

7. HAZARDOUS AREA MARKING AND LIGHTING.

Hazardous areas on the movement area will be marked with barricades, traffic cones, flags, or flashers (specify). These markings restrict access and make hazards obvious to aircraft, personnel, and vehicles. During periods of low visibility and at night, identify hazardous areas with red flashing or steady-burning lights (specify). The hazardous area marking and lighting will be supplied by

the airport operator/contractor, as specified in the contract, and will be depicted on the plans.

8. TEMPORARY LIGHTING AND MARKING.

Airport markings, lighting, and/or signs will be altered in the following manner (specify) during the period from ___ to ___. The alterations are depicted on the plans.

9. VEHICLE OPERATION MARKING AND CONTROL.

Include the following provisions in the construction contract, and address them in the safety plans:

a. When any vehicle, other than one that has prior approval from the airport operator, must travel over any portion of an aircraft movement area, it will be escorted and properly identified. To operate in those areas during daylight hours, the vehicle must have a flag or beacon attached to it. Any vehicle operating on the movement areas during hours of darkness or reduced visibility must be equipped with a flashing dome-type light, the color of which is in accordance with local or state codes.

b. It may be desirable to clearly identify the vehicles for control purposes by either assigned initials or numbers that are prominently displayed on each side of the vehicle. The identification symbols should be at minimum 8-inch (20-cm) block-type characters of a contrasting color and easy to read. They may be applied either by using tape or a water-soluble paint to facilitate removal. Magnetic signs are also acceptable. In addition, vehicles must display identification media, as specified in the approved security plan. *(This section should be revised to conform to the airport operator's requirements.)*

c. Employee parking shall be _____ (specify location), as designated by the airport manager _____/ project engineer _____/other _____ (specify).

d. Access to the job site shall be via _____ (specify route), as shown on the plans _____/designated by the engineer _____/designated by the superintendent _____/designated by the airport manager _____/other _____ (specify).

e. At 14 CFR part 139 certificated and towered airports, all vehicle operators having access to the movement area must be familiar with airport procedures for the operation of ground vehicles and the consequences of noncompliance.

f. If the airport is certificated and/or has a security plan, the airport operator should check for guidance on the additional identification and control of construction equipment.

10. NAVIGATIONAL AIDS.

The contractor must not conduct any construction activity within navigational aid restricted areas without prior approval from the local FAA Airway Facilities sector representative. Navigational aids include instrument landing system components and very high-frequency omnidirectional range, airport surveillance radar. Such restricted areas are depicted on construction plans.

11. LIMITATIONS ON CONSTRUCTION.

Additional limitations on construction include—

a. Prohibiting open-flame welding or torch cutting operations unless adequate fire safety precautions are provided and these operations have been authorized by the airport operator *(as tailored to conform to local requirements and restrictions)*.

b. Prominently marking open trenches, excavations, and stockpiled materials at the construction and lighting these obstacles during hours of restricted visibility and darkness.

c. Marking and lighting closed, deceptive, and hazardous areas on airports, as appropriate.

d. Constraining stockpiled material to prevent its movement as a result of the maximum anticipated aircraft blast and forecast wind conditions.

12. RADIO COMMUNICATIONS.

Vehicular traffic located in or crossing an active movement area must have a working two-way radio in contact with the control tower or be escorted by a person in radio contact with the tower. The driver, through personal observation, should confirm that no aircraft is approaching the vehicle position. Construction personnel may operate in a movement area without two-way radio communication provided a NOTAM is issued closing the area and the area is properly marked to prevent incursions. Two-way radio communications are _____/are not _____ required between contractors and the Airport Traffic Control Tower _____/FAA Flight Service Station _____/Airport Aeronautical Advisory Stations (UNICOM/CTAF) _____. Radio contact is _____/is not _____ required between the hours of _____ and _____. Continuous monitoring is required _____/or is required only when equipment movement is necessary in certain areas _____. *(This section may be tailored to suit the specific vehicle and safety requirements of the airport sponsor.)*

13. DEBRIS.

Waste and loose material must not be placed in active movement areas. Materials tracked onto these areas must be removed continuously during the work project.

APPENDIX 4. SAMPLE NOTAM

_____ AIRPORT

FAA NOTAM # _____ DATE: _____
AIRPORT I.D. # _____ TIME: _____

NOTAM TEXT:

NOTIFICATON:

TOWER _____
PHONE # INITIALS TIME CALLED IN BY

FSS _____
PHONE # INITIALS TIME CALLED IN BY

AIRLINES

CANCELLED:

NOTIFICATON:

TOWER _____
PHONE # INITIALS TIME CALLED IN BY

FSS _____
PHONE # INITIALS TIME CALLED IN BY

AIRLINES

MARITIME CODE OF SAFE PRACTICES

1. TERMINAL SAFETY PRECAUTIONS

Work in active marine terminals is coordinated through the Port Wharfing office. Any unusual procedures that could impact terminal operation should be cleared with the Wharfingers and the Port's Engineering Department at least 24 hours in advance (or as soon as feasible).

Conduct operations in such a manner as to 1) protect the safety of terminal, trucking, and Port employees, contractors and the public and 2) minimize interference with terminal and vessel operations.

VEHICLES INSIDE MARINE TERMINALS

Vehicles brought into the terminal must be equipped with identifying signs on each side. No personal vehicles are allowed.

Limits on-terminal vehicles to those necessary to perform the work.

Minimize the need to drive around the terminal. Stage operations and remain there. Do not travel on foot away from the work area. Enter and exit the terminal only via company vehicle.

Obey terminal driving rules. Where not otherwise posted, terminal equipment has the right of way. **Maximum speed is 10 mph.**

SITE OF OPERATIONS

The area of operations should encumber no more space than is required to perform the work safely.

Delineate the area of the operation using traffic cones, K-rail, caution tape, or other high-visibility method. Where feasible, park vehicles to form a protective barrier.

CONTROL OF PERSONNEL

Employees must wear hard hats and high visibility clothing (with reflective elements at night).

Employees should remain in the area of operations; do not wander around.

Use a "spotter" where employees are exposed to traffic.

2. WATER SAFETY, WORKING NEAR WATER

Many Port work operations take place on or under piers and pilings, generally close to the water.

Where employees could fall into water and a danger of drowning exists, use the following safety devices, as appropriate:

- Personal Floatation Devices (life jackets) approved by the Coast Guard, of a type that will support an unconscious person's head above water
- Ring Buoys (life saving rings) approved by the Coast Guard (30" in diameter)
- Lifesaving Boats, either manually or power-operated, for emergency use and equipped with oars and oarlocks attached to the gunwales (where feasible), boathook, anchor, ring buoy with 50 feet of 600 pound capacity line and two life preservers. (Oars are not required in boats powered by an inboard motor.)

Exception: When employees are continuously protected by railings, nets, safety harnesses or other fall restraint, the safety devices listed above are not required.

While working under piers and Port structures in small boats, employees should take the following precautions:

- Pay special attention to weather and tidal conditions. Do not take chances; heavy swells, white caps, rain, windy conditions, and high tides may prevent safe entry under the piers.
- Where the ability to see hazards is blocked, station one employee on shore in a watch capacity. This employee should have a radio or telephone capable of communicating with the U.S. Coast Guard.
- Wear a life jacket at all times (see above). Employees should also wear appropriate head and foot protection.
- Be sure the boat contains two oars at all times (see above).
- Maintain radio communication with an employee on watch at all times.
- Bring a small bucket for bailing water.
- Bring a portable air horn in case of radio failure.
- Where darkness could hamper visibility, equip life jackets with portable strobe lights. Bring a floating flashlight in the boat with you.
- Before launching a boat, check it for leaks and damaged areas. Report any problems to your supervisor.

3. DREDGING REQUIREMENTS

Contractors performing dredging operations on the Port of Oakland (Port) Project are required to comply with all Local, State, Federal, American National Standard Industry (ANSI A10.15), United States Coast Guard (USCG), Corps of Engineers (Engineer Manual EM 385-1-1, Section 19), and the requirements of the Port as specified in this manual. Exclusion of any specific code, standard, rule, policy, or regulation does not exempt the contractor from compliance. In all cases, the most stringent safety requirement is to be applied.

Documentation:

Submit to the Port prior to physical work on the site copies of the current inspections and certifications issued by the USCG when applicable. This is to include any USCG Forms 835 issued the preceding year.

Submit monthly documentation indicating the results of monthly inspections and test to maintain safe operating conditions. This is to include records of any drills and emergency system checks.

Provide copies of the current license or certification of Officers and crew members to the Project Manager representing the Port Authority.

Safety Manual:

As required by Cal/OSHA, the submitted safety manual must address job specific safety issues. In conjunction with that requirement, the Port requires submission of the following:

- Copy of the Severe Weather Precautions Policy established for emergency purposes
- Copy of the emergency plan for fire, sinking, flooding, man overboard, and hazardous material incidents.
- Completed copy of Safety Checklist for Launches, Motor Boats and Skiffs (enclosed).
- Completed copy of The Safety Checklist for Floating Plants (enclosed)

Maritime Personnel Requirements:

Submit to the Port Project Manager and Safety Manager the names of the competent person, qualified person and the responsible person and the safety representative. Definitions as specified by ANSI A10.15 and this manual:

- Maritime Competent Person – One who is capable of identifying existing and predictable hazards in the surrounding or working conditions which are unsanitary, hazardous, or dangerous to employees and who has authorization to take prompt corrective measures for elimination of such.
- Maritime Qualified Person – One who, possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated their ability to solve or resolve problems relating to the subject matter, the work, or the project.
- Maritime Responsible Person – One who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experiences successfully demonstrated their ability to solve or resolve problems relating to the subject matter, the work, or the project, and who has authority to take prompt corrective actions
- Maritime Safety Representative – One who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to the employees. This individual designated by the Contractor of Subcontractor with authority to take prompt corrective measures to eliminate such unsafe hazards or working conditions. This individual shall have no assigned duties outside of their safety responsibilities.

Specific Requirements:

The Port of Oakland Safety Standards references numerous agencies and recognized organizations responsible for developing safety standards, some specific to dredging. The Port has identified the following safety standards and requirements specific to dredging safety as mandatory. Contractor is required to incorporate a statement acknowledging inclusion or compliance with each of these items into their written safety program submitted to the Port for review, no exceptions. Contractor shall also incorporate any of the remaining Sections from each of the following standards that may be applicable to their Scope of Services at the Port.

ANSI A10.15 – 1974 American National Standard Safety Requirements for Dredging

- **Section 3.** “General Requirements for Floating Plant and Marine Equipment”, in addition to each of the following Sections:
- **Section 4.** “Safety and Health Requirements” Specifically **4.1** Planning. Address each items noted in **4.1** and have copy of program available to review upon request.
- Comply with **Section 6.** “Housekeeping”. Specifically **6.1.3** To provide headroom and eliminate tripping hazards, hose lines and electrical conductors should be elevated over or placed under walkway or working surfaces or covered by adequate crossover planks.
- Comply with **Section 10.1** Fire Extinguishers. Fire extinguishers shall be provided and maintained in accordance with American National Standard for Installation of Portable Fire Extinguishers, Z112.1 – 1971 (NFPA No. 10 – 1970), and American National Standard Safety Standard for Soda-Acid Fire Extinguishers, Z171.1 – 1969 (UL 7 – 1969).
- **Section 10.4.3** “Apparatus and Equipment”. Fire fighting apparatus and equipment should be provided and installed in accordance with applicable National Fire Protection Association standards.
- **Section 10.5** “Fire Alarm Devices”. A siren, telephone system, or other alarm arrangements shall be provided on all dredges and quarter boats.
- **Section 10.6** “Fire Fighting Organizations, Training, and Drilling”.
- **Section 12.** “Welding, Cutting, and Heating”. Specifically **12.2.5** Jacketed vessels shall be vented before and during welding, cutting, or heating operations in order to release any pressure which may build up during the application of heat.
- **Section 14.1** Emergency Plan – Procedures and Drills.
- **Section 15.** “Accessways and Passageways”. Specifically **15.1** Non-slip surfaces shall be provided on all working decks, stair treads, ship ladders, platforms, catwalks, and walkways, particularly on the weather side of all doorways opening on deck. - **15.4** All floating pipelines 8 inches nominal diameter and over shall be equipped with walkway and guardrail on one side. Walkways shall be at least 20 inches wide and securely anchored to the pipeline, except that when floating pipelines, because of their design or application, cannot be used as an access or walkway, they need not meet these requirements. – **15.6** When two or more pieces of floating plant are being used as one unit, they shall be securely lashed or fastened together so as to minimize the opening between them. – and **15.10** At least two means of escape shall be provided from general areas in which crews are quartered or work regularly.
- **Section 16.** “Launches and Motorboats”. Specifically **16.1** On all marine work at least one launch or motorboat and operator shall be provided. In the following circumstances, a qualified crewman shall be assigned in addition to the operator:
 - (1) When extended trips are made from the work site.
 - (2) When conditions of navigation make it hazardous for an operator to leave the wheel at any time while underway
- **Section 19.** “Facilities for Quartering Personnel”. (if applicable)
- **Section 20.** “Pressurized Equipment and Systems”.
- **Section 22.** “Precautions Before Entering Closed or Confined Spaces” Specifically **22.2** “Work in Isolated or Confined Spaces”. Copy of the JHA shall accompany safety program for review prior to start of work.

Corps of Engineers (Engineers Manual 385-1-1)

- **Section 19.A.03 d** USCG approved PFD (Types I, II, III, or V) shall be worn by all personnel on decks exposed to severe weather, regardless of other safety devices used.
- **Section 19.D** Dredging.
- Submit monthly (but no less than quarterly, updated Safety Checklist for Floating Plants. Use of a different checklist must be submitted for approval.

SAFETY CHECKLIST FOR FLOATING PLANT

PROJECT: _____

CONTRACT #: _____

Contractor Name:	Subcontractor Name:
Plant Name:	Owner:
Superintendent:	Captain:
Engineer:	Number in Crew:
Contract Inspector:	Date of Inspection:

1. Is a copy of the current USCG Form 835 available for plants regulated by USCG? (19.A.01)	Yes	No	N/A
2. Is documentation of an accredited marine surveyor (SAMS or NAMS) available for non-USCG inspected plants? (19.A.01)	Yes	No	N/A
3. Do all officers and crew possess an appropriate USCG license or USACE license and certification? (19.A.02)	Yes	No	N/A
4. Are periodic inspections and test records of all floating plant, equipment, and machinery available as part of the official project file? (19.A.01)	Yes	No	N/A
5. Is there a severe weather plan which contains the following available? (19.A.03)	Yes	No	N/A
a. a description of potential types of sever weather hazards and steps to guard against the hazards?			
b. the timeframe for implementing the plan?	Yes	No	N/A
c. the name and location of the safe harbor?	Yes	No	N/A
d. the name of the vessels which will be used to move any non-self	Yes	No	N/A

propelled plant, and their type, capacity, speed, and availability?			
e. river gage readings at which floating plant must be moved away from dams, river structures, etc. to safe areas?	Yes	No	N/A
6. Is the station bill conspicuously posted throughout the vessel? (19.A.04)	Yes	No	N/A
7. Has each crew member been given a written description of their emergency duties and are they familiar with them? (19.A.04)	Yes	No	N/A
8. Have the following drills and tests been recorded in the station log? (19.A.04)	Yes	No	N/A
a. abandon ship drill?			
b. fire drill?	Yes	No	N/A
c. man overboard drill?	Yes	No	N/A
d. pump shell or pipe rupture?	Yes	No	N/A
e. hull failure?	Yes	No	N/A
f. emergency power and lighting tests?	Yes	No	N/A
g. bimonthly emergency power generator tests?	Yes	No	N/A
h. bimonthly emergency lighting storage batteries test?	Yes	No	N/A
9. Are material safety data sheets (MSDSs) available for all hazardous materials on board? (06.B.01)	Yes	No	N/A
10. Are employees trained to handle hazardous materials? (06.B.01)	Yes	No	N/A
11. Are at least two employees on each shift certified in CPR and first aid? (03.A.02)	Yes	No	N/A
12. Is there a first aid log at each first aid station? (01.D.04)	Yes	No	N/A
13. Are first aid kits located in readily accessible location and adequately stocked? (03.B.01/.02)	Yes	No	N/A
14. Is there an adequate supply of approved, potable drinking water available? (02.A.01)	Yes	No	N/A
15. Are outlets dispensing non-potable water clearly marked "Water Unfit for Drinking", "Washing or Cooking"? (02.A.07)	Yes	No	N/A

16. Are the proper numbers of toilets, wash basins, and showers provided? (02.B.06/.07)	Yes	No	N/A
17. Are the water, soap, and a means of drying available? (02.C.02)	Yes	No	N/A
18. Is the latest information published by the USCG regarding aids to navigation available on board the vessel? (19.A.11)	Yes	No	N/A
19. Is the vessel equipped with the following: (19.A.05)	Yes	No	N/A
a. fenders?			
b. axes or emergency cutting equipment?	Yes	No	N/A
c. an appropriate navigational signal device?	Yes	No	N/A
d. general alarm system operated from primary electrical system with standby batteries on trickle charge?	Yes	No	N/A
e. easily accessible emergency controls that are adequately protected against accidental operation?	Yes	No	N/A
f. explosion-proof lights around gasoline and oil barges or other locations where a fire or explosive hazard exists?	Yes	No	N/A
g. interconnected emergency alarms?	Yes	No	N/A
h. smoke alarms in living quarters?	Yes	No	N/A
i. doors that open from both sides?	Yes	No	N/A
j. clearly marked emergency exits?	Yes	No	N/A
k. emergency stops for prime movers operating a dredge pump?	Yes	No	N/A
l. GFCI protection on grounded 120 or 240 volt systems in toilet/shower spaces, galley, machinery spaces, weather deck, exterior or near any sinks?	Yes	No	N/A
m. properly maintained and identified water tight compartments?	Yes	No	N/A
20. Fuel systems (19.A.06)	Yes	No	N/A
a. Are tanks or lines free of gauge glasses or try cocks?			
b. Do all fuel tanks have shut-off valves that can be operated outside the compartment in which the tank is located and outside the engine	Yes	No	N/A

compartment and outside the house bulkheads at or above the weather deck?			
c. Is there a shut-off valve at the engine end of the fuel lines that are 6 feet or more in length and can it be operated from outside the house bulkheads at or above the weather deck? Over board discharge?	Yes	No	N/A
d. Are all carburetors on gasoline engines equipped with a backfire trap or flame arrestor?	Yes	No	N/A
e. Are all carburetors (except downdraft type) equipped with a drip pan, with flame screen, which is continuously emptied by suction from the intake manifold or if permitted by the overboard discharge?	Yes	No	N/A
f. Are fuel storage tanks diked or curbed IAW NAVFAC DM-22? If not, are portable tanks used IAW USCG requirements in 46CFR Parts 64 and 98.3?	Yes	No	N/A
21. Are cables which cross the waterways between floating plants or between plant and mooring marked? (19.A.07)	Yes	No	N/A
22. Is there a fire and emergency warning system (or an established fire watch) on all vessels where people are quartered? (19.A.07)	Yes	No	N/A
23. Are all floors, decks, and bilge's free of accumulation of fuel and grease? (19.A.07)	Yes	No	N/A
24. Are there holdbacks or rings available to secure equipment during rough weather? (19.A.07)	Yes	No	N/A
25. Are all deck openings, elevated surfaces, and similar locations provided with guardrails, bulwarks, or taut cable guardlines? (19.A.07)	Yes	No	N/A
26. Are all rotating machinery, hot pipes, and moving cables guarded against accidental contact? (16.B.03)	Yes	No	N/A
27. Are hazardous energy control procedures available to insure that machinery will not be operated while greasing or making repairs? (12.A.01/.08)	Yes	No	N/A
28. Are decks free of tripping hazards? Or adequately marked in yellow? (19.A.07)	Yes	No	N/A
29. Is all deck cargo carried on fuel barges placed on dunnage? (19.A.07)	Yes	No	N/A
30. Are all pieces of floating plants operating as one unit securely fastened	Yes	No	N/A

together with no openings (or guarded openings)? (19.A.07)			
31. Is there a list of confined spaces available? (19.A.08)	Yes	No	N/A
32. Are all permitted required confined spaces labeled? (19.A.08)	Yes	No	N/A
33. Are engine spaces housing internal combustion engines having electric spark ignition systems equipped with exhaust fans? (19.A.10)	Yes	No	N/A
34. Are all machinery spaces and non-diesel fuel tanks compartments equipped with at least 2 ventilators, fitted with fans? (19.A.10)	Yes	No	N/A
35. Are the following spaces provided with an adequate natural ventilation system? (19.A.10)	Yes	No	N/A
a. spaces containing a portable fuel tank?			
b. living spaces or galley?	Yes	No	N/A
c. other compartment spaces?	Yes	No	N/A
36. Do vent intakes extend to within one foot of the bottom of the compartment? (19.A.10)	Yes	No	N/A
37. Is suitable eye protection provided at battery charging stations? (05.B.01/.05)	Yes	No	N/A
38. Are eye wash stations provided at battery charging stations? (06.B.02)	Yes	No	N/A
39. Are flammable items such as paint and thinners properly stored? (09.B)	Yes	No	N/A
40. Are gasoline and other flammable liquids properly stored, dispensed, and handled? (09.B.01/.02/.03)	Yes	No	N/A
41. Does all electrical wiring meet requirements of USCG-259, the National Electrical Safety Code and the National Electric Code? (11.A.01)	Yes	No	N/A
42. Are insulated mats provided at locations where machinery has exposed live parts? (11.A.07)	Yes	No	N/A
43. Are switch and transformer banks adequately protected and marked to keep unauthorized personnel out of the danger area? (11.A.02)	Yes	No	N/A
44. Are portable electric tools grounded by a multi-conductor cord with an identified conductor and a multi-contact polarized plug-in receptacle? (11.C.01)	Yes	No	N/A

45. Are ground fault circuit interrupters provided in locations where portable tools could be used? (11.C.05)	Yes	No	N/A
46. Are flexible cords protected in work area, appropriately secured or suspended and are they used for appropriate usages? (11.A.03 and Table 11-1)	Yes	No	N/A
47. Are all means of access properly secured, guarded and free of slipping and tripping hazards? (19.B.01)	Yes	No	N/A
48. Are all working decks, stair treads, ship ladders, platforms, catwalks, and walkways provided with non-slip surfaces? (19.B.01)	Yes	No	N/A
49. Are grab bars provided on the sides of super structure of tugs, tenders, and launches except where railings are present? (19.B.01)	Yes	No	N/A
50. Are double rung or flat tread type Jacob's ladders restricted to use only when no safer form of access is practical? (19.B.01)	Yes	No	N/A
51. Is there a safe means for boarding or leaving the vessel? (19.B.02)	Yes	No	N/A
52. Is there a stairway, ladder, ramp, gangway or personnel hoist provided at all personnel points of access with breaks of 19 inches or more in elevation? (19.B.02)	Yes	No	N/A
53. Are gangways and ramps: (19.B.02)	Yes	No	N/A
a. secured at one end by at least one point on each side with lines or chains to prevent overturning?			
b. supported at the other end in such a manner as to support them and their normal loads in the event they slid off their supports?	Yes	No	N/A
c. placed at an angle no greater than that recommended by the manufacturer?	Yes	No	N/A
d. provided with a standard guardrail?	Yes	No	N/A
54. Are stairs or permanent inclined ladders provided for vertical access between decks? (09.B.03)	Yes	No	N/A
55. Is there at least 2 feet of clearance on outboard edges for passageways? (19.B.3)	Yes	No	N/A
56. Is the vessel equipped with at least one portable or permanent ladder	Yes	No	N/A

with at least one portable or permanent ladder with which to rescue a person in the water? (19.B.04)			
57. Are there at least 2 means of escape from all assembly, sleeping and messing areas on the plant? (19.B.04)	Yes	No	N/A
58. Are all means of access maintained safe and functional? (19.B.04)	Yes	No	N/A
59. Are all floating pipelines used as walkways equipped with a walkway which is at least 20 inches wide and has a handrail on at least one side? (19.B.05)	Yes	No	N/A
60. Are floating pipelines that are not intended as walkways barricaded on both ends? (19.B.05)	Yes	No	N/A
61. Are positive measures taken to raise and secure the ladder and to block suction and discharge lines during maintenance on pumps and suction or discharge lines? (19.D.01)	Yes	No	N/A
62. Do floating or trestle supported dredge pipelines display the following lights at night and in periods of restricted visibility: (19.D.02) a. One row of yellow lights that: (1) flash 50-70 times per minute? (2) are visible all around the horizon? (3) are visible for at least 2 miles on a clear night? (4) are between 3-10 feet above water? (5) are approximately evenly spaced? (6) are not more than 30 feet apart where the pipeline crosses a navigable channel? (7) are sufficient in number to clearly show the pipeline's length and course?	Yes (1)	No	N/A
	(2)		
	(3)		
	(4)		
	(5)		
	(6)		
	(7)		
b. two red lights at each end of the pipeline (including ends in a channel where the pipeline is separated to allow vessels to pass that: (1) are visible all around the horizon? (2) are visible for at least 2 miles on a clear dark night? (3) are 3 feet apart in a vertical line with the lower light at the same height above the water as the flashing yellow light?	Yes (1)	No	N/A
	(2)		
	(3)		
63. Is the dredge designed such that a failure or rupture of any dredge pump component including the pipe shall not cause the dredge to sink? (19.D.04)	Yes	No	N/A
64. Is submerged pipeline resting on the bottom where it crosses the navigation channel and is it and the anchoring system no higher than the required project depth? (19.D.03)	Yes	No	N/A

65. Is buoyant or semi-buoyant pipeline fully submerged and on the bottom? (19.D.03)	Yes	No	N/A
66. Is raised pipeline adequately marked? (19.D.03)	Yes	No	N/A
67. Is a bilge alarm or shutdown interface available on any dredge with the dredge pump below the waterline? (19.D.07)	Yes	No	N/A
68. Are two positive means available to secure "stone boxes" when the boxes are under positive pressure? (19.D.08)	Yes	No	N/A

REMARKS: (for specifics and details to "NO" / "N/A" Answers to above)

Contractor Inspector Signature

Contractor QC/ Safety Officer / Project Manager Signature

SAD Form 1437a-R (March 1997) - *Previous editions may be used for contracts referencing the 1992 Edition of EM 385-1-1.* (SAFETY CHECKLIST FOR FLOATING PLANT- Total 6 pages)

SAFETY CHECKLIST FOR LAUNCHES, MOTORBOATS, AND SKIFFS

PROJECT: _____

CONTRACT #: _____

Contractor Name:	Subcontractor Name:
Superintendent:	Engineer:
Name of Equipment:	Number in Crew (if applicable):
Inspector:	Date of Inspection:

1. Is a qualified crew person assigned to assist with deck duties under the following circumstances: (19.C.01) a. when extended trips (more than 2 hours) are made from the work site?	Yes	No	N/A
b. when conditions of navigation make it hazardous for an operator to leave the wheel while underway?	Yes	No	N/A
c. when operation other than tying-in require the handling of lines?	Yes	No	N/A
d. when operating at night or in inclement weather?	Yes	No	N/A
e. when towing?	Yes	No	N/A
2. Are all motorboats, launches, and skiffs posted with the number of passengers and weight they can carry? (19.C.02)	Yes	No	N/A
3. Is there a PFD available for each passenger and crew member? (19.C.02)	Yes	No	N/A
4. Do all launches and motorboats that are <u>less than 26 feet</u> in length have at least one 1A-10B:C fire extinguisher on board? (19.C.03)	Yes	No	N/A
5. Do all launches and motorboats that are <u>26 feet or more</u> in length have at least 2 1A-10B:C fire extinguishers on board? (19.C.03)	Yes	No	N/A

6. Do all launches and motorboats that have gasoline or liquid petroleum gas power plants or equipment in cabins, compartments, or confined spaces have built-in automatic CO2 or other equally effective type of fire extinguishing system? (19.C.03)	Yes	No	N/A
--	-----	----	-----

REMARKS: (for specifics and details to "NO" / "N/A" Answers to above)

Contractor Inspector Signature

Contractor QC/ Safety Officer / Project Manager Signature

SAD Form 1437b-R (March 1997) - *Previous editions may be used for contracts referencing the 1992 Edition of EM 385-1-1.* (SAFETY CHECKLIST FOR LAUNCHES, MOTORBOATS & SKIFFS - Total 2 pages)

ACCIDENT INVESTIGATION & REPORTING PROCEDURES

All accidents and incidents related to the construction program which result in personnel injury or illness, or damage to buildings or equipment, as a result of an accident or natural phenomena will be investigated.

It is the Contractor's obligation to investigate all accidents, provide all information outlined below, and submit the information to Port & Aon site management.

B. PURPOSE

The purpose of investigating job related accidents and illnesses is:

1. To determine cause for the purpose of preventing recurrence, and in some instances, to determine whether gross negligence was involved.
2. To comply with applicable federal, state, and local codes and regulations relating to loss reporting.
3. To provide documentation of occupational injuries and illnesses, and to assist in Workers' Compensation claims management.
4. To ensure sensitive notification for an injured employee's family, and for objective releases to the news media.

OCIP CONTRACTOR'S PROCEDURAL MANUAL

The Contractor's Project Manager shall follow the procedures for reporting and submitting TASMAN Project insurance claim forms as per the instructions located within the OCIP Contractor's Procedural Manual.

This manual provides directions for reporting serious project accidents and examples of various OCIP Insurance Carrier's reporting and investigation forms and appropriate State Workers' Compensation First Report of Injury Form and Supplemental Report of Injury Form that must be completed by the Contractor's Project Manager. Additional OCIP Insurance Carrier forms are also provided for filing project related property damage claims.

RESPONSIBILITIES

1. Contractor. Project Management has several specific responsibilities in Reporting and investigation serious project accidents, including:
 - I. Upon notification of a serious accident immediately insure that the Contractor's Crew Foreman has called the Local 911, Fire Rescue Department and other emergency response organizations and when required the appropriate Utility Company Emergency Crews.
 - II. Evaluate those emergency actions which have been taken by Crew Foreman to minimize the extent of loss to employees, the General Public and property when a serious accident or emergency condition exist and, when required, direct the Crew Foreman to implement additional company emergency actions.
 - III. Immediately notify, by phone, the Port Project Manager of known accident conditions and the Contractor's emergency actions that have been taken for this serious accident.
 - IV. Travel to the field location to assist the Crew Foreman at the accident scene.
 - V. Notify the families of each employee who has been seriously injured.
 - VI. As per the instruction in the OCIP Contractor's manual complete the appropriate OCIP insurance carrier's reporting and investigation forms. First fax then mail, within 12 hours, the completed and signed insurance forms to the appropriate parties as per the direction in the manual.
 - VII. As per OSHA regulations, notify the OSHA Area Director's Office within 12 hours of the accident involving a fatality or hospitalization of three or more Contractors' employees.

- VIII. Comply with the State's motor vehicle regulations concerning the procedures for reporting company-owned automobile and/or on the road motor vehicle accidents to Local, City or State Police Department(s).
- IX. Assist the OCIP Insurance Carrier's Claims Handling Supervisor and Loss Control Representative in their follow up investigation of the direct and indirect causes of this serious accident so that the resulting insurance claim(s) can be properly processed and close out in both a timely and cost effective professional manner.
- X. Prior to making any Contractor's verbal or written (on or off the record) press statements concerning the serious accident or emergency conditions, the Contractor's Project Manager must first clear the Contractor's press statement with the Port's Project Management Team, the Port's Communications Department, and the Contractor Project Manager prior to release to the press.

2. Contractor Crew Foreman.

- i. Take those emergency actions necessary to minimizing the extent of injuries to employees, the General Public and property damage when a serious accident or emergency condition exists.
- ii. Immediately call the Local 911, Fire Rescue Department and the Utility Company's emergency response number and then inform them of the emergency conditions and the Contractor's emergency actions that have been taken.
- iii. Render prompt first aid treatment for all injured personnel until the emergency medical personnel arrive at the scene and take over first aid or medical treatment.
- iv. As soon as time permits notify the Contractor Project Manager of the serious accident or emergency conditions.
- v. Upon the arrival of the Contractor's Project Manager to the field location provide a summary of the emergency conditions and actions taken.
- vi. Assist the Contractor's Project Manager in completing the OCIP accident reporting and investigation form.

3. Contractor Company Safety Coordinator

- I. When directed by the Port, conduct an OCIP confidential follow-up investigation of the Contractor's serious accident.
- II. Provide other safety-related reports, information and technical assistance to the OCIP Insurance Team, as requested.

OCIP CONSTRUCTION PROJECT

ACCIDENT/INCIDENT INVESTIGATION FORM*

PERSONAL INFORMATION

1. Name of Injured _____ Date of Hire ___/___/___ Date of Birth ___/___/___
Contractor _____ Subcontractor _____
Address _____
Job Title _____ SS# _____ - _____ - _____ Rate of Pay \$ _____
HR/MNTHLY _____ Telephone # _____ - _____ - _____
2. Injury Date: ___/___/___ Time: ___:___ am/pm Work Shift Start: ___:___ am/pm
3. Medical Care? Y/N _____
Treating Hospital/Clinic/Physician? _____
Has employee returned to work? (Y/N, restricted duty, date & time) _____
3. Accident Location: (Specific Site Location with reference points): _____
4. Type of Injury: _____
- | Word Being Done: | Body Part(s) | Signs/Symptoms |
|------------------|--------------|----------------|
| _____ | _____ | _____ |
6. Employee trained for work? Yes__ No__ When? _____
Date _____ Trainer: Name/Title _____
7. Employee authorized for work? Yes__ No__ If yes, _____
Authorizing Person: Name/Title _____

ACCIDENT DESCRIPTION

8. Accident Description: (who, when, where, how, why) _____

9. Result of Site Investigation: (area coned off, new procedures) _____

10. Result of Tool/Equipment Investigation: (defective, wrong tool) _____

11. Primary Accident Cause(s) & Contributing Factors: _____

WITNESS(ES)

12. Name & job position: _____
Relation to injured party: _____
Description of incidents leading to injury/illness: (one on one interview) _____

RECOMMENDATIONS

13. Job covered by: a. Job Hazard Analysis? _____
Bulletin, Document, Manual, Instruct.
b. Safety rule/regulation: _____
Handbook, Bulletin (Citation)
14. Is the procedure/rule/regulation adequate? Yes__ No
15. If no, recommended change(s): _____

16. Recommendation to prevent similar accidents: _____

17. Investigator(s): _____
Date: _____
18. Reviewed by: _____
Title _____
Date __/__/__ __/__/__ __/__/__
19. Project management review & analysis: (suggestions for prevention of reoccurrence) _____

20. New procedures/training/controls implemented? Date __/__/__ List changes _____

Additional information and/or comments: _____

JOB HAZARD ANALYSIS (JHA)

A. SCOPE:

This procedure outlines the purpose for and method of Job Hazard Analysis studies that will be required for each phase of construction work involving hazardous work. All job supervisors and contractors safety representatives are responsible to complete a Job Hazard Analysis form one week **prior** to the actual hazardous operations.

Project Management approval must be obtained prior to any on-site work activities.

B. PURPOSE:

The purpose of accident prevention pre-planning is to prevent unnecessary hazards that are likely to occur and to make sure each employee performing an operation will have the necessary material and equipment on hand when needed. Due to the speed at which jobs proceed, it does not allow a single operation to continue long enough to become safe through trial-and-error. To cope with safety problems peculiar to our industry, this procedure has been established so management can pre-determine the hazards and develop an appropriate plan to prevent the hazards from becoming accidents.

C. RESPONSIBILITY:

It is the responsibility of the Contractor's Safety Coordinator to insure that Job Hazard Analysis studies are performed for all operations involving hazardous work activities.

1. Job Hazard Analyses studies will be completed by the contractors site safety supervisor and lead foremen for the job(s) or operation(s) that are to be performed. This analysis will be done on the attached "Job Hazard Analysis" form.

The JHA's will be utilized for during the weekly tool box safety meetings and prior to the hazardous operation being conducted as a training and education tool.

Construction operations which require the completion of a JHA include:

1. Any operation involving the compliance with the Respiratory Protection Regulations (i.e. confined space, sand blasting, asbestos, lead, etc.).
2. All trenching and excavation work.
3. Demolition work.
4. Crane and boom truck operations.
5. Use of construction hoists.
6. Fall protection.
7. Scaffolding operations.
8. Power actuated tools.
9. Welding and cutting operations.
10. Re-bar setting & form work.
11. Concrete pour work.
12. Masonry wall erection.
13. Steel erection work.
14. Roofing operations.
15. Electrical work.

BACK TO WORK PROGRAM

PURPOSE

The Port Management, the Contractor and Aon Risk Services have developed a program designed to assist workers who are **temporarily** disabled due to an illness or injury. This program is called the "Return to Work Program."

This includes a team effort, including disabled workers, their attending physician, the insurance carrier, and project management. This program applies to all contractors and tiered-contractors on the Port's Project.

Studies shows that return to work programs are therapeutic and help speed the recovery process. In addition, injured workers stay "in touch" with the work environment and with fellow workers, which helps to facilitate a smooth and speedy transition back to their normal job. This also creates an opportunity for cross training and developing new skills.

Everybody "wins" with this type of program. The job site wins by retaining the use of valuable trained workers while at the same time minimizing workers' compensation and other costs. Workers win by returning to their regular job and income sooner, and by avoiding the negative effects of a long-term absence.

PROCEDURES

When workers report illnesses or injuries, they will be given certain forms and may be sent to a doctor for examination and/or treatment. If the doctor determines that the worker qualifies for our Return to Work Program, the doctor will complete the appropriate forms indicating the restrictions and conditions for transitional work. **We will then attempt to provide a modified work position until the worker is able to resume regular duties.**

All modified work is temporary in nature and is designed to facilitate a return to regular duties as soon as possible. Modified work positions may be offered at any project, and/or any shift. Modified work positions can also be offered on a varied schedule.

Failure to report for work at the designated time and place will be regarded as a voluntary resignation and could affect your time loss compensation and/or re-employment/reinstatement rights.

This is not designed as a substitute for reasonable accommodation under any applicable federal or state laws, such as the Americans with Disabilities Act, The Rehabilitation Act 1973 or other applicable laws.

To preserve the ability to meet the Port's Project needs under changing conditions, the right is reserved to revoke, change or supplement these guidelines at any time with or without written notice. No permanent employment for any term is intended or can be implied by this policy. But, while in effect, all doctor recommended restrictions will be followed. The site management, on a two-week basis or after a doctor's visit, will review with the worker the availability of continued modified work.

**PORT OF OAKLAND - OCIP PROJECT
SAFETY RULES TRAINING, ORIENTATION, AND
DOCUMENTATION FORM S+H 6-9 - SAFETY RULES TRAINING,
ORIENTATION, AND DOCUMENTATION**

I, _____, hereby acknowledge that I have received training and understand the OCIP Construction Safety Rules. I also agree to abide by all applicable state & federal OSHA standards and manufacturers guidelines and report incidents immediately to my supervisor or the project management team.

EMPLOYEE SIGNATURE

DATE

SUPERVISOR

DATE

APPENDIX A

CONTRACTOR QUESTIONNAIRE

APPENDIX B

SUBSTANCE ABUSE PROGRAM

APPENDIX C

PRE-CONSTRUCTION EXPOSURE ANALYSIS

DOCUMENT 00910

ADDENDA

1. Addenda issued by Port in accordance with Section 11 of Document 00200, Instructions to Bidders, shall be listed below and attached to this Document. Addenda are part of the Contract Documents.

SCHEDULE OF ADDENDA:

Date of Issuance:

Addendum Number:

END OF DOCUMENT

DIVISION 1 GENERAL REQUIREMENTS

SECTION 01100

SUMMARY OF WORK

PART 1 GENERAL

1.01 SUMMARY

- A. This section includes summary of work including:
 - 1. Summary
 - 2. Work Covered By The Contract Documents
 - 3. Bid Items
 - 4. Work Under Other Contracts And Other Activities
 - 5. Future Work
 - 6. Work Sequence
 - 7. Cooperation Of Contractor And Coordination With Other Work
 - 8. Occupancy/Substantial Completion Requirements
 - 9. Contractor Use Of Premises
 - 10. Protection Of Existing Structures and Utilities
 - 11. Work Restrictions
 - 12. Special Conditions And Restrictions Pertaining To Work
 - 13. Contract Time
 - 14. Milestones and Liquidated Damages
 - 15. Permits
 - 16. Security
 - 17. Submittals
 - 18. Utility Service
 - 19. Site Cleanup
 - 20. Project Address
 - 21. Reference Standards
 - 22. Port-Furnished Products

1.02 WORK COVERED BY THE CONTRACT DOCUMENTS

- A. The Work comprises CONSTRUCTION OF PHASE 3B CONTAINER TERMINAL YARD IMPROVEMENTS, MARITIME SUPPORT CENTER, OAKLAND, CALIFORNIA and consists generally of furnishing all labor, materials, appliances, tools, equipment, transportation, services, and supervision required for the construction of container yard improvements for a portion of a 21-acre site within the Maritime Support Center area. The work includes, but is not limited to: demolishing existing pavements, building foundations and slabs, fencing; abandoning existing storm drain system; removal of underground storage tanks; fill placement, and site grading; furnishing and installing new storm drain system, new sewer line, light pole foundations, electrical substation foundations and new fire water system. The work entering into a subcontract with Columbia Electric Inc., the Port's designated Phase 3B electrical contractor, for performance of the Phase 3B electrical work including, but not limited to, installation of Port furnished high

mast light poles, and electrical equipment, construction of electrical telecommunications systems, as defined in Section 01100, Summary of Work, and Attachment 1, as shown on the Plans and specified herein. The Contractor will also be responsible for administering all aspects of the electrical commissioning, equipment installation, and warranty work.

- B. The Work of this Contract includes work covered by lump sum prices and unit prices.
- C. The Work of this Contract includes construction of all the Work shown on the Port Plans AA-3956, described by the Contract Documents.
- D. Unless provided otherwise in the Contract Documents, all risk of loss to the Work covered by the Contract Documents shall rest with the Contractor until Final Completion and Acceptance of the Work.
- E. The Contractor's use of the Site for Work and storage is limited to the area(s) shown on the Plans and/or designated by the Engineer.

1.03 BID ITEMS

- A. Any bid item may be deleted in total or in part prior to or after award of Contract without compensation in any form or adjustment of other bid items or prices therefore.
- B. Measurement and payment of bid items will be in accordance with the following:

BASE BID ITEMS:

ITEM 1: Mobilization and Demobilization will not be measured. The lump sum price to be paid under this Item includes full compensation for furnishing all labor, materials, appliances, tools, equipment, transportation, services and supervision for accomplishing all work involved in the mobilization and demobilization.

Except as otherwise specified, mobilization shall consist of preparatory work and operations, including but not limited to, those necessary for the movement of personnel, equipment, supplies, and incidentals to the project site; for the establishment of all offices, buildings and other facilities necessary for the work on the project; and for all other work and operations which must be performed or costs incurred prior to beginning work on the various bid items on the project site.

Refer to Document 1200, Measurement and Payment on progress payment for mobilization and demobilization.

ITEM 2: All Contract Work Other than Work Separately Provided for Under Other Bid Items will not be measured. The lump sum price to be paid under this Item includes full compensation for accomplishing all Work shown on the Plans or specified herein or in the Contract Documents, but not to be paid for under separate bid items.

ITEM 3: Prepare, Submit and Implement Safety and Environmental Plans and Programs will not be measured. The lump sum price to be paid under this Item includes full compensation for preparation, submittal and work site implementation of all safety and environmental Plans and Programs specified in Section 01340, 02111 and 02240 of these Specifications.

ITEM 4: Demolish Existing Portland Cement Concrete Pavement will be measured by the square yard. The unit price to be paid under this item shall be full compensation for demolishing to 24" maximum dimension with all exposed rebar cut off and transporting the demolished Portland cement concrete pavement to a Port site within 2 miles of the project location as directed by the Engineer. The estimated thickness of the Portland cement concrete pavement is 10". The unit price paid under this item shall remain unchanged even if up to 20% of the pavement area should have Portland cement concrete pavement thickness exceeding 10".

Notwithstanding Section 01200, "Measurement and Payment", of the Project Manual, the quantity of material removed under this Item may vary from 75% to 150% of the estimated quantity without affecting the unit bid price.

ITEM 5: Demolish Former Building Foundations and Floor Slabs will not be measured. The lump sum price to be paid under this item shall be full compensation for demolishing the former Building 411, 411A, and 414 Portland cement concrete foundations and floor slabs and reducing the concrete rubble to 24" maximum dimension with all exposed rebar cut off and transporting the concrete rubble to a Port site within 2 miles of the project location as directed by the Engineer. The building Portland cement concrete foundations and slabs are estimated to be as follows:

Former Building 411

Foundation: 8" wide by 30" deep reinforced Portland cement concrete shallow footing.

Floor Slab: 5" thick reinforced Portland cement concrete.

Former Building 411A

Building constructed on a 5" thick reinforced Portland cement concrete slab.

Former Building 414

Foundation: 18" wide by 24" deep reinforced Portland cement concrete shallow footing.

Floor Slab: 5" thick reinforced Portland cement concrete.

ITEM 6: Demolish Existing Asphalt Concrete Pavement will be measured by the square yard. The unit price to be paid under this item shall be full compensation for demolishing and reducing asphalt concrete pavement to a 24-inch maximum dimension, and transporting the asphalt concrete rubble to a Port site within 2 miles of the project location as directed by the Engineer. The estimated thickness of the asphalt concrete pavement is 8". The unit price paid under this item shall remain unchanged even if up to 15% of the pavement area should have asphalt concrete pavement thickness exceeding 8".

Notwithstanding Section 01200, "Measurement and Payment", of the Project Manual, the quantity of material removed under this Item may vary from 75% to 150% of the estimated quantity without affecting the unit bid price.

ITEM 7: Demolition, Removal, Disposal and Site Preparation will not be measured. The lump sum price to be paid under this item shall include full compensation for removal, disposal, abandonment and performing all site preparation not included in other bid items. This work shall include, but is not necessarily limited to: cutting and capping existing utilities; removal and legal disposal of utility poles, light poles, pipes, conduits, fire hydrants, electrical equipment, curbs, gutters, equipment pads, and other miscellaneous concrete elements not included in other bid items, and on-site trash and debris, and vegetation as shown on the Plans and as specified herein, with disposal at a Port approved disposal facility. Site preparation shall also include abandonment of pipes and conduits, including cutting, plugging and slurry-filing of pipes and conduits as shown on the Plans and specified herein. On-site concrete piles and concrete rubble will be reduced to 24" maximum dimension with all exposed rebar cut off and transported to a Port site within 2 miles of the project location as directed by the Engineer.

ITEM 8: Removal and Legal Disposal of Railroad Tracks will be measured by the length of track removed in track feet. The unit price to be paid under this item includes full compensation for removing and legally disposing of railroad track, ties, frogs, tie plates, bolts and all other related track appurtenances as shown on the plans.

Notwithstanding section 01200, "Measurement and Payment", of the Project Manual, the quantity of material disposed under this Item may vary from 25% to 200% of the estimated quantity without affecting the unit bid price.

ITEM 9: Remove and Legal Disposal of Existing Fencing will be measured by the linear foot of demolished fencing. The unit price to be paid under this item includes full compensation for removing the existing fencing as shown on the Plans.

Notwithstanding Section 01200, "Measurement and Payment", of the Project Manual, the quantity of material removed under this Item may vary from 75% to 150% of the estimated quantity without affecting the unit bid price.

- ITEM 10: Remove Underground Vaults** will be measured by the number of vaults removed. The unit price to be paid under this item includes full compensation for removing and legally disposing of existing underground vaults, backfilling and compacting excavation to grade with on-site stockpiled fill material as shown on the plans and specified herein.
- ITEM 11: Remove Catch Basins And Manholes** will be measured by the number of catch basins and manholes removed. The unit price includes full compensation for complete removal of catch basins, manholes, rims, and appurtenances shown on the Plans to be removed including excavation, off-site disposal, backfill and compaction with on-site stockpiled fill materials as specified herein.
- ITEM 12: Subgrade Preparation** will not be measured. The lump sum price to be paid under this item includes full compensation for excavating to bottom of engineered fill layer elevation, scarifying and recompacting the subgrade, as shown on the Plans and as specified herein, including stockpiling the excavated soils on-site for use as Engineered Fill .
- ITEM 13: Place and Compact On-Site Engineered Fill** will be measured by the cubic yard of engineered fill material placed. The unit price to be paid under this item includes full compensation for placing, spreading and compacting excavated soils and Port furnished fill material stockpiled on site as shown on the Plans and as specified herein.
- ITEM 14: Place and Compact On-Site Port Furnished Aggregate Base** will be measured by the cubic yard of compacted aggregate base material placed. The unit price to be paid under this item includes full compensation for placing, spreading and compacting on-site Port furnished aggregate base material, including asphalt concrete grindings and other on-site material approved for use as aggregate base by the Engineer as shown on the plans and as specified herein.
- ITEM 15: Furnish and Install Asphalt Concrete** will be measured by the weight of asphalt concrete in tons placed. The unit price shall be full compensation for constructing new asphalt concrete pavement. This shall include furnishing and applying tack coat; and furnishing, placing, spreading, and compacting new asphalt concrete as shown on the Plans and specified herein.
- ITEM 16: Furnish and Install 18-inch Diameter Fusion Welded HDPE Storm Drain Pipe** will be measured by the length of pipe installed in linear feet. The unit price includes full compensation for furnishing and installing pipe, pipe fittings, joint construction, saw cutting, excavation, stockpiling

excavated materials on-site, dewatering, pipe bedding, backfilling with stockpiled fill, and compaction as shown on the Plans and specified herein.

ITEM 17: Furnish and Install 24-inch Diameter Fusion Welded HDPE Storm Drain Pipe will be measured by the length of pipe installed in linear feet. The unit price includes full compensation for furnishing and installing pipe, pipe fittings, joint construction, saw cutting, excavation, stockpiling excavated materials on-site, dewatering, pipe bedding, backfilling with stockpiled fill, and compaction as shown on the Plans and specified herein.

ITEM 18: Furnish and Install 30-inch Diameter Fusion Welded HDPE Storm Drain Pipe will be measured by the length of pipe installed in linear feet. The unit price includes full compensation for furnishing and installing pipe, pipe fittings, joint construction, saw cutting, excavation, stockpiling excavated materials on-site, dewatering, pipe bedding, backfilling with stockpiled fill, and compaction as shown on the Plans and specified herein.

ITEM 19: Furnish and Install 42-inch Diameter Fusion Welded HDPE Storm Drain Pipe will be measured by the length of pipe installed in linear feet. The unit price includes full compensation for furnishing and installing pipe, pipe fittings, joint construction, saw cutting, excavation, stockpiling excavated materials on-site, dewatering, pipe bedding, backfilling with stockpiled fill, and compaction as shown on the Plans and specified herein.

ITEM 20: Furnish and Install Precast Storm Drain Catch Basins will be measured by the number of catch basins installed. The unit price includes full compensation for complete installation of each catch basin and grate including designing, furnishing, and installing precast storm drain catch basins, saw cutting, excavation, stockpiling excavated materials on-site, dewatering, subgrade preparation, backfilling with stockpiled fill materials, and compaction as shown on the Plans and as specified herein.

ITEM 21: Furnish and Install New Storm Drain Manholes will be measured by the number of new storm drain manholes installed. The unit price to be paid for under this Item includes full compensation for designing, furnishing, and installing each new storm drain manhole and cover, including saw cutting, excavation, stockpiling excavated materials on-site, dewatering, subgrade preparation, backfilling with stockpiled fill materials, and compaction as shown on the Plans and as specified herein.

- ITEM 22: Construct Light Pole Foundations Complete with Anchor Bolts and Guard Post Assemblies** will be measured by the number of light pole foundations constructed. The unit price paid includes full compensation for construction of light pole foundations complete with anchor bolt and guard post assemblies, including saw cutting, excavation, stockpiling excavated materials on-site, dewatering, subgrade preparation, formwork, reinforced concrete, and finishing as shown on the Plans and specified herein.
- ITEM 23: Furnish and Install Concrete Foundation and Equipment Pads for a Main Substation and a Unit Substation** will not be measured. The lump sum price to be paid under this item includes full compensation for furnishing and constructing concrete electrical equipment foundations and pads for a new main substation and a unit substation including all related saw cutting, excavation, stockpiling excavated materials, subgrade preparation, formwork, reinforced concrete, as shown on the Plans and specified herein.
- ITEM 24: Furnish and Install 12" Diameter Water Meters** will be measured by the water meter installed. The unit price to be paid for under this Item includes full compensation for furnishing and installing water meters, fittings, accessories, testing and calibration, and sawcutting, as shown on the Plans and as specified herein.
- ITEM 25: Furnish and Install 6" Diameter PVC Fire Water Pipe** will be measured by the linear foot of pipe installed. The unit price to be paid for under this Item includes full compensation for furnishing and installing pipe and connection assemblies to existing water pipes, pipe bedding, sawcutting, excavation, stockpiling excavated materials on-site, dewatering, subgrade preparation, backfilling with stockpiled fill materials, and compaction. Furnishing and installing pipe shall include fire isolation valve and other associated valves, stubs, blind flanges, fittings, and other piping accessories for the 6" diameter water pipe as shown on the Plans and as specified herein.
- ITEM 26: Furnish and Install 12" Diameter PVC Fire Water Pipe** will be measured by the linear foot of pipe installed. The unit price to be paid for under this Item includes full compensation for furnishing and installing pipe and connection assemblies to existing water pipes, pipe bedding, sawcutting, excavation, stockpiling excavated materials on-site, dewatering, subgrade preparation, backfilling with stockpiled fill materials, and compaction. Furnishing and installing pipe shall include fire isolation valve and other associated valves, stubs, blind flanges, fittings, and other piping accessories for the 12" diameter water pipe as shown on the Plans and as specified herein.

- ITEM 27: Furnish and Install Fire Hydrant Assemblies** will be measured by the number of fire hydrant assemblies installed. The unit price to be paid for under this Item includes full compensation for furnishing and installing fire hydrants, lateral lines, fittings, and all equipment and materials between the fire hydrant valve and the fire hydrant for an operational hydrant system. The work to be paid for under this Item includes sawcutting, excavation, stockpiling excavated materials on-site, dewatering, backfilling with stockpiled fill materials, and compaction as shown on the Plans and as specified herein.
- ITEM 28: Furnish and Install 4-inch Diameter Ductile Iron Sanitary Sewer Pipe** will be measured by the linear foot of pipe installed. The unit price to be paid for under this Item includes full compensation for furnishing and installing pipe and connection assemblies to existing wash closets in trailers, pipe bedding, saw cutting, excavating, stockpiling excavated materials on-site, dewatering, subgrade preparation, backfilling with stockpiled fill materials, and compaction. Furnishing and installing pipe shall include associated valves, clean outs, fittings, and other piping accessories for the 4" ductile iron sanitary sewer pipe as shown on the Plans and as specified. Furnishing and installing connection assemblies shall include associated fittings, and other piping accessories for any necessary modification of the existing wash closets to connect to the 4" ductile sanitary sewer pipe as shown on the Plans and as specified.
- ITEM 29: Furnish and Install 6-inch Diameter Ductile Iron Sanitary Sewer Pipe** will be measured by the linear foot of pipe installed. The unit price to be paid for under this Item includes full compensation for furnishing and installing pipe, pipe bedding saw cutting, excavating, stockpiling excavated materials on-site, dewatering, subgrade preparation, backfilling with stockpiled fill materials, and compaction. Furnishing and installing pipe shall include associated clean outs, fittings, and other piping accessories for the 6" ductile iron sanitary sewer pile as shown on the Plans and as specified.
- ITEM 30: Furnish and Install 8-inch Diameter Ductile Iron Sanitary Sewer Pipe** will be measured by the linear foot of pipe installed. The unit price to be paid for under this Item includes full compensation for furnishing and installing pipe, pipe bedding, saw cutting, excavating, stockpiling excavated materials on-site, dewatering, subgrade preparation, backfilling with stockpiled fill materials, and compaction. Furnishing and installing pipe shall include associated clean outs, fittings, and other piping accessories for the 8" cast iron sanitary sewer pile as shown on the Plans and as specified.
- ITEM 31: Furnish and Install Sanitary Sewer Manholes** will be measured by the number of manholes installed. The unit price includes full compensation for complete installation of each sanitary sewer manhole complete with cover, including designing, furnishing and installing sanitary sewer manhole and cover, sawcutting, excavation, stockpiling

excavated materials on-site, dewatering, subgrade preparation, backfilling with stockpiled fill materials, and compaction as shown on the Plans and as specified herein.

ITEM 32: Remove and Legally Dispose of Underground Storage Tanks as Non-Hazardous Waste will be measured by the number of tanks legally disposed. The unit price to be paid under this item includes full compensation for complete removal of underground storage tanks shown on the Plans including tank excavation, off-site disposal as a non-hazardous waste, backfill with stockpiled fill materials, and compaction as specified herein.

If during tank excavation it is determined that the tank contains hazardous material the Port will remove and dispose of tank, and the bid item will be deleted.

ITEM 33: Raise Groundwater Monitoring/Extraction Vaults to Grade will be measured by the number of vaults raised to finished grade. The unit price to be paid under this item includes full compensation for furnishing and installing risers, covers, backfill, and all equipment and materials for raising the existing vaults, as shown on the Plans and specified herein.

ITEM 34: Enter into Subcontract with Columbia Electric, Inc., the Port's Designated Phase 3B Electrical Contractor will not be measured. The lump sum price to be paid under this item includes full compensation for furnishing all labor, materials, appliances, tools, equipment, transportation, services and supervision, quality control, quality assurance, schedule-compliance, and risk associated with a subcontract with Columbia Electric, Inc., the Port's designated Phase 3B Electrical Contractor, including but not limited to, entering into an agreement with Columbia Electric Inc., for performance of Phase 3B electrical work; and administering all aspects of commissioning, equipment installation, and warranty work as defined in Attachment 1 and as shown on the Plans and specified herein. Contractor agrees that lump price paid under this item reflects its independent assessment of the qualifications, capacity, safety and financial stability of Columbia Electric Inc. and Contractor acknowledges that it shall have no recourse against the Port due the Port's choice of Columbia Electric Inc. as the electrical contractor for the Work. Contractor shall be fully responsible for the work of Columbia Electric to an extent that is identical with that of any other of Contractor's subcontractors. Contractor's acceptance of Columbia Electric Inc. shall not, however, be construed as limiting Contractor's right in good faith to request legitimate increases in the Contract Sum based upon changes in the Work of the Contract Documents.

ITEM 35: Phase 3B Electrical Subcontractor Bid is the bid submitted to the Port by Columbia Electric, Inc., the Port designated Phase 3B Electrical Contractor, and shall be included in the Contractor's Base Bid without increases or decreases. The Phase 3B Electrical Contractor's bid is

included at the end of this Project Manual as Attachment 1. The work to be paid for under this item, without any Contractor mark-up, is defined in Attachment 1. The amount of the Columbia Electric, Inc.'s bid shall be the sole sum payable for all items of work included within the scope and schedule of that bid.

ITEM 36: Replace Existing Transite Fire Water Pipe will be measured by the linear foot of pipe replaced. The unit price to be paid for under this Item includes full compensation for excavating, stockpiling excavated materials, removing and legally disposing of transite water pipe, furnishing and installing 12" PVC pipe, pipe bedding, sawcutting, dewatering, subgrade preparation, backfilling with stockpiled fill materials, compaction, and transporting excess soils and asphalt concrete rubble to a Port site within 2 miles of the project location as directed by the Engineer. Furnishing and installing pipe shall include associated valves, fittings, and other piping accessories for the 12" diameter water pipe as shown on the Plans and as specified herein.

ITEM 37: Remove, Haul, and Dispose of Contaminated Materials as California-Hazardous Waste (Class I) will be measured by the weight of soil disposed in tons. The unit price to be paid for under this Item includes full compensation for furnishing all labor, materials, appliances, tools, equipment, transportation, services, and supervision for loading soil from the lined stockpiles, hauling soil from lined stockpiles to disposal site, and legally disposing soil classified as a California-hazardous (Class I) waste as specified herein.

Notwithstanding Section 01200, "Measurement and Payment," of the Project Manual, the quantity of soil disposed of under this Item may vary from 0% to 200% of the estimated quantity without affecting the unit bid price. If the final quantity of an Item is zero, the Contractor will receive no payment under that Item. If the final quantity is greater than zero tons and less than or equal to 10 tons, the Contractor will be paid for 10 tons.

ITEM 38: Remove, Haul, and Dispose of Soil Off-Site as Non-Hazardous Waste (Class II) will be measured by the weight of soil disposed in tons. The unit price to be paid for under this Item includes full compensation for furnishing all labor, materials, appliances, tools, equipment, transportation, services, and supervision for loading soil from lined stockpiles, hauling soil from lined stockpiles to disposal site, and legally disposing soil classified as a non-hazardous (Class II) waste by the Port, as specified herein.

Notwithstanding Section 01200, "Measurement and Payment", of the Project Manual, the quantity of soil disposed of under this Item may vary from 0% to 200% of the estimated quantity without affecting the unit bid price. If the final quantity of an Item is zero, the Contractor will receive no payment under that Item. If the final quantity is greater than zero tons and less than or equal to 10 tons, the Contractor will be paid for 10 tons.

ITEM 39: Dispose Water Off-Site (Non-Hazardous) will be measured by the volume of water disposed off-site in gallons. The unit price includes full compensation for pumping, temporary on-site storage, loading, hauling, and disposing of water at a Port-approved off-site non-hazardous disposal facility as specified herein.

Notwithstanding Section 01200, "Measurement and Payment", of the Project Manual, the quantity of material removed under this Item may vary from 0% to 200% of the estimated quantity without affecting the unit bid price. If the final quantity of an Item is zero, the Contractor will receive no payment under that item. If the final quantity is greater than zero gallons and less than ten gallons, the Contractor will be paid for a minimum of ten gallons.

- C. Unit prices. See Section 01200, Measurement and Payment. Unit Prices shall apply to work covered by unit prices so long as actual quantities performed on the Project are between 75% and 125% of the established quantities referenced herein. If actual quantities exceed these parameters, then the unit price shall be adjusted in accordance with Section 01200, Measurements and Payment.

1.04 WORK UNDER OTHER CONTRACTS AND OTHER ACTIVITIES

- A. Work Under Other Contracts: The Contractor shall coordinate its work fully and shall coordinate shared access fully with the following work under separate contracts which will occur within or adjacent to the limit lines of this Contract:
1. Paving 21-Acre Container Yard Within the Maritime Support Center
- B. Other Activities: The activities set forth below are anticipated to be in progress by others on or adjacent to the Site before and during the Work under this Contract. Contractor shall coordinate work fully and shall coordinate shared access fully with the contractors/operators performing these other activities and other work.
1. Operations of GSC Logistics in the Maritime Support Center.
 2. Operations of Shipper's Transport Express (STE) in the Maritime Support Center.
 3. Rail yard operations in the Joint Intermodal Terminal.
 4. Auto, pedestrian and commercial traffic on Maritime Street, Middle Harbor Road and Seventh Street.
 5. Miscellaneous container storage/handling south of the project site.
 6. Operations of Unicold Corporation in the Maritime Support Center.
 7. Operations of California Multimodal, Incorporated (CMI) in the Maritime Support Center.

8. Operations of Port Facilities at the Harbor Facilities Complex in the Maritime Support Center.

1.05 FUTURE WORK

- A. Contractor shall coordinate fully with the Port and any contractors performing such work during the Work.

1.06 WORK SEQUENCE

- A. The Contractor shall construct the Work in stages and at times to accommodate Port operation requirements during the construction period; and coordinate construction schedule and operations with the Port.
- B. Refer to Section 01120, "Order of Work", of these Specifications, and requirements on the Plans for Stage Construction.

1.07 COOPERATION OF CONTRACTOR AND COORDINATION WITH OTHER WORK.

- A. The Contractor shall coordinate with the Port and its forces, or other contractors and forces, as required by Document 00700, General Conditions.

1.08 OCCUPANCY/SUBSTANTIAL COMPLETION REQUIREMENTS

- A. The Contractor shall allow the Port to take possession of and use any completed or partially completed portion of the Work during the progress of the Work as soon as is possible without interference to the Work. Possession or use of a portion of the Work, installation and/or placing into operation of equipment by the Port shall not in any way evidence the completion of the Work or any part of it.
- B. The Contractor shall not be held responsible for damage to the occupied/used part of the Work resulting from the Port's occupancy.
- C. Use or occupancy by the Port prior to acceptance of work does not relieve the Contractor of its responsibility to maintain insurance and bonds required under the Contract Documents until the entire Work is completed and accepted by the Port.
- D. Prior to date of the Port's Final Acceptance of the Work, all necessary repairs or renewals in Work or part thereof so used, not due to ordinary wear and tear, but due to defective materials or workmanship or to operations of Contractor, shall be made at expense of Contractor, as required in Document 00700, General Conditions.
- E. Use by the Port of Work or any part thereof as contemplated by this section shall in no case be construed as constituting acceptance of Work or any part thereof. Such use shall neither relieve the Contractor of any responsibilities under the Contract Documents, nor act as waiver by the Port of any of the conditions thereof.
- F. The Contractor shall notify the Port in writing when the Contractor considers the Work ready for its intended use and substantially complete and request the Port to issue a Certificate of Substantial Completion for that part of the Work.

1.09 CONTRACTOR USE OF PREMISES

- A. Prior to commencement of Work, the Contractor and the Port shall jointly survey areas adjacent to the Project area making permanent note and record of any existing damage. This record shall serve as a basis for determination of subsequent damage to structures, conditions or other existing improvements due to the Contractor's operations. All parties making the survey shall sign the official record of existing damage. Cracks, sags, or damage of any nature to the adjacent Project area, not noted in the original survey but subsequently noted, shall be reported immediately to the Port.

1.10 PROTECTION OF EXISTING STRUCTURES AND UTILITIES

- A. Prior to performing any excavation, the Contractor shall notify Underground Service Alert and locate all existing underground facilities in accordance with Section 13.4, "Notice of Concealed or Unknown Conditions", of the General Conditions.
- B. The Contractor shall locate all known existing installations before proceeding with operations which may cause damage, shall maintain them in service where appropriate, and shall repair any damage to them caused by the work to the satisfaction of the Engineer and the utility owner. The cost of said repairs shall be borne by the Contractor.
- C. Additional utilities whose locations are unknown to the Port are suspected to exist. The Contractor shall be alert to their existence. If they are encountered, immediately report to the Port for disposition of the same.
- D. In addition to reporting if a utility is damaged, the Contractor shall take appropriate action as provided in the General Conditions.
- E. Additional compensation or extension of time on account of utilities not shown or otherwise brought to the Contractor's attention including reasonable action taken to protect or repair damage shall be determined as provided in the General Conditions.

1.11 WORK RESTRICTIONS

- A. Access: Contractor's access to the Site shall be from Maritime Street and as directed by the Engineer.
- B. Parking: Parking is available at the Site for the Contractor's employees' vehicles in areas designated by the Engineer.
- C. Storage: Contractor's equipment and materials may be stored at the Site in areas designated by the Engineer. The Contractor shall be responsible for the security of material and equipment stored at the Site.

- D. Working Hours: During daylight hours of the week as noted in the General Conditions. Contractor shall apply and obtain approval for work during night or for work during weekends and holidays.
- E. Access by Government Authorities: Contractor shall at all times provide site access to employees, contractors and consultants of governmental authorities and the Port with respect to environmental investigations and remediation activities at the site and adjoining lands being performed by or for the Port.

1.12 SPECIAL CONDITIONS AND RESTRICTIONS PERTAINING TO WORK

- A. In accordance with the Port of Oakland Resolution No. 01197, Construction and Demolition Debris Waste Reduction Requirements, included in the Project Manual as Attachment 1 to Document 00455, at least 50% of construction and demolition debris resulting from the project shall be diverted from landfill.
 - 1. The Contractor shall complete the Construction and Demolition Debris Waste Reduction and Recycling Plan form (WRRP form), included in the Project Manual as Attachment 2 to Document 00455, and submit it with the Bid, in accordance with the provisions of Document 00200, Instructions to Bidders.
 - 2. The Construction and Demolition Debris Material Tracking Sheet and Construction and Demolition Debris Recycling Planning Sheet, included in the Project Manual as Attachments 3A and 3B to Document 00455, are provided for Contractor's convenience. Use of these sheets is optional.
 - 3. At the conclusion of the Project and prior to final inspection by the Port, the Contractor shall, in accordance with the provisions of Resolution 01197, Section 7(a), complete the Construction and Demolition Debris Recycling Summary Report form (SR), included in the Project Manual as Attachment 4 to Document 00455, and submit said form to:

Port of Oakland
Permit Coordinator
530 Water Street, 2nd Floor
Oakland, CA 94607.

- B. Contractor shall be required to submit to Port a Traffic Management Plan which includes the location of staging areas, identification of traffic routes, identification of construction hours, on-site construction parking, detours, flagging and other matters. The Traffic Management Plan is subject to review and approval of the Port prior to initiation of construction. Upon approval of the Traffic Management Plan, Contractor shall be required to comply with its requirements.
- C. Contractor shall comply with requirements regarding noise and vibration set forth in the City of Oakland Ordinance No. 11895 C.M.S. during construction, in addition to any other noise control limitations contained in the Specifications.
- D. The Work may require the Contractor to remove, handle, transport and dispose of contaminated and hazardous substances. Contractor shall submit prior to the commencement of the Work all submittals required by Section 01340, Safety and

Environmental Submittals, and shall not commence work until approval by the Port, comply fully with the requirements of such submittals and all other requirements of the Contract Documents, applying to such activities.

1.13 CONTRACT TIME

- A. Commencement: Contractor shall commence work under this instance of work on the date established in the Notice to Proceed (“NTP”).
- B. Substantial Completion: The Work of this instance of work shall be substantially complete within one hundred five (105) calendar days from the date established in the Notice to Proceed (“NTP”). The date of Substantial Completion shall be determined in accordance with the Contract Documents. However, the Contractor agrees that it will not request the Port to deem Work substantially complete prior to the time that: a) switchgear, transformers, panel boards, circuit breakers, and light poles are securely mounted, b) medium-voltage cables are installed and hi-potted, c) wiring to light poles and lighting control system is pulled and terminated to all electrical equipment; d) equipment grounding has been effectively tested, and e) all systems are energized, tested and fully functional.
- C. Final Completion: The work of this instance of work shall be Finally Complete and ready for final payment in accordance with Section 01770, Contract Closeout, within one hundred thirty-six (136) calendar days from the date established in the Notice to Proceed (“NTP”).

1.14 MILESTONES AND LIQUIDATED DAMAGES

- A. Liquidated damages for delay shall only cover administrative, overhead, interest on bonds, lost revenues and general loss of public use damages suffered by the Port as a result of delay. Liquidated damages shall not cover the cost of completion of the Work, damages resulting from defective work, costs of substitute facilities or damages suffered by others who then seek to recover their damages from the Port (for example, delay claims of other contractors, subcontractors, tenants, or third parties, and defense costs thereof.) Consistent with Document 00700, General Conditions, the Contractor and the Port agree that because of the nature of the project, it would be impractical or extremely difficult to fix the amount of actual damages incurred by the Port because of a delay in completion of the work including a delay in the achievement of an event in the milestone schedule specified herein.) Accordingly, the Port and Contractor agree that as Liquidated Damages for delay the Contractor shall pay the Port:
 - 1. Four Thousand Dollars (\$4,000.00) for each day or fraction thereof that expires after the time specified herein for the Contractor to achieve Substantial Completion, until Work is Substantially Complete.
 - 2. Eight Hundred Dollars (\$800.00) for each day or fraction thereof that expires after the time specified herein for the Contractor to achieve Final Completion, until Work is Finally Complete.

These measures of liquidated damages shall apply cumulatively and shall be presumed to be the damages suffered by the Port resulting from delay in

completion of work. Delays caused in whole or in part by the acts or omissions of Columbia Electric, Inc. shall not excuse Contractor from its liability for liquidated damages and any other delay-related remedies under the Contract Documents.

1.15 PERMITS

- A. The Port has applied to the Building Services Department of the City of Oakland for building permits for the proposed Work. The Contractor shall obtain said permits, and any other required permits that have not been applied for by the Port, and shall pay all remaining fees due. Contractor shall submit copies of all permits to the Engineer prior to commencing Work. All applicable permit fees will be reimbursed as specified in the General Conditions. The Contractor shall consider itself bound by the conditions of all required permits including environmental permits.
- B. The project is subject to the requirements of the State of California General Construction Activity Storm Water Permit No. CAS000002 (General Permit). Contractor shall develop a Storm Water Pollution Prevention Plan ("SWPPP") and a Storm Water Sampling and Analysis Plan ("SWSAP").
- C. The specification of specific permits applying to the Work shall not limit or restrict the obligation of the Contractor in the performance of the Work to comply with any and all other permits which are described in the Contract Documents or which apply to the performance of the Work. Refer to Section 13.2 of Document 00700, General Conditions.

1.16 SECURITY

- A. The Contractor shall be responsible for security of the Work and of its equipment and materials at the project site. Keys shall not be left in unattended equipment.
- B. The Contractor shall at all times exercise control over any persons or vehicles, other than from regulating agencies, visiting the work site of its activities.

1.17 SUBMITTALS

- A. Refer to Section 01330, Submittals, of the Project Manual for Annual Paving and Grading Work Contract Commencing July 1, 2004, Contract Number X2004-04-S3, and Section 01331, List of Submittals.

1.18 UTILITY SERVICE

- A. If scope of work requires utility service for contractor use: Contractor shall verify and set up utility service needed from private/municipal utility company(s), ie. PG&E, EBMUD, SBC, AT&T, AP&T, Comcast, Port of Oakland, etc.
 - 1. The contractor shall be responsible for applying for service and coordinating with all work required with private/municipal utility company(s).
 - a. The contractor shall be responsible for all payments required by

the utility company(s) to provide utility service for contractor use. Payments shall be made within reasonable time as to prevent delay to the project.

2. The contractor shall be responsible for paying all utility commodities used during time of construction and occupancy.
3. The contractor shall be responsible to coordinate and pay utility company(s) all work needed to disconnect, cancel, and/or remove service after completion of construction and/or after vacating the site. Payments shall be made within reasonable time as to prevent delay to the project.

1.19 SITE CLEANUP

Contractor shall maintain the work sites in a clean and orderly condition during the work of this Contract. Spoils and debris resulting from the work of this Contract shall be removed and legally disposed of. Contractor shall ensure that all materials and equipment are properly secured and the work site left in a clean and orderly condition at the end of each work day and whenever Contractor leaves the worksite.

Contractor shall provide necessary equipment to fully collect, contain and legally dispose of all wastes generated by the work of this contract.

1.20 PROJECT ADDRESS

For permitting and other purposes, the address associated with this project is 555 Maritime St. at B St., Oakland, California 94607

PART 2 PRODUCTS

2.01 REFERENCE STANDARDS

For products specified by association or trade standards, the Contractor shall comply with requirements of the standard, except where more rigid requirements are specified or are required by applicable codes.

2.02 PRODUCTS ORDERED IN ADVANCE

[Not Used]

2.03 PORT FURNISHED PRODUCTS

- A. Consist of materials purchased by Columbia Electric, Inc., using Port Work Authorization for "Furnishing Materials and Equipment for Electrical Work and Associated Services for Port of Oakland Facilities for the Period Commencing January 1, 2005 and Ending December 31, 2006, Oakland California."
- B. The Contractor's duties:
 1. Designate required delivery date for each product in construction schedule.

2. Contractor shall coordinate with the Engineer for delivery of Port furnished products.
3. Promptly inspect delivered products, report visible damaged or defective items.
4. Load at such location on or near Project Site as the Port may designate; transport and unload to location where installed.
5. Handle at Project Site as necessary to uncrate, inspect, place in storage, or to install.
6. Protect from exposure to elements, and protect from damage or loss of any kind.
7. Repair or replace items damaged as result of Contractor's operations.
8. Properly connect and install.
9. Coordinate with vendors' field service representatives during installation.
10. Manage and direct warranty repairs.

C. Aggregate Base, Sand Backfill, and Utility Vaults.

PART 3 EXECUTION

Not applicable to this section.

END OF SECTION

SECTION 01120

ORDER OF WORK

PART 1 - GENERAL

1.01 WORK INCLUDED

Work under this Section includes requirements for stage construction as specified in Section 5-1.05, "Order of Work", of the State Specifications and these Specifications.

1.02 REFERENCE STANDARDS AND SPECIFICATIONS

State of California, Department of Transportation, Standard Specifications, latest edition (State Specifications)

PART 2 - PRODUCTS

(Not Used)

PART 3 - EXECUTION

3.01 STAGE CONSTRUCTION

- A. The work shall be performed in conformance with the stages of construction shown on the Plans and/or specified herein. Nonconflicting work in subsequent stages may proceed concurrently with work in preceding stages, provided satisfactory progress is maintained in said preceding stages of construction.
- B. Attention is directed to Section 01556, "Traffic Control System" of these Specifications and to the stage construction and traffic handling sheets of the Plans.
- C. Attention is directed to the provisions in Section 01725, "Preservation of Property" elsewhere in these Specifications.

3.02 ORDER OF WORK

Project Work shall be performed based on the schedule produced by the Contractor and approved by the Engineer. The schedule shall provide for the timely completion of all portions of the project work in accordance with Paragraph 1.13 of Document 01100, Summary of Work.

END OF SECTION

SECTION 01200

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.01 SUMMARY

- A. This section describes requirements and procedures for determining amount of work performed and for obtaining payment for work performed.

1.02 REFERENCES

California Public Contract Code

1.03 SCOPE OF WORK

Work under the Contract Documents, or under any bid item, allowance or alternate, shall include all labor, materials, transport, handling, storage, supervision, administration and all other items necessary for the satisfactory completion of Work, whether or not expressly specified or shown.

1.04 DETERMINATION OF QUANTITIES

- A. Quantity of work to be paid for under any item for which a unit price is fixed in the Contract Documents shall be number, as determined by the Port, of units of work satisfactorily completed in accordance with Contract Documents or as directed by Port. Unless otherwise provided, determination of number of units of work so completed will be based, so far as practicable, on actual measurement or count within prescribed or ordered limits, and no payment will be made for work done outside of limits. Measurements and computations will be made by methods as the Port may consider appropriate for class of work measured. Contractor shall immediately inform Port of any disputes regarding quantity measurements, and shall immediately supply Port with any documentation supporting such disputed measurements.
- B. For material specified to be paid for by weight, the unit shall be a ton or 2,000 pounds. Quantities shall be based on the scale weight for each load weighed by a licensed public weighmaster on scales carrying a certificate issued by the Department of Weights and Measures of Alameda County or other approved certifying public agency, certifying to their accuracy. Weight slips bearing the signatures of said licensed public weighmaster, giving the weight of materials in the truck, shall be given to the Port as soon as the truck arrives at the work site. All trucks used for such hauling shall be weighed empty daily at such times as directed by the Port.
- C. For contaminated soil and waste materials removed from the site and specified to be paid for by weight, the Port will inspect and record an estimate of the weight of material removed for comparison with the weight stated on the hazardous waste manifests or bills of lading from the disposal facility submitted with request for payment.

1.05 SCOPE OF PAYMENT

- A. Except as otherwise expressly stipulated in 01100, Summary of Work, payment to the Contractor at the unit price or other price fixed in the contract for performing the work required under any item, or (if the contract is on a lump sum price basis) at the lump sum price fixed in the contract for performing all Work required under the Contract Documents, and as either may be adjusted pursuant to any approved change order, shall be full compensation for completing, in accordance with the Contract Documents, all Work required under the item or under the Contract Documents, and for all expense incurred by the Contractor for any purpose in connection with the performance and completion of said Work, including all incidental work necessary for completion of the Work.
- B. The Contract Sum, whether lump sum, unit price or otherwise, shall be deemed to include all costs necessary to complete the required Work, individual Work item or unit price item, and shall also include any costs for loss or damage arising from nature of Work or, prosecution of the Work, or from action of elements. Unless the Contract Documents expressly provide otherwise, the Contract Sum and each individual bid item and unit price item, respectively, shall be deemed to include:
 - 1. Any and all costs which may arise from any unforeseen difficulties encountered during, and all risks of any description connected with, prosecution of Work, bid item or unit price item, respectively, until acceptance by the Port;
 - 2. All expenses which may be incurred due to suspension, or discontinuance of Work, bid item or unit price item, respectively, as provided in the Contract Documents;
 - 3. Escalation to allow for cost increases between time of Contract Award and completion of Work, bid item or unit price item, respectively.
- C. Whenever it is specified herein that the Contractor is to do work or furnish materials of any class for which no price is fixed in the Contract Documents, it shall be understood that the Contractor is to do such work or furnish such materials without extra charge or allowance or direct payment of any sort, and that cost of doing work or furnishing materials is to be included in price bid, unless it is expressly specified herein, in particular cases, that work or material is to be paid for as extra work.
- D. No payment shall be made for materials or equipment not yet incorporated into the Work.

1.06 BASIS OF PAYMENT

- A. Unit Pay Quantities: When estimated quantity for specific portions of Work is listed in Bid Form, quantity of work to be paid for shall be actual number of units satisfactorily completed in accordance with Contract Documents.
- B. Lump Sum: When estimated quantity for specific portion of Work is not indicated and unit is designated as Lump Sum, payment will be on a Lump Sum basis for Work satisfactorily completed in accordance with Contract Documents.

- C. The Port does not expressly, or by implication, agree, warrant, or represent in any manner, that actual amount of Work will correspond with amount shown or estimated and reserves right to increase or decrease amount of any class or portion of Work, to leave out entire Bid Item or Items, or to add work not included in Bid, when in its judgment such change is in best interest of the Port. No change in Work shall be considered waiver of any other condition of the Contract Documents. No claim shall be made for anticipated profit, for loss of profit, for damages, or for any extra payment whatsoever, except as otherwise expressly provided for in the Contract Documents, because of any differences between amount of work actually done and estimated amount as set forth herein, or for elimination of extra Bid Items.
- D. Notwithstanding the above provisions, the unit prices set forth in the Bid Form shall be utilized where they are applicable. If the Contract Change Order increases or decreases the quantity of an item of work by more than twenty-five percent (25%), such that the application of unit prices in the Bid will cause substantial inequity to the Port or Contractor, unit prices will be adjusted as follows:
1. **Increases of More Than 25 Percent.** If the total pay quantity of any item of work required under the Contract exceeds the estimated quantity set forth in the Bid by more than 25 percent, no adjustment in unit price will be made unless the Engineer or the Contractor so requests in writing not later than fifteen (15) calendar days after substantial completion of the subject item of work. If the Engineer or the Contractor so requests in writing, the work in excess of 125 percent of the estimated quantity set forth in the Bid and not covered by an executed change order specifying the compensation to be paid, will be paid for by adjusting the Contract unit price as provided below; or, at the option of the Engineer, payment for the work involved in such excess will be made on the basis of force account.

Such adjustment of the unit price, for the work in excess of 125 percent of the estimated bid quantity, will be the difference between the Contract unit price and the actual cost of performing the unit of work. If the costs applicable to such item of work include fixed costs, such fixed costs will be deemed to have been recovered by the Contractor by the payments made for 125 percent of the estimated quantity set forth in the Bid for such item, and in computing the actual unit cost, such fixed costs will be excluded. Subject to the above provisions, such actual unit cost will be determined by the Engineer in the same manner as if the work were to be paid for on a force account basis; or such adjustment will be as agreed to in writing signed by the Contractor and the Engineer.

2. **Decreases of More Than 25 Percent.** If the total pay quantity of any item of work required under the Contract is less than 75 percent of the estimated quantity set forth in the Bid, but the item of work is not entirely eliminated, an adjustment in unit price pursuant to this paragraph will not be made unless the Contractor so requests in writing not later than fifteen (15) calendar days after substantial completion of the subject item of work. If the Contractor so requests, such adjustment, if not covered by an executed change order specifying the compensation to be paid for the quantity less than 75 percent of the estimated quantity set forth in the Bid, will be paid for by adjusting the

Contract unit price as provided below.

Such adjustment of the Contract unit price for the decrease of more than 25 percent will be the difference between the Contract unit price and the actual cost of performing the unit of work . Such actual unit cost will be determined by the Engineer in the same manner as if the work were to be paid for on a force account basis; or such adjustment will be as agreed to in writing signed by the Contractor and the Engineer. The payment for the total pay quantity of such item of work shall in no case exceed the payment which would be made for the performance of 75 percent of the estimated quantity set forth in the Bid for such item at the Contract unit price.

1.07 PROGRESS PAYMENTS

A. Schedule of Values.

1. Within the time frames set in Document 00700, Section 11.1, the Contractor shall submit a detailed breakdown of its bid by scheduled Work items and/or activities, including coordination responsibilities and project record document responsibilities. Where more than one subcontractor comprises the work of a work item or activity, the Schedule of Values shall show a separate line item for each subcontract. The Contractor shall furnish such breakdown, of the total Contract Sum, by assigning dollar values (cost estimates) to each applicable Progress Schedule network activity (per Section 01320), which cumulative sum equals the total Contract Sum. The format and detail of the breakdown shall be as directed by the Port to facilitate and clarify future progress payments to the Contractor for direct Work under the Contract Documents. This breakdown shall be referred to as the Schedule of Values.
2. The Contractor's overhead, profit, insurance, cost of bonds and/or other financing, as well as "general conditions costs," (e.g., site cleanup and maintenance, temporary roads and access, off site access roads, temporary power and lighting, security, submittals, and the like), shall be prorated through all activities so that the sum of all the Schedule of Values line items equal the Contractor's total Contract Sum, less any allowances designated by the Port.
3. The Port will review the breakdown in conjunction with the Progress Schedule to ensure that the dollar amounts of this Schedule of Values are, in fact, fair market cost allocations for the Work items or activities listed. Upon favorable review by the Port, this Schedule of Values will be accepted for use by the Port. The Port shall be the sole judge of fair market cost allocations.
4. Any attempt to increase the cost of early activities, i.e., "front loading," will be rejected by the Port, resulting in a complete reallocation of monies until such "front loading" is corrected. Repeated attempts at "front loading" may result in suspension or termination of the Work or refusal to process progress payments, until such time as the Schedule of Values is acceptable to the Port.

B. Payment Requests

1. Unless otherwise agreed, Contractor shall submit to the Port, on or before the

first (1st) day of each month, five (5) copies of a request for payment for the cost of the Work put in place during the period from the first day of the previous month to the last day of the previous month. Such requests for progress payments shall be based upon Schedule of Values prices of all labor and materials incorporated in the Work up until midnight of the last day of that one-month period, less the aggregate of previous payments. If the Contractor is late submitting its payment request, that payment request may be processed at any time during the succeeding one-month period, resulting in processing of the Contractor's payment request being delayed for more than a day-for-day basis.

2. Payment requests may include, but are not necessarily limited to the following:
 - a. Material, equipment and labor incorporated into the Work, less any previous payments for the same.
3. The Contractor shall, at the time any payment request is submitted, certify in writing the accuracy of the payment request and that the Contractor has fulfilled all scheduling requirements of Document 00700, General Conditions, and Section 01320, Progress Schedules and Reports, including updates and revisions. The certification shall be executed by a responsible officer of the Contractor.
4. No progress payment will be processed prior to the Port receiving all requested, acceptable schedule update information. No progress payment will be processed unless Project Record Documents are being kept up to date. Engineer will check and verify that the Record Drawings are kept up to date prior to processing payment.
5. Each payment request shall list each Change Order executed prior to date of submission, including the Change Order Number, and a description of the work activities, consistent with the descriptions of original work activities. The Contractor shall submit a monthly Change Order status log to the Port.
6. If the Port requires substantiating data, the Contractor shall submit information requested by the Port, with cover letter identifying Project, payment request number and date, and detailed list of enclosures. The Contractor shall submit one copy of substantiating data and cover letter for each copy payment request submitted.
7. Monthly progress payments shall be made, based on total value of activities completed or partially completed, as determined by the Port with participation of the Contractor, and based upon approved activity costs. Accumulated retainage will be shown as separate item in payment summary. If the Contractor fails or refuses to participate in construction progress evaluation with the Port, the Contractor shall not receive current payment until the Contractor has participated fully in providing construction progress information and schedule update information for the Port.
8. Legal title to all Work shall pass to and vest in the Port as Work is performed, and title to all materials and equipment shall pass to and vest in the Port when such materials and equipment are delivered to the Site or as soon as title passes

from the vendor or supplier thereof. The Contractor shall keep the site and all materials and equipment free and clear of all liens, stop notices and charges arising out of performance of the Contract Documents, and shall indemnify, defend and hold harmless all those indemnified pursuant to Section 13.3 of Document 00700, General Conditions, from the claims, suits, actions, losses and liabilities described therein, including those which are a result of any breach of this responsibility and shall defend any claim or suit brought against any party required to be indemnified hereunder based upon any such claim of title or lien.

9. The Contractor shall promptly pay each Subcontractor or subconsultant the amount to which such Subcontractor or subconsultant is entitled, and shall, by an appropriate agreement with each Subcontractor or subconsultant, require each Subcontractor or subconsultant to make payments to its sub-subcontractors or sub-subconsultants in a similar manner.

C. Progress Payments

1. Upon receiving the Contractor's payment request, the Port will review the payment request and make necessary adjustments to percent of completion of each activity. One copy will be returned to the Contractor with description of adjustments made. All parties will update percentage of completion values in the same manner, i.e., express value of an accumulated percentage of completion to date.
2. Progress Payment requests or any supporting information submitted after 3:30 p.m. will be considered received at the beginning of the next business day for date of receipt purposes.
3. The payment request may be reviewed by the Engineer and/or inspectors, for the purpose of determining that the payment request is a proper payment request, and shall be rejected, revised or approved by the Port pursuant to the cost breakdown prepared in accordance with this Section.
4. If it is determined that the payment request is not a proper payment request suitable for payment, the Port shall return it to the Contractor as soon as practicable, but no later than seven (7) calendar days after receipt, together with a document setting forth in writing the reasons why the payment request is not proper. If the Port determines that portions of the payment request is not proper or not due under the Contract Documents, then the Port may approve the other portions of the payment request, and in the case of disputed items or defective work not remedied, may withhold up to 150% of the disputed amount from the progress payment.
5. Pursuant to Public Contract Code Section 20104.50, if the Port fails to make any progress payment within thirty (30) calendar days after receipt of an undisputed and properly submitted payment request from a contractor, the Port shall pay interest to the Contractor equivalent to the legal rates set forth in subdivision (a) of Section 685.010 of the Code of Civil Procedure. The thirty (30) calendar day period shall be reduced by the number of calendar days by which the Port exceeds the seven (7) calendar day return requirement set forth herein. Undisputed and properly submitted payment request shall mean that the

following items have been submitted in compliance with the Contract Documents:

- (a) Certified Payroll Reports and Summary of Utilization of Construction Workforce
 - (b) Updated monthly schedule
 - (c) Updated project record documents (as-built drawings and specifications)
 - (d) Aon Insurance Form-4,
 - (e) Monthly change order status log
 - (f) Copy of substantiating data, when applicable
 - (g) Copy of Document 00825-Attachment A, Social Justice Trust Fund Contribution form with attachments (for MAPLA projects only)
6. Within thirty (30) business days after approval by the Port's Construction Department Manager of each request for progress payment, the Port will mail payment to the Contractor, for an amount equal to ninety percent (90%) of the Port's estimate, or a lesser amount if so provided in Contract Documents, provided that payments may at any time be withheld if, in judgment of the Port, Work is not proceeding in accordance with the Contract Documents, or the Contractor is not complying with requirements of the Contract Documents, or to comply with stop notices or to offset liquidated damages accruing or expected.
 7. At any time after ninety-five percent (95%) of the work has been completed, the Engineer may reduce the total amount withheld from payment to such lesser amount as the Engineer determines is adequate security for the fulfillment of the balance of the Work and other requirements of the Contract, but in no event will said amount be reduced to less than one hundred twenty-five percent (125%) of the Engineer's estimated value of the work uncompleted. Such reduction will only be made upon the written request of the Contractor and only if approved in writing by the surety on the Contractor's performance bond and by the surety on the Contractor's payment bond.
 8. Retention will not be reduced if the Contractor, in opinion of the Port, is behind schedule. If retention is reduced at any point during performance of the Work and the Contractor subsequently falls behind schedule, retention may be raised back to original percentage specified in Paragraph 1.07.C.6.
 9. Before any progress payment or final payment is made, the Contractor may be required to submit satisfactory evidence that the Contractor is not delinquent in payments to employees, subcontractors, suppliers, or creditors for labor and materials incorporated into Work. The Contractor shall issue payments to subcontractors, and subconsultants within five (5) business days of receipt of payment from the Port.
 10. The Port reserves and shall have the right to withhold payment for any equipment and/or specifically fabricated materials that, in the sole judgment of the Port, is not adequately and properly protected against weather and/or damage, prior to or following incorporation into the Work.
 11. Granting of progress payment or payments by the Port, or receipt thereof by the Contractor, shall not be understood as constituting in any sense acceptance of

Work or of any portion thereof, and shall in no way lessen liability of the Contractor to replace unsatisfactory work or material, though unsatisfactory character of work or material may have been apparent or detected at time payment was made.

12. When the Port shall charge sum of money against the Contractor under any provision of the Contract Documents, amount of charge shall be deducted and retained by the Port from amount of next succeeding progress payment or from any other moneys due or that may become due the Contractor under the Contract Documents. If, on completion or termination of the Contract Documents, such moneys due the Contractor are found insufficient to cover the Port's charges against it, the Port shall have right to recover balance from the Contractor or Sureties.
13. The Port reserves the right, but shall not have the duty, to withhold payment from the Contractor as follows:
 - (a) In addition to any retention, an amount, not less than ten percent (10%) of the Total Progress Payment due to failure of the Contractor to abate, within that working day or immediately, in cases of imminent danger, infractions of the Port's Construction Safety Standards Manual, Contractor's Safety Plan, Cal/OSHA, Federal OSHA, ANSI or other applicable safety standards.
 - (b) In addition to any other retention, an amount, not to exceed twenty percent (20%) of the Total Progress Payment, due to four or more repeated infractions in a single payment period by the Contractor of the Port's Construction Safety Standards Manual, Contractor's Safety Plan, Cal/OSHA, Federal OSHA, ANSI or other applicable safety standards.

Whenever Port, in its discretion, withholds any such moneys otherwise due Contractor, written notice of the amount withheld and the reasons therefor shall be provided to Contractor, and when Contractor provides adequate written assurance that it has removed the cause(s) of such safety violations, Port will pay Contractor the amount so withheld.

Notwithstanding any of the foregoing, the Port's failure to withhold such progress payments shall not be considered an acceptance of approval of the Contractor's safety program or the administration thereof, nor shall the foregoing restrict the Port's ability to terminate the Contractor in the appropriate circumstances pursuant to the termination provisions of the General Conditions.

14. When a bid item for mobilization is included in the Schedule of Bid Prices or when mobilization appears in the schedule of values, mobilization of the Contractor will be paid, subject to the other requirements of this Section 01200, as follows:

- (a) When the Engineer's estimate of the total amount of the material furnished and delivered and of the work done by the Contractor (but not including mobilization costs) is five percent (5%) or more of the (Total Bid Price); then the total amount earned for mobilization, to date, will be fifty percent (50%) of the bid item price or schedule of values item price for mobilization or two and one-half percent (2.5%) of the (Total Bid Price), whichever is lesser. This amount will be included in the Engineer's estimate.
- (b) When the Engineer's estimate, not including mobilization costs, is ten percent (10%) or more of the (Total Bid Price), the total amount earned for mobilization, to date, will be seventy five percent (75%) of the total bid item price or schedule of values item price for mobilization or three and three-quarters percent (3.75%) of the (Total Bid Price), whichever is lesser. This amount will be included in the Engineer's estimate.
- (c) When the Engineer's estimate, not including mobilization costs, is twenty percent (20%) or more of the (Total Bid Price), the total amount earned for mobilization, to date, will be ninety percent (90%) of the total bid item price or schedule of values item price for mobilization or four and one-half percent (4.5%) of the (Total Bid Price), whichever is lesser. This amount will be included in the Engineer's estimate.
- (d) The remaining ten percent (10%) of the total bid item price or schedule of values item price for mobilization will be paid to Contractor in accordance with the retention requirements of this Section.
- (e) Contractor shall provide Port with a detailed breakdown of the mobilization costs included in such Bid Item to facilitate and clarify future progress payments to Contractor.

1.08 FINAL PAYMENT

- A. As soon as practicable after all required Work is completed in accordance with the Contract Documents, including the Contractor's maintenance after Final Acceptance, the Port will pay to the Contractor, in manner provided by law, unpaid balance of contract price of Work, or whole contract price of Work if no progress payment has been made, determined in accordance with terms of the Contract Documents, less sums as may be lawfully retained under any provisions of the Contract Documents or by law.
- B. Prior progress payments shall be subject to correction in the final payment. The Port's determination of amount due as final payment shall be final and conclusive evidence of amount of Work performed by the Contractor under the Contract Documents, and shall be full measure of compensation to be received by the Contractor.
- C. The Contractor and each assignee under an assignment in effect at time of final payment shall execute and deliver at time of final payment and as a condition precedent to final payment, Document 00650, Agreement and Release of Any and All Claims, discharging the Port, its officers, agents, employees and consultants of and from liabilities, obligations, and claims arising under the Contract Documents.

1.09 EFFECT OF PAYMENT

Payment will be made by the Port, based on the Port's observations at the site and the data comprising the Application for Payment. Payment will not be a representation that the Port has:

1. made exhaustive or continuous on-site inspections to check the quality or quantity of Work;
2. reviewed construction means, methods, techniques, sequences or procedures;
3. reviewed copies of requisitions received from subcontractors and material suppliers and other data requested by the Port to substantiate the Contractor's right to payment;
or
4. made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

PART 2 PRODUCTS

Not applicable to this section.

PART 3 - EXECUTION

Not applicable to this section.

END OF SECTION

SECTION 01331

LIST OF SUBMITTALS

The submittals listed on this page shall be submitted in the order in which they are listed and numbered.

(For Field Use)

Submittal Number	Specification Section	Document Title and/or Comments*		
1.	01320	Initial CPM Schedule Original CPM Schedule Monthly CPM Schedule Update		
2.	01330	Submittal of Shop Drawings and Sample Submittals		
3.	01340	Health and Safety Plan for Potential Hazardous Waste Operations		
4.	01340	Submittals for Compliance with State General Construction Activity Storm Water NPDES Permit		
5.	01340	Soil and Groundwater Management Plan		
6.	01340	Debris Containment Program		
7.	01340	Dust and Air Pollution Management Plan		
8.	01200	Schedule of Values		
9.	01556	Traffic Handling Plans		

*

The Contractor shall refer to the individual specifications sections for complete and detailed information for all submittals listed in the specifications.

Submittals: Technical Sections/Project Record Documents

The following submittals are listed in the order in which they appear in this package.

For the submittals listed below, submittal numbers shall be assigned by the Contractor at the time of submittal. Submittals listed below shall be numbered in the order in which they are submitted, beginning with the number “ 10. ”

(For Field Use)

Submittal Number	Specification Section	Document Title and/or Comments*		
	02100	Stockpile Management Plan		
	02100	Daily Field Reports		
	02100	Off-site Disposal Manifest and Weight Tickets		
	02240	Dewatering and Disposal Plan		
	02240	Daily Field Reports		
	02315	Excavation Plan		
	02315	Shoring Plan		
	02315	Fill Placement Plan		
	02370	Storm Water Pollution Prevention Plan (SWPPP)		
	02510	Schedule of Materials		

(For Field Use)

Submittal Number	Specification Section	Document Title and/or Comments*		
	02510	Shop Drawings		
	02510	Water Samples, Test Results. and Reports		
	02510	Product Data		
	02510	Utility Coordination Plans		
	02510	Record Plans		
	02510	Test Reports		
	02510	Purging and Flushing Reports		
	02510	Maintenance Data		
	02510	Operations and Maintenance Manuals and Warranties		
	02530	Schedule of Materials		
	02530	Shop Drawings		
	02530	Quality Assurance/Control Submittal		
	02530	Record Documents		
	02580	Compliance Affidavit		
	02580	Certificates of Conformance		
	02580	Factory and Field Test Reports		

(For Field Use)

Submittal Number	Specification Section	Document Title and/or Comments*		
	02580	Manufacturer's instructions or installation guidelines		
	02580	Record Documents		
	02740	Asphalt Concrete Mix Formula Proposal		
	02740	Delivery Certificates		
	02830	Schedule of Materials		
	03300	Proposed Concrete Mix Designs		
	03300	Delivery Certificates		
	03300	Shop Drawings		
	03400	Schedule of Materials		
	03400	Shop Drawings		
	03400	Design Data and Manufacturer's Data		
	03400	Certificates of Conformance		
	03400	Manufacturer's Instructions or Installation Guides		
	03400	Factory and Field Test Reports		
	03400	Record Drawings		
	05050	Manufacturer's Product Data		
	05050	Welding procedures and qualification test records		
	05050	ICBO Evaluation Reports		

(For Field Use)

Submittal Number	Specification Section	Document Title and/or Comments*		
	05050	Shop Drawings		
	09900	Manufacturer Product Data		
	09900	Schedule of Materials		
	09900	Samples		
	16030	Test procedures		
	16030	Proof of Qualifications		
	16030	Affidavit of Conformance to Specification		
	16030	Test Reports		
	16120	Shop Drawings/Catalog Cuts		
	16273	Certified Acceptance Test Report		
	16273	Operation and Installation Manuals		
	16273	Installer's qualifications		
	16302	Shop Drawings/Catalog Cuts		

(For Field Use)

Submittal Number	Specification Section	Document Title and/or Comments*		
	16302	Shop Drawings and Calculations for Manholes and Pullboxes		
	16302	As-Built Record Drawings for Manholes and Pullboxes		
	16315	Product catalog cuts		
	16315	Shop Drawings		
	16315	Equipment assembly drawings		
	16315	Design data		
	16315	Certified time-current curves		
	16315	Certified test reports.		
	16315	Itemized spare parts list		
	16315	Equipment anchorage calculations		
	16315	Installation and commissioning instructions		
	16315	Operation, maintenance and installation procedures		
	16325	Product data		
	16325	Shop drawings		
	16325	Equipment assembly drawings		
	16325	Design data and component data		

(For Field Use)

Submittal Number	Specification Section	Document Title and/or Comments*		
	16325	Certified time-curves		
	16325	Certified test reports		
	16325	Itemized spare parts list		
	16325	Installation, operation and maintenance manual		
	16325	Owner's manual		
	16325	Anchorage calculations		
	16325	Supplier Qualifications		
	16325	Supplier's Certificate of ISO 9002 Compliance		
	16510	Manufacturer's Catalog Cuts		
	16510	Manufacturer's Shop Drawings		
	16510	Operating and Maintenance Manuals		
	16510	Lighting Calculations		
	16510	Foot-candle Compliance Report		
	16510	Operational Testing		

SECTION 01340

SAFETY AND ENVIRONMENTAL SUBMITTALS

PART 1 - GENERAL

1.01 SCOPE

Prepare and submit written safety and environmental Plans and Programs as specified herein prior to start of site work. All written safety and environmental Plans and Programs required to be submitted herein must be favorably reviewed by the Port prior to the Contractor starting work at the site.

1.02 PORT'S REVIEW OF SUBMITTALS

Neither the Port's review of, nor comments on, any of the submittals shall constitute a representation of warranty as to compliance with any legal requirements. The Port reserves the right to reject all or portions of a submittal as inadequate to protect health, safety, or the environment. If project conditions change, promptly update the Plans and Programs, as appropriate, and submit the revised Plans and Programs to the Engineer at no additional charge to the Port.

1.03 PLANS AND PROGRAMS

A. Submit the following site-specific, checked items within fifteen (15) calendar days after the effective date of the Contract and prior to starting work at the site.

1. Health and Safety Plan. Health and Safety Plan will be evaluated according to the minimum criteria established in the Port Construction Safety Standards Manual:

a. For Non-Hazardous Waste Operations:

Describe the health and safety hazards anticipated in performing the work, measures to be taken to reduce those hazards and to protect employees and the public. Include procedures for identifying and reporting unforeseen hazards.

b. For Potential Hazardous Waste Operations:

Describe the health and safety hazards anticipated in performing the work, and measures to be taken to reduce those hazards and to protect employees and the public. Include procedures for identifying and reporting unforeseen hazards.

Identify an individual(s), either an employee or subcontractor, who is trained in accordance with CCR Title 8, Section 5192 (Cal/OSHA), Hazardous Waste Operations and Emergency Response (HAZWOPER), and who is qualified to identify potentially hazardous wastes or contaminated soils which might be encountered on the jobsite. Describe methods of identifying these materials and

communicating the findings to the Engineer. The Plan does not need to comply with CCR Title 8, Section 5192 (Cal/OSHA).

c. For Identified Hazardous Waste Operations:

All aspects of the Health and Safety Plan shall comply with CCR, Title 8, Section 5192 (Cal/OSHA), Hazardous Waste Operations and Emergency Response. The Plan shall be signed by an individual Certified in the Comprehensive Practice of Industrial Hygiene (CIH) by the American Board of Industrial Hygiene and trained in hazardous waste site operations as required by Section 5192. If hazard conditions change, promptly update the Plan and resubmit to the Engineer, at no additional charge to the Port.

Include the following items:

- 1) Training, medical, and respirator approval documentation for all employees who will work at the site.
- 2) The names and addresses of the waste hauler and the landfill for hazardous waste.

2. Asbestos Abatement Program in accordance with CCR Title 8, Section 1529 (Cal/OSHA):

Include the following items:

- a. Registration with Cal/OSHA as an Asbestos Abatement Contractor, (required for removing more than 100 square feet of materials containing greater than 0.1 percent asbestos).
- b. Notifications for asbestos work, including Cal/OSHA, the Bay Area Air Quality Management District, and, where appropriate, EPA Region IX.
- c. Training, medical, and respirator approval documentation for all employees who will work at the site.
- d. The identity of the Competent Person, as defined by Cal/OSHA.
- e. The Contractor's asbestos control procedures, including:
 - 1) Staging of the project.
 - 2) Placement and number of negative air machines and exhausts.
 - 3) Staging of waste containers.
- f. Weekly progress reports as the project progresses.

- g. At project completion, documentation, including daily reports or logs, air monitoring results, waste manifests, and other similar pertinent information.
- h. Material Safety Data Sheets for hazardous materials brought onto the site.
- i. Procedures for identifying and reporting unforeseen hazards.
- j. The names and addresses of the waste hauler and the landfill for asbestos waste.

3. Lead Compliance Program in accordance with CCR Title 8, Section 1532.1 (Cal/OSHA):

Include the following checked items:

- a. Training, medical, and respirator approval documentation for all employees who will work at the site.
- b. The identity of the Competent Person, as defined by Cal/OSHA.
- c. Material Safety Data Sheets for hazardous materials brought onto the site.
- d. The Contractor's procedures for identifying and reporting unforeseen hazards.
- e. The names and addresses of the waste hauler and the landfill for hazardous and non-hazardous wastes.

4. Storm Water Pollution Prevention Plan (SWPPP) including:

- a. A site map identifying storm drain inlets.
- b. Identification of potential sources of pollution.
- c. A plan to eliminate non-storm water discharges such as washwater, spills, and others.
- d. Best Management Practices (BMPs) to minimize discharges of pollutants in storm water runoff.
- e. How agencies and the Port will be notified in case of spills.

5. Compliance with State General Construction Activity Storm Water NPDES Permit, including:
- a. Development of a Storm Water Pollution Prevention Plan that complies with all requirements of the General Construction Activity Storm Water Permit.
 - b. Development of a color coded site map showing:
 - 1) Areas of soil disturbance that have been stabilized.
 - 2) Areas to be graded, in addition to a time schedule.
 - 3) Areas of potential soil erosion where control practices will be implemented (Indicate the control practices and time schedule for implementation).
 - 4) Locations of post-construction projects (i.e., ponds, grassy swales, detention basins).
 - c. Development of a Storm Water Sampling and Analysis Plan (SWSAP)
 - d. Development of a Site Inspection Checklist.
 - e. Submittal of the Site Inspection Checklist on a weekly basis.

6. Disposal of Fluorescent Lights and/or Ballasts Plan, as applicable.

7. Soil and Groundwater Management Plan:

Describe how any disturbed soil or collected water will be handled, including temporary storage, testing and/or treatment, and disposal. Identify all activity where potential exists for waste to be generated.

Where feasible, excavated soil from utility trenching may be placed back within the utility corridor near the original excavation.

Soil that cannot be placed back in the utility trench, and waste generated from other activities shall be tested by the Contractor as per General Conditions, Article 14.1, Alterations, Modifications and Force Account Work. The Contractor shall provide the name of an analytical laboratory, contact name for coordinating environmental testing, and waste hauler, if used.

In addition, the Plan must include a section describing soil management measures to be implemented during the performance of the work, to prevent soil pollution.

8. Debris Containment Program:

Describe the control of debris generated by the performance of the work and how the work area will be maintained unencumbered by the debris confined inside the work area.

9. Dust and Air Pollution Management Plan:

Describe measures to be taken to control dust and prevent air pollution resulting from the performance of the work. Describe in detail how dust and air emissions generated during the performance of the work will be minimized, controlled, contained, treated and/or disposed. The Plan must incorporate air pollution controls described in Section 01563 of these specifications, as well as an Air Quality Site Inspection Checklist to be completed and submitted on a weekly basis.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

- END OF SECTION -

SECTION 01343

SAFETY PROGRAM AND SAFETY REPRESENTATIVE REQUIREMENTS

PART 1 - GENERAL

1.01 SCOPE

Prepare and submit written documentation of Contractors, and Subcontractors Safety Performance including Experience Modification Rates (EMR) and Lost Workday Case Rate (LWCR) in construction for the last three years. Also submit written documentation of the safety experience of Contractors project site personnel, to be designated by contractor, as Safety Representative(s). All written safety performance and safety experience documentation of designated personnel must be favorably reviewed by the Port prior to the Contractor starting work at the site.

1.02 PORT'S REVIEW OF DOCUMENTATION

- A. Neither the Port's review of, nor comments on, any of the documentation shall constitute a representation of warranty as to contractor compliance with any legal requirements. The Port reserves the right to reject all or portions of Contractor's documentation as inadequate to meet the acceptable Contractor safety performance and safety experience of designated personnel.
- B. If project safety performance changes during the term of the contract, Contractor may, at the Port's written request, be required to provide the Port with prompt written notification of an action plan (including resumes of Safety Representative(s)) to bring safety performance to the acceptable level at no additional charge to the Port.

1.03 PREVIOUS SAFETY PERFORMANCE AND SAFETY EXPERIENCE DOCUMENTATION

- A. Submit completed Contractor Registration and Safety Experience Form - Document 00420, resume(s) (if full time) or outline(s) of designated Safety Representative(s) "Safety Experience" and/or "Completed Safety Training". The items as noted shall be submitted as specified in Document 00200, Instructions to Bidders, and must be found favorable to the Port prior to Contractor starting work at the project site.
- B. If Contractor's most recent Experience Modification Rate (EMR) identified on Document 00420 equals or is greater than 1.25 (Cal-OSHA TICF Assessment threshold - California State Labor Code 62.7 and 6314.1), Contractor acknowledges the designation of a Safety Representative(s) who shall be full-time, dedicating 100% of their time to safety oversight of field operations for this Project and with a line of reporting directly to President of the company or his/her designated corporate representative. If the EMR is greater than 1.25, the Contractor's Safety Representative shall meet the requirements of paragraph 1.04 A.

- C. Contractor shall designate the individual noted in Document 00420 as Contractor's competent Safety Representative(s) who shall be present during all work on site.
- D. The Port reserves the right to require a full time Safety Representative per paragraph 1.04 A, if during the contract time, more than two (2) safety incidents occur. This full time Safety Representative shall be at no additional cost to the Port.

1.04 CONTRACTOR'S SAFETY REPRESENTATIVE(S)

Based on the scope of work, and the documented safety performance of the contractor and sub contractors:

- A. Contractor shall employ and designate a full time competent Safety Representative(s) who shall report directly to the Contractor's Company President and/or his/her designated corporate representative, and shall spend 100% of their time present during all work on site in overseeing safety operations. The Safety Representative shall be required to have a minimum of five (5) years experience in administering safety on construction or heavy construction project sites with similar scope of work.
- B. The Contractor shall employ and shall designate a Safety Coordinator(s) who is qualified and has received an OSHA Certificate evidencing a minimum of eight to ten (8-10) hours of OSHA-Competent Person Training in addition to 40 hours of OSHA HAZWOPER certification. This Competent Person may also have collateral duties onsite, and shall be capable of:
 - (a) identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and the general public, and
 - (b) who has authorization to take prompt corrective measures to eliminate them, and
 - (c) aggressively and effectively implement and maintain the Contractor's Safety Program or site-specific Injury and Illness Prevention Program (IIPP), and
 - (d) shall spend 100% of their time present during all work on site in overseeing field operations

- END OF DOCUMENT -

SECTION 01556

TRAFFIC CONTROL SYSTEM

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. This Section sets forth the requirements concerning flagging and traffic-handling equipment and devices used in carrying out the requirements for public convenience and public safety during construction of this project. A traffic control system shall consist of closing traffic lanes and providing flaggers and traffic control devices in accordance with the details shown on the Plans, the provisions of Section 12, "Construction Area Traffic Control Devices," of the State Specifications.

1.02 REFERENCE STANDARDS AND SPECIFICATIONS

- A. State of California, Department of Transportation, Standard Specifications, latest edition (State Specifications).

1.03 SUBMITTALS

- A. Prepare and submit detailed traffic handling plans for all phases of construction work to the Engineer for approval. The traffic handling plans shown on the stage construction drawings are conceptual only.

PART 2 - PRODUCTS

2.01 FLAGGERS

- A. Flaggers shall be provided in conformance with provisions in Section 12-2, "Flagging", of the State Specifications.
- B. The provisions in Section 12-2.02, "Flagging Costs", shall not apply.

2.02 TRAFFIC CONTROL DEVICES

- A. Traffic control devices shall conform to the provisions in Section 12-3, "Traffic-Handling Equipment and Devices," of the State Specifications.
- B. During the hours of darkness traffic cones shall be affixed with reflective cone sleeves. The reflective sheeting of sleeves on the traffic cones shall be visible at 1,000 feet at night under illumination of legal high beam headlights, by persons with vision of or corrected to 20/20. The type of reflective cone sleeve used shall be at the option of the Contractor. Only one type of reflective cone sleeve shall be used on the project.

PART 3 - EXECUTION

3.01 GENERAL REQUIREMENTS

- A. Attention is directed to requirements on the plans for Stage Construction.
- B. The provisions in this Section will not relieve the Contractor from his responsibility to provide such additional devices or take such measures as may be necessary to comply with the provisions in Section 7-1.09, "Public Safety," of the State Specifications.
- C. If any component in the traffic control system is displaced, or ceases to operate or function as specified, from any cause, during the progress of the work, the Contractor shall immediately repair said component to its original condition or replace said component with like equipment.

- END OF SECTION -

SECTION 01563

DUST AND AIR POLLUTION CONTROL

PART 1 – GENERAL

1.01 WORK INCLUDED

- A. Work under this Section includes applying either water or dust palliative for the prevention of dust nuisance as specified in Section 10, "Dust Control", of the State Specifications and these Specifications.
- B. Work under this Section includes the control of emissions on construction related equipment and compliance by the Contractor with all air pollution and environmental control rules, regulations, ordinances and statutes which apply to any phase of the project.

1.02 REFERENCE STANDARDS AND SPECIFICATIONS

- A. State of California, Department of Transportation, Standard Specifications, latest edition (State Specifications)

1.03 SUBMITTALS

- A. Dust Management Plan: To control dust, the Contractor shall prepare a Dust Management Plan including the following measures:
 - 1. Water the interior and exterior of all structures before demolition and at least twice daily during demolition to eliminate visible dust plumes. Enclose, cover, water twice daily or apply non-toxic soil binders to exposed stockpiles (dirt, sand, demolition debris, etc.).
 - 2. Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least 2 feet of freeboard.
 - 3. Limit traffic speeds on unpaved roads to 15 mph.
 - 4. Pave, apply water three times daily, or apply non-toxic soil stabilizer on all unpaved access roads, parking areas, and staging areas at construction site.
 - 5. Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas at construction site. If visible soil materials are carried onto adjacent public streets, contractor shall also sweep these streets daily with water sweepers.
 - 6. Install sandbags or other erosion control measures to prevent silt runoff to public roadways.
 - 7. Hydroseed or apply non-toxic soil stabilizer to inactive construction areas (previously graded areas that are inactive for 10 days or more).

8. Replant vegetation in disturbed areas as quickly as possible.
9. Limit the area subject to excavation, grading, and other construction activity at any one time.
10. Suspend demolition activity when winds (sustained) exceed 25 mph.
11. Install wheel washers for all exiting trucks, or wash off the tires or tracks of all trucks and equipment leaving the project site.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Water shall conform to the provisions of these Specifications.
- B. Dust palliative shall conform to the provisions in Section 18, “Dust Palliative”, of the State Specifications.

PART 3 – EXECUTION

3.01 APPLICATION

- A. Water shall be applied as specified in these Specifications.
- B. The Dust Management Plan, when approved by Port, shall be implemented by Contractor. Contractor shall maintain a copy of the Dust Management Plan at the construction site at all times, and make the document available to operating personnel during construction activities.
- C. Dust palliative shall be applied as provided in Section 18, “Dust Palliative”, of the State Specifications.
- D. To control exhaust emissions, the Contractor shall:
 1. Implement emissions controls on all construction-related equipment, including equipment tune up, and use of California low-sulfur, low-aromatic diesel fuel in equipment that is not required under state law to use low-sulfur diesel.
 2. Encourage construction workers to carpool, especially on “Spare the Air” days.
- E. Contractor shall comply with all air pollution and environmental control rules, regulations, ordinances and statutes which apply to any phase of the project.

- END OF SECTION -

SECTION 01730

**SPECIAL REQUIREMENTS FOR THE PORT'S RAILROAD SYSTEM RAIL AND CRANE
RAIL TRACK WORK**

PART 1 – GENERAL:

1.01 SCOPE:

- A. All work within ten feet of the Port's railroad tracks shall be in compliance with the rules and procedures outlined in the Port of Oakland Road Worker Protection Plan. Any work to be performed in that space must be approved by the Port Engineer before the work is begun. The Port Engineer must also be notified when work is finished, and s/he must inspect the job before the working limits are removed.

1.02 REFERENCES:

Attachment A: Port of Oakland Roadway Worker Protection Plan

PART 2—PRODUCTS: Not Used

PART 3—EXECUTION:

- A. The Contractor shall comply with the rules and regulations of the Port's railroad system, or the instructions of the Port Engineer in relation to the proper manner of protecting the tracks and property of the Port's railroad system, its tenants or licensees, at and in the vicinity of the work during the period of construction.
- B. The Contractor shall perform his work in such manner and at such times as shall not endanger, or interfere, with the safe operation of the tracks and property of the Port's railroad system, and traffic moving on such tracks, as well as wires, signals and other property of the Port's railroad system, its tenants or licensees, at or in the vicinity of the work.
- C. The Contractor shall notify the Port's Engineer at least 48 hours prior to any work on or over the Port's railroad system fouling space. When any personnel, equipment or materials are within 10 feet, measured horizontally from the closest rail on which train may operate, such a condition is considered fouling. Contractor shall also schedule track closures at least 48 hours in advance.
- D. The Contractor shall take protective measures necessary to keep the Port's railroad system facilities, including track ballast, free of sand, or debris, resulting from his operations.
- E. Any damage to the Port's railroad facilities resulting from Contractor's operations will be repaired or replaced by the Contractor at Contractor's expense. If such work is not completed in a timely manner, the Port may elect to do the work itself and the cost of such repairs or replacement shall be deducted from the Contractor's payment.

If working on active track, such repairs must be completed and approved by the Engineer before the end of the day.

- F. The Contractor shall not pile or store any materials, nor park any equipment when not in use, closer to the center of the nearest track, than permitted by the following permanent clearances:

15'-0" Horizontally from centerline of track
22'-0" Vertically above the top of any rail

- G. Above the top of any rail, the placement of falsework, forms, bracing or other construction supports, or the placement or driving of piles, shall not be closer to the center of the nearest of the Port's railroad system track than that allowed by the following temporary construction clearances:

10'-0" Horizontally
22'-0" Vertically

- END OF SECTION -

SECTION 01730 – ATTACHMENT A
Port of Oakland
Roadway Worker Protection Plan

The purpose of this plan is to prevent accidents and casualties caused by moving railroad cars, locomotives or roadway maintenance machines striking roadway workers or other roadway maintenance machines. This plan has been developed in response to the regulations in 49CFR214, Subpart C.

This Roadway Worker Protection Plan will be maintained and readily available to all roadway workers. Each Employee-in-Charge of the roadway safety of others (EIC), and each lone worker, will be provided with and must maintain a copy of this plan on the jobsite at the time of fouling the track.

Roles and Responsibilities

Responsibilities of the Port of Oakland

The Port of Oakland is responsible to ensure that its employees and contractors working within ten feet of Port of Oakland railway, or within twenty-five feet of other agencies' track, understand and comply with the rules and procedures outlined in this plan. Any work to be performed in that space must be approved by the Road Master or his Assistant before work is begun. The Road Master must also be notified when work is finished, and s/he must inspect the job before working limits are removed.

Every employee has the absolute right to challenge the work procedures on a roadway worksite in good faith if s/he believes they do not meet the rules set forth in this plan. If an employee does challenge the work procedures, s/he has the right to remain clear of the track until the challenge is resolved. In order to quickly and fairly resolve these challenges, this plan sets forth the following procedure:

The job foreman or EIC of crews may check with the Road Master to determine if there are new or altered on-track safety procedures. The Road Master will resolve any safety issue that comes up, with the input of the EH&SC Safety Unit. In the case of new or previously unrecognized hazards, the Road Master may consult with the Federal Railroad Administration staff for guidance. Written challenges to roadway safety issues will be resolved through existing procedures, such as grievances.

Responsibilities of Individual Roadway Workers

Each roadway worker is responsible for following the on-track safety rules of the railroad upon which s/he is located. Roadway workers may not foul a track except when necessary for the performance of the maintenance work they are undertaking. All roadway workers have the right to refuse to violate an on-track safety rule, and must inform their employer whenever they determine in good faith that the track safety provisions do not comply with the on-track safety rules of the railroad.

Supervisors' Responsibilities

Supervisors (including Foremen) who assign work that calls for an employee to foul a track must ensure that employee(s) are provided with a job briefing that includes information on the means by which on-track safety is to be provided, and instruction on the on-track safety procedures to be followed. The job briefing for on-track work is only considered complete when the employee(s) acknowledge understanding of the information presented.

Every roadway work group whose duties require fouling a track will have one EIC designated to provide on-track safety for all members of the group. The EIC will be qualified under the rules of the Port of Oakland to provide the protection necessary for the on-track safety of each individual in the group. The EIC may be designated generally, or specifically for a particular work situation.

Before any new members of a roadway work group foul a track, the designated person providing on-track safety for the group must hold a job briefing to inform them of the on-track safety procedures to be used. The EIC must also inform each worker any time the on-track safety procedures change during the work period. This notification must precede the change in procedures, except in case of emergency. If there is an emergency that does not allow for all employees to be notified prior to a change in safety procedures, each worker must immediately leave the track area. The employees may not return to the track area until on-track safety is restored.

On-Track Safety Procedures

Working limits, generally.

Working limits established on non-controlled track shall conform to the provision of § 214.327 inaccessible track. Working limits established under any procedure shall, in addition, conform to the following provisions:

214.319(a)

(a) Only a roadway worker who is qualified in accordance with § 214.353 of this part shall establish or have control over working limits for the purpose of establishing on-track safety.

214.319(b)

(b) Only one roadway worker shall have control over working limits on any one segment of track.

214.319(c)

(c) All affected roadway workers shall be notified before working limits are released for the operation of trains. Working limits shall not be released until all affected roadway workers have either left the track or have been afforded on-track safety through train approach warning in accordance with § 214.329 of this subpart.

Working Limits on Non-Controlled Track

All of the Port of Oakland's railroad tracks are non-controlled. For work within ten feet of this type of track, working limits must be established by rendering the track within working limits physically inaccessible to trains at each possible point of entry by one of the following features:

- a) A watchman/lookout with instructions and capability to hold all trains and equipment clear of the working limits;
- b) A switch or derail aligned to prevent access to the working limits and secured with an effective securing device by the roadway worker in charge of the working limits; and/or
- c) A discontinuity in the rail that precludes passage of trains or engines into the working limits.

On-Track Safety Procedures for Roadway Work Groups

No roadway worker who is a member of a roadway work group may foul a track without having been informed by the EIC that on-track safety is provided. The EIC must also notify the Road Master of such work prior to fouling the track or taking the track out of service for maintenance or repairs.

On-Track Safety Procedures for Lone Workers

A lone worker who fouls a track while performing routine inspection or minor correction may use individual train detection to establish on-track safety only when permitted by the Road Master. Each lone worker retains an absolute right to use on-track safety procedures other than individual train detection if s/he deems it necessary, and to occupy a place of safety until such other form of on-track safety can be established.

Individual train detection may be used to establish on-track safety only:

- a) By a lone worker who has been trained, qualified, and designated to do so by the employer in accordance with the procedures outlined below;
- b) While performing routine inspection and minor correction work;

- c) Where the lone worker is able to visually detect the approach of a train from 200 feet moving at the maximum speed authorized on that track (10 mph for Class 1 track), and move to a previously determined place of safety, not less than 15 seconds before the train would arrive at the location of the lone worker; and
- d) Where the ability of the lone worker to see and hear approaching trains and other on-track equipment is not impaired by background noise, lights, precipitation, fog, passing trains, or any other physical condition.

The place of safety to be occupied by a lone worker upon the approach of a train may not be on a track, unless working limits are established on that track.

A lone worker using individual train detection for on-track safety while fouling a track may not occupy a position or engage in any activity that would interfere with that worker's ability to maintain a vigilant lookout for, and detect the approach of, a train moving in either direction as prescribed in this section. The lone worker using individual train detection for on-track safety must first complete a written Statement of On-Track Safety. The statement must designate the limits of the track for which it is prepared and the date and time for which it is valid. The statement must show the maximum authorized speed of trains within the limits for which it is prepared, and the sight distance that provides the required warning of approaching trains. The Statement of On-Track Safety must be produced by the lone worker for inspection when requested to do so by a representative of the Federal Railroad Administration.

Blank Statement of On-Track Safety forms are available from the Road Master. All completed forms must be returned to the Road Master within 2 days of filling out. Completed Statements of On-Track Safety will be on file for a minimum of three years after the completion of the work referenced. These records will be available for Federal Railroad Administration inspecting during regular business hours.

Audible Warning from Trains

The locomotive whistle must be sounded, and the locomotive bell be rung, by trains approaching roadway workers on or about the track. Such audible warning shall not substitute for other required on-track safety procedures.

Operation of On-Track Machines and Equipment

On-Track Safety for employees who operate or work near roadway machines shall comply with the following instructions in:

- a) On-Track Safety procedures outlined in this manual, and
- b) Rules governing on-track machines and equipment. These rules include:
- c) Speed requirements
 1. Movement over grade crossings
 2. Following cars or trains
 3. Signal to stop
 4. Passing trains
 5. Operating over switches, frogs, and derails

Instruction for Safe Operations

Any employee who operates on-track machines must be assured that On-Track Safety has been provided. The type of On-Track Safety to be used will be determined by the Employee In Charge of the work group, as discussed in job briefings.

Operators must make a running test of brakes immediately upon movement of work equipment.

The type of On-Track Safety will comply with the provisions of this manual.

***Training and Qualification for Operators of On-Track Machines and Equipment**

The training and qualifications as a roadway worker for operating on-track equipment shall include, as a minimum:

- a) Procedures to prevent a person from being struck by the machine when working around equipment.
- b) Procedures to prevent any part of the machine from being struck by a train or other equipment on another track.
- c) Procedures to provide for stopping the machine short of other machines and/or
- d) Methods to determine safe operating procedures for each machine which the operator is expected to operate.

Note: An initial and annual performance evaluation for the qualification of operator or roadway maintenance machines must be tested by demonstrated proficiency.

Procedures to Prevent Being Struck by Maintenance of Way Machine or Roadway Equipment

Job Briefing/Communication

Machine operator will attend a job briefing conducted by the Employee in Charge (EIC), that will include:

- a) Responsibilities of operators,
- b) Responsibilities of ground employees,
- c) Passing of trains,
- d) Unattended or tying up of equipment
- e) Knowledge and understanding of signaling devices, and
- f) Hand signals to be used.

Responsibilities of Ground Employees

Know and understand the work and safety zones around equipment:

Work Zone – extends from a point at least 15 feet in front of the machine to a point at least 15 feet behind the machine.

Safety Zone – all employees on the track as well as self-propelled machines and equipment have a 15-foot safety zone. This zone will not be entered without a job briefing, and without a notification to and understanding by operators that employees are near the machine.

Ground employees must know and understand the signaling devices that may be used:

- a) Police whistle
- b) Air horn
- c) White disk
- d) Locomotive whistle/horn
- e) On-track equipment whistle/horn

Responsibilities of Operators

Operators of track machines, roadway machines or equipment are charged with the responsibility of knowing that their machines or equipment are in safe operative condition before starting the day's work.

Operators must assure themselves that proper protection is being afforded their operation.

- a) The operator's manual must be kept with each machine. This manual must include instructions for the safe operation of the machine.
- b) Operators must not approach within 15 feet of employees fouling the tracks without first communicating with them.
- c) Machines such as cranes and ballast regulators require lateral and side clearance to ensure the safety of the employee. Operator must notify employees working in the vicinity of these machines before they are operated.
- d) Pre-arranged signals to move must be decided upon. Suggested signals are:
 - Train approaching: Siren or many long blasts until train is seen by everyone.

- Forward movement: Two short blasts at least one second apart.
 - Reverse movement: Three short blasts at least one second apart.
- e) Maintain proper clearance at all times between power lines and booms. When in doubt of safe clearances between power poles and machines, the operator will notify the EIC before beginning work.
 - f) Locomotive cranes, hi-rails with booms or other on-track equipment will not be turned or swung when moving, unless it is determined the boom angle and load weight will permit safe operation. Special care must be taken when operating on curves or other location where the track is super elevated.
 - g) While working, a minimum distance of at least 50 feet must be maintained between machines, unless specified in a job briefing.
 - h) Machines shall keep at least 200 feet apart while traveling.
Exception: When necessary to "bunch" up to move over road crossings at grade, a distance of at least 50 feet between machines will be maintained.
 - i) When two or more machines are moving together, the operators will hold a job briefing and agree on the signal that will be used when stopping.

Passing of Trains

Pile drivers, wrecking cranes, wrecking derricks, on-track machines or other equipment must not be operated when trains or other moving equipment are passing on an adjacent tracks.

When unloading ballast or other material from a train, work must be stopped when trains or engines or passing on an adjacent track.

Unattended or Tying-Up of Equipment

When leaving or tying-up equipment, observe the following requirements:

- a) Set brake and secure booms or other extensions to prevent fouling adjacent tracks.
- b) Lower devices attached to booms, such as clam shells, so they rest on the ground, idler car, or work bed, as applicable.
- c) Stop motor.
- d) Lock ignition.
- e) Machine operators will dismount machine on the field side of the track, away from traffic. Operators will stand beside the machine and direct the next piece of equipment to a stop. Each operator will do the same in turn.
- f) Operators and employees will remain next to their equipment and not go between machines until all machines have come to a stop and brakes are set.
- g) When the EIC gives the all-clear sign, the operator will secure equipment with lock and chain.
- h) All vandalism protective covers and devices must be locked (if equipped).
- i) On grades, wheels must be securely blocked and chained to the rail.
- j) Keys must be in possession of operator or other authorized employee.
- k) When leaving equipment on the track, properly line, lock and tag switches to prevent movement onto the occupied track.

Training and Qualification of Port Roadway Workers

The Port will not assign an employee to perform the duties of a roadway worker unless that employee has received training in the on-track safety procedures associated with the assignment; and has demonstrated the ability to fulfill the required on-track safety procedures.

Initial and Recurrent Training

The Port, through its Road Master, in coordination with the EH&SC Safety Unit, will provide all roadway workers with initial training on this plan and on on-track safety rules and procedures. Refresher training will be provided to all roadway workers at least annually.

Training Contents

All training for roadway workers will include, as a minimum, the following:

- a) Recognition of railroad tracks and understanding of the space around them within which on-track safety is required;
- b) The functions and responsibilities of various persons involved with on-track safety procedures;
- c) Proper compliance with on-track safety instructions given by persons performing or responsible for on-track safety functions;
- d) Signals given by watchmen/lookouts, and the proper procedures upon receiving a train approach warning from a lookout;
- e) The hazards associated with working on or near railroad tracks, including review of the Port's on-track safety rules and procedures.

Training and Qualification for Lone Workers

Each lone worker will be trained and qualified to establish on-track safety in accordance with the requirements of this Plan. The training and qualification will include, as a minimum, consideration of the following factors:

- a) Detection of approaching trains and prompt movement to a place of safety;
- b) Determination of the distance along the track at which the trains must be visible in order to provide the prescribed warning time.

Initial and periodic qualification of a lone worker shall be evidenced by demonstrated proficiency, through a testing procedure or on-site evaluation of work practices. This evaluation will be carried out by the Road Master in coordination with the EH&SC Safety Unit.

Train approach warning provided by watchmen/lookouts.

Roadway workers in a roadway work group who foul any track outside of working limits shall be given warning of approaching trains by one or more watchmen/lookouts in accordance with the following provisions:

214.329(a)

(a) Train approach warning shall be given in sufficient time to enable each roadway worker to move to and occupy a previously arranged place of safety not less than 15 seconds before a train moving at the maximum speed authorized on that track can pass the location of the roadway worker.

214.329(b)

(b) Watchmen/lookouts assigned to provide train approach warning shall devote full attention to detecting the approach of trains and communicating a warning thereof, and shall not be assigned any other duties while functioning as watchmen/lookouts.

214.329(c)

(c) The means used by a watchman/lookout to communicate a train approach warning shall be distinctive and shall clearly signify to all recipients of the warning that a train or other on-track equipment is approaching.

214.329(d)

(d) Every roadway worker who depends upon train approach warning for on-track safety shall maintain a position that will enable him or her to receive a train approach warning communicated by a watchman/lookout at any time while on-track safety is provided by train approach warning.

214.329(e)

(e) Watchmen/lookouts shall communicate train approach warnings by a means that does not require a warned employee to be looking in any particular direction at the time of the warning, and that can be detected by the warned employee regardless of noise or distraction of work.

214.329(f)

(f) Every roadway worker who is assigned the duties of a watchman/lookout shall first be trained, qualified and designated in writing by the employer to do so in accordance with the provisions of § 214.349.

214.329(g)

(g) Every watchman/lookout shall be provided by the employer with the equipment necessary for compliance with the on-track safety duties which the watchman/lookout will perform.

Training and Qualification for Watchmen/Lookouts

The training and qualification for roadway workers assigned the duties of watchmen/lookouts will include, as a minimum, consideration of the following factors:

- a) Detection and recognition of approaching trains;
- b) Effective warning of roadway workers of the approach of trains;
- c) Determination of the distance along the track at which trains must be visible in order to provide the prescribed warning time;
- d) Rules and procedures of the Port of Oakland for working on non-controlled tracks.

Initial and annual qualification for a watchman/lookout will be evidenced by demonstrated proficiency.

Training and Qualification of Employees-in-Charge (EIC) who Provide On-Track Safety for Roadway Work Groups

The training and qualification of roadway workers who provide for the on-track safety of groups of roadway workers through the establishment of working limits, or through the assignment and supervision of watchmen/lookouts, shall include, as a minimum:

- a) All the on-track safety training and qualification required of the roadway workers to be supervised and protected;
- b) The content and application of the Port of Oakland roadway rules pertaining to the establishment of working limits;
- c) The relevant physical characteristics of the territory of the Port upon which the roadway worker is qualified.

Initial and annual qualification for a roadway worker to provide on-track safety of groups will be evidenced by a recorded examination.

Training Records

Training records will be maintained by the EH&SC Safety Unit for a minimum of three years. These records will be available for inspection and photocopying as requested by the Federal Railroad Administration.

Qualifications of Contractor Roadway Workers

Before work begins, Contractor Roadway Workers must provide to the Roadmaster documentation on the qualifications and training of:

- a) Employee-in-Charge
- b) Watchmen/Lookouts
- c) Lone Workers

Evaluation of Roadway Worker Protection Plan

This Roadway Worker Protection Plan will be reviewed annually by the Principal Port Safety Administrator, and any accidents, near misses, and the nature of roadway work will be investigated to determine whether changes to the Plan are necessary. Any changes to the Plan will be promptly disseminated with roadway workers and other involved individuals.

Definitions

Adjacent Tracks: Two or more tracks with track centers spaced less than 25 feet apart.

Controlled Track: Track upon which all movements of trains must be authorized by a control operator.

Employee-in-Charge: A Roadway Worker designated, trained, and qualified to provide on-track safety for members of a Roadway Work Group.

Exclusive Track: A method of establishing working limits on controlled track in which movement occupancy authority of trains and other equipment is withheld by the control operator or restricted by flagmen.

Fouling a Track: Placement of an individual or a piece of equipment in such a proximity to a track that the individual or equipment could be struck by a moving train or on-track equipment, or in any case is within ten feet of the field side of the near running rail.

Fouling Space: The fouling space includes the track itself and the area surrounding the track, to a distance of ten feet out from the rail on each side.

Inaccessible Track: A method of establishing working limits on non-controlled track by physically preventing entry and movement of trains and equipment.

Individual Train Detection (ITD): Procedure by which a lone worker acquires On-Track Safety by seeing approaching trains and leaving the track before they arrive.

Lone Worker: An individual Roadway Worker who is not being afforded On-Track Safety by another Roadway Worker, who is not a member of a Roadway Work Group, and who is not engaged in a common task with another Roadway Worker.

Non-Controlled Track: Track upon which trains are permitted by railroad rule or special instruction to move without receiving authorization from a Train Dispatcher or Control Operator. Typical examples include yard tracks and industrial side tracks.

On-Track Safety: A state of freedom from the danger of being struck by a moving train or equipment, provided by operating and safety rules that govern track occupancy by personnel, trains, and on-track equipment.

Roadway Work Group: Two or more Roadway Workers organized to work together on a common task.

Roadway Worker: Any employee of a railroad, or of a contractor to a railroad, whose duties include inspection, construction, maintenance or repair of railroad track, bridges, roadway, signal and communication systems, electric traction systems, roadway facilities or roadway machinery on or near track or with the potential of fouling a track.

Train Approach Warning: A method of establishing On-Track Safety by warning workers of the approach of trains in ample time for them to move to or remain in a place of safety.

Watchman/Lookout: An employee who has been annually trained and qualified to provide warning to Roadway Workers of approaching trains or on-track equipment. Watchmen/Lookouts shall be properly equipped to provide visual and auditory warning such as a whistle, air horn, red flag, or lantern. A Watchman/Lookout's sole duty is to look out for approaching trains/on-track equipment and provide at least 15 seconds warning to employees before the equipment's arrival.

Working Limits: A segment of track with definite boundaries upon which trains and engines may move only as authorized by the roadway worker having control over that defined segment of track. Working limits may be established through exclusive track occupancy, foul time, or inaccessible track.

Speed/Distance Table

15 Second Travel Distance

Train speed (m.p.h.)	Distance in feet
10	220
20	440
30	660
40	880
50	2200
60	1320
70	1540
80	1760
90	1980
100	2200
110	2420
120	2640

- END OF ATTACHMENT A -

SECTION 02100

HANDLING, TRANSPORTATION, AND DISPOSAL OF HAZARDOUS AND CONTAMINATED MATERIALS

PART 1 - GENERAL

1.01 SUMMARY

- A. The work under this Section includes furnishing all labor, materials, appliances, tools, equipment, transportation, services and supervision required for handling, transportation and disposal of hazardous and contaminated materials. The work may include, but not be limited to, the following:
 - 1. Removing and stockpiling contaminated soil, water, and other materials encountered during construction.
 - 2. Furnishing all equipment and tools necessary or commonly used in handling hazardous waste or hazardous materials.
 - 3. Packaging, manifesting, collecting, loading, transporting, and legally disposing of hazardous or contaminated materials found on the site or generated by construction. Typical materials requiring disposal may include, soil contaminated with metals and/or organic compounds. Final disposition of waste or materials will include recycling, treatment, or disposal depending on the waste or materials in question, as determined by the Port.
- B. The Port may elect to contract separately for the work specified in this Section.

1.02 REFERENCES

- A. Information that must be considered in the development of the Health and Safety Plan and in the performance of the work under this Section is described in the documents listed in Section 00340, Hazardous Material Surveys and are hereafter referred to as the Reports.
- B. The Contractor shall coordinate the work of this Section with related work specified under other Sections, including
 - 1. Section 00202 – Bid Submission Instruction
 - 2. Section 00340 – Hazardous Materials Surveys
 - 3. Section 00430 – Port of Oakland Subcontractors and Supplier List
 - 4. Section 00800 – Modifications to Documents 00805 and 00810
 - 5. Section 01340 - Safety and Environmental Submittals

6. Section 01563 - Dust and Air Pollution Control
7. Section 02111 – Handling of Potentially Contaminated Materials
8. Section 02240 – Dewatering

1.03 PERMITS AND LICENSES

- A. The Contractor shall procure all permits and licenses, pay all charges and fees, and give all notices necessary and incident to the due and lawful prosecution of the work, including providing proper documentation and registration for transporting vehicles carrying contaminated material and hazardous materials.
 1. The CEQA of 1970, Chapter 1433, Stat. 1970 may be applicable to the permits, licenses, and authorizations that the Contractor obtains in connection with performing the work of the contract.
 2. The Contractor shall comply with the provisions of said statutes in obtaining such permits, licenses, and other authorizations.
- B. The Port shall obtain the USEPA Generator Identification Number for off-site disposal of hazardous wastes.

1.04 GOVERNING AGENCIES AND APPLICABLE REGULATIONS

- A. The Contractor shall handle and transport contaminated soil in accordance with the applicable regulations, including, but not limited to the following:
 1. United States Department of Transportation (USDOT)
 2. United States Environmental Protection Agency (USEPA)
 3. Occupational Safety and Health Administration (OSHA)
 4. California Environmental Protection Agency (Cal-EPA)
 5. Department of Toxic Substance Control (DTSC)
 6. California Integrated Waste Management Board (CIWMB)
 7. California Regional Water Quality Control Board (CRWQCB)
 8. State Air Resources Board
 9. Bay Area Air Quality Management District (BAAQMD)
 10. East Bay Municipal Utility District (EBMUD)
 11. Alameda County Health Care Services Agency (ACHCSA)
 12. City of Oakland Fire Department Office of Emergency Services (Local Certified Unified Program Agency (CUPA))

13. Code of Federal Regulations (CFR): 29 CFR Section 1910, 49 CFR Parts 171-178, 40 CFR Parts 262 and 263
14. California Code of Regulations (CCR) Title 8, Sections 1532.1 and 5192, and Title 22
15. California Environmental Quality Act (CEQA) of 1970 (Chapter 1433, Stat. 1970)

1.05 DEFINITIONS

- A. RCRA hazardous waste: Hazardous waste that exceeds the toxicity characteristics (TC) for federal hazardous wastes, 40 Code of Federal Regulation (CFR), Part 262 and Title 22 of CCR.
- B. California hazardous waste: Hazardous waste that exceeds the criteria established by Title 22 of CCR in terms of Total Threshold Limit Concentrations (TTLC) and Soluble Threshold Limit Concentrations (STLC).
- C. Decontamination Zone: Enclosed area adjacent and connected to the exclusion zone; the area is used for the decontamination of workers, materials, and equipment.
- D. Support Zone: The area outside of the decontamination zone. Equipment and personnel are not expected to become contaminated in this area. This is the area where resources are assembled to support the hazardous materials operation.
- E. Generator's Identification Number: An identification number issued by either Environmental Protection Agency (EPA) or California EPA to the generator of hazardous materials.

1.06 CONTRACTOR/SUBCONTRACTOR(S) QUALIFICATIONS

- A. Contractor/Subcontractor performing work under this Section shall have expertise in performing work in hazardous environments requiring 40 hours of OSHA HAZWOPER certification. Contractor shall have locally available, competent, trained personnel under his supervision readily available for emergency and other work assignments.
- B. Contractor performing work under this Section shall manage the work directly. Contractor and/or Subcontractor shall employ personnel well qualified to perform their work in a hazardous environment and shall have experience in performing work in hazardous environments requiring 40 hours of OSHA HAZWOPER certification. All subcontractors shall have locally available, competent, trained personnel under his supervision readily available for emergency and other work assignments
- C. If the Contractor plans to use subcontractor(s) for any of the work described in Article 1.01 - Summary, involving contaminated soil, hazardous substances and/or hazardous waste material, Contractor shall list the subcontractors possessing the

required training and certifications in Section 00430 - Port of Oakland Subcontractors and Supplier List Form in accordance with Section 00200 - Instructions To Bidders, paragraph 5, and submit it with the Bid.

- D. Contractor must provide the following documentation with the submittal of Bid Forms to qualify:
1. A current copy of registration as transporter with the DTSC.
 2. A current inventory or list of company-owned equipment and supplies immediately available for environmental operations.
 3. A current copy of notification from the EPA of Contractor's EPA ID Number.
 4. A current list of personnel (a minimum of 5) trained and certified in accordance with CCR, Title 8, Section 5192 (Cal/OSHA).
 5. Provide documentation of Contractor's experience on similar/related projects for a minimum period of five (5) years.

1.07 EMPLOYEE QUALIFICATIONS

- A. All workers furnished by the Contractor or Subcontractor, as applicable, shall have at least the minimum amount of hazardous waste training required by State and Federal regulations for the work they are employed to perform.
- B. Employees performing work under this section must have the appropriate OSHA training and certification.
- C. All drivers of Commercial Motor Vehicles (CMVs) shall have proof of compliance with USDOT Alcohol and Drug Testing Rules (Title 49, Code of Federal Regulations, Part 382, et al.).

1.08 SUBMITTALS

- A. Contractor shall submit a site-specific Stockpile Management Plan to the Engineer in accordance with Section 02111 – Handling of Potentially Contaminated Materials.
- B. The Contractor shall prepare and submit Daily Field Reports in accordance with Section 02111 – Handling of Potentially Contaminated Materials.
- C. The Contractor shall submit manifests and weight tickets for transport of material to off-site disposal sites. The manifests and weight tickets shall be submitted with the Daily Field Report of the week that the material is transported off-site. Manifests shall be signed by the Port before material and manifests are removed from site.

1.09 HEALTH AND SAFETY

- A. The Contractor shall conduct operations in accordance with the Health and Safety Plan (H&SP) and other plans submitted to and approved by the Engineer as required under Specification 01340 – Safety and Environmental Submittals.

- B. The Contractor shall establish decontamination zones, and support zones in accordance with Specification 01340 – Safety and Environmental Submittals.
- C. The Contractor shall organize and supervise the work to provide for safety and protection of his employees.
- D. Removal and handling of soils shall be performed by trained personnel under Contractor's oversight in accordance with OSHA requirements.
 - 1. The Contractor shall appoint a qualified Site Safety Officer for the duration of the contract.
 - 2. Any personal protective equipment required by the Contractor's H&SP for personnel working within the exclusion zone shall be supplied by the Contractor.
 - 3. The Contractor shall provide all necessary safety gear and equipment.
- E. The Contractor shall maintain chain-link fence around the lined stockpiles and maintain intact fencing and locks during non-operational hours.
- F. The Contractor shall post signs indicating presence of potentially hazardous material in the lined stockpiles.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. The Contractor shall provide materials for stockpile management in accordance with Section 02111 – Handling of Potentially Contaminated Materials.

2.02 EQUIPMENT

- A. The Contractor shall provide equipment in accordance with Section 02111 – Handling of Potentially Contaminated Materials.
- B. Contractor shall furnish and have the following equipment readily available: trucks for delivering and/or removing equipment and materials required for the work; trucks (including tanker trucks) for removing spilled and/or hazardous materials; containment booms; pumps; portable shower units; protective clothing; and all other equipment, tools and safety gear necessary or commonly used in environmental work activities as specified in this Section.

PART 3 - EXECUTION

3.01 STOCKPILE

- A. Hazardous and contaminated materials shall be stockpiled in accordance with Section 02111 – Handling of Potentially Contaminated Materials.

3.02 OFF-SITE DISPOSAL

- A. Hazardous material to be disposed of shall be manifested, placarded, transported, stored, and disposed in accordance with all applicable Federal, State and Local statutes and regulations.
- B. As directed by the Engineer, the Contractor is responsible for completing and obtaining all approvals required by landfills or other facilities for off-site disposal of on-site materials.
- C. Hazardous and contaminated materials designated by the Engineer to be removed from the site covered under the Owner Controlled Insurance Program (OCIP) shall be disposed at sites/designated facilities listed in Document 00805, Supplemental General Conditions-Hazardous Materials.
- D. The Contractor shall prepare and submit all hazardous waste manifests and other paperwork required by the appropriate agencies and authorities in a timely manner. Manifests shall be signed by the Port before material is removed from the Site. The Contractor shall provide the Engineer copies of all manifests showing the quantities of hazardous materials delivered to disposal.
- E. Material determined for off-site disposal as hazardous waste shall be transported under this contract within 90 days of such determination.

3.03 WATER MANAGEMENT AND DISPOSAL

- A. Water Management shall be conducted in accordance with Section 02111 – Handling of Potentially Contaminated Materials and Section 02240 – Dewatering.
- B. The Contractor shall not be responsible for sampling the contaminated water.
- C. The Port may elect to contract separately for transportation and off-site disposal of contaminated water.

3.04 DESIGNATED DISPOSAL FACILITIES

- A. As directed by the Engineer, Contractor shall transport material determined by the Port to require off-site disposal to a Port-approved landfill permitted to accept such waste. Refer to Document 00800, Modifications to Documents 00805 and 00810, for a list of Port-approved disposal sites.
- B. The Contractor shall obtain waste acceptance from landfills based on testing data provided by the Port. Landfills permitted to accept hazardous (RCRA hazardous and California hazardous) and non-hazardous waste shall be contacted by Contractor to obtain waste acceptance.
- C. Manifests shall be signed by the Port before material is removed from the Site. The Contractor shall provide the Engineer copies of all truck transfer manifests showing the quantities of contaminated soils delivered to disposal site(s).

- END OF SECTION -

SECTION 02111

HANDLING OF POTENTIALLY CONTAMINATED MATERIAL

PART 1 - GENERAL

1.01 SUMMARY

- A. The work under this Section includes furnishing all labor, materials, appliances, tools, equipment, transportation, services and supervision required for handling of potentially contaminated materials. The work may include, but not be limited to, the following:
 - 1. Stockpiling, categorizing, reusing, and legally disposing material from on-site excavations.
 - 2. Management of water generated during on-site excavation.
 - 3. Documentation of excavated materials and water management.
 - 4. Completing and obtaining all approvals required by landfills or other facilities for off-site disposal of on-site material, as directed by the Engineer.
- B. Excavated material will be reused on-site if it meets the material requirements specified in Section 02315 - Excavation, Fill, and Subgrade Preparation. Excess material or material not meeting these material requirements shall be stockpiled for off-site transportation and disposal.
- C. All stockpiled material shall be tested on site by the Port before it can be transported off site.

1.02 REFERENCES

- A. Information that must be considered in the development of the Health and Safety Plan and in the performance of the work under this Section is described in the documents listed in Section 00340, Hazardous Material Surveys and are hereafter referred to as the Reports.
- B. The Contractor shall coordinate the work of this Section with related work specified under other Sections, including
 - 1. Section 01340 - Safety and Environmental Submittals
 - 2. Section 01563 - Dust and Air Pollution Control
 - 3. Section 02100 – Handling, Transportation, and Disposal of Hazardous and Contaminated Materials
 - 4. Section 02220 – Removal of Existing Pavements, Utilities, Pipes, and Structures.

5. Section 02240 – Dewatering
6. Section 02315 – Excavation, Fill, and Subgrade Preparation

1.03 PERMITS AND LICENSES

- A. The Contractor shall procure all permits and licenses, pay all charges and fees, and give all notices necessary and incident to the due and lawful prosecution of the work, including providing proper documentation and registration for transporting vehicles carrying contaminated material and hazardous materials.
 1. The CEQA of 1970, Chapter 1433, Stat. 1970 may be applicable to the permits, licenses, and authorizations that the Contractor obtains in connection with performing the work of the contract.
 2. The Contractor shall comply with the provisions of said statutes in obtaining such permits, licenses, and other authorizations.
- B. The Port shall obtain the USEPA Generator Identification Number for off-site disposal of hazardous wastes.

1.04 GOVERNING AGENCIES AND APPLICABLE REGULATIONS

- A. The Contractor shall handle and transport contaminated soil in accordance with the applicable regulations, including, but not limited to the following:
 1. United States Department of Transportation (USDOT)
 2. United States Environmental Protection Agency (USEPA)
 3. Occupational Safety and Health Administration (OSHA)
 4. California Environmental Protection Agency (Cal-EPA)
 5. Department of Toxic Substance Control (DTSC)
 6. California Integrated Waste Management Board (CIWMB)
 7. California Regional Water Quality Control Board (CRWQCB)
 8. State Air Resources Board
 9. Bay Area Air Quality Management District (BAAQMD)
 10. East Bay Municipal Utility District (EBMUD)
 11. Alameda County Health Care Services Agency (ACHCSA)
 12. City of Oakland Fire Department Office of Emergency Services (Local Certified Unified Program Agency (CUPA))

13. Code of Federal Regulations (CFR): 29 CFR Section 1910, 49 CFR Parts 171-178, 40 CFR Parts 262 and 263
14. California Code of Regulations (CCR) Title 8, Sections 1532.1 and 5192, and Title 22
15. California Environmental Quality Act (CEQA) of 1970 (Chapter 1433, Stat. 1970)

1.05 DEFINITIONS

- A. RCRA hazardous waste: Hazardous waste that exceeds the toxicity characteristics (TC) for federal hazardous wastes, 40 Code of Federal Regulation (CFR), Part 262 and Title 22 of CCR.
- B. California hazardous waste: Hazardous waste that exceeds the criteria established by Title 22 of CCR in terms of Total Threshold Limit Concentrations (TTLC) and Soluble Threshold Limit Concentrations (STLC).
- C. Decontamination Zone: Enclosed area adjacent and connected to the exclusion zone; the area is used for the decontamination of workers, materials, and equipment.
- D. Support Zone: The area outside of the decontamination zone. Equipment and personnel are not expected to become contaminated in this area. This is the area where resources are assembled to support the hazardous materials operation.
- E. Generator's Identification Number: An identification number issued by either Environmental Protection Agency (EPA) or California EPA to the generator of hazardous materials.

1.06 SUBMITTALS

- A. The Contractor shall submit a site-specific Stockpile Management Plan to the Engineer for review and approval three weeks prior to commencing work.
- B. The submittal shall be revised and finalized based on Engineer's comments prior to commencing work.
- C. Soil excavation and reuse shall proceed only after Engineer's approval of the submittals.
- D. The Stockpile Management Plan shall include a site plan that delineates lined and unlined stockpile areas, cells and sub-cells for the Port's approval.
- E. As part of the Stockpile Management Plan, Contractor shall prepare Daily Field Reports summarizing daily stockpile management information, as applicable. The reports shall be submitted to the Engineer on a weekly basis, on Friday, or at the Engineer's request. Any corrections to information that was submitted on Friday shall be made no later than the Friday of the following week. Report information

shall be keyed to the stockpile site plan submitted with the Stockpile Management Plan, and shall include the following information.

1. A description of activities performed for all stockpile-related activities, including stockpile management and water management, difficulties encountered related to handling of soils during transportation, and reuse or off-site disposal, and maintenance activities.
 2. Holding tanks used for water management, by number, that are filled to $\frac{3}{4}$ capacity or more. Refer to Section 02240 for dewatering and other water management requirements.
 3. Description (type and size) and locations of holding tanks used for water management, estimates of wastewater volumes pumped into holding tanks, discharge rate and volume estimates, and discharge locations.
 4. The Daily Field Report shall also include a summary of historical or archeological resources found at the site and a map documenting the location in accordance with the Emergency Plan of Action for Discoveries of Unknown Historic or Archaeological Resources (Port of Oakland, June 2002).
- F. The Contractor shall submit manifests and weight tickets for transport of material to off-site disposal sites. The manifests and weight tickets shall be submitted with the Daily Field Report of the week that the material is transported off-site. Manifests shall be signed by the Port before material and manifests are removed from site.

1.07 CONTRACTOR/SUBCONTRACTOR(S) QUALIFICATIONS

- A. Contractor performing work under this Section shall manage the work directly. Contractor and/or Subcontractor shall employ personnel well qualified to perform their work in a hazardous environment and shall have experience in performing work in hazardous environments requiring 40 hours of OSHA HAZWOPER certification. All subcontractors shall have locally available, competent, trained personnel under his supervision readily available for emergency and other work assignments.

1.08 HEALTH AND SAFETY

- A. The Contractor shall conduct operations in accordance with the H&SP and other plans submitted to and approved by the Engineer as required under Specification 01340 – Safety and Environmental Submittals.
- B. The Contractor shall establish exclusion zones, decontamination zones, and support zones in accordance with Specification 01340 – Safety and Environmental Submittals.
- C. Removal and handling of soils shall be performed by trained personnel under Contractor's oversight in accordance with OSHA requirements. Prior to performing any excavation work, all personnel performing excavation work, and all Port Personnel involved in the work, shall complete a safety training program which

meets 29 CFR 1910, 8 CCR 1532.1, and 8 CCR 5192 covering the potential hazards as identified in the H&SP.

1. The Contractor shall appoint a qualified Site Safety Officer for the duration of the contract.
 2. The Contractor shall provide certification of completion of the Safety Training Program for all Contractor personnel.
 3. Any personal protective equipment required by the Contractor's H&SP for personnel working within the exclusion zone shall be supplied by the Contractor.
 4. The Contractor shall provide all necessary safety gear and equipment.
- D. The Contractor shall maintain chain-link fence around the lined stockpiles and maintain intact fencing and locks during non-operational hours.
- E. The Contractor shall post signs indicating presence of potentially hazardous material in the lined stockpiles.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Liner for the stockpiles shall be made of cross-linked polyethylene or high-density polyethylene.
1. The bottom liner shall have a minimum of 40-mil thickness and must be able to resist point-penetration by gravel and have sufficient mechanical strength to handle the ground pressure of at least 10 feet of soil.
 2. The cover shall have a minimum of 10-mil thickness.
- B. Signs: Lined stockpile areas shall clearly be identified as potentially contaminated areas with clear signage in compliance with all applicable regulations. Both lined and unlined stockpiles shall clearly be signed with the assigned identifiers (i.e. L-1).

2.02 EQUIPMENT

- A. The Contractor shall provide necessary equipment for water management.
- B. The Contractor shall provide pumps and draining pipes to collect drainage from the stockpile areas. Rainwater shall not be captured or pumped through the stockpile drainage system.
- C. The Contractor shall provide holding tanks for potentially contaminated water from stockpiles. The Port will provide testing of this water.

PART 3 - EXECUTION

3.01 STOCKPILE OPERATIONS

- A. All soil excavated from the site that meets the material requirements for Engineered Fill as specified in Section 02315 - Excavation, Fill, and Subgrade Preparation will be reused on site. Excess material and material that does not meet these material requirements shall be stockpiled in separate, lined stockpile cells.
- B. All excess material and material that does not meet the material requirements for Engineered Fill, and that does not appear to be contaminated, shall be stockpiled in an unlined stockpile cell. All excess material and material that does not meet the material requirements for Engineered Fill, and that appears to be contaminated, shall be stockpiled in a lined stockpile cell.
- C. All stockpiles are to be constructed by the Contractor such that a berm surrounds each stockpile, and that the bottom liner will not allow water to escape at the seams. All stockpile runoff will be contained within the berm for pumping into holding tanks. The bottom liner shall extend to cover the berm. All stockpiles shall be covered. The cover shall extend to cover the berm, and shall be secured to the ground outside of the berm, in order to prevent rainwater from collecting in the bermed area and being pumped into the holding tanks. The Contractor shall provide a stockpile construction diagram as part of the Stockpile Management Plan submittal. The diagram shall include details on how the stockpile will be lined, drained, and covered.
- D. All new stockpiles are to be constructed to a maximum height of 10 feet and with flat (+/- 6 inches) tops to facilitate sampling activities.
- E. The Contractor shall track and report on soil movement from this project in accordance with Paragraph 1.06 above.
- F. Stockpiles will be tested by the Port. The Port will mobilize a sampling crew after the Contractor gives notice to the Port that excavation activities have been completed or sooner. The Contractor shall notify the Engineer when the stockpile is constructed and ready for sampling. After this notification, the soil in the stockpile cannot be relocated within the stockpile area or anywhere else on the site, nor can soil be added to the stockpile.
- G. Within 14 days from the sampling date the Engineer will provide the Contractor laboratory analytical results for Contractor's use in meeting waste acceptance criteria for offhaul and disposal. This period may be longer depending on the moisture content of soil and the ability of the sampling crew to access top of stockpiles.

3.02 OFF-SITE DISPOSAL

- A. Material that has been classified by the Port as hazardous as defined in paragraph 1.05 of this Section shall be disposed of as specified in Section 02100 – Handling, Transportation, and Disposal of Hazardous and Contaminated Materials.
- B. The Port may elect to contract separately for transportation and off-site disposal of contaminated dewatering water.

3.03 WATER MANAGEMENT

- A. The Contractor shall collect accumulated water from the lined stockpile areas and pump it into holding tanks. Sediment laden standing water, which can not be pumped, shall be collected using absorbent materials. Absorbent materials shall be stored in a closed container on site and labeled appropriately. Materials shall be disposed of as specified in Section 02240 - Dewatering, and as directed by the Engineer.
- B. Should the holding tanks be transported to other areas within the site, the Contractor shall implement appropriate techniques to prevent spillage.
- C. The Contractor is responsible for disposal of water from holding tanks after sampling and testing by the Port. If the water is designated by the Engineer for on-site disposal, the Contractor shall filter the water through sediment filters as directed by the Engineer before discharging water into the storm drain system. Other water determined by the Port to require treatment for petroleum-contamination shall be disposed off-site as specified in Section 02240, Dewatering and as directed by the Engineer.
- D. Water that has been classified by the Port as hazardous as defined in paragraph 1.05 of this Section shall be disposed of as specified in Section 2100 – Handling, Transportation, and Disposal of Hazardous and Contaminated Materials.

3.04 DUST CONTROL MONITORING

- A. The Contractor shall implement the Dust and Air Pollution Control Plan approved by the Engineer. At a minimum, exposed surfaces shall be wetted down with water to minimize fugitive dust emission during soil excavation and transporting of excavated materials to the stockpile areas.
- B. Erosion and dust control measures, such as suppressants, may not be used without prior approval by the Engineer.
- C. Dust control monitoring shall be implemented according to the Dust and Air Pollution Control Plan.

END OF SECTION

SECTION 02220

REMOVAL OF EXISTING PAVEMENTS, UTILITIES, PIPES, AND STRUCTURES

PART 1 GENERAL

1.01 SUMMARY

- A. The work under this Section includes furnishing all labor, materials, appliances, tools, equipment, transportation, services and supervision required for the removal of existing pavement, utilities, pipes, and structures.

The work may include, but not be limited to, the following:

1. Identification of existing utility conflicts.
2. Removing and disposing or salvaging structures, at grade, above grade, and below grade.
3. Removing pavement for grading and trenching purposes and recycling existing pavement for reuse.
4. Cutting, capping, and/or removing existing utilities.
5. Removing existing power and/or light poles, above-ground power cables, pole-mounted light fixtures, railroad tracks and ties, catch basins, storm drain pipe, and existing fencing as shown on the Drawings.
6. Abandoning existing electrical vaults and catch basins.
7. Clearing and removing trash and miscellaneous debris from the Site.

1.02 REFERENCES

- A. Section 02111 – Handling of Potentially Contaminated Material
- B. Section 02240 -- Dewatering
- C. Section 02315 – Excavation, Fill, and Subgrade Preparation

1.03 APPLICABLE STANDARDS AND SPECIFICATIONS

- A. The “Greenbook”: Standard Specifications for Public Works Construction – 2000 Edition.
- B. State Specifications – The Standard Specifications of the State of California, Business and Transportation Agency, Department of Transportation, latest edition

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.01 GENERAL

- A. The area within the limits of work denoted on the Contract Drawings shall be cleared and demolished as indicated on the Drawings or as necessary to complete the work. In areas where grading, trenching, or other operations are to occur, the work described under this section shall be coordinated and scheduled to permit unrestricted completion of other activities.
- B. Verification of Conditions: Verify that field measurements, surfaces, substrates and conditions are as shown on the Drawings, and are ready to receive work.
- C. Verify that survey benchmark and intended elevations for the work are as indicated and are not located in an area that may be impacted by the work. Contractor shall be responsible for installation of temporary survey control points outside the limits of work as necessary to facilitate the work. Permanent survey monuments impacted by the work shall be re-established by a licensed Land Surveyor, at the Contractor's expense, in their original location and to the original elevation.
- D. Report in writing to the Engineer existing conditions not shown on the Drawings that will adversely affect satisfactory execution of the work of this section. Do not proceed with work until unsatisfactory conditions have been corrected to the satisfaction of the Engineer.
- E. Verify that utilities have been disconnected and capped as shown on the Drawings.
- F. Survey existing conditions and correlate with work required to determine the extent of demolition.
- G. Perform surveys as the work progresses to detect hazards resulting from demolition activities.
- H. Notify Engineer immediately upon encountering existing structures or utilities not shown on the Drawings. With Engineer's approval, remove existing structures and utilities required to permit orderly progress of work, unless otherwise shown on the Drawings.
- I. Remove any underground utility foundation or other obstruction encountered during grading or trenching to a depth at least 4.0 feet below

finished grade as described in Paragraph 3.05, unless otherwise directed by the Port or the Engineer.

- J. Contractor shall manage all demolition materials, including soils or debris generated during demolition activities, in accordance with the Contract Documents. This shall include, but not be limited to, all required stockpiling and stockpile management, dewatering and management of dewatering water, coordination of waste sampling by Port personnel, and appropriate off-haul and disposal of materials.

3.02 VERIFICATION OF EXISTING UTILITY CONFLICTS

- A. Prior to commencement of demolition and excavation activities, Contractor shall identify and confirm by potholing if necessary existing utility conflicts.
- B. Utilities shall be protected, cut and capped, and/or demolished, as shown on the Drawing, or as directed by the Engineer. Utilities shall be protected and/or abandoned in accordance with Paragraph 3.08.
- C. Fill potholes to subgrade elevations in accordance with Section 02315 – Excavation, Fill, and Subgrade Preparation.

3.03 DEMOLITION AND CLEARING

- A. Demolish and remove existing structures, concrete pads, pavements, underground utilities, and other materials within the limits of work and as shown on the Drawings.
- B. Remove vegetation, improvements, and/or obstructions interfering with installation of work as indicated on the Drawings. Fill depressions caused by clearing and grubbing operations to subgrade elevation using the required backfill material and meeting the compaction requirement.
- C. Remove demolished concrete from site and transport and place at the Port's designated stockpile located within a 2-mile radius of the project limits.
- D. Conduct demolition operations and remove debris to ensure minimum interference with streets, walks, and other adjacent occupied and in-use facilities. Do not close or obstruct streets, walks, or other adjacent occupied or in-use facilities without permission from the Port and authorities having jurisdiction, including the Port. Traffic to the adjacent STE terminal will have to traverse the job site throughout the construction period. Contractor shall maintain safe access at all time for this traffic.
- E. Conduct demolition operations in such a manner as to prevent injury to people.
- F. Erect temporary protection, such as, fences, barricades, guard rails, and signs where required. All temporary protection must meet Cal-OSHA standards.

- G. Repair demolition performed in excess of that required at no cost to the Port.

3.04 EXISTING ITEMS AND SURFACES DESIGNATED TO REMAIN.

- A. All surfaces, features, and utilities designated to remain in place shall be protected to ensure they are not damaged by the demolition process.
- B. Protect structural integrity of existing structures and structural systems to remain. All work shall be done at the Contractor's own risk, and the Contractor shall be responsible for the methods of demolition and removal employed on this project.

3.05 REMOVAL OF STRUCTURES, OBSTRUCTIONS, AND MISCELLANEOUS CONCRETE

- A. Where indicated on the Drawings, structures, obstructions, and miscellaneous concrete including all or portions of drainage structures, concrete box culverts, and other items that may be encountered shall be removed. All existing miscellaneous concrete shall be removed to a depth of at least 4.0 feet below finished subgrade elevations, unless otherwise specified or designated on the Drawings.
- B. Where new concrete is to join existing concrete, the existing concrete shall be saw cut to a true line with straight vertical edges free from irregularities.
- C. Concrete removal operations shall be performed without damage to any portion that is to remain in place. Any damage to the existing concrete to remain in place shall be repaired to a condition equal to that prior to the beginning of the removal operations, and acceptable to the Port. All costs associated with repairing the damaged concrete due to the Contractor's operations shall be solely at the Contractor's expense.
- D. Existing reinforcement that is to be incorporated into new work shall be protected from damage, and shall be thoroughly cleaned of all adhering material before being embedded into new concrete.

3.06 PAVEMENT REMOVAL

- A. Equipment used for removing existing pavement shall be capable of removing the pavement without excessively disturbing or removing underlying or adjacent materials. Breaking pavement by means of a ball breaker or a gravity hammer will not be permitted.
- B. Pavement removal shall consist of complete removal of the surface asphalt course to the top of the aggregate base course unless otherwise shown on the Drawings.
- C. Concrete pavement to be removed shall be removed, broken into pieces less than 24 inches in diameter, removing any protruding steel dowels or reinforcement, and transported to the Port's designated stockpile.

- D. Bituminous pavement to be removed shall be reclaimed using a process that produces a material with a maximum particle size of 1-1/2-inch in diameter.

3.07 ADJOINING PAVEMENTS DESIGNATED TO REMAIN.

- A. The matching edge of all existing pavements designated to remain shall be saw cut in a straight and true line to as shown on the Drawings. The saw cut edge shall be protected from damage until the finished surface has been completed. Edges that are damaged shall be re-sawn the entire length of the matching joint prior to placing the finished surface.

3.08 CUT AND CAP EXISTING UTILITIES.

- A. Maintain existing utilities to remain in service and protect them against damage during selective demolition operations.
- B. Prior to abandoning any utilities, confirm that service to the utility has been disconnected. Confirm that all conductors have been removed prior to abandoning conduit.
- C. Abandon underground conduit by cutting at existing grade and plugging with Controlled Density Fill.
- D. Abandon underground pipes by cutting pipe and capping with a pipe cap approved by the Engineer. Cap shall be cemented in place or otherwise secured as approved by the Engineer.

3.09 REMOVAL AND DISPOSAL OF EXISTING POWER POLES AND LIGHTING SYSTEMS:

- A. Confirm with the Port of Oakland and PG&E that all electrical utilities have been de-energized.
- B. Disconnect and remove all utility poles, mast arms, brackets, luminaries, wires, transformers, and other items shown on the Drawings "to be removed".
- C. Dispose of removed power poles and related items at a Port-approved off-site disposal or recycling facility.
- D. Backfill excavations created by pole removal to achieve new grades as specified in Section 02315 – Excavation, Fill, and Subgrade Preparation.

3.10 REMOVAL OF CATCH BASINS

- A. Prior to removing catch basins, plug existing storm drain pipes as shown on the Drawings.
- B. Excavate a minimum of 24-inches around catch basin structure and to a sufficient depth to expose entire catch basin structure.

- C. Remove entire catch basin structure, including vault covers, walls, floor, and supporting structures.
- D. Dispose of catch basin demolition debris at the Port's designated stockpile.
- E. If new facilities will not be placed in the excavation, fill excavation and compact fill material in accordance with Section 02315 –Excavation, Fill, and Subgrade Preparation.

3.11 REMOVAL OF PIPES AND CONDUITS

- A. Excavate a minimum of 24 inches outside and to sufficient depth to expose entire length of pipe to be removed.
- B. Break pipe at each end of length to be removed. Plug open ends of any existing storm drain pipe as shown on the Drawings.
- C. Dispose of demolition debris at the Port's designated stockpile.
- D. If new facilities will not be placed in the excavation, fill excavation with Engineered Fill in accordance with Section 02315 –Excavation, Fill, and Subgrade Preparation.

3.12 ABANDONMENT OF PIPES AND CONDUITS

- A. Pipes and conduits to be abandoned as called for on the Plans shall be filled and/or plugged. See Section 03300 Cast-in-Place Concrete, paragraph 2.01 for specification of Lean Concrete and Cement Slurry Grout.

- END OF SECTION -

SECTION 02240

DEWATERING

PART 1 - GENERAL

1.01 SUMMARY

The work under this Section includes furnishing all labor, materials, appliances, tools, equipment, transportation, services, and supervision required for continuously controlling water during construction and disposing of removed water.

1.02 REFERENCES

- A. Section 02111 – Handling of Potentially Contaminated Material
- B. Section 02220 - Removal of Existing Pavements, Utilities, Pipes, and Structures
- C. Section 02315 – Earthwork, Fill, and Subgrade Preparation
- D. Section 02324 – Trenching and Backfilling for Utilities
- E. Section 02370 – Erosion and Sedimentation Control

1.03 SUBMITTALS

- A. Dewatering and Disposal Plan: Prepare and Submit a Dewatering and Disposal Plan to the Engineer for review and approval prior to commencing excavation-related work.
 - 1. At a minimum, the Dewatering and Disposal Plan shall include:
 - a. Descriptions of proposed groundwater and surface water control facilities including, but not limited to, equipment, methods, standby equipment and power supply, pollution control facilities, storage, discharge locations to be utilized, and provisions for immediate temporary water supply as required by this section.
 - b. Drawings showing locations, dimensions and relationships of elements of each system.
 - c. Design calculations demonstrating adequacy of proposed dewatering systems and components.
 - d. Storage and disposal procedures for both water removed from excavated areas and water and materials otherwise generated during the execution of the work.

2. If system is modified during installation or operation, revise or amend, and resubmit the Dewatering and Disposal Plan.
- B. Daily Field Report: Requirements for daily field documentation of dewatering activities are specified in Section 02111 – Handling of Potentially Contaminated Materials.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

3.01 GENERAL

- A. Remove and control water from excavations, stockpiles, interim or finished surfaces, storage areas, or as otherwise necessary to properly accomplish work and protect completed or partially completed work. Protect excavations, subgrades and foundation soils from softening and damage by rain or water accumulation.

3.02 SURFACE WATER CONTROL

- A. See Section 02370 – Erosion and Sedimentation Controls for requirements.

3.03 DEWATERING SYSTEMS

- A. Provide, operate and maintain dewatering systems of sufficient size and capacity to permit excavation and subsequent construction in dry conditions and to lower and maintain groundwater level at or below the lowest point of excavation. Continuously maintain excavations free of water, regardless of source, and until backfilled to final grade.
- B. Design and operate dewatering systems:
1. To prevent loss of ground as water is removed.
 2. To avoid inducing settlement or damage to existing facilities, completed work or adjacent property.
 3. To relieve artesian pressures and resultant uplift of excavation bottom.
- C. Provide sufficient redundancy in each system to keep excavation free of water in event of component failure.
- D. Provide sufficient storage to manage dewatering water on-site prior to transportation off-site for disposal.

3.04 MONITORING FLOWS

- A. Monitor flow using measuring devices acceptable to the Port. See Section 02111 – Handling of Potentially Contaminated Materials for requirements for flow monitoring and reporting

3.05 DISPOSAL OF WATER

- A. Notify Engineer prior to discharging water collected by dewatering operations. Port will designate water for either on-site discharge or off-site transportation and disposal.
- B. If the water is designated by the Port for on-Site disposal, the Contractor shall filter the water through sediment filters before discharging to the storm drain system, as directed by Engineer. Contractor shall clean sediment filters as needed to maintain operation.
- C. Discharge water as authorized by the Port and in manner that will not cause erosion or flooding, or otherwise damage existing facilities, completed work or adjacent property.
- D. Port will test and characterize water not designated for on-site disposal.
- E. If the Port determines that the water collected by the dewatering operation requires treatment for petroleum-contamination, the Contractor shall transport and dispose of the dewatering water at a Port-approved non-hazardous disposal facility. The Contractor shall provide all on-site holding tank(s) required to accommodate dewatering operations and storage of water pending Port environmental screening, treatment, and/or off-site disposal. The Contractor shall not be responsible for sampling or treating the petroleum-contaminated water.
- F. The Port may elect to contract separately for transportation and off-site disposal of contaminated dewatering water.

3.06 DISPOSAL OF MATERIALS

- A. Absorbent materials used in stockpile management shall be stored in a closed container on site until completion of the work.
- B. Materials shall be legally disposed of in an appropriate manner, as determined by the Port.

- END OF SECTION -

SECTION 02260

EXCAVATION SUPPORT AND PROTECTION

PART 1 GENERAL

1.01 SUMMARY

- A. The work under this Section includes furnishing all labor, materials, appliances, tools, equipment, transportation, services, and supervision required for designing, furnishing, installing, maintaining, and removing excavation support systems, and for the protection and restoration of adjacent structures, including repair of any settlement-related damage.

1.02 REFERENCES

- A. Section 02240 - Dewatering.
- B. Section 02315 – Excavation, Fill and Subgrade Preparation.
- C. Section 02324 - Trenching and Backfilling for Utilities.

1.03 APPLICABLE STANDARDS AND SPECIFICATIONS

- A. Regulatory requirements which govern the work of this Section include, but may not be limited to, the following governing codes:
 - 1. California Code of Regulations, Title 8, Chapter 4, Subchapter 4 - Construction Safety Orders, and Subchapter 19 - Trench Construction Safety Orders.
 - 2. California Code of Regulations, Title 24, Part 2, California Building Code.

1.04 SUBMITTALS

- A. For excavation support and protection, submit shop drawings, calculations, and test reports prepared, sealed, and signed by a professional civil or structural engineer currently registered in the State of California.
- B. Submit detail plans for worker protection for excavations of trench or similar excavation five feet or more in depth. No such plan shall allow the use of a shoring, sloping, or protective system less effective than that required by the Cal-OSHA Construction Safety Orders. Include evaluation of the effects of dewatering, if applicable.
 - 1. Excavations, regardless of depth, shall comply fully with the requirements of the California Building Code.

PART 2 PRODUCTS

2.01 EQUIPMENT AND FACILITIES

- A. The Contractor shall furnish all tools, equipment, devices, appurtenances, facilities, and services for the construction and removal of excavation support systems as indicated or required.

PART 3 EXECUTION

3.01 INSTALLATION REQUIREMENTS

- A. Install excavation support systems for safety and preservation of workers and existing improvements. Excavation support systems shall consist of structures designed by the Contractor to support the various excavations.
- B. Construct support systems in accordance with approved Shop Drawings and in a manner that will ensure that supported faces will be stabilized. Provide for additional soil pressure caused by adjacent surcharge loads.

3.02 REMOVAL OF EXCAVATION SUPPORT SYSTEMS

- A. If removal is required wholly or in part, perform such removal in a manner that will not disturb or damage adjacent buildings, structures, construction, or utilities. Fill voids immediately with lean concrete or with approved backfill compacted to the relative compaction for the location as specified in Section 02315 – Excavation, Fill and Subgrade Preparation.
- B. Excavation support systems around new concrete construction areas shall be left in place until concrete walls and structures to receive the transferred loading from the removed support system have reached 100 percent of the specified compressive strength at 28 days unless pre-cast structures are used. Strength test results that show the concrete has reached the specified strength prior to 28 days may be sufficient to demonstrate that loads can be transferred from the support system to the concrete structure.

3.03 RESTORATION

- A. Restore existing structures to conditions equivalent to those existing prior to the start of work, including repair of settlement-related damage.

- END OF SECTION -

SECTION 02315

EXCAVATION, FILL, AND SUBGRADE PREPARATION

PART 1 GENERAL

1.01 SUMMARY

- A. The work under this Section includes furnishing all labor, materials, appliances, tools, equipment, transportation, services, and supervision required for excavating, filling, grading, installing Port-furnished materials, and furnishing and installing aggregate base, and drain rock as shown on the Drawings and as specified herein.

1.02 REFERENCES

- A. Section 01330 – Submittals
- B. Section 01340 – Safety and Environmental Submittals
- C. Section 02111 – Handling of Potentially Contaminated Material

1.03 APPLICABLE STANDARDS AND SPECIFICATIONS

- A. AASHTO Specifications – The Standard Specifications of the American Association of State Highway and Transportation Officials, latest (English system) edition
- B. State Specifications – The Standard Specifications of the State of California, Business and Transportation Agency, Department of Transportation, latest edition.
- D. Materials Manual – Materials Manual of Testing and Control Procedures, State of California, Business and Transportation Agency, Department of Transportation, latest (English system) edition.
- E. American Society for Testing and Materials (ASTM)

1.04 DEFINITION OF TERMS

- A. Engineered Fill or Backfill: Soil or soil/rock materials placed to raise the existing grade of the site or to backfill excavations. This material is Port supplied and on-site.
- B. On-Site Material: Material obtained from the required excavation work on the site.
- C. Import Material: Material obtained from off-site borrow areas. Import material is not anticipated to be required for this project.

- D. Port-furnished Material: Aggregate, sand and fill provided on site of from within 2 miles of the Project site.
- E. Finish Grade: The elevation of the top surface of uppermost material shown on the drawings.
- F. Pavement: The uppermost layer of material placed over the aggregate base course.
- G. Aggregate Base Course: The layer of specified material of planned thickness placed immediately below pavement and above subgrade soils.
- H. Drain Rock: The layer of specified material of planned thickness placed immediately below subsurface structures and above subgrade soils.
- I. Subgrade: The soils upon which the aggregate base course is placed.
- J. Dry Density: the weight of soil solids per unit of total volume of soil mass, as determined by ASTM D 1557.
- K. Maximum Dry Density: The maximum dry density of the material shall be as determined by ASTM D 1557.
- L. Moisture Content: The ratio, expressed as a percentage, of the weight of water in a given soil mass to the weight of solid particles, as determined by ASTM D 1557.
- M. Optimum Moisture Content: The water content at which a soil can be compacted to the maximum dry density by a given compactive effort.
- N. Degree of Compaction or Relative Compaction: The ratio, expressed as a percentage, of the in-place dry density of the compacted fill material to the maximum dry density of the same material as determined by ASTM Test Designation D 1557.

1.05 SUBMITTALS

- A. Submit an excavation, stockpile management and fill placement plan to the Engineer for review and approval prior to commencing work. The plan shall illustrate the sequence of subgrade preparation, stockpile excavation and placement of engineered fill. The plan shall demonstrate any necessary temporary stockpiling of on-site fill and the onsite aggregate base stockpile.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Engineered Fill:

1. A soil/rock mixture, free from organic matter contamination, or other deleterious substances, with a suitable particle size gradation so that it can be placed to give a dense compact non-yielding fill or backfill, and a minimum R-value of 50 as determined by California Test Method No. 301.
 - a. Neither rock or rock fragments larger than three inches in greatest dimension; not more than 15 percent of which shall be larger than 1 inch in greatest dimension; shall be used as Engineered Fill.
 2. Where on-site material is intended for reuse as Engineered Fill, Contractor shall obtain Port certification that intended material is suitable for intended use.
 3. Contractor shall collect representative samples of excavated on-site material for R-value and gradation testing at an approved geotechnical laboratory. Excavated on-site material conforming to the above requirements and approved by the Engineer may be certified for use as Engineered Fill.
- B. Backfill: Backfill shall conform to the requirements for Engineered Fill.
- C. Aggregate Base: Port supplied from onsite stockpile as shown on the Plans.
- D. Structure Backfill: Structure backfill material for structural walls and footings of manholes and catch basins shall be Port supplied aggregate base or Class 2 Aggregate Base conforming to State Standard Specifications Section 26-1.02.
- E. Drain Rock: Drain rock shall be clean 3/4-inch maximum, hard, sound, durable, uniform in quality, and free of any detrimental quantity of soft, friable, thin elongated, or laminated pieces, disintegrated material, organic material, oil, alkali, or other deleterious substance. Drain Rock shall meet the following gradation requirements.

<u>Sieve Size</u>	<u>Percentage Passing</u>
1 inch	100
¾ inch	90-100
No. 4	0-10
No. 200	0-2

PART 3 EXECUTION

3.01 EARTHWORK

- A. Perform earthwork in accordance with the applicable provisions of Section 19,

“Earthwork”, of the State Specifications, except as otherwise specified.

3.02 EXCAVATION

- A. The Contractor shall excavate native soil, fill soils, and existing aggregate in cut areas and fill areas above subgrade elevations shown on the Drawings.
- B. Engineer will observe excavated material and will direct the Contractor to segregate soil that appears to be contaminated with petroleum hydrocarbons, based on visual evidence of contamination. For material that does not appear to be contaminated, Engineer will direct Contractor to segregate soil that is geotechnically suitable for use as Engineered Fill
- C. Contractor shall separately stockpile excavated soil that is unsuitable for use as Engineered Fill in accordance with Section 02111 – Handling of Potentially Contaminated Material. The Port will collect soil samples from the stockpiles for laboratory analysis as needed.
- D. Drilled Excavations: Vertical drilled shafts shall be plumb to within 2-1/2 in. for each 20 ft. of depth, and shaft top elevations shall be to plus 1 in., minus 3 in. When drilling operation reaches a point where caving conditions are encountered, Contractor shall stop drilling until construction method is employed which will minimize caving.

3.03 SUBGRADE PREPARATION

- A. Prior to placing Engineered fill, drain rock, aggregate based, and concrete slabs on the prepared subgrade, remove runts and other uneven surface by surface grading.
- B. In areas to receive fill or backfill, scarify and recompact the top 6-inches of subgrade to a minimum density of 95% maximum dry density per ASTM D 1557.
- C. Field –verify and adjust existing grades as necessary to meet requirements for new grades as shown on the Drawings.

3.04 ENGINEERED FILL

- A. Contractor shall remove any organic material and any rock fragments larger than three inches in greatest dimension.
- B. Fill shall be placed to the elevations shown on the Drawings as follows:
 - 1. Build up grades from scarified subgrade in 6-inch or less lifts, each lift compacted to 95% maximum dry density per ASTM D 1557, until the elevation reaches 6-inches below the bottom of base course.
- C. The top 6-inches of Engineered Fill below the bottom of the base course shall be compacted to 98% maximum dry density per ASTM D 1557.
- D. Each layer shall be tested for conformance with these Specifications and approved by the Engineer prior to the placement of successive layers.

- E. Fill slopes shall be a maximum of 2 horizontal to 1 vertical.

3.05 AGGREGATE BASE PLACEMENT

- A. Spread and compact the aggregate base course on the prepared subgrade in conformity with the lines, grades and dimensions shown on the drawings, and in accordance with the applicable provisions of Section 26, "AGGREGATE BASE", of the State Specifications, except as specified below.
- B. Aggregate base shall be deposited and spread without segregation of aggregate and each layer shall be free from pockets of coarse or fine materials. Any such pockets shall be reworked to give a uniform layer.
- C. Contractor shall not place aggregate base and recycled asphalt aggregate base as separate lifts at the same horizontal location. These materials shall be placed and compacted at separate horizontal locations.
- D. Compact all aggregate base to a minimum density of 98% of the maximum dry density per ASTM D1557. A heavy vibratory roller may be needed to obtain the required compaction.

3.06 EROSION AND PONDING PREVENTION

- A. Positive surface gradients shall be maintained during construction to prevent ponding during construction. Provide temporary drainage as required to prevent ponding of water during construction.
- B. Takes necessary measures to prevent damage from erosion.

3.07 TECHNIQUES AND TOLERANCES

- A. Grade areas to smooth uniform surface. Prepare subgrade surfaces shall be sloped uniformly between points where elevations are given or between such points and natural grade. Round smooth any abrupt changes in slopes unless otherwise indicated on the drawings.
- B. Prepare subgrade surfaces and prepared aggregate base surfaces shall not vary more than 0.05 feet above or below the required grade.

- END OF SECTION -

SECTION 02324

TRENCHING AND BACKFILLING FOR UTILITIES

PART 1 GENERAL

1.01 SUMMARY

- A. The work under this Section includes furnishing all labor, materials, appliances, tools, equipment, transportation, services, and supervision required for trenching and backfilling for utilities. The work may include, but not be limited to, the following:
 - 1. Excavating trenches for utilities; bedding and cover of pipe and conduit; compacted fill from top of utility bedding to subgrade elevations; and backfilling and compaction.

1.02 REFERENCES

- A. Section 02240 - Dewatering
- B. Section 02260 – Excavation Support and Protection
- C. Section 02315 – Excavation, Fill, and Subgrade Preparation
- D. Section 02510 – Firewater Distribution Systems
- E. Section 02530 – Storm Drain Systems
- F. Section 03300 – Cast-In-Place Concrete
- G. Section 16302 – Underground Electrical Work

1.03 APPLICABLE STANDARDS AND SPECIFICATIONS

- A. State Specifications – The Standard Specifications of the State of California, Business and Transportation Agency, Department of Transportation, latest edition.,
- B. East Bay Municipal District (EBMUD) requirements.
- C. American Society for Testing and Materials (ASTM), standards and tests referred to.
- D. American Association of State Highway and Transportation Officials (AASHTO or AASHO), standards and tests, as referred to.

1.04 DEFINITIONS

- A. Utility: Any buried pipe, duct, conduit, cable, or storm drain.

1.05 SUBMITTALS

- A. Submit details of proposed sheeting and bracing proposed for review in accordance with Section 02260 – Excavation Support and Protection.

1.06 FIELD MEASUREMENTS

- A. Verify field measurements prior to fabrication.

1.07 COORDINATION

- A. Verify work associated with lower elevation utilities is complete before placing higher elevation utilities.

PART 2 PRODUCTS

2.01 FILL MATERIALS

- A. On-site Material conforming to Section 02315 – Excavation, Fill, and Subgrade Preparation may be used as fill.
- B. Engineered Fill: Refer to Section 02315 – Excavation, Fill, and Subgrade Preparation.
- C. Pipe bedding: Clean sand from Port-supplied stockpile as shown on the Plans.
- D. Bentonite Plug: Pure bentonite clay.

2.02 GEOTEXTILE MATERIAL

- A. Geotextile fabric shall meet the requirements specified in Section 02315 - Excavation, Fill, and Subgrade Preparation

PART 3 EXECUTION

3.01 LINES AND GRADES

- A. Grades:
 - 1. Lay pipes true to lines and grades indicated on the Drawings.
 - 2. Maintain grade alignment of pipe by use of string line parallel with grade line and vertically above centerline of pipe. Establish line on level batter boards at intervals of not more than 25 feet. Batter boards shall span trench and be rigidly anchored to substantial posts driven into ground on each side of trench. Set three adjacent batter boards before laying pipe to provide check on grades and line. Determine elevation and position of string line from elevation and position of offset points or stakes located along pipe route. Pipe shall not be laid using side lines for line or grade.
 - 3. As alternative means of establishing alignment and grade, utilize "Laser-Beam" instrument with competent operator.
- B. Location of Pipe Lines:
 - 1. Location and approximate depths of proposed pipe lines shall be as shown on the Drawings.

2. The Engineer reserves right to make changes in lines, grades, and depths of pipe lines and manholes.
3. If the Contractor discovers errors on the Drawings with regards to the pipeline lines, grades, and depths, the Contractor shall notify the Engineer immediately, and cease construction on the portion of the project in question until direction has been received from the Engineer in writing.

3.02 PREPARATION

- A. Identify required lines, levels, contours, and datum locations.
- B. Protect benchmarks, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.
- C. Maintain and protect above and below grade utilities that are to remain.
- D. Cut out soft areas of subgrade not capable of compaction in place as described in Paragraph 3.03E.

3.03 EXCAVATING

- A. Excavate subsoil required for utilities.
- B. Cut trenches sufficiently wide to enable installation and allow inspection. Remove water or materials that interfere with Work.
- C. Do not interfere with 45-degree bearing splay of foundations.
- D. Hand trim excavation. Hand trim for bell and spigot pipe joints. Remove loose matter.
- E. Bottom of excavation shall be firm, undistributed earth or cut subgrade. When soft soils areas are encountered, the unstable material shall be removed to a depth of 12-inches and the unsuitable material stockpiled in accordance with Section 02111 – Handling of Potentially Contaminated Material and legally disposed off-site. Soft soil material removed from the excavation shall be replaced with drain rock or CDF, as directed by the Engineer. To place drain rock, geotextile meeting the requirements of Section 02315 - Excavation, Fill, and Subgrade Preparation shall be placed on the excavation bottom and the sidewalls of the excavation prior to placement of drain rock. Installation shall conform to manufacturer's recommendations and shall not contain wrinkles and shall be folded over the top of the drain rock and overlapped a minimum of 2 feet. Correct over-excavated areas as described above in this paragraph and compact to density equal to or greater than requirements for subsequent backfill material.
- E. Stockpile excavated material in area designated on site and remove excess material, not being used, to a Port site within 2 miles of the Project site, as directed by the Engineer.

3.04 TRENCHING

- A. Excavations:

1. Prior to trenching, the Contractor shall locate and expose all existing utilities to be protected during construction.
2. Excavate so that pipe can be laid and jointed properly. Make trench so that pipe can be laid to alignment and depth as shown on Drawings; excavate only so far in advance of pipe laying as permitted by the Engineer. Excavation shall not be more than 2 feet wider at bottom than outside diameter of pipe or structure. If there is no interference with construction or adjacent property, and if soil permits, side walls of excavation may be sloped starting at a point 2 feet above top of pipe.
3. Excavate trench to depth required to provide uniform and continuous bearing and support for pipe on bedding material at every point between joints, except where pipe slings or other lifting tackle are withdrawn.
4. Excavation Below Grade:

Where subsurface materials at the bottom of the trench are in a loose or soft state (i.e., soft soil conditions), the Contractor shall over-excavate to firmer material or to a maximum depth of 12-inches below the bottom of the pipe. Loose or soft material over-excavated from the trench shall be replaced as specified in Paragraph 3.03 of this Section.

Excavation within 24-inches of existing utilities shall be governed by the respective utility's requirements.

3.05 BEDDING AND COVER

- A. Hand trim excavation for accurate placement of pipe to elevations indicated.
- B. Bedding shall be pipe bedding as shown on the Drawings. Provide bedding depth as indicated on the Drawings. Provide firm and uniform support of piping and conditions at indicated elevations and grades. Tamp or compact bedding to 90% maximum dry density per ASTM D1557.
- C. Place bedding material at trench bottom, level materials in continuous layer..
- D. Maintain optimum moisture content of bedding material to attain required compaction density.

3.06 BACKFILLING

- A. Engineered Fill placement shall conform to the requirements of Section 02315 – Excavation, Fill, and Subgrade Preparation
- B. Backfill trenches to elevations shown on the Drawings.
- C. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet or spongy subgrade surfaces.
- D. Employ placement method that does not disturb or damage utility in trench, foundation perimeter drainage, or other facilities.

- E. Remove surplus fill materials from site.
- F. Install 3-foot long bentonite plugs in trench every 300 feet and within 50 feet of where a lateral pipe enters a main pipe.

3.07 FIELD QUALITY CONTROL

- A. Compaction testing will be performed by the Port in accordance with ASTM D 1557.
- B. If tests indicate Work does not meet specified requirements, remove Work, replace, and compact at no additional cost to the Port.
- C. Minimum frequency of Tests: One test per every other lift per every 100 linear feet of trench.

3.08 PROTECTION OF FINISHED WORK

- A. Reshape and re-compact fills subjected to vehicular traffic during construction.

3.09 COMPACTION

- A. All backfill shall be compacted in accordance with the requirements of Section 02315 – Excavation, Fill, and Subgrade Preparation. Jetting of fill and backfill materials is not allowed.

- END OF SECTION -

SECTION 02370

EROSION AND SEDIMENTATION CONTROL

PART 1 - GENERAL

1.01 SUMMARY

- A. The work under this Section includes furnishing all labor, materials, appliances, tools, equipment, transportation, services, and supervision required for preparing and implementing a Storm Water Pollution Prevention Plan (SWPPP). The plan shall be implemented before and during precipitation events, and shall provide for permanent post-construction storm water pollution controls following completion of construction. Contractor shall assume responsibility for all damages, delays, government-imposed penalties or fines, and claims which result from Contractor's negligent storm water pollution control practices.

1.02 REFERENCES

- A. Section 01340 – Safety and Environmental Submittals
- B. Section 02220 – Removal of Existing Pavements, Utilities, Pipes, and Structures.
- C. Section 02315 – Excavation, Fill, and Subgrade Preparation
- D. Section 02324 – Trenching and Backfilling for Utilities.

1.03 DEFINITIONS

- A. Storm Water Pollution Controls: Structural and non-structural measures provided by Contractor before, during, and after a rainfall event to minimize rainfall runoff from the Site, prevent on-site sediment from being carried off-site, and limit pollutant load to rainfall runoff.

1.04 SUBMITTALS

- A. Prepare and Submit a SWPPP for review and approval by the Port.
 - 1. The Port will file a Notice of Intent under the State Water Resources Control Board NPDES General Permit for Storm Water Discharges Associated with Construction Activity ("General Permit"). The Contractor is responsible for providing qualified persons and equipment for implementation of monitoring and verifying compliance with the General Permit. A copy of the site-specific SWPPP prepared by the Contractor and approved by the Port, and the Contractor's training, monitoring, and maintenance records shall be maintained on the Site at all times. Storm water pollution controls implemented by the Contractor shall conform to State Water Resources Control Board, City of Oakland, Alameda County, and the SWPPP. The

storm water pollution controls implemented by the Contractor shall be best management practices ("BMP"), such as those described in the California Storm Water Best Management Practice Handbooks (Storm Water Quality Task Force, March 1993).

2. The SWPPP shall also include provisions to address all requirements of this Section.

1.05 SPILLS

- A. In the event of a spill in violation of California Fish and Game Code Section 5650, or release of a hazardous substance (as designated in 40 CFR 302), pollutant, contaminant, or oil (as governed by the Oil Pollution Act (OPA), 33 U.S.C. 2701 et seq.) the Contractor shall notify the Engineer immediately. If the spill exceeds the reporting threshold, the Contractor shall follow the pre-established procedures for immediate reporting to the appropriate regulatory agencies. Immediate containment actions shall be taken to minimize the effect of any spill. Spill clean-up and testing that may be required to verify spills have been cleaned up shall be done at the sole expense of the Contractor.

1.06 SPILL RESPONSE MATERIALS

- A. Contractor shall provide and maintain on-site response materials including, but not limited to, containers, adsorbent, shovels, and personal protective equipment. Spill response materials shall be available at all times when hazardous materials/wastes are being handled, stored, or transported. Spill response materials shall be compatible with the type of material being handled.

1.07 PROTECTION OF WATER RESOURCES

- A. Contractor shall control the disposal and use of chemicals, petroleum products and foreign or hazardous materials, both on and off-site and shall comply with applicable federal, state, county and municipal laws concerning pollution of soil, groundwater, rivers, and streams. Special measures shall be taken to prevent chemicals, petroleum products, construction materials, foreign substances, or hazardous materials from entering soil, groundwater, or public waters.
- B. Water used in on-site material processing, concrete curing, foundation and concrete clean-up, and other waste waters shall not be allowed to enter public waters.

1.08 EROSION CONTROL

- A. Surface drainage from cuts and fills within the construction limits, whether or not completed, and from borrow areas, shall be graded to control erosion within limits defined in the SWPPP for storm water control.
- B. Temporary control measures shall be provided and maintained until permanent drainage facilities are completed and operative. Such measures shall include, but not be limited to, hay bales, straw rolls, vegetation buffers and silt fencing.

- C. The area of bare soil exposed at any one time by construction operations shall be held to a minimum.

PART 2 - PRODUCTS

See SWPPP for requirements.

PART 3 – EXECUTION

3.01 EROSION CONTROLS DURING SITE WORK

- A. Contractor shall provide controls to minimize storm water runoff from exposed soil on the Site or any excavations, and prevent sediment, especially sediment potentially containing petroleum hydrocarbons, from leaving the Site.
- B. Contractor shall provide controls so that storm water does not accumulate in excavations, pits, or trenches constructed during the Work. Contractor shall be responsible for the removal treatment (if required), and proper disposal of any rainwater that has accumulated in excavations, pits, or trenches prior to the pits being backfilled.
- C. Other BMPs, such as covering stored material, and fuel and chemical storage, shall be addressed in the SWPPP and shall be implemented at the Site.
- D. If Engineer observes conditions that are not in compliance with the SWPPP or Laws and Regulations, Engineer will notify Contractor. Contractor shall provide a remedy immediately. If Contractor fails to take appropriate action, the Port will provide a remedy and deduct the costs of the remedy from the amount due to Contractor.

3.02 EROSION CONTROLS AFTER WORK IS COMPLETE

- A. Contractor shall maintain the existing storm drain system, both during and after work activities, including the catch basin inlets and piping as shown on the Drawings. After work activities are complete, Contractor shall leave the Site such that there are no obstructions that will prevent rainfall runoff from flowing into catch basins. Contractor shall also clean out catch basins and piping after work activities are complete, including replacing any gratings that were damaged during the work.
- B. After work activities are complete, Contractor and Engineer shall inspect the conditions of the installed storm water pollution controls to verify adequacy and performance prior to the Port's filing of a Notice of Termination for the General Permit.

-END OF SECTION-

SECTION 02510

FIREWATER DISTRIBUTION SYSTEM

PART 1 - GENERAL

1.01 SUMMARY

- A. The work under this Section includes furnishing all labor, materials, appliances, tools, equipment, transportation, services, and supervision required for installation of a fire protection water distribution system. The work may include, but not be limited to, the following:
 - 1. Furnishing, installing, modifying and testing of fire protection water systems for this Project including: piping, valves and hydrants, layout and construction surveying, tapping sleeves, valve boxes, casings, corrosion protection, necessary disconnections, meters, meter spools, cleaning, testing, and all other necessary materials and construction, as shown on the plans, specified herein.
 - 2. Piping and specialties for fire-protection water yard service.
 - 3. Connecting to pipe stubs as shown on the Drawings and furnishing and installing of utility-furnished products.
 - 4. Site investigation of existing utilities for piping connections.
 - 5. Excavation, bedding and backfilling required for installation.
- B. Contractor shall pay for the connection fees and charges.

1.02 REFERENCES

- A. Section 02315 - Excavation, Fill, and Subgrade Preparation
- B. Section 02324 - Trenching and Backfilling for Utilities
- C. Section 03300 – Cast-in-Place Concrete

1.03 APPLICABLE STANDARDS AND SPECIFICATIONS

- A. American Waterworks Association Standard Specification (AWWA), latest edition.
- B. National Fire Protection Association (NFPA), No. 24, Standard for the Installation of Private Fire Service Mains and Their Appurtenances.
- C. Underwriters Laboratories (UL), Standards.
- D. National Sanitation Foundation (NSF).

- E. American Society for Testing and Materials (ASTM).
- F. City of Oakland Plumbing Code.
- G. East Bay Municipal Utility District (EBMUD) Rules and Regulations and Standard Drawings.

1.04 DEFINITION OF TERMS

- A. Exposed, Exterior Installations: Exposed and subject to outdoor ambient temperatures and weather conditions. Example is in vault installations.
- B. Concealed, Exterior Installations: Concealed below grade buried in the ground or encased in concrete.
- C. Fire Protection Water Distribution Systems: Water piping from EBMUD pipes to and throughout the container yard serving fire.
- D. The following are industry abbreviations for plastic materials:
 - 1. PVC: Polyvinyl Chloride plastic.

1.05 SYSTEM PERFORMANCE REQUIREMENTS

- A. Provide components and installation capable of producing piping systems with the following minimum working-pressure ratings, unless otherwise indicated:
 - 1. Fire Protection Piping: 200 psig

1.06 SUBMITTALS

- A. The following shall be submitted in accordance with Division 1:
 - 1. Complete Schedule of Materials: Submit as one package. Partial submittals will not be accepted.
 - 2. Submit manufacturer's names, catalog numbers, brand names, catalog cuts, drawings, and other descriptive data and ratings as may be required. Review will be based on the manufacturer's published ratings.
 - 3. The submittal shall include, but is not limited to, pipes, pipe fittings, couplings, fire hydrants, and identification materials.
 - 4. Shop drawings of water service points of connections.
 - 5. Shop Drawings: Verify by excavation, inspection and measurement all installation conditions for shop fabricated pipe before preparation of Shop Drawings. Submit field measurements and photos with Shop Drawings where exposed conditions are significantly different than indicated on the Drawings. Submit detailed installation drawings of all piping, Detail fabrication and installation for metal supports and anchorage for mechanical

materials and equipment, planned piping layout, including valve and specialty locations.

6. Water Samples, Test Results, and Reports: Specified in "Field Quality Control" and "Cleaning" Articles of this Section.
7. Product Data for the following:
 - a. Fire hydrants.
 - b. Pipe and fittings.
 - c. Valves.
 - d. Pipe support system.
 - e. Appurtenant components of the water systems.
8. Coordination Plans: For piping and specialties including relation to all other affected and utility services and facilities in same area. Show piping, valves, sizes, locations, elevations and other information necessary for coordination. Also show clearances for servicing and maintaining equipment, accessories, and specialties, including space for disassembly required for periodic maintenance.
9. Record Plans: At Contract closeout of installed water-service piping systems according to Division 1, Section 01780, "Project Record Document."
10. Test Reports: As specified in "Field Quality Control" Article in Part 3 of this Section.
11. Purging and Flushing Reports: As specified in "Cleaning" Article in Part 3 of this Section.
12. Maintenance Data: Include data for the following conforming to the General Provisions:
 - a. Valves.
 - b. Fire hydrants.
13. Operations and Maintenance Manuals and Warranties.

1.07 QUALITY ASSURANCE

- A. All materials and equipment furnished under this Section shall be from manufacturers who have been regularly engaged in the design and manufacture of such materials and equipment for a period of at least 5 years. Demonstrate to the satisfaction of the Engineer that the quality is equal to the materials and equipment made by those manufacturers specifically named herein if an alternate product manufacturer is proposed.

- B. Provide listing/approval stamp, label, or other marking on piping and valves made to specified standards.
- C. Comply with standards of EBMUD or authorities having jurisdiction for potable water-service piping. Include materials, installation, testing, and disinfection.
- D. Comply with standards of authorities having jurisdiction for fire-protection water-service piping. Include materials, hose threads, installation, and testing.
- E. Comply with NFPA 24, "Installation of Private Fire Service Mains and their appurtenances," for materials, installations, tests, flushing, and valve and hydrant supervision.
- F. Comply with ASTM F 645, "Guide for Selection, Design, and Installation of Thermoplastic Water Pressure Piping Systems."
- G. Provide electrically operated specialties and devices specified in this Section that are listed and labeled by a "Nationally Recognized Testing Laboratory" as defined in OSHA Regulation 1910.7.
- H. Comply with the manufacturer's recommendations and specifications.
- I. Comply with the National Sanitation Foundation Standard 61 for contact with Potable Water.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Prepare valves for transport according to the following:
 - 1. Ensure that valves are dry and internally protected against rust and corrosion.
 - 2. Protect valves against damage to threaded ends and flange faces.
 - 3. Set valves in best position for handling. Set valves closed to prevent rattling.
 - 4. Pipe and fittings shall be carefully handled during hauling, unloading, and placing to avoid damage.
 - 5. Cracked, chipped, or otherwise damaged units shall be discarded and replaced to the satisfaction of the Engineer.
- B. Use precautions for valves during storage according to the following:
 - 1. Do not remove end protectors, unless necessary for inspection; then reinstall for storage.
 - 2. Protect from weather. Store indoors and maintain temperature higher than ambient dew-point temperature. Support off the ground or pavement in watertight enclosures when outdoor storage is necessary.

- C. Rig valves to avoid damage to exposed valve parts during handling. Do not use handwheels or stems as lifting or rigging points.
- D. Deliver piping with factory-applied end-caps. Maintain end-caps through shipping, storage, and handling to prevent pipe-end damage and to prevent entrance of dirt, debris, and moisture.
- E. Protect stored piping from moisture and dirt. Elevate above grade.
- F. Protect flanges, fittings, and specialties from moisture and dirt.
- G. Store plastic piping protected from direct sunlight. Support to prevent sagging and bending.

1.09 PROJECT CONDITIONS

- A. Verify that water-service piping can be installed to comply with original design and referenced standards.
- B. Site Information: Reports on subsurface condition investigations made during design of Project are available for informational purposes only; data in reports are not intended as representations or warranties of accuracy or continuity of conditions between soil borings. The Port assumes no responsibility for interpretations or conclusions drawn from this information.
- C. Existing Utilities: Do not interrupt utilities serving facilities occupied by tenants or others unless permitted after notifying the Engineer five days in advance of proposed utility interruptions and then only after arranging to provide temporary utility services.

1.10 SEQUENCING AND SCHEDULING

- A. Coordinate connection to water piping in other phases of the work.
- B. The Contractor shall give a written minimum 10 working days notification to the Port to schedule an outage of existing pipeline, prior to any connection work in the field.
- C. Coordinate with other Contractors.

PART 2 - PRODUCTS

2.01 PIPES AND TUBES

- A. General: Applications of the following pipe and tube materials are indicated in Part 3, Article 3.03 "Piping Applications".
- B. Ductile-Iron Pipe: AWWA C151, 250-psig minimum pressure rating with mechanical-joint bell, plain spigot end or flanged ends, thickness class 56 and AWWA C104 cement-mortar lining standard thickness. Include AWWA C111 ductile-iron gland, chemically resistant gasket, and type 316 stainless steel bolts.

- C. Flanged Ductile Iron Pipe: AWWA C115 ductile iron barrel with 250-psig pressure rating and AWWA C104 cement-mortar lining. Include Class 300, iron alloy threaded flanges that match piping.
- D. Polyvinyl Chloride (PVC) Pipe-four inches and larger shall be unplasticized PVC Class 200, SDR 14, or greater pressure water pipe with elastomeric gaskets conforming to AWWA C900, NSF Standard 61 and ASTM D2241. Pipe shall be furnished in standard laying length of 20 feet plus or minus one inch.
- E. PVC Plastic, Fire-Service Pipe: UL 1285, NSF Standard 61 and AWWA C900. Include elastomeric seal according to ASTM F477. Fire-Service Pipe shall be PVC plastic Class 200, SDR 14.
- F. Materials shown on the Plans and as specified herein shall be new and of the best grade and quality, free from defects, and of the make or quality specified or as accepted and approved by the Engineer.
- G. Pipe and fittings supplied under these Specifications shall be the product of a single manufacturer wherever possible. Where two or more units of the same description are required, these units shall be the product of a single manufacturer.

2.02 PIPE AND TUBE FITTINGS

- A. General: Applications of the following pipe and tube fitting materials are indicated in Part 3 "Piping Applications" Article of this Section.
- B. Ductile-Iron, Mechanical Joint Fittings: AWWA C110, ductile- or gray-iron standard pattern; or AWWA C153, ductile-iron compact pattern; with 250-psig minimum pressure rating and AWWA C104 cement-mortar lining. Include AWWA C111 ductile- or gray-iron glands, chemically resistant gaskets, and high strength stainless steel bolts and nuts.
- C. Ductile-Iron Flanged Fittings: AWWA C110, ductile- or gray-iron standard pattern; with 250-psig minimum pressure rating and AWWA C104 cement-mortar lining. Flange shall be Class 300, iron-alloy threaded.
- D. Polyvinyl Chloride (PVC) Fittings: Fitting for PVC pipes four inches and larger, other than couplings, shall be ductile iron. Ductile iron fittings shall be Class 250 conforming to the requirements of AWWA C153. Fittings shall be epoxy coated and lined in accordance with EBMUD specifications.
- E. PVC Plastic, Socket Fittings: ASTM D 2467, Schedule 80.
- F. PVC Plastic Fittings: UL 1285 and AWWA C907, Class 200. Include elastomeric seals according to ASTM F477.
- G. Mechanical Joint Restraint: The restraining mechanism shall consist of individually actuated wedges that increase their resistance to pull-out as pressure or external forces increase. The device shall be capable of full mechanical joint deflection during assembly and the flexibility of the joint shall be maintained after burial. The joint restraint ring and its wedging components shall be made of grade 60-42-10

ductile iron conforming to ASTM A536-84. The wedges shall be ductile iron heat treated to a minimum hardness of 370 BHN. Dimensions of the gland shall be such that it can be used with the standardized mechanical joint bell conforming to ANSI/AWWA C111/A21.11 and ANSI/AWWA C153/A21.53 of the latest revision. Torque limiting twist-off nuts shall be used to ensure proper actuation of the restraining wedges. They shall have a rated working pressure of 350 psi. The devices shall be listed by Underwriters Laboratories and approved by Factory Mutual. The restraint shall be the Series 1100 MEGALUG restraint as produced by EBAA Iron, Inc. or approved equal.

- H. Fasteners: All bolts, nuts and washers for piping connections shall be non-magnetic stainless steel type 316.

2.03 JOINING MATERIALS

- A. General: Applications of the following piping joining materials are indicated in Part 3 "Piping Applications" Article 3.03 of this Section.
- B. Ductile Iron Piping: The following materials apply:
 - 1. Mechanical Joints: AWWA C111 ductile-iron or gray-iron glands, high-strength stainless steel bolts and nuts, and chemically resistant gaskets.
 - 2. Flanged Joints: AWWA C115 ductile-iron or gray-iron pipe flanges, chemically resistant gaskets, and high-strength stainless steel bolts and nuts.
 - a. Gaskets: AWWA C110, Chemically resistant, flat face, 1/8 inch thick, unless otherwise indicated; and full-face or ring type, unless otherwise indicated.
 - b. Flange Bolts and Nuts: ASME B18.2.1, stainless steel, unless otherwise indicated.
- C. Primers for PVC Piping Solvent-Cement Joints: ASTM F 656.
- D. Solvent Cement for PVC Piping Solvent-Cement Joints: ASTM D 2564.
- E. Plastic Pipe-Flange Gasket, Bolts, and Nuts: Type and Material recommended by piping system manufacturer, unless indicated otherwise.
- F. Couplings: Iron body sleeve assembly, fabricated to match OD of plain end, pressure pipes.
- G. Sleeve: ASTM A 126, Class B, gray iron.
- H. Followers: ASTM A47 malleable iron or ASTM A536 ductile iron.
- I. Gaskets: Rubber.
- J. Bolts and Nuts: AWWA C111.

K. Finish: Enamel paint.

2.04 CORROSION PROTECTION

A. 3 mils asphaltic outside coating and 2 layers of polyethylene encasements, ASTM A 674 or AWWA C105 high-density, cross-laminated PE film (blue color) of 4 mils minimum thickness tube. A polyethylene encasement high-density, cross-laminated of 8 mils thickness tube is an acceptable alternative instead of 2 layers.

2.05 VALVES

A. Nonrising-Stem Gate Valves, Four-inch NPS (DN100) and Larger: AWWA C509, UL 262, FM approved, iron body and bonnet with bronze seating material, inside-screw type with operating nut, 200-psig working pressure, and with flanged ends. Install flanged ends for connection to ductile iron pipe and mechanical joint ends for connection to PVC pipes. Comply with AWWA C550 for interior coating.

B. Valve Boxes: Cast-iron valve box with top section and cover with lettering "WATER," bottom section with base of size to fit over valve and barrel approximately five inches in diameter, and adjustable cast-iron extension of length required for depth of bury of valve. Cast-iron box shall have a heavy coat of bituminous paint.

1. Provide steel tee-handle operating wrench. Include tee handle with one pointed end, stem of length to operate valve, and socket-fitting valve-operating nut.

C. Check Valve: UL 312 and FM approved 175 psig swing-check type with pressure rating; rubber-face checks, unless otherwise indicated; and ends matching piping.

D. Direction of Opening: Open valve by turning operating nut to left, or counterclockwise. Include an arrow on the nut to indicate the direction of opening.

2.06 ANCHORAGES

A. Clamps, Straps, and Washers: Type 316 Stainless Steel.

B. Rods: ASTM A 575, Type 316 Stainless Steel.

C. Rod Couplings: Type 316 Stainless Steel.

D. Bolts: Type 316 Stainless Steel.

2.07 FIRE HYDRANTS

A. Description: Cast-iron body, compression-type valve, opening against pressure and closing with pressure, six-inch flanged joint inlet, and 160-psig minimum working-pressure design acceptable to East Bay Municipal Utility District and the Oakland Fire Department.

- B. Outlet Threads: NFPA 1963, with external hose thread used by City of Oakland Fire Department for 4 ½ and 2 ½ inch outlets. Include cast-iron caps with steel chains.
- C. Operating and Cap Nuts: Pentagon 1-1/2 inch point to flat.
- D. Direction of Opening: Open hydrant valve by turning operating nut to left or counterclockwise.
- E. Exterior Finish: Red alkyd-gloss enamel paint, unless otherwise indicated.
- F. Similar and equal to "The East Bay Model" as manufactured by Long Beach Works, Inc or Clow Valve Company.

2.08 PIPING SPECIALTIES

- A. Sleeves through slabs and walls shall be galvanized steel pipe. Provide Link-Seal between sleeve and pipe.
- B. Storm drain crossing with less than 1-foot of clearance: protect storm drain with sponge neoprene. Sponge neoprene to be RUBATEX No. R421-N or approved equal.

2.09 IDENTIFYING DEVICES AND LABELS

- A. General: Manufacturer's standard products of categories and types required for each application as referenced in other Sections. If more than one type is specified for application, selection is Installer's option, but provide one selection for each product category.
- B. Stencils: Standard stencils, prepared for required applications with letter sizes complying with recommendations of ASME A13.1 for piping and similar applications, but not less than 1-1/4-inch- high letters and not less than 3/4-inch-high letters for access door signs and similar operational instructions.
 - 1. Stencil Paint: Standard exterior-type stenciling enamel; black, unless otherwise indicated; either brushing grade or pressurized spray-can form and grade.
 - 2. Identification Paint: Standard identification enamel of colors indicated or, if not otherwise indicated for piping systems, comply with ASME A13.1 for colors.
- C. Engraved Plastic-Laminate Signs: ASTM D 709, Type I, cellulose, paper-base, phenolic-resin-laminate engraving stock; Grade ES-2, black surface, black phenolic core, with white melamine subcore, unless otherwise indicated.
 - 1. Fabricate in sizes required for message.
 - 2. Engraved with engraver's standard letter style, of sizes and with wording to match equipment identification.

3. Punch for mechanical fastening.
 4. Thickness: 1/16 inch, for units up to 20 sq. in. or eight inches long; 1/8 inch for larger units.
 5. Fasteners: Self-tapping stainless-steel screws or contact-type permanent adhesive.
- D. Lettering and Graphics: Coordinate names, abbreviations, and other designations used in mechanical identification, with corresponding designations indicated. Use numbers, lettering, and wording indicated for proper identification and operation/maintenance of mechanical systems and equipment.
1. Multiple Systems: If multiple systems of same generic name are indicated, provide identification that indicates individual system number and service such as "Potable Water".

2.10 GROUT

- A. Nonshrink, Nonmetallic Grout: Refer to Section 03300, Concrete.
1. Characteristics: Post-hardening, volume-adjusting, dry, hydraulic-cement grout, non-staining, non-corrosive, non-gaseous, and recommended for interior and exterior applications.
 2. Design Mix: 5000 psig, 28-day compressive strength.
 3. Packaging: Premixed and factory packaged.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Existing Underground Utilities and Structures:
1. The locations of existing underground utilities and structures, insofar as they are known, are shown on the Plans.
 2. The Engineer assumes no responsibility for the accuracy or completeness of this information, which is offered solely for the convenience of the Contractor.
 3. All underground utilities within the work area shall be located, identified, and marked with paint on the pavement surface or staked prior to the start of construction.
 4. The Contractor shall verify the locations of these obstructions and locate other underground utilities and structures which might necessitate a change in the line or grade of the pipe being laid.
 5. Changes in line or grade due to interferences encountered shall be performed only with prior written approval of the Engineer.

3.02 EXCAVATION

- A. Refer to Section 02315 and 02324 for excavating, trenching, and backfilling.
- B. All damaged pavement restoration shall be done in accordance with the Engineer's requirements.

3.03 PIPING APPLICATIONS

- A. Transition and special fittings with pressure ratings at least equal to piping pressure rating may be used in applications below, unless otherwise indicated.
- B. Use flanges on above ground piping, unless otherwise indicated.
- C. Fire-Protection Water-Service Piping: Use the following:
 - 1. Four to eight-inch NPS (DN100 to DN200): Ductile-iron, mechanical-joint pipe; ductile-iron, mechanical-joint fittings; and mechanical joints.
 - 2. 10- and 12-inch NPS (DN250 and DN300): Ductile-iron, mechanical-joint pipe; ductile-iron, mechanical-joint fittings; and mechanical joints.
 - 3. Four to eight-inch NPS (DN100 to DN200): PVC plastic, Class 200, fire service pipe; ductile iron fitting for PVC plastic pipe; and gasketed joints.
 - 4. 10- and 12-inch NPS (DN250 and DN300): PVC plastic, Class 200, fire service pipe; ductile iron fitting for PVC plastic pipe; and gasketed joints.

3.04 VALVE APPLICATIONS

- 1. See Section 2.05, above.

3.05 JOINT CONSTRUCTION

- A. Ductile-Iron Piping, Gasketed Joints: According to AWWA C600.
- B. Flanged Joints: Align flanges and install gaskets. Assemble joints by sequencing bolt tightening. Use lubricant on bolt threads.
- C. Dissimilar Materials Piping Joints: Use adapters compatible with both piping materials, OD, and system working pressure. Refer to "Piping Systems - Common Requirements" Article below for joining piping of dissimilar metals.
- D. Mechanical Joint Restraint: Shall be installed in the water piping to resist any thrust at mechanical joints.
- E. PVC Piping, Gasketed Joints: Use joining materials according to AWWA C900. Construction joints with elastomeric seals and lubricant according to ASTM D2774 or ASTM D3139 and pipe manufacturer's written instructions.
- F. PVC Piping Solvent-Cement Joints: According to ASTM D2672 and ASTM D 2855. Handle cleaner, primer, and solvent cement according to ASTM F 402.

3.06 PIPING SYSTEMS - COMMON REQUIREMENTS

- A. General Locations and Arrangements: Plans indicate general location and arrangement of piping systems. Indicated locations and arrangements were used to size pipe and calculate friction loss, and other design considerations. Install piping as indicated, unless deviations to layout are approved on Coordination Plans.
- B. EBMUD is not a direct participant in this Contract and will not supply any materials nor perform any work not specifically called out in this Specification. In view of these facts, irrelevant portions of the referenced EBMUD Standard Specifications and Drawings, particularly irrelevant portions of the EBMUD General Conditions, General Requirements and Material Sections are not applicable to this Contract.
- C. Install components with pressure rating equal to or greater than system operating pressure.
- D. Install piping free of sags and bends.
- E. Locate groups of pipes parallel to each other, spaced to permit valve servicing.
- F. Install fittings for changes in direction and branch connections.
- G. Piping Connections: Unless otherwise indicated, make piping connections as specified below:
 - 1. Install flanges, in piping two and one half-inch NPS and larger, adjacent to flanged valves and at final connection to each piece of equipment with flanged pipe connection.
 - 2. Install dielectric fittings to connect piping of dissimilar metals.
- H. Thrust Blocks: Furnish and install thrust blocks at all bends, tees, dead-ends and at other points shown on the plans and wherever necessary to restrain pipes. Conform to manufacturer's recommendations and Engineer's requirements. Thrust blocks shall be supplemental to the mechanical joint restraints.
- I. Corrosion Resistant Finishes: All material supplied by the Contractor shall be inherently rust resistant or shall be suitably protected from rust by plating processes, coating, lining, or by the application of suitable rust resistant paint on exposed surfaces. Any material furnished by the Contractor found to be lacking in the above requirements shall be replaced with suitable material approved by the Engineer at no additional cost to the Port. Any equipment furnished with factory applied coating which is damaged or defaced during construction shall be restored to its original finish.

3.07 TRENCH BACKFILL

- A. Refer to Section 02324 Trenching and Backfilling for Utilities of these Specifications for related work.

3.08 PIPING INSTALLATION

- A. Pipe and fittings shall be carefully handled during hauling, unloading and placing to avoid damage. Cracked, chipped, or otherwise damaged units shall be discarded and replaced to the satisfaction of the Engineer.
- B. After the Engineer has determined that the trench or embankment has been prepared to proper depth and the foundation support is satisfactory, carefully place the pipe.
- C. Pipes shall be laid accurately in conformity with prescribed lines at minimum cover shown on the Plans. Each length of pipe shall be joined to the preceding section. After the joining procedure has been completed, no movement of the pipe shall be allowed in subsequent operations.
- D. Install ductile-iron piping according to AWWA C600.
 - 1. Encase piping with PE film according to ASTM A 674 or AWWA C105.
- E. Minimum depths of cover from finished pavement grades shall be 36 inches for pipe mains and hydrant pipe runs unless noted on the drawings. Coordinate and, where necessary and approved by the Engineer, adjust depths of cover of water and other pipes, conduits and facilities to provide the required vertical and horizontal clearances per Code.
- F. Maintain alignment through the use of pipe fittings or high deflection PVC couplings. Contractor may install PVC pipe under utilities without fittings provided deflection angles shall not exceed the manufacturer's specifications or allowable deflections specified by applicable standards, whichever is lesser, and shall be subject to approval by the Engineer.
- G. Anchor all horizontal and vertical bends, dead-ends, tees and crosses with concrete thrust blocks as shown on the plans. Thrust blocks shall be constructed in accordance with Section 03300., Cast-in-Place Concrete, Part 3, Article 3.12 "Thrust Blocks" of these Specifications.
- H. When pipe laying operations are not in progress, install watertight plugs for closure of open ends of pipeline and cover with backfill material at the end of each working day.
- I. Do not install pipe in same trench with other utilities without the approval of the Engineer.
- J. Install pipe to comply with clearances shown on the plans. Provide at least one (1) foot of vertical clearance above where pipe crosses sanitary sewer unless otherwise noted on the drawings.
- K. Install pipe with uniform bearing on specified bedding.
- L. Clearance under couplings shall be two-inch minimum.

- M. Install collars and rods with concrete anchors on all cast iron plugs and at other locations indicated on the drawings, or at locations deemed necessary by the Engineer.
- N. No backfill shall be placed in trenches or excavations until the pipelines in the particular segment involved have been inspected, pressure tested, and approved for backfill by the Engineer.
- O. Identification Tape: Install tape approximately one foot above and along the centerline of the pipe. If tape is not continuous, the tape ends shall be overlapped two feet.
- P. Plugging and Capping: Plug or cap pipes not terminating at a structure and where shown on the Plans.
- Q. Install underground ductile iron piping with restrained joints at horizontal and vertical changes in direction. Use restrained-joint piping, thrust blocks, anchors, tie-rods and clamps and other supports.
- R. Comply with NFPA 24 for fire-protection water-service piping materials and installation.
- S. Where pipe crosses existing storm drain with less than 1-foot of clearance, the storm drain pipe shall be exposed to the spring line and a 1-inch thick coating of sponge neoprene material shall be applied to the outside surface of the exposed storm drain pipe. Concrete shall be backfilled between the storm drain pipe and the bottom of the fire water pipe per the Drawings. Concrete shall be placed according to Section 03300 – Cast-in-Place Concrete.
- T. Install tracer wire under non-metallic pipes. Daylight tracer wire in valve pots.

3.09 ANCHORAGE INSTALLATION

- A. Install anchorages for tees, plugs and caps, bends, crosses, valves, and hydrant branches. Include anchorages for the following piping systems:
 - 1. Gasketed-Joint, Ductile-Iron, Potable-Water Piping: According to AWWA C600.
- B. Apply full coat of 50 mils urethane coating or other acceptable corrosion-retarding material to surfaces of installed ferrous anchorage devices.

3.10 VALVE INSTALLATION

- A. General Application: Use flanged or mechanical-joint-end valves for four-inch NPS and larger underground installation.
- B. UL/FM-Type Gate Valves: Comply with NFPA 24. Install underground valves.

3.11 FIRE HYDRANT INSTALLATION

- A. General: Install each fire hydrant with break-off bolts per EBMUD standard, separate gate valve in supply pipe, anchor with restrained joints or thrust blocks, and support in upright position as shown.
- B. UL/FM-Type Fire Hydrants: Comply with NFPA 24.

3.12 JOINT CONSTRUCTION

- A. Construct joint per manufacturers' recommendations.

3.13 BACKFLOW PREVENTER INSTALLATION

- A. Install backflow preventers of type, size, and capacity indicated. Include valves and test cocks. Install according to plumbing and health department authorities having jurisdiction.
- B. Do not install bypass around backflow preventer.
- C. Support backflow preventers as shown.

3.14 SUPPORT INSTALLATION

- A. Supports shall be in accordance with ASTM B31.1 code and ANSI/MSS SP 58 for design and manufacturer.
- B. Install supports according to MSS SP-69 for "Selection and Application", manufacturer's written instructions and as shown.

3.15 CONNECTIONS

- A. Connect water piping as shown on the Plans.

3.16 LABELING AND IDENTIFYING

- A. Piping Systems: Install pipe markers on each system. Include arrows showing normal direction of flow.
- B. Stenciled Markers: According to ASME A13.1.
- C. Plastic markers, with application systems.
- D. Locate pipe markers as follows if piping is exposed in exterior non-concealed locations:
 - 1. Near each valve and control device.
 - 2. Near each branch, excluding short takeoffs for fixtures and terminal units. Mark each pipe at branch, if flow pattern is not obvious.
 - 3. Near locations if pipes pass through walls or decks.
 - 4. Near major equipment items and other points of origination and termination.

5. Spaced at maximum of 50-foot (15-m) intervals along each run. Reduce intervals to 25 feet (7.5m) in congested areas of piping and equipment.

3.17 FIELD QUALITY CONTROL

- A. The Contractor shall provide necessary materials, equipment and water to test the new water systems before connecting them to existing water systems.
 1. Test shall be made after trenches have been sufficiently backfilled to hold pipe firmly in position and the water system has been completely filled.
 2. The Oakland Fire Marshal shall specify the test pressure and duration for the fire water system or as stated below, whichever is more stringent.
 3. Filling of pipes shall carefully expel all air from them.
- B. Inspect fire water distribution piping as follows:
 1. Do not enclose, cover, or put piping into operation until it is inspected and approved by authorities having jurisdiction.
 2. During installation, notify Engineer and authorities having jurisdiction at least 24 hours before inspection must be made. Perform tests specified below in presence of authorities having jurisdiction.
 - a. Roughing-In Inspection: Arrange for inspection of piping before concealing or closing-in after roughing-in and before setting fixtures.
 - b. Final Inspection: Arrange for final inspection by authorities having jurisdiction to observe tests specified below and to ensure compliance with requirements.
 3. Re-inspection: If authorities having jurisdiction find that piping will not pass test or inspection, make required corrections and arrange for re-inspection.
 4. Reports: Prepare inspection reports and have them signed by authorities having jurisdiction.
- C. Test fire water distribution piping as follows:
 1. Test for leaks and defects in new piping and parts of existing piping that have been altered, extended, or repaired. If testing is performed in segments, submit separate report for each test, complete with diagram of portion of piping tested.
 2. Leave uncovered and unconcealed new, altered, extended, or replaced water piping until it has been tested and approved. Expose work that has been covered or concealed before it has been tested and approved.
 3. Cap and subject piping to static water pressure of not less than 200 psig. Isolate test source and allow to stand for 4 hours. Leaks and loss in test pressure constitute defects that must be repaired.

4. Repair leaks and defects with new materials and retest piping or portion thereof until satisfactory results are obtained.
5. Prepare reports for tests and required corrective action.
6. Disinfection by means of chlorination of the firewater system will not be required in accordance with EBMUD and City of Oakland's Fire Prevention Bureau.

3.18 CLEANING

- A. After the water system has been tested and proven tight and operable, clean service entrance piping and water distribution piping as follows:
 1. Purge new piping and parts of existing water piping that have been altered, extended, or repaired before using.
 2. Use purging procedure prescribed by authorities having jurisdiction or, if method is not prescribed, procedure described in either AWWA C651 or AWWA C652.
- B. Flushing of Water Lines:
 1. The Contractor shall provide all necessary materials, equipment, and water to perform all work in connection with the flushing of the waterlines. Flush piping system with clean potable water until dirty water does not appear at the outlets and the system is free of all dirt, scale, waste and other foreign substances.
 2. Provide report for cleaning and flushing to certify that this work has been performed.
- C. Clean interior of piping system. Remove dirt and debris as work progresses.

3.19 PAINTING AND FURNISHING

- A. Paint metal and structures exposed to the environment as follows or as indicated on the drawings:
 1. Apply coal tar epoxy (system 1) to exposed piping, unless otherwise indicated.
 2. Apply fusion bonded epoxy to exterior, ferrous pipe supports, unless otherwise indicated.
- B. Damage and touchup: Repair marred and damaged finishes with materials and procedures to match original finish.

3.20 COMMISSIONING

- A. Fill water piping. Check components to determine that they are not air bound and that piping is full of water.

- B. Perform the following steps before putting into operation:
 - 1. Close drain valves and hose valves.
 - 2. Open shutoff valves to fully open position.
 - 3. Remove plugs used during testing of piping and plugs used for temporary sealing of piping during installation.
 - 4. Remove and clean strainer screens. Close drain valves and replace drain plugs.
- C. Check backflow preventers to verify proper settings, adjustments, and operation.

- END OF SECTION -

SECTION 02530

STORM DRAIN SYSTEMS

PART 1 - GENERAL

1.01 SUMMARY

- A. The work under this Section includes furnishing all labor, materials, appliances, tools, equipment, transportation, services, and supervision required to construct storm drain systems. The work may include, but not be limited to, the following:
 - 1. Materials and installation of storm drain piping and fittings.
 - 2. Replacement of existing storm drain piping and fittings.
 - 3. Installation of storm drain catch basins and manholes.
 - 4. Materials and installation of trench drains.

1.02 REFERENCES

- A. Section 02220 – Removal of Existing Pavements, Utilities, Pipes, Structures
- B. Section 02315 – Excavation, Fill, and Subgrade Preparation
- C. Section 02324 – Trenching and Backfilling for Utilities
- D. Section 03300 - Cast-In-Place Concrete
- E. Section 03400 – Precast Concrete
- F. Section 05050 - Metal Materials and Methods

1.03 APPLICABLE STANDARDS AND SPECIFICATIONS

- A. State Specifications - The Standard Specifications of the State of California Department of Transportation, Business and Transportation Agency, Department of Transportation, latest edition.
- B. American Waterworks Association Standard Specification (AWWA), latest edition.
- C. AASHTO Specification - The Standard Specification of the American Association of State Highway and Transportation Officials, latest (english system) edition.
- D. American Society for Testing and Materials (ASTM).
- E. American Welding Society (AWS).

- F. Standard Specifications for Public Works Construction.
- G. National Association of Corrosion Engineer (NACE).

1.04 PERFORMANCE REQUIREMENTS

- A. The design wheel live loading for all structures shall be 150 psi over a tire print area of 30 inches by 30 inches minimum, unless otherwise noted. Contractor shall submit shop drawings and design calculations completed by equipment manufacturer indicating that the drainage structures including, but not limited to, catch basins, manholes, trench drains and associated lids, grates, frames and foundation slab can sustain the design wheel load. Shop drawings and design calculations shall include detailed consideration of load transfer between grate, lid, frame, and walls.
- B. The Contractor shall verify all controlling field dimensions, points of connection, and the location of all existing utilities before ordering or fabricating any material or installing any material. Protect existing work. See related sections of these Specifications for Contractor coordinated work.

1.05 SUBMITTALS

- A. A complete schedule of materials shall be submitted in accordance with Division 1. Submit as one package. Partial submittals will not be accepted. Submit manufacturer's names, catalog numbers, brand names, catalog cuts, plans and other descriptive data and ratings as may be required. Review will be based on the manufacturer's published ratings. Items included in the submittal shall include, but may not be limited to, pipes, trench drains, pipe fittings, gaskets, joint restraints, waterstops, grouts, sealants, couplings, and fasteners.
- B. Shop Drawings
 - 1. Submit shop drawings for layout of piping system. Indicate locations of all pipe sections, jointing, fittings, connections to existing piping, and other appurtenances on the shop drawings.
 - 2. Submit manufacturer's shop drawings for precast concrete and presloped trench drain system. Indicate trench drain installation configuration, including the number of neutral channels installed, and the sloped and neutral channel section layout configuration of trench drain.
- C. Quality Assurance/Control Submittal
 - 1. Design data and manufacturer's data

Submit calculation, design data and manufacturer's data, drawings or catalog cuts, including but not limited to, the following items:

 - a. Pipe and fittings

- b. Joints and couplings, including gaskets, waterstops, grouting rings, and other appurtenances
- c. Lining, coating, and painting
- 2. Provide an affidavit of compliance with standards referenced in this Specification, e.g., AWWA C151.
- 3. Certificates of conformance or compliance for the specified products
- 4. Factory and Field Test Reports
- 5. Manufacturer's instructions or installation guides
- D. Record Documents: At Contract closeout Contractor shall submit Record Drawings of installed Storm Drain Systems according to Division 1, Section 01780, "Project Record Document."

1.06 EXISTING UNDERGROUND UTILITIES AND STRUCTURES

- A. The approximate locations of existing underground utilities and structures, insofar as they are known, are shown on the Drawings. The Port assumes no responsibility for the accuracy or completeness of this information, which is offered solely for the convenience of the Contractor.
- B. The Contractor shall verify the locations of these obstructions and locate other underground utilities and structures that might necessitate a change in the line or grade of the pipe being laid. Changes in line or grade due to interferences encountered shall be performed only with prior written approval of the Engineer.
- C. Extra work associated with such changes will be paid for in accordance with the General Conditions and Division-1, Section 01250 "Modification Procedures".
- D. Cut and cap existing utilities encountered during trenching in accordance with details shown on the Drawings and described Section 02220 – Removal of Existing Pavement, Utilities, Pipes, and Structures.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Materials shown on the Drawings and specified herein shall be new and of the best grade and quality, free from defects and of the make or quality specified or as accepted and approved by the Engineer.
- B. Pipe and fittings supplied under these Specifications shall be the product of a single manufacturer wherever possible. Where two or more units of the same description are required, these units shall be the product of a single manufacturer.

- C. Smooth-Wall high density polyethylene (HDPE) pipe: Shall be solid wall with standard dimension ratio (SDR) 11 and shall be manufactured from materials meeting the requirements of ASTM D1248 for type III, grade P34, category 5, class C, and having a PPI rating of PE3408. Requirements for smooth-wall HDPE pipe are further described in Section 2.02 of this Section
- D. Corrugated HDPE pipe: Shall be designated as AASHTO type S with a full circular cross section, with an outer corrugated pipe wall and a smooth inner wall, ADS Pipe type N-12, or Engineer approved equivalent. Pipe shall comply with the requirements for test methods, dimensions, and markings as detailed in AASHTO M252 and M294 for Type S pipe. Requirements for corrugated HDPE pipe are further described in Section 2.02 of this Section
- E. Concrete pipe: Replace with like-in-kind.
- F. Catch Basins and Manholes: shall be in accordance with Section 03400 – Pre-cast Concrete.
- G. Concrete Waterproofing Compound; Shall be Xypex Waterproofing Compound or approved equivalent.
- H. Waterstop grouting ring: Shall be Pressure-Seal Gasket Corporation WS Series Waterstop Grouting Ring or approved equivalent. Grouting ring profile shall be determined based on pipe size and manufacturer's recommendations.
- I. Concrete grout compound: Shall be a fast-setting, non-shrink, high-bond-strength hydraulic cement compound, Xypex Patch 'n Plug, or approved equivalent
- J. Catch Basin Joint Gasket Material: Shall be Ram-Nek preformed joint compound.
- K. Warning Tape: Shall be in accordance with Section 16120 – Conductors and Cables.

2.02 STORM DRAIN SYSTEM

- A. Storm Drain Pipe
 - 1. Pipe 24-inches and smaller in diameter shall be smooth-wall HDPE pipe. Pipes shall have the dimensions and wall thickness as set forth in ASTM F714 for SDR 11 pipe.

HDPE pipe shall be marked at maximum 5-foot intervals with manufacturer's name or trademark, nominal size and SDR, cell classification, ASTM D1248, and extrusion date, period of manufacturer or lot number.
 - 2. Pipe greater than 24-inches in diameter shall be water-tight corrugated HDPE pipe. Pipes and fittings shall be made from materials conforming to the AASHTO material specification for cell classification as defined and described in ASTM D3350.

HDPE pipe shall be marked at maximum 5-foot intervals with manufacturer's name or trademark, nominal size, cell classification, ASTM D3350 and extrusion date, period of manufacturer or lot number.

- a. Pipe joints shall be factory-installed gasketed bell and spigot meeting ASTM D3212. Bell shall cover two full corrugations. Rubber gasket shall meet ASTM F477 and shall be covered with a removable wraps and free of debris. Manufacturer shall supply joint lubricant.
 - b. Fittings shall conform to AASHTO M252 and M294. Fabricated fittings shall be thermal molded or welded on the interior and interior at all junctions.
- B. Catch Basins/Manholes:
1. Catch basins and manholes shall be in accordance with Section 03400 – Precast Concrete.
 2. Frames, grates, and covers shall be in accordance with Section 05050 - Metal Materials and Methods.
 - a. Each frame, grate, and cover unit shall be provided with a fastening member to prevent it from being dislodged by traffic but which will allow easy removal for access to the structure.

PART 3 EXECUTION

3.01 MATERIAL HANDLING

- A. Pipe and fittings, catch basins, manholes, and trench drains shall be carefully handled during hauling, unloading, on-site storage and installation to avoid damage. Cracked, chipped or otherwise damaged units shall be discarded and replaced to the satisfaction of the Engineer
- B. All pipe and appurtenances shall be thoroughly cleaned before they are laid, and shall be kept clean until the acceptance of the completed work. The open end of the pipe shall be kept closed with a plug until the next section of the pipe is laid. At the close of each work day, the open end of the pipe shall be closed with a plug so that no dirt or foreign substances may enter the line. This plug shall be kept in place until pipe laying is resumed.

3.02 INSTALLATION

- A. Install material in strict accordance with the manufacturer's latest recommendations and specifications.
- B. Contractor shall protect existing storm drain pipes to remain in service, and newly plugged pipes. Any pipes damaged as a result of installation activities shall be the Contractor's responsibility to repair and/or replace as necessary.

C. Pipe:

1. Contractor shall install piping in conformance with Sections 64 and 65-1.07 of the State Specifications and in accordance with the manufacturer's latest recommendations and specifications. After the Engineer has determined that the trench has been prepared to proper depth, carefully place the pipe.
2. Install corrugated HDPE pipe and fittings in accordance with the requirements of ASTM D 2321 for laying and joining pipe and fittings.
 - a. Make joints with the gaskets specified for joints with this piping and assemble in accordance with the requirements of ASTM D 2321 for assembly of joints.
 - b. Make joints to other pipe materials in accordance with the recommendations of the pipe manufacturer.
3. Install smooth-wall HDPE pipe sections by the thermal butt fusion process in accordance with manufacturer's recommendations. Use of hand-held fusion plates will not be permitted. Use of electro-fusions pipe couplings shall not be permitted unless approved in advance by Engineer.
4. Commence pipe laying at the lowest point and continue upgrade. Place bell upgrade where bell and spigot pipe is used.
 - a. Pipes shall be laid accurately in conformity with prescribed lines at depths shown on the Drawings. Each length of pipe shall be joined to the preceding section. Pipe shall maintain a constant slope over each section, as shown on the Drawings.
 - b. After the joining procedure has been completed, no movement of the pipe whatsoever shall be allowed in subsequent operations.
 - c. No backfill shall be placed in trenches or excavations until the pipelines in the particular segment involved have been inspected and approved for backfill by the Engineer.
5. Pipe backfill material to be determined based on field conditions and Engineer's discretion.
 - a. Sand Bedding and Engineered Fill shall be placed in accordance with the dimensions shown on the Drawings.
 1. The pipe shall be adjusted to line and grade by scraping away or filling in and tamping sand under the body of the pipe throughout its entire length, and not by blocking or wedging.
 2. Fill simultaneously on both sides of the pipe so that injurious side pressures do not occur and haunches of the pipe are completely filled and compacted leaving no voids and loose backfill.

3. All backfill shall be compacted in accordance with Section 02315 – Excavation, Fill, and Subgrade Preparation and as shown on the Drawings.
4. Warning tape shall be placed at the top of the Engineered Fill layer (below the aggregate base), centered in the trench above the pipe alignment.

D. Catch Basins and Manholes

1. Contractor shall install catch basins/manholes in accordance with ASTM C-891 and to the lines and grades shown in the Drawings.
2. Prepare subgrades for placement of catch basins/manholes in accordance with Section 02315 – Excavation, Fill, and Subgrade Preparation and as shown on the Drawings.
3. Gasket material shall be applied between catch basin/manhole precast concrete joint sections per the Drawings. Gasket material shall be held back ½-inch from the outside face of the structure, as shown on the Drawings, to provide for packing of grout compound in precast catch basin/manhole joint grooves.
4. Concrete grout compound shall be used to seal pipe penetrations through catch basin/manhole walls, and catch basin precast joint sections per the Drawings. Pipe surface shall be roughened prior to placement of grout compound, and a minimum of 2-inches of grout shall be applied around the entire pipe penetration seam. Contractor shall prepare only a much grout compound mixture as can be reasonably placed prior to initial set, as estimated by manufacturer. Material shall be mixed and applied in full conformance with the manufacturer's recommendation.
5. Waterstop grouting rings shall be installed on pipes at catch basin/manhole penetrations per the Drawings. Grouting rings shall be installed in accordance with manufacturer's recommendations. Pipe shall be cleaned and smoothed prior to grouting ring installation, with no significant cuts or blemishes to impair seal between ring and pipe. Grouting rings shall be secured to the pipe with ½-inch wide stainless steel strap/clamps or by equivalent manufacturer-supplied restraints.

PART 4 – TESTING

4.01 HDPE STORM DRAIN PIPE

A. Quality Control (QC) Testing of Fusion Welded HDPE Pipe

1. QC testing is intended to provide preliminary confirmation that HDPE fusion welds performed in the field are free of defects and are water-tight.

2. QC testing is to be conducted after HDPE pipe segments are fusion welded, but before completed sections are placed into the pipeline trench.
3. QC tests should be staged to provide confirmation of all field-welded joints.
4. QC testing shall be conducted following the test protocols described in ASTM F1417-92(98), "Standard Test Method for Installation Acceptance of Plastic Gravity Sewer Lines Using Low Pressure Air."
5. The pressure gauge used for QC testing shall have a suitable readout range to provide for accurate monitoring of test pressure.
6. Maximum length of test segments for QC testing shall be limited to 500 total linear feet of HDPE pipeline and fittings.
7. Test pressure for QC tests shall be held for a minimum of 15 minutes once stable internal test pressure has been established.
8. All QC tests shall be observed by the Engineer.
9. Contractor is to provide the Engineer signed written records of all QC test results.

B. Final Acceptance Testing

1. Acceptance testing of the completed pipeline shall be conducted following the test protocols described in ASTM F1417-92(98), "Standard Test Method for Installation Acceptance of Plastic Gravity Sewer Lines Using Low Pressure Air."
2. Acceptance testing shall be carried out after the pipeline has been set in the trench, all joint welds are complete, and all catch basins have been installed.
3. The pressure gauge used for QC testing shall have a suitable readout range to provide for accurate monitoring of test pressure.
4. Acceptance testing scheduling must be compatible with trenching and backfill operations.
5. Contractor may, at Contractor's risk, elect to backfill storm drain trench in advance of acceptance testing.
6. Acceptance testing shall be observed by the Engineer.
7. Contractor is to provide the Engineer a signed written record of acceptance testing results.

4.02 INFILTRATION TESTING OF CATCH BASINS/MANHOLES

- A. Following installation of the catch basins/manholes, and prior to backfilling the excavation, the Contractor shall allow groundwater to infiltrate the excavation

surrounding the installed structures for a minimum of 12 hours. The Engineer shall confirm that no water enters the structure during this time.

END OF SECTION

SECTION 02580

ELECTRICAL AND TELECOMMUNICATIONS STRUCTURES

PART 1 - GENERAL

1.01 SUMMARY

- A. The work under this Section includes furnishing all labor, materials, appliances, tools, equipment, transportation, services, and supervision required to install electrical and communications structures. The work may include, but not be limited to, the following:
 - 1. Installation of utility vaults and electric pull-boxes.
 - 2. Installation of electrical and telephone conduits.
 - 3. Installation of bollards.

1.02 REFERENCES

- A. Section 02315 – Excavation, Fill, and Sub-grade Preparation
- B. Section 02324 – Trenching and Backfilling for Utilities.
- C. Section 03300 – Cast-In-Place Concrete
- D. Section 03400 – Pre-cast Concrete
- E. Section 05050 – Metal Materials and Methods
- F. Section 16120 – Conductors and Cables
- G. Section 16302 – Underground Electrical Work

1.03 APPLICABLE STANDARDS AND SPECIFICATIONS

- A. State Specifications - The Standard Specifications of the State of California Department of Transportation, Business and Transportation Agency, Department of Transportation, latest edition.
- B. American Society for Testing and Materials (ASTM).
- C. Standard Specifications for Public Works Construction.

1.04 PERFORMANCE REQUIREMENTS

- A. The design wheel live loading for all structures shall be 150 psi over a tire print area of 30 inches by 30 inches minimum, unless otherwise noted. Contractor shall submit shop drawings and design calculations completed by equipment manufacturer indicating that the subsurface structures including, but not limited to, vaults, pull-boxes, and associated lids, frames and foundation slabs can sustain the design wheel load. Shop drawings and design shall include detailed considerations of load transfer between lid, frame, and walls.
- B. The Contractor shall verify all controlling field dimensions, points of connection, and the location of all existing utilities before ordering or fabricating any material or installing any material. Protect existing work. See related sections of these Specifications for Contractor coordinated work.

1.05 SUBMITTALS

- A. Quality Assurance/Control Submittal
 - 1. Design data and manufacturer's data
 - Submit calculation, design data and manufacturer's data, drawings or catalog cutsheets for the specified products
 - 2. Provide an affidavit of compliance with standards referenced in this Specification
 - 3. Certificates of conformance or compliance for the specified products
 - 4. Factory and Field Test Reports
 - 5. Manufacturer's instructions or installation guidelines
 - 6. Record Documents: At Contract closeout Contractor shall submit Record Drawings of installed Electrical and Communication Structures according to Division 1, Section 01780, "Project Record Document."

1.06 EXISTING UNDERGROUND UTILITIES AND STRUCTURES

- A. The approximate locations of existing underground utilities and structures, insofar as they are known, are shown on the Drawings. The Port assumes no responsibility for the accuracy or completeness of this information, which is offered solely for the convenience of the Contractor.
- B. The Contractor shall verify the locations of these obstructions and locate other underground utilities and structures that might necessitate a change in the line or grade of the utility being laid. Changes in line or grade due to interferences encountered shall be performed only with prior approval of the Engineer.
- C. Cut and cap existing utilities encountered during trenching in accordance with details shown on the Plans and described Specification 02220 – Removal of Existing Pavement, Utilities, Pipes, and Structures.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Materials shown on the Plans and specified herein shall be new and of the best grade and quality, free from defects and of the make or quality specified or as accepted and approved by the Engineer.
- B. Pre-cast Concrete Structures shall be in accordance with Section 03400 – Pre-cast Concrete.
- C. Concrete Waterproofing Compound: Shall be Xypex Waterproofing Compound or approved equivalent.
- D. Waterstop grouting ring: Shall be Pressure-Seal Gasket Corporation WS Series Waterstop Grouting Ring or approved equivalent. Grouting ring profile shall be determined based on conduit size and manufacturer's recommendations.
- E. Concrete grout compound: Shall be a fast-setting, non-shrink, high-bond-strength hydraulic cement compound, Xypex Patch 'n Plug, or approved equivalent.
- F. Gasket Material: Shall be Ram-Nek preformed joint compound.
- G. Utility Conduit: Shall be in accordance with Section 16302 – Underground Electrical Work
- H. Warning Tape: Shall be in accordance with Section 16120 – Conductors and Cables.
- I. Bollards: Shall be in accordance with Section 05050 – Metal Materials and Methods.
- J. Concrete: Shall be in accordance with Section 03300 – Cast in Place Concrete

2.02 UTILITY VAULT/ELECTRIC PULL-BOXES

- A. Pre-cast utility vaults and electric pull-boxes shall be in accordance with Section 03400 – Pre-cast Concrete.
- B. Frames and covers shall be in accordance with Section 05050 - Metal Materials, and Methods.

PART 3 EXECUTION

3.01 MATERIAL HANDLING

- A. All utility conduits and fittings, utility vaults, electric pull-boxes shall be carefully handled during hauling, unloading on-site storage, and installation to avoid damage. Cracked, chipped or otherwise damaged units shall be discarded and replaced to the satisfaction of the Engineer

- B. Conduits shall be thoroughly cleaned before they are laid, and shall be kept clean until the acceptance of the completed work. The open end of the conduit shall be kept closed with a plug until the next section of the conduit is laid. At the close of each work day, the open end of the conduit shall be closed with a plug so that no dirt or foreign substances may enter the line. This plug shall be kept in place until conduit laying is resumed.

3.02 INSTALLATION

- A. Install material in strict accordance with the manufacturer's latest recommendations and specifications.
- B. Utility Conduits:
 - 1. Contractor shall install utility conduits in conformance with Section 16302 – Underground Electrical Work.
 - 2. Conduits shall be encased in controlled density fill (CDF) in accordance with the Drawings. CDF shall be in accordance with Section 02315 – Excavation, Fill, and Sub-grade Preparation. A red concrete slab shall be installed above power conduits as shown on the Drawings and specified in Section 00300 – Cast-In-Place Concrete.
 - 3. Contractor shall prepare sub-grades for placement of the conduit and encasement in accordance with Section 02315 – Excavation, Fill, and Sub-grade Preparation, and as shown on the Drawings.
 - 4. Warning tape shall be placed at the top of the conduit concrete encasement (below the aggregate base), centered in the trench above the conduit alignments.
- C. Utility Conduit Marker
 - 1. Contractor shall prepare sub-grades for placement of utility conduit markers in accordance with Section 02315 – Excavation, Fill, and Sub-grade Preparation, and as shown on the Drawings.
 - 2. Contractor shall place concrete in accordance with Section 03300 – Cast-In-Place Concrete.
- D. Utility Vaults and Electrical Pull-boxes
 - 1. Contractor shall install subsurface structures in accordance with ASTM C-891, and to the lines and grades shown in the Drawings.
 - 2. Contractor shall prepare sub-grades for placement of utility vaults and pull-boxes, in accordance with Section 02315 – Excavation, Fill, and Sub-grade Preparation, and as shown on the Drawings.
 - 3. Gasket material shall be applied between vault/pull-box pre-cast concrete joint sections per the Drawings. Gasket material shall be held back

½-inch from the outside face of structure, as shown on the Drawings, to provide for packing of grout compound in pre-cast catch basin joint grooves

4. Grout compound shall be used to seal utility conduit penetrations through vault/pull-box walls, and pre-cast joint sections per the Drawings. Contractor shall prepare only as much grout compound mixture as can be reasonably placed prior to initial set, as estimated by manufacturer. Material shall be mixed and applied in full conformance with the manufacturer's recommendation.
5. Waterstop grouting rings shall be installed on utility conduits at vault/pull-box penetrations per the Drawings. Grouting rings shall be installed in accordance with manufacturer's recommendations. Conduits shall be cleaned and smoothed prior to grouting ring installation, with no significant cuts or blemishes to impair seal between conduit and pipe. Grouting rings shall be secured to the conduit with ½-inch wide stainless steel strap/clamps or by equivalent manufacturer-supplied restraints.

E. Bollards

1. Bollard materials shall be in accordance with Section 05050 – Metals Material and Methods.

PART 4 – TESTING

4.01 WATER TIGHT TESTING OF UTILITY VAULTS AND ELECTRIC PULL-BOXES

- A. Following installation of the vaults and pull-boxes, and prior to backfilling the excavation, the Contractor shall allow groundwater to infiltrate the excavation surrounding the installed structures for a minimum of 12 hours. The Engineer shall confirm that no water enters the structure during this time.

- END OF SECTION -

SECTION 02740

ASPHALT CONCRETE PAVEMENT

PART 1 - GENERAL

1.01 SUMMARY

- A. The work under this Section includes furnishing all labor, materials, appliances, tools, equipment, transportation, services, and supervision to provide and install asphalt tack coat and asphalt concrete pavement.

1.02 REFERENCES

- A. Section 02315 – Excavation, Fill, and Subgrade Preparation

1.03 APPLICABLE STANDARDS AND SPECIFICATIONS

- A. State Specifications - The Standard Specifications of the State of California, Business and Transportation Agency, Department of Transportation, latest edition.
- B. Standard Test Methods - The Standard Test Methods of the State of California, Business and Transportation Agency, Department of Transportation, latest edition.
- C. American Society for Testing and Materials (ASTM).

1.04 SUBMITTALS

- A. The Contractor shall submit in writing to the Engineer for approval the proposed job mix formula for asphalt concrete, Type A, at least 3 weeks prior to its intended use.
- B. The Port reserves the right to increase or decrease the quantity of asphalt binder prior to or during paving operations. When an increase or decrease of not more than 0.5 percent of the initially approved bitumen ratio is ordered by the Engineer, full compensation for additional costs occasioned by compliance with the Engineer's directive shall be considered as included in the contract unit price per ton for asphalt concrete and no additional compensation will be allowed.
- C. The contractor shall provide certificates for each delivery, showing the approved asphalt concrete mix design number.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Asphalt Concrete:

1. Paint Binder: SS1 or SS1h asphaltic emulsion conforming to Section 94, "Asphaltic Emulsions," of the State Standard Specifications.
2. Asphalt Concrete: Type A asphalt concrete conforming to Section 39 of the State Specifications.
 - a. Bituminous Binders: PG 70-10 paving asphalt conforming to Section 92 of the State Specifications. If recycled pavement (RAP) is approved by Engineer for use, binder shall be PG 70-10.
 - b. Aggregate: Type A, 1/2-inch maximum size, medium grading requirement of Section 39 of the State Specifications.
3. Job Mix Formula: Job mix formula shall conform to the provisions in Section 39-3, Storing, Proportioning and Mixing Materials," of the State Standard Specifications and these Special Provisions.
 - a. The job mix formula submitted shall indicate definite percentages for each sieve fraction of aggregate, source of aggregate, percentage of asphalt binder, and temperature of completed mixture when discharged from the mixer. All test data used to develop the job mix formula shall also be submitted.
 - b. The approved job mix formula will be in effect until modified in writing by the Engineer. Should the Contractor change his source of supply, he shall furnish new proportions of job mix formula, as determined by the Engineer to be necessary, at least 2 weeks before their intended use. A change which affects any portion of the total aggregate in the mix will be considered a change in the source and will require a new mix design.
4. The fifth, sixth, seventh, and eight paragraphs of Section 39-3.02, "Proportioning," of the state Standard Specifications will not apply to this contract.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Asphalt Concrete Pavement Subgrade Preparation:
 1. Prior to placing asphalt concrete pavement on aggregate base and applying tack coat, prepare aggregate base in conformance with Section 39-4.01, "SUBGRADE", of the State Standard Specifications.

3.02 PAINT BINDER

- A. Paint binder application shall conform to the provisions in Section 39-4.02, "Prime Coat and Paint Binder (Tack Coat)," of the State Standard Specifications and these Special Provisions.
- B. Tack coat shall be applied at a rate of 0.02 to 0.10 gallons per square yard at vaults, manholes, catch basins, pavements, curbs, gutters and construction joints

and at a rate of 0.22 to 0.28 gallons per square yard on existing concrete and asphalt concrete pavements against which asphalt concrete pavement overlay will be placed.

- C. The area to which paint binder has been applied shall be closed to public traffic. Care shall be taken to avoid tracking binder material onto existing pavement surfaces beyond the limits of work.

3.03 ASPHALT CONCRETE PAVEMENT

- A. Spreading and compacting of asphalt concrete shall conform to the provisions in Sections 39-5, "Spreading and Compacting Equipment," and 39-6, "Spreading and Compacting," of the State Standard Specifications and these specifications.
- B. Production shall not begin without written approval of the Engineer.
- C. Steps shall be taken to ensure that a clean, dirt-free surface exists between lifts. At locations where the dirt cannot be washed or broomed off the surface, a tack coat shall be broomed into the remaining particles. The Engineer shall approve the condition of the surface prior to paving. If the surface between lifts becomes dirty, it shall be given a tack coat even if both lifts are placed the same day.
 - 1. Longitudinal and transverse joints shall be staggered between lifts. At the end of each work shift, the distance between the ends of the layers of asphalt concrete on adjacent lanes shall not be greater than 10 feet nor less than 5 feet. In addition, the distance between the edge of lower lift and the edge of the overlying lift shall be at least one foot.
 - 2. Longitudinal and transverse joints in asphalt concrete shall be staggered between lifts. The edge of the joint of the lower lift shall be at least one foot from the edge of the joint of the overlying lift.
- D. The vertical surface joints shall be dense, uniform, and well bonded. In the formation of joints, provisions shall be made for proper bonding with the adjacent lift for the entire depth of the lift. A tack coat shall be applied to such joints and the fresh mixture raked against the joint and thoroughly tamped and rolled at required temperatures.
 - 1. Folded or rounded edges are not acceptable as vertical surfaces for joint.
 - 2. Longitudinal and transverse joints shall be trimmed off vertically to full depth if the exposed joint surface is not dense and uniform and, in the opinion of the Engineer, is in such condition that the quality of the completed joint will be affected. Joints older than 3 hours or not meeting density and uniformity requirements shall be cut back.
- E. The finished asphalt pavement surfaces shall conform to the smoothness tolerance stipulated in Section 39-6.03, "Compacting" of the State Standard Specifications, except that the surface shall not have depressions greater than 1/16-inch when tested with a 12-foot straightedge load transverse to, or in the direction of paving. No portion of the pavement shall retain ponding water.

1. Spreading equipment shall be asphalt pavers conforming to the State Standard Specifications. Pneumatic-tired motor graders or similar equipment shall only be used to spread asphalt concrete in areas inaccessible to pavers.
 2. Edges of leveling coverages shall be feathered. The larger aggregates shall be raked and removed, leaving a dense, well-graded edge.
- F. **Compaction:** Asphalt concrete shall be compacted in accordance with the requirements specified in Section 39, "Asphalt Concrete" of the State Standard Specifications, as amended herein. The completed pavement shall have an average density equal to or greater than 98 percent of the laboratory density derived from compacting and testing the mixture in accordance with California Test 304 and 308.

Each lift of asphalt concrete pavement shall be tested by the Engineer for density requirements as follows:

1. The mean density of each area shall be determined by averaging the result of 10 randomly selected in-place density tests. In areas surrounding subsurface utility vaults, 2 of the 10 test locations shall be directly adjacent to the subsurface structure. In-place density tests shall be measured by means of a nuclear device in accordance with ASTM D 2950. The results of each test shall be immediately available to the Contractor.
2. If an individual test result should fall below 95 percent of the target value, the Contractor shall further compact that area represented by the test. After further compaction, a new density test shall be taken at the original location and one other location within the recompacted area. The average of the 2 tests shall be included in the mean density for the section. The original test shall not be included in the mean.
3. Areas still represented by test results below 95 percent shall be cored. The density of the cores shall be used in calculating the mean for the section. All holes left by coring shall be backfilled with asphalt concrete.
4. If the mean density for a section does not meet or exceed 98 percent of the target density, the section may be accepted at the option of the Engineer, upon written request from the Contractor, under the condition that the unit price for material placed in a section that has been accepted with a mean density less than 98 percent of the target shall be adjusted as follows:

Mean Density	Percent Payment
98.0 and greater	100
97.0 to 97.9	98
96.0 to 96.9	90
95.0 to 95.9	75
Less than 95.0	0 (or rejected)

END OF SECTION

SECTION 03300

CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.01 SUMMARY

- A. The work under this Section includes furnishing all labor, materials, appliances, tools, equipment, transportation, services and supervision required for installing cast-in-place concrete. The work may include, but not be limited to, the following:
 - 1. Mixing, furnishing, conveying, placing and curing of concrete.
 - 2. Installing formwork, reinforcing steel, miscellaneous steel, utility boxes, and embedded items.

1.02 REFERENCE

- A. Section 02315 - Excavation, Fill, and Subgrade Preparation
- B. Section 02324 – Trenching and Backfilling for Utilities
- C. Section 05050 – Metal Materials and Methods

1.03 APPLICABLE STANDARDS AND SPECIFICATIONS

- A. U. S. Army Corps of Engineers' Specifications.
- B. State Specifications – The Standard Specifications of the State of California, Business and Transportation Agency, Department of Transportation, latest edition.
- C. American Concrete Institute (ACI).
- D. American Society for Testing and Materials (ASTM).
- E. Concrete Reinforcing Steel Institute (CRSI).

1.04 SUBMITTALS

- A. Refer to Section 01330, Submittals, for general submittal requirements and procedures.
- B. Evidence of conformance to the referenced standards and requirements shall be submitted for the following.

1. Proposed concrete mix design for each class of concrete. Provide for review by the Engineer prior to commencement of work.
 2. Certificates for each delivery, showing slump, weight of cement and pozzolan per cubic yard of concrete, water/cement ratio, and weights of admixtures, if used.
- C. Shop fabrication details and placement drawings shall also be submitted. Any fabrication undertaken before approval of shop details shall be entirely at the Contractor's risk.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Cement: shall be "Type II Modified," conforming to the State Specifications, Section 90-2.01.
- B. Coarse aggregate: shall conform to ASTM C-33 and shall not exceed 3/4-inch maximum size, unless otherwise shown on the Drawings.
- C. Fine aggregate: shall conform to ASTM C-33, and shall be clean, washed natural sand or crushed rock. It shall be uniformly graded between the No. 4 and No. 200 sizes, with at least 95 percent passing the No. 4 sieve, and not more than five percent passing the No. 200.
- D. Mixing, curing and washing water: shall conform to the State Specifications, Section 90-2.03.
- E. Pozzolan/Fly ash: Pozzolan shall be a Type F or Type N natural pozzolan or a fly ash, conforming to ASTM C-618.
- F. Water reducing admixture, or super-plasticizer: shall conform to ASTM C-494, Types A or D.
- G. Air-entraining admixture: shall meet the requirements of ASTM C-260.
- H. No calcium chlorides or admixtures containing chlorides shall be used.
- I. Non-shrink grout: shall be cement-based, suitable for use in a salt water attack area and conforming to the Corps of Engineers' Specification CRD-C621. It shall have an initial setting time of not less than 60 minutes.
- J. Dry-pack mortar: shall comprise one part cement and two and one-half (2-1/2) parts fine aggregate by volume, with just sufficient water to produce a stiff consistency that can be placed without sagging.
- K. Epoxy bonding agent: shall be a two-component formulation conforming to ASTM C881.

- L. Concrete bonding adhesive shall be Concrete Liquid LPL as manufactured by Master Builders Technology: Sikadur 32, Hi-Mod LPL, as manufactured by the Sika Corporation; or Burkepoxy MV as manufacture by Burke; or an approved equal.
- M. Formwork Lumber: shall be Douglas Fir, "standard" grade or better.
- N. Formwork Plywood: shall be APA Plyform Exterior, grade B-B, 5/8-inch minimum thickness.
- O. Hardboard shall conform to Federal Specification LLL-B-810, Type II, smooth one side, plain. Hardboard shall be 1/8 inch minimum thickness, unless shown or specified otherwise. All boards shall be held in place by nails, waterproof adhesive, or other means approved by the Engineer.
- P. Premolded joint material: joint material for expansion joints shall meet the requirements of ASTM D 1751.
- Q. Reinforcing: shall consist of deformed steel bars conforming to the requirements of ASTM A-615, Grade 60.
- R. Welded wire fabric: shall be welded wire fabric in accordance with ASTM A185.
- S. Chairs and spacers shall be galvanized and plastic-coated or plastic. Bar supports shall have radius bearing legs. Plastic coating shall not be less than 3/32 inch thick, and shall extend to the full reinforcing and steel cover, and shall not chip, peel, crack or deform under ordinary job conditions and temperatures. Metal placed within the outer concrete cover indicated on the Plans shall be galvanized and plastic-coated.
- T. Drilled-In Anchors: shall comply with Section 05050 "Metal Materials and Methods".
- U. Concrete Coloring Agent: shall be red iron oxide pigment. Pigment shall be soluble salts and acids, with calcium sulfate less than 10%. Pigment shall be dry batched with aggregate.
- V. Lean Concrete: shall be a mixture of Portland Cement and/or fly ash, aggregates, water and admixtures proportioned to provide a free-flowing, self-consolidating material that will result in a hardened, dense backfill that can be excavated and with a maximum compressive strength of 100 psi and a minimum compressive strength of 50 psi in 28 days.
- W. Cement Slurry Grout Mix: shall have a minimum compressive strength of 25 psi in 24 hours in accordance with ASTM C403 with a minimum compressive strength of 100 psi in 28 days when tested in accordance with ASTM C495 or C109. The minimum density shall be 64 PCF with an apparent viscosity not to exceed 18 seconds as tested in accordance with ASTM C939. The ultimate load bearing capacity shall be 500 psi.

2.02 MIX DESIGN

- A. Weight of concrete at the time of strength tests shall not be less than 145 pcf. Concrete for light pole foundations and slabs-on-grade shall have a minimum 28-day compressive strength of 4,000 psi, as defined by ASTM C-39. Unless otherwise shown on the plans, all other concrete shall have a minimum 28-day compressive strength of 2,500 psi, as defined by ASTM C-39. The water-cementitious materials ratio shall be 0.45 as a minimum
- B. Pozzolan or fly ash may be used to replace 15 percent of the total cement that would otherwise be used.
- C. Concrete shall be designed, proportioned, mixed, and delivered in accordance with ASTM C-94.
- D. Prior to starting work, a design of each proposed concrete mix shall be submitted, accompanied by three 7-day and three 28-day test reports made by an approved testing laboratory. The design shall indicate the brand of cement, type and source of aggregate, pozzolan, admixtures if used, the water-cement ratio, and the weights of all ingredients per cubic yard.
- E. The maximum concrete slump shall be four (4) inches.
- F. Red Concrete shall be produced by integrally mixing the concrete coloring agent in the proportion of two pounds per sack of cement.

2.03 DETAILING AND FABRICATION

- A. Detailing and fabrication of reinforcing steel shall conform to ACI 315 and ACI 318.
- B. Hooks and bends in reinforcing shall conform to the provisions of ACI 318. Where bar bends are shown but no length is called out, provide standard hooks as minimum.

PART 3 - EXECUTION

3.01 SUBGRADE PREPARATION

- A. The subgrade upon which concrete is to be placed shall be firm and cleared of loose material. Where indicated on the Plans, the subgrade shall be compacted to the requirements of Section 02315 – Excavation, Fill, and Subgrade Preparation. The subgrade shall be moistened prior to placing concrete so that the soil will not absorb excessive moisture from the fresh concrete.
- B. Aggregate base, where shown on the Drawings, shall be placed and compacted to the requirements of Section 02315 – Excavation, Fill, and Subgrade Preparation.
- C. All cast-in-drilled-hole pier excavations shall be clean and free of excess water before placing concrete.

3.02 FORMS

- A. The Contractor shall be responsible for the design, construction, installation, and removal of formwork.
- B. Formwork shall meet the applicable requirements of ACI 347, including those for loads, stresses and deflection limits and the following:
 - 1. Formwork will be so designed that the concrete surfaces will conform to the tolerances of ACI 347, unless indicated otherwise
 - 2. Form details for Construction and Expansion Joints shall be submitted for review by the Engineer before the forms are constructed. Provision shall be made for securing expansion joint material firmly and without damage during concrete placement.
 - 3. Exposed concrete corners shall have a $\frac{3}{4}$ -inch chamfer unless otherwise specifically shown on the Plans.
- C. Construction of formwork shall be in accordance with the following:
 - 1. ACI 347 and Section 6.1 of ACI 318.
 - 2. Form surfaces and edges shall produce concrete conforming to the detailed shapes, lines and dimensions, and free from cavities and honeycombing. Exposed concrete surfaces shall be free from protrusions, fins, roughness and other imperfections. Forms shall be strong, flat and rigid and be set true to line and level. They shall be fixed firmly in place and shall resist, without movement, the weight and pressures of wet concrete, and all loads incidental to its placement.
 - 3. Forms for exposed concrete shall be of steel or plywood APA grade-stamped "B-B Plyform Class 1 Exterior".
 - 4. Form accessories to be partially or wholly embedded in the concrete, such as ties and anchors, shall be "Superior", "Burke," or approved equal, plastic-coated or plastic. Wire is not acceptable, nor are ties which remain exposed, or could cause rusting or spalling of concrete. The anchors shall not be left in place, but shall be carefully removed and the holes neatly filled with the specified dry-pack mortar.
 - 5. All concrete embedments and penetrating items requiring attachment to forms shall be accurately located and rigidly secured so that they will not become displaced during concrete placement.
 - 6. Form joints shall be sufficiently tight to prevent leakage of grout or cement paste.
 - 7. Plywood and other wood surfaces subject to shrinkage shall be sealed against absorption of moisture from the concrete by either (1) a form oil such

as "Formfilm," manufactured by A. C. Horn or approved equal; or (2) a factory applied non-absorbent liner.

8. When forms are coated to prevent bond with concrete, coating shall be applied prior to placing of the reinforcing steel. Coating material shall not be allowed on concrete against which fresh concrete will be placed.
9. Before placing concrete, the forms shall be thoroughly cleaned of all foreign material. Before placing concrete, all reinforcement shall be checked by the Contractor to insure that each bar is accurately set and anchored against movement such that specified clearances will exist in the finished concrete.
10. The Contractor shall notify the Engineer in writing at least 24 hours in advance for each successive placement of concrete that the forms are ready to be inspected by the Engineer. No concrete shall be placed until the Engineer has given written approval to begin placing.

3.03 EMBEDDED ITEMS

- A. Items to be embedded in concrete shall be installed prior to concrete placement. The Contractor shall notify the Engineer at least 24 hours in advance of concrete placement when all items are in place, ready for his inspection.
- B. Embedded items shall be positioned accurately and rigidly secured against movement during concrete placement. Tolerances shall be + 1/2 inch in location and + 1/4 inch in depth from face of concrete, unless a more stringent tolerance is established elsewhere in these specifications.
- C. Pipes, conduits, and ducts that are to be encased in concrete shall be installed by the Contractor before the concrete is placed. The pipe shall be held rigidly so that it will not be displaced or moved during the placing of the concrete. Voids in ends of pipes and conduits shall be filled temporarily with readily removable material to prevent the entry of concrete.
- D. Conduits and sleeves shall be located so as not to reduce the strength of the construction. For slabs on grade, conduits shall be placed below the bottom layer of reinforcement, and be encased in concrete by locally increasing slab thickness to at least 3-inches around conduit walls.
- E. Anchor bolts shall be assembled in templates accurately formed to the steel fabricator's or equipment supplier's dimensions. Bolt assemblies shall be set true to line and elevation, encased in sleeves where shown on the Plans, and secured rigidly to prevent their movement during concrete placement.

3.04 REINFORCING BARS

- A. All reinforcing steel shall be installed as shown on the Plans and in conformance with the referenced standards and good practice, including:

1. All reinforcing steel, at the time concrete is placed, shall be free from loose rust or scale, oil, grease or any other coating which could reduce bond strength.
 2. All reinforcing steel shall be shop fabricated in accordance with the approved detail Plans. All bars shall be bent cold. Any necessary bending at site shall also be performed cold, unless otherwise permitted by the Engineer.
 3. All reinforcing steel shall be accurately placed and secured against displacement, and held in place by a sufficient number of chair supports as specified. Ties at intersections shall be made with the specified black soft-annealed wire. Reinforcing steel located above ground may rest upon pre-cast concrete blocks which are of a thickness that will provide the required cover, concrete strength, and density equal to that of the concrete being cast. Ends of tie wire shall be pointed toward center of pour. Ends of tie wire shall not be located in the clear area between the reinforcing steel and the outside of the concrete. All loose pieces of tie wire shall be removed from formwork.
 4. Whatever conduit, piping, sleeves, bolts, hangers, boxes or other embedded items interfere with the proper placement of reinforcing steel, as detailed, the Contractor shall submit to the Engineer his proposed reinforcement adjustment and obtain the Engineer's approval at least 48 hours prior to concrete placement. Bars shall not be bent around openings or sleeves, except where shown on the Plans.
 5. Splices and laps shall be made and located only as called for on the Plans, or as otherwise approved by the Engineer. All reinforcing steel shall be continuous around corners and shall have Class B splices in accordance with ACI 318, unless otherwise noted on the Plans.
 6. No welding of reinforcing steel to embedded items shall be performed without the Engineer's prior approval. Welding shall conform to AWS D1.4, and to Section 12.14 of ACI 318.
 7. Couplers shall be installed in accordance with manufacturer's written installation specifications.
- B. The Contractor shall notify the Engineer at least 24 hours in advance of concrete placement when reinforcing is completely fixed and ready for the inspection
- C. Reinforcing steel cages for cast-in-drilled-hole piers shall be assembled with spirals held firmly in place at proper pitch and alignment to prevent displacement during concrete placement. Use side spacer blocks or other approved means at intervals along the drilled hole shaft to ensure concentric spacing of cage within shaft.

3.05 PLACING CONCRETE

- A. Placing shall conform to Section 51-1.09 of the State Specifications and to ACI 304.
- B. The Contractor shall schedule concrete placement to be continuous between construction joints. Once concrete placement has started, every effort shall be made to carry it on as an uninterrupted operation until the scheduled placement has been completed. Prior to concrete placement, forms and reinforcing shall be cleaned by means of compressed air.
- C. Once concrete placement has started, every effort shall be made to carry it on as an uninterrupted operation until the scheduled placement has been completed.
- D. Where concrete is to be placed on grade, it shall not be placed in standing water.
- E. Placement of concrete in cast-in-drilled-hole piers shall be through suitable tremie or other means to prevent segregation of concrete materials and splashing of reinforcing steel cage.
- F. Concrete shall be compacted with suitable mechanical vibrators operating within the concrete. When necessary, vibrating shall be supplemented by hand spading with suitable tools to assure proper and adequate compaction. Vibrators shall be manipulated so as to work the concrete thoroughly around the reinforcement and embedded fixtures and into corners and angles of the forms.

3.06 JOINT AND GROOVES

- A. When the placing of concrete is suspended, necessary provisions shall be made for joining future work before the placed concrete takes its initial set. For the proper bonding of old and new concrete, such provisions shall be made for grooves, steps, keys, dovetails, reinforcing bars or other devices as may be prescribed. Before depositing new concrete on or against concrete which has hardened, the surface of the hardened concrete shall be cleaned by a heavy steel broom, roughened slightly, wetted, and covered with a neat coating of cement paste or grout.
- B. Control (contraction) joints shall be spaced as indicated on the Plans. Depth of control joints shall be one-quarter the slab depth, or as noted on the Plans.
- C. Expansion joints shall be constructed at such points, and of such dimensions, as may be indicated on the drawings. The pre-molded filler shall be cut to the same shape as that of the surfaces being joined. The filler shall be fixed firmly against the surface of the concrete already in place in such manner that it will not be displaced when concrete is deposited against it.

3.07 HOT AND COLD WEATHER CONCRETING

- A. During hot weather, the Contractor shall implement the requirements of ACI 305R, and during cold weather, the requirements of ACI 306R.

3.08 CONCRETE FINISH

- A. All exposed concrete surfaces shall be true, smooth, free from open or rough spaces, depressions, or projections. The concrete in horizontal plane surfaces shall be brought flush with the finished top surface at the proper elevation and shall be struck-off with a straightedge and floated. Mortar finishing shall not be permitted, nor shall dry cement or sand-cement mortar be spread over the concrete during the finishing of horizontal plane surfaces.
- B. Exterior slabs shall be finished to a tolerance of $\pm 1/4$ inch in 10 feet, and have a rough, broomed finish. All other exposed surfaces shall receive a wood float finish.

3.09 CURING AND PROTECTION

- A. Freshly deposited concrete shall be protected from premature drying and excessively hot or cold temperatures, and shall be maintained with minimal moisture loss at a relatively constant temperature for the time necessary for hydration of the cement and hardening of the concrete.
- B. Curing shall immediately follow the finish operation. Concrete shall be kept continuously moist for a minimum of seven (7) days by absorbent mat or fabric kept continuously wet.
- C. Steel forms heated by the sun and all wood forms in contact with the concrete during the curing period, shall be kept wet. If forms are to be removed during the curing period, one of the above curing materials or methods shall be employed immediately.
- D. During the curing period, the concrete shall be protected from damaging mechanical disturbances, particularly load stresses, shock and excessive vibration. All finished concrete surfaces shall be protected from damage caused by construction equipment, materials, methods, and by frost, rain or running water.
- E. The Contractor shall be entirely responsible for protecting the concrete from damage, from whatever cause, until its acceptance by the Owner.

3.10 REPAIR OF CONCRETE AND DEFECTIVE WORK

- A. Immediately after forms are removed and curing is completed, surface defects shall be repaired. During repair work, the curing of adjoining surfaces shall not be delayed or interrupted. Repair procedures shall be as follows:
 - 1. Fins and other projections not acceptable to the Engineer shall be removed, and the concrete ground to an even surface. Individual small surface defects such as air bubbles, voids, and fissures will be accepted without repair, if the voids or air bubbles are less than 1/2 inch in diameter and 3/8 inch in depth and if fissures do not penetrate more than 3/8 inch in depth.
 - 2. All honeycombed and other defective concrete shall be removed down to sound concrete. The sides of all cuts shall be square and the minimum depth of the defective concrete removal shall be one inch. The area to be

patched shall be coated with the approved epoxy bonding agent, applied in accordance with the manufacturer's instructions. Small, shallow holes caused by air entrapment at surface of forms shall not be considered to be defective unless amount is so great as to be considered not the standard of the industry. The void shall then be filled with dry-pack mortar. This shall be rammed firmly into place and finished flush with the surrounding concrete.

3. Form-tie cavities shall be repaired in the same manner, except that the epoxy bonding agent need not be employed.
 4. For cavities exceeding three (3) inches in depth or 1/4 cubic ft in volume, concrete and not dry-pack mortar shall be employed. A coating of the approved epoxy bonding agent shall first be applied to the surface after removal of all loose material. Concrete of the same strength and composition as that in the defective member shall then be well rammed into the cavity and finished flush. It shall be just plastic enough to permit effective placement. If necessary, a form shall be fixed to prevent concrete sagging.
 5. All repair surfaces shall be cured in the same manner as the surrounding concrete.
- B. Areas of structures which are outside the tolerance limits listed in ACI 347, shall be removed to the specified limits if the Engineer so requires. The finished surface shall be ground smooth to a finish comparable to the surrounding area.

3.11 GROUT

- A. Where grout is required on the Plans, the specified non-shrink grout shall be used.
- B. Metal surfaces, which will be in contact with grout, shall first have all loose mill scale and foreign matter removed. Concrete surfaces shall be roughened and all laitance and foreign matter removed.
- C. The grout shall be stored, mixed, handled, placed and cured in accordance with the manufacturer's instructions. Forms shall be provided, if necessary, to confine the grout to its required location. During placement, care shall be taken to prevent air entrapment and to ensure that anchor bolt sleeves are completely filled before the grout is placed under base plates.

3.12 THRUST BLOCKS

- A. Concrete for thrust blocks shall be poured against undisturbed earth. If in the opinion of the Engineer the earth against which the thrust block bears is unsuitable to support the imposed load, the Contractor shall provide additional anchorages as may be required by the Engineer at Contractor's expense. Contractor shall not use mechanical vibrators to compact concrete in thrust blocks as the pipe may be displaced. Concrete used for thrust blocks shall be in contact with fittings and not with the pipe. Thrust blocks shall be placed in such a

manner that pipe and fitting joints are accessible for repair. Thrust blocks shall cure at least 24 hours before backfilling over the structure.

3.13 BOLLARDS

- A. Bollards shall be filled with concrete, where shown on the Drawings. Concrete shall be deposited into the bollard pipe, thoroughly consolidated to eliminate voids, and provided with a domed mortar cap.

PART 4 - TESTING

4.01 STRENGTH TESTS

- A. Concrete will be sampled and tested by the Engineer in accordance with Section 90-9 of the State Specifications to determine compressive strength. Samples will be taken as frequently as specified in ACI 318, and more frequently if required by the Engineer. The age of strength tests for acceptance shall be 28 days. Minimum strength for acceptance of the concrete will be as set forth in Section 90-9.
- B. The Contractor may make additional tests at Contractor's expense at earlier ages to obtain advance information on the adequacy of strength development and to determine when forms may be removed.
- C. If strength tests fail to meet the minimum requirements, the concrete represented by such tests will be considered questionable, and will be subjected to additional testing at the direction of the Engineer, and at the expense of the Contractor, as follows:
 - 1. Core samples of the questionable concrete will be taken and tested for compressive strength in accordance with ASTM C42.
 - 2. If core tests fail to demonstrate strengths adequate for the intended purpose of the member or members in question, as determined by the Engineer, or if failure to meet specified strength requirements occurred in members from which it is impracticable to secure test specimens by the method of ASTM C42, load tests will be conducted and their results evaluated in accordance with Chapter 20 of ACI 318.
 - 3. If the results of the load tests fail to meet the requirements of Chapter 20 of ACI 318, low-strength portions of the structure shall be demolished and rebuilt, or adequately reinforced as directed by the Engineer, all at the Contractor's expense.

4.02 QUALITY CONTROL

- A. Samples of fresh concrete shall be collected per ASTM C-172 to perform the following tests.

1. Slump Tests: Performed per ASTM C-143. Take samples during concrete placement. The maximum slump may be increased as specified with the addition of an approved admixture provided that the water-cement ratio is not exceeded. Perform tests at commencement of concrete placement and for each batch (minimum) or every 10 cubic yards (maximum) of concrete.
2. Air Content. Performed per ASTM C-173 or ASTM C-231. Test air-entrained concrete for air content at the same frequency as specified for slump tests.

END OF SECTION

SECTION 03400
PRE-CAST CONCRETE

PART 1 - GENERAL

1.01 SUMMARY

- A. The work under this Section includes furnishing all labor, materials, appliances, tools, equipment, transportation, services, and supervision required to construct and transport pre-cast concrete structures. The work may include, but not be limited to, the following:
 - 1. Construction of storm drain catch basins and manholes.
 - 2. Construction of utility vaults and electric pull-boxes.
 - 3. Construction of extensions for existing storm drain catch basins.

1.02 REFERENCE

- A. Section 02530 – Storm Drain Systems
- B. Section 02580 – Electrical and Telecommunications Structures
- C. Section 03300 – Cast-In-Place Concrete
- D. Section 05050 - Metals Materials and Methods.

1.03 APPLICABLE STANDARDS AND SPECIFICATIONS

- A. State Specifications – The Standard Specifications of the State of California, Business and Transportation Agency, Department of Transportation, latest edition.
- B. AASHTO Specification - The Standard Specification of the American Association of State Highway and Transportation Officials, latest (english system) edition.
- C. U. S. Army Corps of Engineers' Specifications.
- D. American Concrete Institute (ACI).
- E. American Society for Testing and Materials (ASTM).
- F. American National Standards Institute (ANSI).
- G. Occupational Safety and Health Agency (OSHA).

1.04 PERFORMANCE REQUIREMENTS

- A. The design wheel live loading for all structures except extensions for existing storm drain catch basins shall be 150 psi over a tire print area of 30 inches by 30 inches minimum, unless otherwise noted. Contractor shall submit shop drawings and design calculations completed by equipment manufacturer indicating that all pre-cast structures can sustain the design wheel load.
- B. The design wheel live loading for extensions for existing storm drain catch basins shall be AASHTO H20 wheel loading
- C. The Contractor shall verify all controlling field dimensions, points of connection, and the location of all existing utilities before ordering or fabricating any material or installing any material. See related sections of these Specifications for Contractor coordinated work.

1.05 SUBMITTALS

- A. A complete schedule of materials shall be submitted in accordance with Division 1. Submit as one package. Partial submittals will not be accepted. Submit manufacturer's names, catalog numbers, brand names, catalog cuts, plans and other descriptive data and ratings as may be required. Review will be based on the manufacturer's published ratings. Items included in the submittal shall include, but may not be limited to sealants, unistrut, and ladders.
- B. Shop Drawings
 - 1. Submit manufacturer shop drawings for pre-cast structures. Shop drawings shall include a detail of the rim/cover/wall connection designed to prevent concrete spalling when subjected to design loads. Contractor shall field-verify pipe entrance angles and orientations prior to structure design. Shop drawings shall indicate locations of access openings, ladders, unistrut, pulling irons, knockouts, and other appurtenances on the shop drawings. Shop drawings shall be reviewed and approved by the Engineer prior to pre-cast concrete structure construction.
 - 2. Submit manufacturer shop drawings for extensions for existing storm drain catch basins. Shop drawings shall indicate connection details to existing catch basins, locations of access openings, ladders, unistrut, pulling irons, knockouts, and other appurtenances on the shop drawings. Shop drawings shall be reviewed and approved by the Engineer prior to pre-cast concrete structure construction
- C. Design data and manufacturer's data
 - 1. Submit calculation, design data and manufacturer's data, drawings or catalog cuts, including but not limited to structural calculations for pre-cast

concrete structures indicating conformance with all performance requirements.

- D. Certificates of conformance or compliance for the specified products.
- E. Manufacturer's instructions or installation guides
- F. Factory and Field Test Reports
- G. Record Documents: At Contract closeout Contractor shall submit Record Drawings of installed pre-cast concrete structures according to Division 1, Section 01780, "Project Record Document."

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Conform to ASTM C913 "Standard Specifications for Pre-cast Concrete Water and Wastewater Structures", including all standard specifications for materials contained therein.
- B. Materials shown on the Drawings and specified herein shall be new and of the best grade and quality, free from defects and of the make or quality specified or as accepted and approved by the Engineer.
- C. Cement shall conforming to ASTM C150 for be "Type II" Portland Cement.
- D. Concrete Waterproofing Compound: shall be Xypex Waterproofing Compound or approved equivalent.

2.02 PRODUCTS

- A. Pre-cast concrete structures shall conform to the dimensions shown on the Drawings, and shall be designed to meet the specified performance requirements.
- B. Each structure, or section of structure shall be clearly marked with the date of manufacture and the manufacturer trademark, in accordance with ASTM C-913.
- C. Frames, grates, and covers shall be in accordance with Section 05050 Metals Materials and Methods.

PART 3 - EXECUTION

3.01 DESIGN

- A. The reinforced concrete structure shall be designed in accordance with ACI – 318 Building Code, or an equivalent method, in order to meet the specified performance requirement design loads.

- B. Structural loading calculations shall be in accordance with ASTM C-857 and C-890 for the specified performance requirement design loads.
- C. Pipe and duct knockouts shall be designed to carry the specified design loads with the knockouts removed.
- D. The design concrete cover for reinforcing bars, wire or fabric shall not be less than 1-inch in accordance with ASTM C-913.
- E. The design of embedded lifting devices shall be in accordance with ASTM C-890, Section 8.4. Lifting device materials shall be in accordance with Section 05050 Metals Materials and Methods.

3.02 CONSTRUCTION

- A. The pre-cast structure shall be constructed in accordance with the tolerances specified in ASTM C-858, ASTM C-913, or as specified on the Drawings, whichever is stricter.
- B. Construction of formwork shall be in accordance with the following:
 - 1. ACI 347 and Section 6.1 of ACI 318.
 - 2. Form surfaces and edges shall produce concrete conforming to the detailed shapes, lines and dimensions, and free from cavities and honeycombing. Exposed concrete surfaces shall be free from protrusions, fins, roughness and other imperfections.
 - 3. Before placing concrete, the forms shall be thoroughly cleaned of all foreign material. Releasing agents applied to the form to aid in breaking the bond between the form and the concrete shall not be injurious to the concrete.
- C. Reinforcing bars shall be free of excess rust, mill scale, or other bond reducing matter at time of placing concrete.
- D. Reinforcing bars shall be securely tied to maintain position during concrete placement and to maintain the design concrete cover as specified.
- E. Ladders, unistrut, and pulling iron shall be provided in accordance with Section 05050 Metals Materials and Methods, and installed per the Drawings. The Contractor shall comply with manufacturer's installation instructions and shall furnish mechanical fasteners consistent with the manufacturer's instructions. All work shall be set plumb, true, rigid, and neatly trimmed out.
- F. Structures shall be equipped with ladders per OSHA 1910.27 and ANSI A14.3 – 1992, Ladders, Fixed, Safety Requirements.
- G. During the curing period, the concrete shall be protected from damaging mechanical disturbances, particularly load stresses, shock and excessive vibration. Concrete shall be cured by a method that will develop the specified compressive strength at 28 days or less.

- H. Outside surface of structures shall receive a single coat application of concrete waterproofing compound as shown on the Drawings. A four-inch concentric ring of untreated concrete shall be left bare (no waterproofing compound) around the cutout for the utility conduit/storm drain penetrations. Material shall be mixed and applied in full conformance with manufacturer's recommendations. Prior to application of waterproofing compound, any curing compounds or form release agents used during manufacture of structures shall be removed by hydraulic, mechanical, or other means approved by Engineer.
- I. Any defective work disclosed after the forms have been removed shall be immediately removed and replaced in a manner to ensure that the repaired structure will conform to the applicable requirements of ASTM C-858 and C-913.

3.03 TESTING

- A. Pre-cast structures should be tested for water tightness in accordance with ACI 350.

3.04 TRANSPORTATION

- A. All pre-cast concrete structures shall be carefully handled during hauling and unloading to avoid damage. Cracked, chipped or otherwise damaged units shall be repaired and/or replaced to the satisfaction of the Engineer

3.05 INSTALLATION

- A. Storm drain catch basins and manholes shall be installed in accordance with Section 02530 – Storm Drain System.
- B. Utility vaults and electric pull-boxes shall be installed in accordance with Section 02580 – Electrical and Telecommunications Structures

END OF SECTION

SECTION 05050

METAL MATERIALS AND METHODS

PART 1 - GENERAL

1.01 SCOPE

The work under this Section includes furnishing all labor, materials, appliances, tools, equipment, transportation, services, and supervision required to furnish and install miscellaneous metal (excluding concrete reinforcement).

1.02 REFERENCES

- A. Section 01331 – List of Submittals
- B. Section 02530 – Storm Drain Systems
- C. Section 02580 – Electrical and Telecommunications Structures
- D. Section 03300 – Cast-in-Place Concrete
- E. Section 03400 – Pre-cast Concrete
- F. Section 09900 – Painting of Metal Structures

1.03 APPLICABLE STANDARDS AND SPECIFICATIONS

- A. American Society for Testing and Materials (ASTM)
- B. American Institute of Steel Construction (AISC)
- C. American Welding Society (AWS)

1.04 SUBMITTALS

- A. Refer to Section 01330, Submittals, for general submittal requirements and procedures.
- B. Submit evidence of conformance to the referenced standards for the following in accordance with the requirements of Section 01330, Submittals:
 - 1. Manufacturers product data for all materials/products in this specification.
 - 2. Welding procedures and qualification test records.
 - 3. ICBO Evaluation Reports for drilled-in anchors.

4. Shop drawings for each item or assembly specified. Accurately and clearly show in detail the construction, size, dimensions, methods of assembly, and all other pertinent data. Shop drawings shall be reviewed and approved by the Engineer/Port prior to pre-cast concrete structure construction.
5. Submit calculation, design data and manufacturer's data, drawings or catalog cuts for each item or assembly specified.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Steel Plate: shall conform to ASTM A36.
- B. Steel Shapes: shall conform to ASTM A36
- C. Reinforcing: shall conform to ASTM A706 Grade 60 or A615 Grade 60.
- D. Bollard Pipe: shall conform to ASTM A53, Grade B, Standard (schedule 40) weight class, unless otherwise indicated on the Plans.
- E. Structural Tubing: shall conform to ASTM A500, Grade B. Provide full length members without splices.
- F. Cast Iron: shall conform to ASTM A48, Class 30.
- G. Malleable Iron Castings: shall conform to ASTM A47.
- H. Drilled-In Anchors: shall be "Hilti Kwik Bolt 3", or other approved wedge type, torque-controlled anchor conforming to ASTM A510, unless otherwise indicated on the Plans.
- I. Headed Anchor Studs (HAS): shall be "Nelson" Type S3L or H4L, or other approved make and type of the sizes indicated on the plans. Welds for HAS shall develop the full strength of the anchor and shall be welded in conformance with manufacturer's recommendations.
- J. Bolts: shall be Grade A, ASTM A307, unless otherwise noted. Use nuts compatible with the specified bolts in accordance with ASTM A563. Hardened washers shall conform to ASTM F436, type to match bolt type and finish.
- K. Eye Bolts: shall be alloy steel conforming to ASTM F541.
- L. Welding Electrodes: shall be the type which conforms to the requirements of AWS A5.1 for the manual shielded metal arc (SMA), or submerged arc (SA) welding process. Welding Rods shall be AWS E-70xx
- M. Checkered plate shall be U. S. Steel "Multigrip", or other approved make and type. It shall have a two-way pattern of 1/4 inch high projections. Minimum

thickness of checkered plate shall $\frac{1}{4}$ inch, unless otherwise specified on the Drawings.

- N. Metal Framing Strut: shall be "Unistrut" channel or other factory fabricated, channel shaped, cold formed sheet steel shape approved as equal. Associated fittings and nuts shall be compatible with the channel material.
- O. Galvanizing: shall be by hot-dip method conforming to ASTM A153 or ASTM A123.
- P. Paint: shall be as specified in Section 09900 – Painting of Metal Structures

2.02 GALVANIZING

- A. All ferrous metal not specifically addressed in other specification sections, other than stainless steel or items to be epoxy coated, shall be galvanized.
- B. Galvanizing of products formed from shapes, bars, or plates shall be performed before shipment and shall be by a hot dip process conforming to ASTM A123. Zinc shall conform to ASTM B6.
- C. Galvanizing of bolts, studs, and associated nuts and washers, shall be performed prior to assembly and shall be by a hot-dip process in accordance with ASTM A153.
- D. Preparation prior to galvanizing shall be by acid pickling. Galvanizing shall be performed the same day as pickling.
- F. Welded assemblies shall be galvanized after welding.
- G. The zinc coating shall adhere tenaciously to the steel surface, shall be free from blisters and excess zinc, and be even, smooth and uniform throughout. All cutting, punching, drilling and other machine work shall be performed as far as possible before galvanizing. Should any such work or any welding be necessary after galvanizing, the areas from which galvanizing has been removed shall be touched up in the manner described for damaged and rusted items.
- H. Galvanized items that have become damaged or rusted shall be thoroughly cleaned by wire brushing or grinding. They shall then receive two-brush coats of one of the following formulations or an approved equal:
 - 1. DuPont No. 67-744, Deluxe Galvanized Metal Primer
 - 2. Glidden No. 5229, Galvanized Iron Primer

The coats shall have a combined dry film thickness of not less than six (6) mils.

Field welds shall be brush-coated in the same manner, after cleaning and the removal of all slag.

2.03 WELDING:

- A. All welding shall conform to the requirements of AWS D1.1.
- B. All welders shall have current AWS certificates for the type of material used and the type of weld to be performed.

2.04 CASTINGS:

- A. Castings, whether Carbon-Steel, Gray Cast Iron, or Ductile Iron shall conform to the shape and dimensions indicated on the Plans and shall be clean substantial castings, free from sand or blowholes or other defects. Surfaces of the castings shall be free from burnt on sand and shall be reasonably smooth. Runners, risers, fins and other cast on pieces shall be removed from the castings and such areas ground smooth. Bearing surfaces between manhole rings and covers or grates and frames shall be cast or machined with such precision that uniform bearing shall be provided throughout the perimeter area of contact.
- B. Steel castings shall conform to ASTM A 27/27M, "Specifications for Steel Castings, Carbon, for General Application". Grade 70-36 (480-250).
- C. Cast iron castings shall conform to ASTM A 48, "Specification for Gray Iron Castings", Class 30.
- D. Ductile Iron castings shall conform to ASTM A 536, "Specification for Ductile Iron Castings". Grade 60-40-18 (415-275-125) shall be used unless otherwise indicated on the Drawings.

PART 3 - EXECUTION

3.01 FABRICATION AND INSTALLATION

- A. The Contractor shall furnish the Engineer with shop drawings for all items, and shall receive his comments before commencing fabrication. Review of these drawings by the Engineer will not relieve the Contractor of responsibility for their accuracy and completeness.
- B. In so far as practical, items shall be fitted and shop assembled ready for installation. Items shall be complete with all necessary anchors, bolts, inserts, angles, fastenings, and other devices.
- C. For items requiring paint, as indicated on the Plans, work shall be performed in accordance with Section 09900 – Painting of Metal Structures.
- D. Workmanship:
 - 1. Make all work square, plumb, straight and true, accurately fitted, with tight joints and intersections. Members shall have sharply defined profiles and be free from twists, bends and defects impairing strength and durability. Items not presenting a finished and workmanlike appearance will be rejected.

2. Clip off projecting edges and corners. Finish and dress surfaces, edges and welds smoothly and neatly by grinding, chipping and wire brushing. Reduce sharp edges by grinding to 1/8th inch radius.

E. Welding requirements are as follows:

1. Shop welding shall be performed by the manual shielded metal arc (SMA), or submerged arc (SA) welding process.
2. Welding procedures which conform in all respects to the provisions of Section 2, 3, and 4 of AWS D1.1, Structural Welding Code, will be deemed pre-qualified.
3. Procedures other than those pre-qualified shall be qualified by tests as specified in Section 5 of AWS D1.1. The written welding procedures and the qualification test records shall be submitted to the Engineer for prior approval.
4. Welding shall be performed only by welders or operators who have been qualified in accordance with Section 5 of AWS D1.1, and their qualification tests records shall be made available to the Engineer upon request.
5. Welds shall be of uniform width and size throughout their length. Each layer shall be smooth and free from slag, cracks, and pinholes and undercut, and completely fused to the adjacent weld beads and base metal. The cover pass shall be free from coarse ripples, high crown, deep ridges and valleys between beads, and shall blend smoothly and gradually into the surface of the base metal.
6. Fillet and groove welds shall be of specified size with full throat and the legs of uniform length.
7. For all details to be joined by welding, and where other continuous welds are not indicated on Plans, provide continuous 3/16 inch seal welds.
8. Repair, chipping or grinding of welds shall not gouge, groove or reduce the base metal thickness.
9. Non-destructive testing, if required, shall conform to Article 6.7 of AWS D1.1.
10. The manufacturer's recommendations shall be followed for both the oven-storage and reconditioning of electrodes.
11. Field welded connections, if required, shall be of the type, size and in the locations shown on the Plans, and in accordance with AWS D1.1. Inspection will be visual examination. Non-destructive testing shall not be required, unless otherwise noted or specified elsewhere.

- F. Embedded Channels: where shown on the Plans to be placed in concrete, shall be located to the depths, dimensions, and tolerances indicated. Where shear studs are provided, concrete shall be adequately consolidated to prevent the formation of voids or pockets at the studs.

3.02 SCHEDULE OF METAL FABRICATIONS

- A. Bollards: shall be fabricated from pipe of the length, diameter, and weight shown on the Plans. Bollards shall be filled with concrete in accordance with Section 03300 "Cast-in-Place Concrete".
- B. Vault Access Covers: where required by the Plans, shall be fabricated to serve the function and meet the dimensions as shown on the Plans. Assemblies shall be fabricated from galvanized steel components. Appropriate lifting points shall be provided within the cover to facilitate opening.
- C. Drainage Inlet Grates: shall be provided as shown on the Plans.
- D. Access Ladders: shall be fabricated from galvanized steel materials, and meet the requirements of ANSI A 14.3. Treads shall be 1-inch round rungs, spaced at 12-inches on center, and welded to flat bar stock stringers spaced 24-inches on center. Mounting brackets shall be provided at the top and bottom, and equally spaced no greater than 60-inches on center in between, where ladder is installed against a wall.
- E. Drilled-In Concrete Anchors: shall be installed per the procedures and recommendations of the manufacturer. Exercise care in drilling to avoid damage to existing reinforcing and embedded items. Do not drill holes until concrete has achieved full design strength.
- F. Manhole Covers and Frames: shall be cast iron castings meeting the dimensions required by the Plans.

- END OF SECTION -

SECTION 09900

PAINTING OF METAL STRUCTURES

PART 1-GENERAL

1.01 SUMMARY

- A. The work under this Section includes furnishing all labor, materials, appliances, tools, equipment, transportation, services, and supervision required to provide and install all painting.
- B. Paint and coating systems for certain manufactured items and special products are specified in other sections. Coordinate all painting systems as required to ensure that proper protective finishes are applied to all surfaces that are specified to be painted.

1.02 REFERENCES

- A. Section 05050 – Metal Materials and Methods

1.03 APPLICABLE STANDARDS AND SPECIFICATIONS

- A. Steel Structures Painting Council (SSPC)
 - 1. SP1: Solvent Cleaning
 - 2. SP2: Hand Tool Cleaning
 - 3. SP3: Power Tool Cleaning
 - 4. SP5: White Metal Blast Cleaning
 - 5. SP6: Commercial Blast Cleaning
 - 6. SP10: Near-White Blast Cleaning

1.04 SUBMITTALS

- A. Refer to Section 01330, Submittals, for general submittal requirements and procedures.
- B. Submit the following in accordance with the applicable submittal requirements of Section 01330, Submittals, and as specified in this Section:
 - 1. Manufacturer Product Data: Submit manufacturer's technical information for each material proposed for use.
 - 2. Schedule of Materials: Submit a complete materials list, identified by manufacturer's name and product label or stock number. List application of each finish.

3. Samples: Provide 12 inches by 12 inches brush-on samples of each color and finish.

1.05 QUALITY ASSURANCE

- A. Provide primers and other undercoat produced by same manufacturer as finish coats. Use only thinners approved by paint manufacturer and use only within recommended limits.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver all materials to the site in the manufacturer's original containers with labels intact and seals unbroken.
- B. Store materials in a locked, well-ventilated room or shed.

1.07 SEQUENCING

- A. Coordinate installation of exterior caulking and sealants with painting to maintain optimum surface adherence and watertight joints.

PART 2-PRODUCTS

2.01 MANUFACTURERS

- A. Sinclair Paint
- B. Sherwin Williams
- C. Carboline Marine Division
- D. Approved equivalent manufacturer

2.02 PAINT FINISH SCHEDULE

A. EXTERIOR PAINTING

1. Galvanized Metal, Acrylic Enamel: Colors to be selected by Engineer.
 - a. Surface Preparation: SP-1.
 - b. Coat 1: Galvanized pretreatment (omit if shop-primed).
 - c. Coat 2: Galvanized primer, DFT/coat = 3.0 mils (omit if shop-primed).
 - d. Coat 3: Acrylic enamel semi-gloss, DFT/coat = 2.0 mils.
 - e. Coat 4: Acrylic enamel semi-gloss, DFT/coat 2.0 mils.

Items and surfaces to receive this system: Galvanized steel surfaces that are part of other ferrous metal assemblies to be painted; and surfaces to

be color coded. Other galvanized steel surfaces will not require painting unless specified in other sections.

2. Ferrous Metal, Acrylic Enamel: Color to be selected by Engineer.
 - a. Surface Preparation: SP-1, followed by SP-2, SP-3, or SP-6, as required.
 - b. Coat 1: Ferrous primer, DFT/coat = 3.0 mils (omit if shop-primed).
 - c. Coat 2: Acrylic enamel semi-gloss, DFT/coat = 2.0 mils.
 - d. Coat 3: Acrylic enamel semi-gloss, DFT/coat = 2.0 mils.

Items and surfaces to receive this system: Iron and steel surfaces that are exposed to view, unless otherwise painted, galvanized, or specified to be left unpainted.

3. Ferrous Metal, Fusion-Bonded Epoxy:
 - a. Surface Preparation: SP-1, followed by SP-5.
 - b. Coat 1: Epoxy powder coating, DFT/coat = 12.0 mils minimum
 - c. Items and surfaces to receive this system: Iron and steel surfaces that are specified to receive fusion-bonded epoxy coating systems in other sections.

4. Port furnished 100' high mast lighting poles – Shop Painted

Areas scuffed or otherwise damaged by the Contractor shall be cleaned down to bare metal, edges feathered, and painted in accordance with the following:

- a. Coat 1: Carbomastic 15, (No substitution is allowed), DFT/coat = 6.0 mils minimum
- b. Coat 2: Carbomastic No. 133 HB, (No substitution is allowed), DFT/coat = 4.0 mils minimum

PART 3-EXECUTION

3.01 EXAMINATION

- A. Examine surfaces to receive paint and finishes for conditions that will adversely affect execution, permanence, and quality of work.
- B. Do not apply paint or finish until conditions are satisfactory.

3.02 PREPARATION

- A. Follow surface preparation requirements specified herein and as instructed by the paint manufacturer. If specified surface preparation and manufacturer's recommendations differ, the more stringent shall apply.
- B. All mill-applied black varnish shall be removed from pipe and fittings by abrasive blasting before the specified coating is applied. Use care to avoid damaging ductile iron pipe during abrasive blasting.
- C. All surfaces that are prepared by abrasive blasting shall be painted the same day that they are blasted.

3.03 APPLICATION

- A. Application of paint systems shall be in strict accordance with manufacturer's recommendations and specifications.
- B. Provide finish coats compatible with prime paints used.
- C. Apply additional coats when undercoats, stains, or other conditions show through final coat of paint, until paint film is of uniform finish, color, and appearance. Give special attention to ensure that surfaces, including edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.
- D. Sand lightly between each succeeding coat to ensure proper adhesion.
- E. Omit first coat (primer) on metal surfaces that have been shop-primed and touch-up painted, unless otherwise indicated.
- F. Scheduling Painting:
 - 1. Apply first-coat material to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.
 - 2. Allow sufficient time between successive coatings to permit proper drying.
 - 3. Do not re-coat until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure and until application of another coat of paint does not cause lifting or loss of adhesion of the under coat.
- G. Film Thickness: Defined as dry film thickness per coats (DFT/coat).

3.04 FIELD QUALITY CONTROL

- A. Inspection
 - 1. Contractor shall notify Engineer prior to application of each coat of paint and shall provide the same means of access for his inspection as used by the Contractor.

2. Any work not complying with these Specifications shall be properly corrected.
3. Should defects be discovered in the course of these inspections, Contractor may be required to delay a portion of the painting until repair of the defects have been completed by the Port.
4. Extension of time equal to the actual delay incurred will be granted for any such delays.
5. No additional compensation will be allowed therefore, except that if reparation is required because of the Port's repairs it shall be done as extra work in accordance with the Supplementary General Provisions.

3.05 CLEANING

- A. Leave the job site clean and orderly; remove all paint spots, rags and discarded equipment.
- B. Upon completion of painting, clean all paint-splattered areas.

- END OF SECTION -

SECTION 16010

ELECTRICAL GENERAL REQUIREMENTS

PART 1 - GENERAL

1.01 SUMMARY

- A. The work under this Section includes furnishing all labor, materials, appliances, tools, equipment, transportation, services, and supervision required for providing complete and fully operating electrical systems. The work may include, but not be limited to, the following:
1. Furnish, install and test Highmast Lighting Poles and Luminaires. Contractor shall provide connection hardware and related incidentals for complete ready-to-operate outdoor lighting system.
 2. Furnish, install and test one outdoor, 12kV-480/277V Unit Substation. Furnish and install all required materials and related incidentals for complete ready-to-operate Unit Substation.
 3. Furnish, install and test one complete assembly of 15kV outdoor metal enclosed switchgear and padmounted vacuum switchgear. Furnish and install all required materials and related incidentals for complete ready-to-operate Main Substation.
 4. Furnish and install electrical conduits, manholes, pullboxes, grounding and related materials and execute the associated site preparation work such as, excavation, trenching, backfilling, paving and compaction.
 5. Furnish and install grounding for the electrical concrete pad foundations. Note that the Phase 3B Grading and Paving Contractor will furnish fencing, bollards and concrete pad foundations and other related site work for the electrical substations.
 6. Furnish and install new fused cutout switches on existing pole, related material and labor including all cables and connections.
 7. Disconnect, remove, and salvage existing electrical equipment as indicated.
 8. Electrical testing for electrical equipment and related systems.
 9. Furnish and install all other related equipment as indicated, materials, system and incidentals.

1.02 RELATED DOCUMENTS

- A. Drawings, General Conditions and Division 1 of the Contract apply to all Division 16 sections.

1.03 CODES AND REGULATIONS

- A. The Contractor shall coordinate and obtain inspections required for work herein. All work performed hereunder shall conform to building safety codes, ordinances, rules and regulations of any legal body having jurisdiction. All electrical equipment and system installed shall comply with California Building Code Seismic Zone 4 criteria. When these specifications require or describe materials or construction of better quality or larger size than required by the governing codes, rules and regulation, the provisions of the specifications shall prevail. The Contractor shall provide a working system without extra cost to the Port even though the work is not specified herein or indicated on the Drawings. Nothing shown in the Drawings or these Specifications shall be considered as authorizing any installation that violates the requirements of such codes. In addition, the installation shall conform to, as minimum, standards, all rules and regulations that apply in the following publications.
1. National Electrical Code (NEC).
 2. Title 8, California Administrative Code, Basic Electrical Regulations, subchapter 5, Low Voltage and High Voltage Safety Order.
 3. Electrical Code, City of Oakland.
 4. Standards, Institute of Electrical and Electronic Engineers (IEEE).
 5. Standards, Underwriters Laboratories, Inc. (UL).
 6. Occupational Safety and Healthy Act (OSHA).
 7. Rules and Regulations - Fire Marshal's Office.

1.04 DRAWINGS

- A. The Electrical Drawings indicate the location and general arrangement of electrical equipment. The conduit routing shown on the Drawings is diagrammatic. The actual installation shall be in accordance with all applicable codes and good construction standards. Dimensions shown shall be verified with 21 Acre Container Terminal Yard Improvement Project Drawings which will be executed by the Phase 3B Grading and Paving Contractor acting as prime.
- B. If any departure from the Drawings is deemed necessary by the Contractor, details of such departure and the reason therefore shall be submitted as soon as is practicable to the Engineer for approval. No such departure shall be made without prior written approval of the Engineer.

1.05 DEFINITIONS AND ABBREVIATIONS

- A. "Connection of" shall mean to furnish and install a complete electrical system necessary for the operation of equipment.

- B. "Pre-wired" shall mean controls shall be installed on the machinery at the factory and all that is necessary for operation is connection at manufacturer's designated customer's terminals by the Contractor.
- C. ICEA Insulated Cable Engineers Association.
ANSI American National Standards Institute
IEEE Institute of Electrical and Electronic Engineers
U.L. Underwriter Laboratories, Inc.
NEMA National Electrical Manufacturers Association

1.06 MATERIALS

- A. The equipment to be furnished under this specification shall be essentially a standard product of the manufacturer. Where two or more units of the same equipment are required, these units shall be products of a single manufacturer. All materials shall be delivered to the jobsite new and unused and shall bear the U.L. label.

1.07 SUBMITTALS

- A. Refer to Section 01331 for additional Division 16 submittal requirements and in addition, submit the following: Material lists, catalog cuts, shop drawings, samples and factory tests of material proposed for the installation shall be delivered to the Engineer for his review. The Engineer will not accept partial submittals. The submittals shall include manufacturers name, brand names, catalog numbers and catalog cuts, together with drawings and such other descriptive data and ratings as may be required. Review of materials and equipment will be based on manufacturers published ratings and compliance with these specifications. No materials or equipment shall be purchased or installed until review by the Engineer is completed.

Items for which catalog cuts and engineering data are to be submitted shall include, but are not limited to the following:

1. Cable and wires
2. Metal-Enclosed Switchgear and related materials
3. Padmounted Vacuum Switchgear
4. Substation and related materials
5. Highmast Luminaries and related materials
6. Mini-Power Centers
7. Manholes, Pullboxes and related materials
8. Manhole and Pullbox Covers
9. Conduits
10. Splices, Splice Kits and Termination Kits
11. Fused Cutouts

1.08 MATERIAL SUBSTITUTIONS

- A. Electrical materials are selected on the basis of functions, size of units, performance, quality of fabrication, aesthetic appearance, availability of spare parts, arrangements of controls and factory service facilities. The manufacturers and catalog numbers selected establish a standard for electrical materials and equipment, and material substitutions shall be equivalent in all requirements.

1.09 QUALIFIED CONTRACTOR

- A. The electrical work shall be performed by an electrical subcontractor who has been actively engaged in the installation of industrial facilities and similar electrical systems.
- B. The Contractor shall be familiar with local electrical codes and include the special requirements of local codes as part of the work to be completed.

1.10 TEMPORARY POWER AND LIGHT

- A. Circuits and receptacles used for the operation of portable and fixed tools shall be provided with ground fault protection.
- B. Temporary power and light shall be provided with the requirements of OSHA and all other applicable safety codes and standards. Refer to General Conditions for availability of power and other requirements.
- C. At all times, sufficient lighting shall be provided for the safety of construction workers. In areas where work is being performed, sufficient lighting shall be installed to ensure good workmanship.

1.11 COMPLIANCE WITH FACTORY AND FIELD TESTS

- A. Materials, products and/or equipment furnished by the Contractor shall pass the factory and/or field tests called for in the Drawings and Specifications. The materials, products and/or equipment will not be accepted if they fail to pass the field and factory tests.

1.12 NAMEPLATES

- A. ASTM D 709 – Provide laminated plastic nameplates for each panelboard, equipment enclosure, relay, switch, and device, as specified in the technical sections or as indicated on the drawings. Each nameplate inscription shall identify the function and, when applicable, the position. Nameplates shall be melamine plastic, 0.125 inch thick, white with black center core. Surface shall be matte finish. Corners shall be square. Accurately align lettering and engraved into the core. Minimum size of nameplates shall be one by 2.5 inches. Lettering shall be a minimum of 0.25-inch high normal block style.

1.13 WARNING SIGNS

- A. Provide warning signs for the enclosures of electrical equipment, including substations, transformers, generators, and switchgear having a nominal rating exceeding 600 volts. When a fence guards such equipment, mount signs on the fence.
- B. Provide metal signs having nominal dimensions of 14 inches by 10 inches with the legend "DANGER HIGH VOLTAGE KEEP OUT" printed in three lines of nominal 3-inch high white letters on a red and black field.

1.14 CABLE TAGS IN MANHOLES, PULLBOXES, HANDHOLES, AND ELECTRICAL EQUIPMENT

- A. Provide tags for each cable or wire located in manholes, pullboxes, handholes, and electrical equipment. Tag new wire and cable provided under this contract and existing wire and cable which are indicated to have splices and terminations provided by this Contract and as indicated on single line diagram. Tag legend shall be as indicated. The tags shall be polyethylene. Do not provide handwritten letters. As an example, a tag could have the following designation: "FDR P1-1/500 MCM," denoting that the tagged cable is on Feeder P1 sized at 500 MCM.

B. Polyethylene Cable Tags for Manholes, Pullboxes and Handholes

Provide tags of polyethylene that have an average tensile strength of 3250 pounds per square inch; and that are 0.08 inch thick (minimum), non-corrosive non-conductive; resistive to acids, alkalis, organic solvents, and salt water; and distortion resistant to 170 degrees F. Provide 0.05-inch (minimum) thick black polyethylene tag holder. Provide a one-piece nylon, self-locking tie at each end of the cable tag. Ties shall have a minimum loop tensile strength of 175 pounds. The cable tags shall have black block letters, numbers, and symbols one inch high on a yellow background. Letters, numbers, and symbols shall not fall off or change positions regardless of the cable tags orientation.

C. Polyethylene Cable Tags for Switchgear and Substation Equipment

Provide tags similar to above except the cable tags shall be half-inch high on a yellow background.

1.15 OUTDOOR ELECTRICAL EQUIPMENT IDENTIFICATION MARKERS

- A. Provide pressure sensitive markers for switchgear, substation and 480V switchboards. Identification tag description for equipment shall be in accordance with electrical single line diagrams. The letter size shall be 2-1/2 high, yellow background, black letters, reflective, fade resistant, and UV protected. The tag shall be self-adhesive to smooth, clean and dry surfaces.

1.16 UTILITY SERVICE INTERRUPTION/SHUTDOWN

- A. Any work which will require an interruption of utility service to any facility shall be scheduled and submitted to the Engineer at least two (2) weeks before shutdown. Such "downtime" shall be kept to a minimum and mutually agreeable to all parties.
- B. For any Contractor's work requiring electrical shutdown, the Port Harbor Utilities will de-energize existing related feeder breakers or switches prior to the Contractor's work requiring shutdown. The Contractor shall start his work promptly as soon as the related feeder breakers or switches are de-energized and shall finish all his work during the period specified. The Port Harbor Utilities will re-energize the existing feeder breakers or switches after the Contractor's work is completed.

1.18 CLEANING AND PRESERVATION

- A. Throughout the progress of the work, protect all raceways, fixtures and equipment from intrusion by rain, dirt, and foreign matter, and from damage of any kind. Thoroughly clean all vitreous, metallic, plastic, and painted surfaces of equipment prior to final inspection. Replace with new materials any damaged work, without additional cost to the Port, so that the entire installation will be left in new condition satisfactory to the Engineer.
- B. Upon completion of the electrical work, remove all surplus materials, rubbish, and debris that accumulated during the construction work. Leave the entire area neat, clean and acceptable to the Engineer.

1.19 PROJECT CLOSEOUT

- A. Training: At the time of completion, a period of not less than eight (8) hours shall be allotted by the Contractor for instruction of Port Harbor Facility Electricians and Tenant Maintenance Personnel in the use of all systems. This 8 hours training is in addition to any instruction time called out in the other sections of the specification for specific systems. All personnel shall be instructed at one time, the Contractor making all necessary arrangements with manufacturer's representatives. The equipment manufacturer shall be requested to provide product literature and application guides for the user's reference. Costs, if any, for the above services shall be paid by the Contractor.
- B. Special Tools: Provide one of each tool required for proper operation and maintenance of the equipment provided. All tools shall be delivered to the Port at the Project completion.
- C. Keying: Coordinate with the Engineer to ensure that all locks are operable by the Port standard key

END OF SECTION

SECTION 16030

ELECTRICAL ACCEPTANCE TESTING

PART 1 - GENERAL

1.01 SUMMARY

- A. The work under this Section includes furnishing all labor, materials, appliances, tools, equipment, services, and technical supervision to perform a complete testing and inspection program on the electrical system and its related equipment as indicated on the plans from the point of incoming power supply to the utilization equipment. The work may include, but not be limited to, the following:
 - 1. Inspection, cleaning, testing, start-up and initial preventative maintenance procedures, recommended and/or required by the manufacturer of the equipment installed on this projects such as Unit Substations (including all devices in secondary sections), highmast lighting system, cables, and conductors.
- B. Testing procedures and test results shall comply with "Acceptance Testing Specifications for Electrical Power Distribution Equipment & Systems" published by National Electrical Testing Assn., Inc., (NETA) latest edition.
- C. Refer to other specification electrical sections for specific and additional testing requirements.
 - 1. Section 16120 – Conductors and Cables
 - 2. Section 16273 – Miscellaneous 15kV Equipment and Installation of Outdoor Unit Substation
 - 3. Section 16275 – Padmounted Vacuum Switchgear
 - 4. Section 16302 – Underground Electrical Work
 - 5. Section 16315 – Outdoor Unit Substation
 - 6. Section 16325 – Medium-Voltage Metal-Enclosed Switchgear
 - 7. Section 16510 – Highmast Lighting System

1.02 ELECTRICAL TESTING SERVICE COMPANY

- A. The Contractor shall retain a Certified Testing Agency to perform the required field acceptance tests to provide the Engineer with unbiased assurance that the installation has been provided in accordance with the Drawings and

Specifications.

- B. The Testing and Appraisal Firm shall be a corporately and financially independent testing organization which can function as an unbiased testing and evaluation authority, professionally independent of the manufacturers, suppliers and installers of equipment or systems evaluated by said Testing Firm.
- C. The testing and appraisal firm shall be regularly engaged in the testing and appraisal of electrical equipment, devices, installations and systems similar to those found in this project.
- D. The Testing and Appraisal Firm shall meet the OSHA criteria for accreditation of recognized and approved testing laboratories (Title 29, Part 1907), or be a Full Member company of the International Electrical Testing Association (INETA).
- E. The lead onsite technical representative of the testing and appraisal firm shall be currently certified by INETA or the National Institute for Certification in Engineering Technologies (NICET) in electrical power distribution system testing.
- F. The Testing and Appraisal firm shall utilize engineers and technicians who are regularly employed by the firm for testing and appraisal services.
- G. Contractor shall submit written notification to the Engineer for scheduling all tests at least ten (10) working days in advance of each test date. All testing shall be performed in the presence of the Port's designated Representative. Any system materials or workmanship, which is found defective on the basis of acceptance tests, shall be reported directly to the Engineer. The testing laboratory shall maintain a written record of all tests and upon completion of project, assemble and certify a final test report.
- H. The results of all tests shall be placed on the Port standard test forms. Contractor shall obtain a copy of these forms from the Engineer.
- I. A copy of the test results shall be submitted to the Engineer after each test in the field and no later than 15 days after completion of the tests.

1.03 SUBMITTALS

The following information shall be submitted for review:

- A. Test procedures in accordance with NETA ATS-1999 standards edition.
- B. Proof that the Contractor's independent testing firm qualifies to perform electrical testing.
- C. A copy of this specification section with addenda updates and all referenced sections with addenda updates with each paragraph check marked to show specification compliance or marked to show deviations.
- D. Completed test report no later than 10 working days after completion of the tests. Submit five (5) copies of the complete test report to the Engineer no later than 10

working days after completion of the test.

PART 2 - PRODUCTS

2.01 DOCUMENTATION

A. GENERAL:

Test records shall be provided in accordance with this section.

B. DEFECTS:

Contractor shall notify the Engineer of any material or workmanship found defective within 24 hours of discovery.

Any material or workmanship found defective or cannot pass the tests specified in this section shall be repaired or replaced by manufacturer's representative at no additional cost to the Port. Testing firm shall not be a representative of the equipment manufacturer.

Contractor shall be responsible for any damage to equipment or material due to improper test procedures or test apparatus handling. Replace or restore to original condition any damaged equipment or material.

Contractor shall complete correction of defective material or equipment and retesting within the Contract period.

If the equipment or material cannot pass the second test, remove the defective equipment and replace it with equivalent equipment that meets the requirements of the Specifications. Such replacement to be provided at no additional cost to the Port.

Remove defective equipment or material from the site no later than 15 days from the date of notification by the Port or his representative.

C. TEST REPORT:

The Contractor shall provide the report required in NETA paragraph 5.4 and is included herein for Contractor's reference.

1. The test report shall include the following:
 - a. Summary of project.
 - b. Description of equipment tested.
 - c. Description of test.
 - d. Test data.

- e. Analysis and recommendations.
2. Test data records shall include the following minimum requirements:
- a. Identification of the testing organization.
 - b. Equipment identification.
 - c. Humidity, temperature, and other atmospheric conditions that may affect the results of the tests/calibrations.
 - d. Date of inspections, tests, maintenance, and/or calibrations.
 - e. Identification of the testing technician.
 - f. Indication of inspections, tests, maintenance, and/or calibrations to be performed and recorded.
 - g. Indication of expected results when calibrations are to be performed.
 - h. Indication of “as-found” and “as-left” results.
 - i. Sufficient spaces to allow all results and comments to be indicated.
3. The testing firm shall furnish five (5) copies of the complete report to the owner as required in the acceptance contract.

Completed results shall be placed on the forms (furnished by the Engineer) for the contractor’s use.

- a. The results of all tests shall be submitted to the Engineer in an indexed engineering report. The report shall be completed in a professional manner.
- b. The engineering report shall be stamped and signed by a licensed and registered electrical engineer employed by the company.

Provide a brief field report after completion of any test prior to leaving the site. Report may be typed or printed. List the equipment tested, describe any deficiencies found and recommended corrections. Leave report copies with the Engineer. Completed report shall be submitted to the Engineer no later than 10 working days after final test.

2.02 TEST EQUIPMENT AND MATERIALS

Test instruments shall be calibrated to references traceable to the National Institute of Standards and Technology (NIST) and shall have a current sticker showing date of

calibration, deviation from standard, name of calibration laboratory and technician, and date recalibration is required. Test instruments shall be provided in this section.

Provide and use safety devices such as rubber gloves and blankets, protective screen, barriers and danger signs to adequately protect and warn all personnel in the vicinity of the tests.

PART 3 – EXECUTION

3.01 GENERAL

Contractor shall submit equipment to be tested, test procedures, and test instruments to be used showing manufacturer's name, model, serial numbers and certificate of calibration prior to performing any test. All testing will be rejected without prior approval of these submittals.

Acceptance testing shall be performed and a test report submitted and approved prior to energization of the tested equipment.

The test will not be performed on a one time basis. If the test indicates any equipment to be repaired or replaced, the equipment shall be located, repaired, replaced and tested again at the expense of the Contractor. This includes the arrangement and cost, if any, of the necessary utility outage.

All testing shall be performed by an independent electrical testing laboratory in strict conformance with the electrical acceptance tests.

The testing firm shall perform certain preliminary low-voltage insulation resistance, continuity, and/or rotation tests prior to and in addition to tests specified herein.

All tests shall be performed in the presence of the Engineer. A field copy of the test results shall be signed by the Test Engineer and the Engineer and a signed copy shall be submitted to the Engineer after each test in the field. Contractor shall notify the Engineer in writing, ten (10) working days prior to any testing.

Contractor shall submit test report(s) to the Engineer within 10 working days from the equipment testing date. If a test report is rejected, and retesting of equipment is required, or any equipment test that has not been performed by a qualified testing agency prior to energization, Contractor shall pay for all testing/retesting costs which include, but not limited to, labor and material costs of the testing agency, overtime labor cost of the Port, customer's claim(s) on power outage and backup generator costs.

3.02 REQUIREMENT FOR TESTING

Requirement for testing in accordance with this section are specified in other sections of Division 16. The required tests, including correction of defects where found, and retesting, shall be completed prior to acceptance of material, equipment or systems.

3.03 PROTECTIVE DEVICE COORDINATION, PROGRAMMING, CALIBRATION, SETTING AND TESTING

- A. The Contractor shall secure the services of a certified engineering and testing firm to provide a registered Electrical Engineer and skilled relay technician actively engaged in the business of coordination, programming, calibrating, setting and testing PC-based microprocessor protective relays, 480V solid state breakers and power monitors. The testing firm will be responsible for the programming, calibrating, setting and testing PC-based microprocessor protective relays, 480V solid state breakers and power meters and all relay, breakers and metering for all electrical equipment installed and connected to (i.e. existing switchgear) in this project.

The certified relay technician shall adhere strictly to the manufacturer's instruction manual in programming, calibrating, setting, commissioning and testing the relays and other protective devices.

- B. Relay Test Certification: The Contractor shall provide the Engineer with eight (8) copies of an attested certificate stating that the relays have been programmed, set, tested and adjusted in accordance with the requirements provided by the California registered Professional Electrical Engineer and indicating the relay settings where programmed in accordance with his recommended setting instructions. Final field programming, settings and test information shall be reported on spreadsheets conforming to the manufacturer's standard "commissioning and setting – product setup" forms that will be completed by the certified testing firm. Engineer's/Technician's initials and company info and date shall be placed on a card in the relay window and/or in the relay case. Certification and test information shall be supplied to the Engineer within ten days after completion of testing.

END OF SECTION

SECTION 16120
CONDUCTORS AND CABLES

PART 1 - GENERAL

1.01 SUMMARY

- A. The work under this Section includes furnishing all labor, materials, appliances, tools, equipment, transportation, services and supervision required to furnish and install cables and related splices, terminations and accessories for low and medium voltage electrical distribution systems.

1.02 REFERENCES

- A. Section 16010 - Electrical General Requirements
- B. Section 16030 - Electrical Acceptance Testing
- C. Section 16302 - Underground Electrical Work

1.03 SUBMITTALS

- A. The Contractor shall submit catalog cuts, typical splices and terminations for each cable type indicated. Include splices and terminations for cable and cable accessories.
- B. The Contractor shall submit shop drawings or catalog cuts on the following material.
 - 1. Certified test report for fireproofing material
 - 2. Cable tags
- C. Test Reports in accordance with section 3.03A

PART 2 - PRODUCTS

2.01 THE FOLLOWING MANUFACTURERS ARE APPROVED FOR THE FOLLOWING PRODUCTS

- | | |
|-------------------------|---------------------------|
| A. Products | Manufacturers |
| 15kV Cables, 600V Wires | Okonite or approved equal |

2.02 CABLE, WIRE, TAGS

- A. Provide tags of polyethylene that have an average tensile strength of 4500 pounds per square inch; and that are 0.035-inch, non-corrosive non-conductive; resistive to acids, alkalis, organic solvents, and salt water; and distortion resistant to 300 degrees F. Provide a one-piece nylon, self-locking tie at each end of the cable tag.

Ties shall have a minimum loop tensile strength of 175 pounds. The cable tags shall have block letter, numbers, and symbols one-inch high on a yellow background. Letters, numbers, and symbols shall not fall off or change positions regardless of the cable tags' orientation.

2.03 MEDIUM VOLTAGE CABLE

A. Cable (conductor) sizes are designated by American Wire Gage (AWG) and Thousand Circular Mils (Kcmil). Conductor sizes indicated are for copper conductors unless otherwise noted. Insulated conductors shall have the date of manufacture and other identification imprinted on the outer surface of each cable at regular intervals throughout cable length. Wires and cables manufactured more than 12 months prior to date of delivery to the site shall not be accepted. Cables shall be suitable for installation in wet or dry locations, in conduits, manholes and underground ductbank systems.

B. 15 kV Cable

1. Voltage Rating: Cable shall be rated at 15kV with 133% insulation level and 220 mils insulation thickness.
2. Conductors: Shall be uncoated copper wire, compact stranded complying with ASTM B-496.
3. Temperature Rating: Shall be rated at UL type MV-105.
4. Stranded Screen: Shall be extruded semi conducting EPR/copolymer strand screen and meets or exceeds electrical and physical requirements of ICEA S-68-516, AEIC CS6 and UL 1072.
5. Insulation: Shall be flame-resistant, ethylene-propylene-rubber (EPR) Thermosetting compound.
6. Insulation Screen: Shall be extruded semi conducting, nonmetallic cover applied directly over the insulation, and plainly identified as being conductive.
7. Insulation Shield: Bare 5 mils thick minimum copper type applied in a helical pattern over the insulation screen with a minimum overlap of 25 percent.
8. Jacket: Extruded thermoset chloro sulphonated polyethylene (CSPE, Hypalon) material meeting the physical and dimensional requirements of ICEA S-93-639 or Low Smoke Zero Halogen (LS-ZH) material meeting the physical and dimensional requirements of ICEA T-33-655-1994.

C. Cables shall be warranted for 40 years minimum.

2.04 MEDIUM VOLTAGE CABLE TERMINATIONS

A. IEEE 48 Class 1. Provide terminations including stress control terminator, ground clamp, connectors, and lugs. Terminator shall be the product of one manufacturer, suitable for the type and materials of the cable terminated. Furnish components in

the form of a "UL listed" kit, including complete instructions, which shall be followed for assembly and installation. Provide terminator as specified herein for terminating single conductor, solid insulated, nonmetallic jacketed type cables for 15KV service voltage suitable for outdoor use. Do not use separate parts of copper or copper alloy in contact with aluminum alloy parts in the construction or installation of the terminator.

- B. Terminations within equipment enclosures shall be cold-shrink type or heat shrinkable type.
 - 1. Cold Shrink Type: Terminator shall be a one-piece design, where high-dielectric constant (capacitive) stress control is integrated within a skirted insulator made of silicone rubber, munsel gray in color. Termination shall not require heat or flame for installation. Termination kit shall contain all necessary materials (except for the lugs). Termination shall be designed for installation in low or highly contaminated indoor and outdoor locations and shall be rated for continuous operation at 105 degrees C, with an emergency overload temperature rating of 130 degrees C.
 - 2. Heat Shrinkable Type: Terminator shall consist of a uniform cross section heat shrinkable polymeric construction stress relief tubing and environmentally sealed outer covering that is nontracking, resists heavy atmospheric contaminants, ultra violet rays and oxidative decomposition. Provide heat shrinkable sheds or skirts of the same material.
- C. Cable Joints: Provide joints (splices) in accordance with IEEE 404 suitable for rated voltage, insulation level, and insulation type of the cable. Connectors for joint shall be tin-plated electrolytic copper, having ends tapered and having center stops to equalize cable insertion.
 - 1. Heat-shrinkable joint: Consists of a uniform cross-section heat-shrinkable polymeric construction with a linear stress relief system, a high dielectric strength insulating material, and an integrally bonded outer conductor layer for shielding. Replace original cable jacket with a heavy-wall heat-shrinkable sleeve with waterproof mastic seal on both ends.
 - 2. Watertight taped-type joint: Consists of an approved connector, self-fusing or self-bonding insulating tape, self-fusing semi conducting tape, tinned copper shielding tape or braid, and plastic tape.
 - 3. Separable connector or cable joints: Shall comply with ANSI/IEEE Standard 386. Premolded, fully shielded and fully submersible.

2.05 600 VOLT WIRES

- A. Type XHHW stranded copper conductor sizes #10 AWG and larger, type XHHW solid copper conductor for conductor sizes #12 and smaller.
- B. Insulation shall be 600 Volts at a conductor temperature of 90 degrees C in wet location.

- C. Splices in underground distribution systems shall be made only in accessible locations such as manholes and pullboxes with compression connector on the conductor and by utilizing insulating and waterproofing type molded casting process. The process shall employ a thermosetting epoxy resin insulating material or heat shrinkable splice insulation by means of thermoplastic adhesive sealant material applied with clean propane gas torch. A cold shrink rubber splice can also be used consisting of EPDM rubber tube which has been factory stretched onto a spiraled core which is removed during splice installation and requiring no heat or flame.

2.06 LIVE END CAPS

- A. Provide live end caps using a "kit" including a heat-shrinkable tube and a high dielectric strength, polymeric plug overlapping the conductor. End cap shall conform to applicable portions of IEEE 48.

2.07 TAPE

- A. Insulating Tape: UL 510, plastic insulating tape, capable of performing in a continuous temperature environment of 80 degrees C.
- B. Buried Warning and Identification Tape: Provide detectable aluminum foil plastic-backed tape or detectable magnetic plastic tape manufactured specifically for warning and identification of buried cable and conduit. Tape shall be detectable by an electronic detection instrument. Provide tape in rolls, 2 inches minimum width color-coded for the utility involved with warning and identification imprinted in bold black letters continuously and repeatedly over entire tape length. Warning and identification shall be CAUTION BURIED ELECTRIC, TELEPHONE CABLE BELOW, or similar. Use permanent code and letter coloring unaffected by moisture and other substances contained in trench backfill material.
- C. High Voltage Insulating Tape: Raychem type HVBT, Scotch 130C or 2228 with Super 33+ and Scotchfill.
- D. Fire Proofing Tape: Fireproofing tape shall be approximately 30 mils thick by 3 inches wide and shall consist of a flexible, unsupported elastomer that expands in fire to provide a thick char buildup between the flame and the cable. Tape shall be noncorrosive to cable sheet. Tape shall not give off a smoke when subjected to flame or support combustion. Tape shall not deteriorate when subjected to oil, water, gases, salt water, sewage, and fungus.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Installation shall comply with NFPA 70 and CALPUC G.O. 128.

3.02 CABLE INSTALLATION

- A. Do not exceed the cable or wire manufacturer's recommendation for pulling

tensions and side wall pressures. Monitor pulling tension during cable installation to ensure maximum pulling tension is not exceeded.

- B. Use pulling eyes to pull cables. Do not use basket cable grips.
- C. Pull cables down hill. Prior to pulling cables, clear the conduits with a steel mandrel 1/2" smaller than the conduit diameter, and then clean the conduits with a stiff bristle brush. Cable lubricants shall be soapstone, graphite or talc for rubber or plastic jacketed cables. Lubricant shall not be deleterious to the cable sheath, jacket or outer coverings.
- D. Provide tags for each cable or wire located in electrical utility boxes and electrical equipment. Tag wire and cable provided under this contract. Provide cable tag description as indicated on the Drawings. As a minimum, the voltage of the circuit, circuit number and source equipment shall be inscribed.
- E. Cables in utility boxes shall be racked on porcelain or fiberglass cable supports. The cable supports shall be located 12" above duct entrances in order that cable racking shall not interfere with pulling cable into remaining empty or spare ducts.
- F. Do not use empty top row ducts while there are empty lower rows of ducts. Contractor shall always use all of the bottom empty ducts before using the next higher row of ducts. This requirement will be strictly enforced by the Port.
- G. Do not install cables utilizing the shortest route, but route along those walls providing the longest route and the maximum spare cable lengths. Form cables to closely parallel walls, not to interfere with duct entrances. Support cable splices in underground structures by racks on each side of the splice. Locate splices to prevent cyclic bending in the spliced sheath. Install cables at middle and bottom of cable racks, leaving top space open for future cables, except as otherwise indicated for existing installations. Provide one spare three-insulator rack arm for each cable rack in each underground structure. In existing manholes, handholes and vaults where new ducts are to be terminated or where new cables are to be installed, modify the existing installation of cables, cable supports and grounding as required for a uniform installation with cables carefully arranged and supported in the same manner as specified for new cable. Provide cable racks as required in each underground structure through which cable is run.
- H. Conductors shall be grouped such that each conduit of a parallel run contains 1 Phase A conductor, 1 Phase B conductor, 1 Phase C conductor, and 1 neutral conductor (where applicable and indicated).
- I. Cable End Caps: Keep cable ends sealed at all times with coated heat shrinkable end caps. Cables ends shall be sealed when the cable is delivered to the job site, while the cable is stored and during installation of the cable. The caps shall remain in place until the cable is spliced or terminated. Sealing compounds and tape are not acceptable substitutes for heat shrinkable end caps. Cable, which is not sealed in the specified manner at all times, will be rejected.
- J. Live End Caps: Provide live end caps for single conductor medium voltage cables where indicated.

K. Fireproofing of Cables in Manholes and Pullboxes

1. Fireproof (arc proof) all 15KV cables in manholes. Tightly wrap strips of fireproofing tape around each single conductor spirally in half-lapped wrapping or in two butt-jointed wrappings with the second wrapping covering the joints in the first. The tape shall be applied with the coated side toward the cable and shall extend 1-inch minimum into ducts. To prevent unraveling, the fireproofing tape shall be random-wrapped the entire length of the fireproofing with pressure sensitive glass cloth tape. The fireproofing tape shall consist of a flexible, conformable fabric having one side coated with fire retardant, flexible, polymer coating and/or a chlorinated elastomer not less than 0.050 inch thick and shall weigh not less than 2.5 pounds per square yard. The tape shall be non-corrosive to cable sheath, shall be self-extinguishing, and shall not support combustion. The tape shall not deteriorate when subjected to oil, water, gases, salt water, sewage and fungus. Install tape in accordance with manufacturer's instructions.
2. Install tape in accordance with manufacturer's instructions.

L. Cable tails shall be of sufficient length to permit cutting off 12" minimum from cable ends prior to completing terminations.

M. Cable terminations and splices: Follow recommended manufacturer's instruction for proper cable terminations.

3.03 PERFORMANCE OF POWER CABLES: ACCEPTANCE, CHECKS AND TESTS

A. Perform acceptance tests and checks in accordance with the manufacturer's recommendations, NFPA 70B, NETA ATS, and referenced ANSI standards. Include the following visual and mechanical inspections and electrical tests, performed in accordance with NETA ATS. Refer to section 16030, "Electrical Acceptance Testing" for additional requirements, procedures and test reports.

B. Perform medium voltage cable tests after installation of cable, splices and terminators and before terminating to equipment.

1. Visual and Mechanical Inspection

- a. Inspect exposed cable sections for physical damage.
- b. Verify that cable is supplied and connected in accordance with contract Drawings and specifications.
- c. Inspect for proper shield grounding, cable support and cable termination.
- d. Verify that cable bends are no less than ICEA or manufacturer's minimum allowable bending radius.
- e. Inspect for proper fireproofing.

- f. If cables are terminated through window-type CT's, make an inspection to verify that neutrals and grounds are properly terminated for proper operation of protective devices.
 - g. Visually inspect jacket and insulation condition.
 - h. Inspect for proper phase identification and arrangement.
2. Electrical tests
- a. Perform a shield continuity test to each power cable by ohmmeter method. Record the ohmic value. Resistance values in excess of 10 ohms per 1000 feet of cable must be investigated and justified.
 - b. Perform a DC high-potential test on all medium voltage cables. Adhere to precautions and limits as specified in the applicable NEMA/ICEA Standard for the specific cable. Test procedure shall be as follows, and the results for each cable test shall be recorded as specified herein. Field acceptance test voltage for 5 and 15kV cables shall be 25kV and 55/53kV DC, respectively, with insulated connectors (Note: Where indicated, use lower value when insulated connectors are connected to the cable being tested).
 - (1) Current-sensing circuits in test equipment shall measure only the leakage current associated with the cable test and shall not include internal leakage of the test equipment.
 - (2) Record wet-and dry-bulb temperatures or relative humidity and temperature.
 - (3) Test each section of cable individually.
 - (4) Individually test each conductor with all other conductors grounded; Ground all shields.
 - (5) Terminations shall be properly corona-suppressed by guard ring, field reduction sphere, or other suitable methods as necessary.
 - (6) Ensure that the maximum test voltage does not exceed the limits for terminators specified in IEEE Standard 48 or manufacturer's specifications.
 - (7) Apply the DC high-potential test in at least five equal increments until maximum test voltage is reached. No increment shall exceed the voltage rating of the cable. Record the DC leakage current at each step after a constant stabilization time consistent with system charging current.
 - (8) Raise the conductor to the specified maximum test voltage

and hold for fifteen (15) minutes. Record readings of leakage current at 30 seconds and one minute and at one-minute intervals thereafter. Provide a graphic plot of readings with leakage current on X-axis versus voltage on Y-axis at each time increment.

- (9) Reduce the conductor test potential to zero and measure residual voltage at discrete intervals.
- (10) Apply grounds for a time period adequate to drain all insulation-stored charge.
- (11) When new cables are spliced into existing cables, the DC high-potential rest shall be performed on the new cable prior to splicing. After test results are approved for new cable and the splice is completed, an insulation-resistance test and a shield-continuity test shall be performed on the length of new and existing cable system utilizing a test voltage 75 percent of new cable tested value.

END OF SECTION

SECTION 16273

INSTALLATION OF 15KV METAL-ENCLOSED SWITCHGEAR AND UNIT SUBSTATION

PART 1 – GENERAL

1.01 SUMMARY

- A. The work under this Section includes furnishing all labor, materials, appliances, tools, equipment, transportation, services and supervision required to off-load, install and test one complete assembly of 15KV outdoor metal-enclosed switchgear and unit substations.

1.02 REFERENCES

- A. Section 16010 - Electrical General Requirements.
- B. Section 16030 - Electrical Acceptance Testing.
- C. Section 16315 – Outdoor Unit Substation
- D. Section 16325 – Medium-Voltage Metal-Enclosed Switchgear

1.03 APPLICABLE STANDARDS AND SPECIFICATIONS

- A. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)
 - ANSI C2 National Electrical Safety Code
 - ANSI C37.21 IEEE Standard for Control Switchboard
 - ANSI C37-34 Test Code for High Voltage Air Switches
 - ANSI C37.90 Relays and Relay Systems Associated with Electric Power Apparatus
- B. INTERNATIONAL ELECTRICAL TESTING ASSOCIATION (NETA)
 - NETA ATS Electrical Power Distribution Equipment and Systems
- C. NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)
 - NFPA 70 National Electrical Code
 - NFPA 70B Electrical Equipment Maintenance

1.04 SYSTEM DESCRIPTION

- A. The 15KV metal clad switchgear and unit substation are intended for use on 12.47 KV, 3-phase, 3 wire ungrounded 60-Hz system.

1.05 SUBMITTALS

- A. Submit certified Acceptance test report as described in paragraphs 3.08, 3.10 and Section 16030.
- B. Provide six copies of the approved manufacturer's shop drawings installation, handling, operation and maintenance manuals.

1.06 QUALITY ASSURANCE (INSTALLER'S QUALIFICATIONS)

- A. Contractor shall have specialized in the installation of medium voltage outdoor switchgear for a minimum of 10 years.

1.07 WARRANTY

- A. The Contractor shall warrant the installation and workmanship for 1 year from date of acceptance.

PART 2 – PRODUCTS

2.01 GENERAL

- A. Refer to Section 16325 for Metal-enclosed switchgear equipment specification requirements.
- B. Refer to Section 16315 for Outdoor Unit Substation equipment specification requirements.

PART 3 - EXECUTION

3.01 GENERAL

- A. Electrical installation shall conform to the manufacturer's instructions, ANSI C2, NFPA 70 and to be requirements specified herein.

3.02 EXAMINATION AND UNPACKING

- A. When unpacking, the crating or boxing shall be removed carefully with proper tools. Caution shall be used in using any tools that will cause damage to any fragile parts.
- B. Check all parts with the packing list.

- C. Avoid bending, breaking or injuring any parts.
- D. Clean the parts before assembling them.
- E. Manufacturer's instruction books and tags shall be kept with the equipment.
- F. A thorough inspection shall be made to remove the packing braces used to hold moving parts during shipment.
- G. Adhere to manufacturer's instruction for unpacking.

3.03 HANDLING

- A. Manufacturer's instructions for handling, rigging, lifting, jacking, etc. shall be strictly adhered to. Refer to Port approved Manufacturer's shop drawings for weight of equipment. Cranes shall be used for handling the equipment. Cable slings shall not be allowed to strike fragile parts, as any strain on these may cause them to crack or break. Before attempting to handle any piece of equipment, its weight shall be determined from the manufacturer in order to ensure that the lifting means has more than adequate strength capacity.

3.04 INSTALLATION

- A. The Phase 3B Grading and Paving Contractor shall be responsible for furnishing and installing the concrete equipment foundation and related anchoring materials in accordance with Port's final approved equipment shop drawings.
- B. All equipment shall be placed in position on its pad, leveled, anchored and connected as indicated and in accordance with the manufacturer's installation instructions. The switchgear shall not be fastened securely to its foundation until the circuit breaker's operating mechanisms have been correctly aligned.
- C. The switchgear manufacturer's instructions shall be strictly adhered to.
- D. Carefully install the equipment on the pads; making sure the equipment is level, in line and properly spaced.
- E. Connect circuit breaker's operating mechanisms to provide smooth operation.
- F. Inspect contacts and adjust as required to meet manufacturer's tolerances.
- G. Tighten electrical connectors and terminals, including screws and bolts, in accordance with the equipment manufacturer's published torque tightening values for equipment connectors. Where manufacturer's torquing requirements are not indicated, tighten connectors and terminals to comply with values specified in UL Standard 486A.
- H. Ground equipment in accordance with manufacturer's instructions.

3.05 PROTECTIVE DEVICE COORDINATION, PROGRAMMING, CALIBRATION, SETTING AND TESTING

- A. The Contractor shall secure the services of a certified testing firm to provide a certified relay technician actively engaged in the business of coordination, programming, calibrating, setting and testing PC-based microprocessor protective relays, 480V solid state breakers and power monitors. The testing firm will be responsible programming, calibrating, setting and testing PC-based microprocessor protective relays, 480V solid state breakers and power meters and all relay, breakers and metering shown on the Drawings.

The relay technician shall adhere strictly to the manufacturer's instruction manual in programming, calibrating, setting, commissioning and testing the relays and other related devices.

- B. Relay Test Certification: The Contractor shall provide the Engineer with eight (8) copies of an attested certificate stating that the relays have been programmed, set, tested and adjusted in accordance with the setting requirements. Final field programming, settings and test information shall be reported on spreadsheets conforming to the manufacturer's standard "commissioning and setting – product setup" forms that will be completed by the certified testing firm. Technician's initials and company info and date shall be placed on a card in the relay window and/or in the relay case. Certification and test information shall be supplied to the Engineer within ten days after completion of testing.

3.06 LIGHTING CONTROL SYSTEM

- A. The lighting control equipment shall be located on the secondary section of Unit Substation. The Contractor shall be responsible for complete field and termination wiring of all highmast lighting fixtures and circuits as shown on the Drawings to the lighting control equipment.
- B. The Lighting Control Equipment Supplier shall assist the Contractor in start-up services which includes programming, pre-test and pre-energization procedures, etc. The Contractor shall be responsible for coordinating the scheduling with the Port and provide a minimum of 10 working days prior to start-up assistance.
- C. Provide programming as required to completely program the lighting control equipment per Equipment O&M and installation manuals.

3.07 PERFORMANCE OF ACCEPTANCE CHECKS AND TESTS

- A. Perform acceptance checks and tests in accordance with the manufacturer's recommendations, NFPA 70B, NETA ATS as applicable to switchgear, substation, 480V switchboard, 480V panel, outdoor lighting system, etc. and referenced ANSI standards. Perform tests specific to medium-voltage circuit breakers, relays, metering, and instrument transformers together, as well as separately. Refer to Section 16030 "Electrical Acceptance Testing" for additional requirements. The Engineer will witness formal tests after receipt of written

certification that preliminary tests have been completed and that system is ready for final test and inspection. Tests shall include those listed in NETA ATS for the specified equipment and but not limited to, the following:

1. Compare actual connections with wiring diagrams. If differences are found, determine if error is in diagram or in actual wiring; correct as necessary.
2. Inspect devices and equipment for damage or maladjustment caused by shipment or installation.
3. Use calibrated torque wrench to ensure that tightness of bolted bus joints is in accordance with manufacturer's recommendations.
4. Measure breaker contact resistance and perform minimum pickup voltage tests on trip and closing coils. Adjust as necessary to stay within manufacturer's acceptable range.
5. Check electrical continuity of control, current, and potential circuits in accordance with wiring diagrams.
6. Perform insulation resistance test at 500 Vdc on field-installed control wiring, and current and potential circuits. Disconnect field-installed wiring before testing. Minimum insulation resistance shall be 1,000,000 ohms.
7. Verify type, ratio, and connections of instrument transformers. Confirm correct polarity of current transformers electrically.
8. Remove short-circuiting links from current transformers after checking that secondary circuits are complete.
9. Verify meter connections, ensure power calibration, and ensure that correct multiplier has been provided on face of meter.
10. Remove wedges, ties, and blocks installed by the manufacturer to prevent damage during shipment.
11. Check medium-voltage circuit breakers in accordance with manufacturer's instructions.
12. Perform testing and calibration of protective relays by a certified relay technician.
13. Verify maximum resistance to ground of grounding systems.
14. Perform a switchgear-weatherproofing test to be conducted by switchgear manufacturer.
15. The Contractor shall conduct an operational performance test in the presence of the Engineer, demonstrating that all equipment and devices operate in accordance with the requirements of Drawings and specification.

3.08 FIELD DIELECTRIC TESTS

- A. Perform field dielectric tests on medium-voltage switchgear according to ANSI/IEEE C37.20.2 or ANSI C37.20.3 as applicable.

3.09 FOLLOW-UP VERIFICATION

- A. Upon completion of acceptance checks, settings, and tests, the Contractor shall show by demonstration in service that circuits and devices are in good operating condition and properly performing the intended function. Circuit breakers shall be tripped by operation of each protective device. Test shall require each item to perform its function not less than three times. As an exception to requirements stated elsewhere in the Contract, notify the Engineer 10 working days in advance of the dates and times for checks, settings and tests.

3.10 TEST REPORTS

- A. Refer to Section 16030 for acceptance test requirements. As a minimum, provide the following tests.
- B. Cable insulation and terminations (identify each cable and test result).
- C. Switchgear tests and inspection.
- D. All relay test, setting and calibration data.
- E. Indicating meter calibration and accuracy tests.

3.11 ADJUSTING

- A. Adjust all circuit breakers, switches, access doors, operating handles for free mechanical and/or electrical operation as described in manufacturer's instructions.
- B. Adjust relay trip and time delay settings to values specified by the Engineer.

3.12 CLEANING

- A. Clean interiors of switchgear to remove construction debris, dirt and shipping materials.
- B. Repaint scratched or marred exterior surfaces to match original finish.

END OF SECTION

SECTION 16275

PADMOUNTED VACUUM SWITCHGEAR

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. The work under this section of the Specifications consists in general of furnishing all labor, materials, appliances, tools, equipment, transportation, services, and supervision required to install a complete and operating padmounted vacuum switchgear.

1.02 RELATED DOCUMENTS

- A. Section 01330 – Submittals
- B. Section 03300 – Concrete (by Phase 3B Grading and Paving Contractor)
- C. Section 16010 - Electrical General Requirements
- D. Section 16030 – Electrical Acceptance Testing
- E. Section 16302 - Underground Electrical Work

1.03 REFERENCE TECHNICAL STANDARDS AND SPECIFICATIONS

- A. The transformers in this specification are designed and manufactured according to latest revision of the following standards (unless otherwise noted).
 - 1. ANSI/NFPA 70, National Electrical Code
 - 2. IEEE 386, Separable Insulated Connector Systems or Power Distribution Systems Above 600 V
 - 3. NETA ATS, Electrical Power Distribution Equipment and Systems
 - 4. UL467, Grounding and Bonding Equipment
 - 5. ASTM D117, Electrical Insulating Oils of Petroleum Origin
 - 6. ASTM D3487, Mineral Insulating Oil Used in Electrical Apparatus

1.04 SYSTEM DESCRIPTION

- A. Equipment is intended for use on a 12.47 kV, 3-phase, 3 wire solidly grounded 60-Hz. System. This equipment shall be rated as in the Plans.

- B. This equipment shall be completely factory-built, assembled, wired, and tested. All equipment and components shall be new construction.

1.05 SUBMITTALS

- A. Provide to Port, for review and evaluation, copies of the following documents from the product manufacturers in accordance with the applicable requirements of Section 01330, Submittals:
 - 1. Product Data,
 - 2. Shop Drawings illustrating equipment dimensioned plans and elevations on product,
 - 3. Equipment assembly drawings,
 - 4. Design Data, detailed component data on specified product,
 - 5. Certified fuse curves for each specified product
 - 6. Certified copies of all Design, Production and Verification Test Reports.
 - 7. Equipment anchorage calculations and details based on UBC Seismic Zone 4 design criteria signed by a California Licensed Civil or Structural Professional Engineer.

1.06 OPERATION AND MAINTENANCE DATA

- A. The Contractor shall provide copies of installation, operation and maintenance procedures from the manufacturer to the Port in accordance with the general requirements of Division 1 and Section 16010.
- B. Submit operation and maintenance data based on factory and field testing, operation and maintenance of specified product.

1.07 WARRANTY AND UL LISTING

- A. Provide manufacturer's warranty stating that the equipment is free from defects in materials and workmanship for 1 year from the date of installation or 18 months from the date of purchase, whichever occurs first.
- B. All padmounted equipment shall be UL Listed and Labeled.

1.08 EXTRA MATERIALS

- A. Provide spare parts as recommended by the manufacturer.

PART 2 – PRODUCTS

2.01 MANUFACTURER

- A. Padmounted Switchgear: Manufacturer shall be Trayer Electric Company, G&W or Approved Equal

2.02 PADMOUNTED VACUUM SWITCHGEAR

- A. Electrical Ratings and Standards

Pad-mounted switchgear shall be designed, tested, and built in accordance with ANSI/IEEE C37.71. Switches shall be rated as follows:

Maximum design voltage, kV	15.5
Impulse level (BIL), kV (minimum)	95
Ac 1-minute withstand, kV (minimum)	35
Dc 15-minute withstand, kV (minimum)	53
Continuous current, A	As Indicated
Momentary current withstand, kA asym	20/25
Close-and latch rating (3 times), kA asym	20/25
1-second symmetric current withstand, kA	12.5/16
Maximum Gas Leak	10E-07 cc/sec

- B. The pad-mounted switchgear shall be suitable for outdoor installation with the cables entering from the bottom. The switchgear shall have switched ways as indicated on the Drawings. Each switch way shall have two positions: closed and open.
- C. Enclosure shall conform to requirements of ANSI C57.12.28. Switch components and entrances shall be contained in a factory welded single stainless steel tank properly braced to handle momentary and full load current duty. SF6 switches shall be shipped factory filled with SF6 gas conforming to ASTM D 2472. Tank shall be capable to withstand 15 psig internal pressure and external pressure of 14 psig without affecting switch operation. Liquid-filled insulating medium shall comply with ASTM D 3487. The following standard components shall be included:
 1. Filling valve.
 2. Lifting eyes.
 3. Gas pressure gage.
 4. Grounding provisions for two ½ inch by 13 NC ground connections per switch.
 5. Corrosion resistant tank design using stainless steel and brass fasteners with no external aluminum parts.

6. One-line diagram and stainless steel nameplate fastened with stainless steel mechanical fasteners.
 7. Compression spring operator.
 8. Operating mechanism capable of being locked in either position, with position indication and removable operating handle.
 9. Position-indicating devices.
 10. Viewing windows.
 11. Parking stands.
- D. The switch interrupter shall be either 1) SF6 gas interruption or 2) vacuum interrupter.
1. SF6 Gas Interruption
The switch contacts shall be rotary puffer design made with copper alloy contacts with silver plating. Each switching way shall be equipped with an internally mounted spring assisted operating mechanism providing quick-make, quick-break in either switching direction. Contact travel shall be three inches and have sufficient open contact separation to assure arc extinction and to withstand field DC testing levels and maintain BIL levels.
 2. Vacuum Interruption
The vacuum interrupter shall consist of a vacuum bottle and a spring-assisted operating mechanism assembly. The vacuum bottle of the vacuum interrupter shall be mounted vertically with movable contact shaft at the top. The movable contact shaft shall be flagged to indicate the contact position, open or closed. This contact position indicator shall be fully visible through viewing windows in the switch tank for each phase. The vacuum interrupter contacts are housed within a glass-ceramic bottle. A vacuum of 10E-07 torr shall be pulled in the bottle.
- E. Each switch-way shall be equipped with an internally-mounted operating mechanism capable of providing quick-make, quick-break operation in either switching direction. The mechanism shall be capable of delivering sufficient force and shall be provided with latches for each position to ensure load interrupting, fault closing, and momentary ratings. The mechanism shall use compression type springs to ensure long life and reliability. Each switch position shall be clearly identified by an engraved or embossed nameplate. In addition, adjacent to the bushings for each switched way there shall be a nameplate engraved, "WARNING: DO NOT REMOVE ELBOW WITH SWITCH IN CLOSED POSITION." The operating handle shall be capable of being actuated by hook stick from an opening in the top of the manhole. The operating shaft shall be made of stainless steel for maximum corrosion resistance. Shaft seals shall be stainless steel bellow or oil-filled rotary seals. O-rings are not acceptable.
- F. Mounting frames shall be of bolted Type 304 stainless steel construction. The frames shall raise the bottoms of the switches as indicated and shall be designed for service in seismic Zone 4 areas. The switches shall be bolted to the frames. Provide grounding studs for each stand.

- A. SF6 switches shall be provided with SF6 refill cylinders, minimum size of 6 pounds of SF6; and shall include regulator, valves, and hose for connection to the fill valve of the switch. Provide a minimum of two of these refill cylinders.
- G. Bushings shall have dead break interface conforming to IEEE 386.

2.03 WARNING SIGNS

- A. Provide as specified in Section 16010, "Electrical General Requirements."

PART 3 – EXECUTION

3.01 QUALITY ASSURANCE (QUALIFICATIONS)

- A. Manufacturer shall be specialized in the manufacture and assembly of pad-mounted transformers and switchgear for a minimum of 15 years.
- B. Installer has specialized experience in pad-mounted transformers with minimum eight years documented experience.

3.02 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect, and handle products in accordance with recommended practices listed in manufacturer's Installation and Maintenance Manuals and in ANSI/IEEE C57.94.
- B. Deliver each transformer on individual shipping skids for ease of handling. Each transformer shall be wrapped for protection.
- C. Inspect and report concealed damage to carrier within specified time.
- D. Store in a clean, dry space. Maintain factory protection or cover with heavy canvas or plastic to keep out dirt, water, construction debris, and traffic. (Provide heat enclosures to prevent condensation.)
- E. Handle in accordance with NEMA SG-5 and manufacturer's written instructions to avoid damaging equipment, installed devices, and finish. Lift only by installed lifting eyes.

3.03 FIELD MEASUREMENTS

- A. Coordinate with other trades to ensure proper installation of concrete pad, anchoring and conduit stub-ups.

3.04 EXAMINATION

- A. Verify that equipment is ready to install.

- B. Verify field measurements are as shown on Plans.
- C. Verify that required utilities are available, in proper location and ready for use.
- D. Beginning of installation means installer accepts conditions.

3.05 INSTALLATION

- A. Install per manufacturer's instructions.
- B. Install required safety labels.
- C. Mount pad-mounted switchgear on concrete slab with cable pits. Provide conduit turn ups and cable entrance space required by the equipment to be mounted. Seal voids around conduit openings in slab with water- and oil-resistant caulking or sealant. Cut off and bush conduits 3 inches above slab surface. Concrete work shall be as specified in Section 03300 (by Phase 3B Grading and Paving Contractor).

3.06 FIELD QUALITY CONTROL

- A. Inspect installed equipment for anchoring, alignment, grounding and physical damage.
- B. Check tightness of all accessible mechanical and electrical connections with calibrated torque wrench. Minimum acceptable values are specified in manufacturer's instructions.
- C. Verify correct pressure in tanks.
- D. Perform specific inspections and mechanical tests as recommended by manufacturer.
- E. Verify correct equipment grounding.

3.07 FOLLOW-UP VERIFICATION

- A. Upon completion of electrical acceptance testing and checks, the Contractor shall show by demonstration in service that circuits and devices are in good operating condition and properly performing the intended function. As an exception to requirements stated elsewhere in the contract, the Engineer shall be given a minimum 5 working days in advance notice of the dates and times of checking and testing.

3.08 ADJUSTING

- A. Adjust all circuit breakers, switches, access doors, operating handles for free mechanical and/or electrical operation as described in manufacturer's instructions.

- B. Adjust transformer's primary taps so that secondary voltage is within 2 percent of rated voltage.

3.09 CLEANING

- A. Clean interiors of equipment, separate enclosures to remove construction debris, dirt, and shipping materials.
- B. Repaint scratched or marred exterior surfaces to match original finish.

- END OF SECTION -

SECTION 16302

UNDERGROUND ELECTRICAL WORK

PART 1 - GENERAL

1.01 SUMMARY

- A. The work under this Section includes furnishing all labor, materials, appliances, tools, equipment, transportation, services and supervision required for furnishing and installing a complete underground electrical ductbank system. The work may include, but not be limited, furnishing and installing conduit raceways, duct banks, pull wires, pull boxes, manholes, grounding network, ground rods, and miscellaneous equipment and related materials.

1.02 REFERENCES

- A. Section 16010 - Electrical General Requirements
B. Section 16030 - Electrical Acceptance Testing
C. Section 16120 - Conductors and Cables

1.03 SUBMITTALS

- A. The Contractor shall submit catalog cuts on the following items.
1. Conduits and fittings
 2. Grounding materials
- B. Manholes and Pullboxes have specific submittal requirements. Refer to Phase 3B Grading and Paving Contract Documents.
- C. As-Build record drawings for manholes and pullboxes as described in section 3.05.

PART 2 - PRODUCTS

2.01 THE FOLLOWING MANUFACTURERS ARE APPROVED FOR THE FOLLOWING PRODUCTS:

Products	Manufacturers
Rigid Galvanized Steel Conduit	Triangle, Republic, Wheatland
Rigid Galvanized Steel Condulets	Crouse-Hinds, Appleton
Rigid Plastic Conduit Sch. 40, 80	Carlton, Triangle, Kearny
Solvent Cement	Carlton
Exothermic Connections	Caldwell

2.02 CONCRETE

- A. Coordinate with Phase 3B Grading and Paving Contractor to provide red dye to concrete slab located above conduits as shown on Drawings.

2.03 CONDUIT RACEWAYS

- A. Rigid galvanized steel conduit and fittings shall conform to the requirement of UL Standard 6 and where specified shall be coated with a PVC sheath bonded to the galvanized exterior surface. Nominal 40 Mils thick with 2 Mil thick urethane coated interior conforming to NEMA RNI Type A240.
- B. Plastic duct shall be rated for 90°C polyvinyl chloride (PVC) conforming to UL Standard 651 and NEMA TC2-1978. Schedules 40 and 80 and suitable for direct burial and concrete encasement.
- C. Conduit outlet bodies shall conform to UL Standard 514.
- D. Expansion/deflection coupling shall conform to UL Standard 514B.
- E. PVC duct fittings to comply with NEMA TC 9.

2.04 CONCRETE MANHOLES AND PULL BOXES

- A. Concrete manholes and pull boxes for electrical conductors and cables shall be fabricated in strict compliance with design loading criteria of 135,000 pounds.
- B. Rack arms of the non-metallic heavy-duty type sufficient to accommodate the cables and future cables may be provided in lieu of metallic. Racks in power manholes shall be spaced not more that 3 feet apart. Low voltage manholes or pullboxes shall be spaced no more that 16 inches apart.
- C. Provide pulling irons on all four sides.
- D. Provide adequate knockouts on all four sides to permit the greater flexibility for installation.
- E. Provide knockout for ground rod.
- F. Provide additional requirements i.e. ground rods, pulling irons, etc. in accordance with the Electrical Drawings.

2.05 GROUNDING AND BONDING EQUIPMENT

- A. UL 467. Ground rods shall be copper clad steel with diameter adequate to permit driving to full length of the rod, but not less than $\frac{3}{4}$ inch in diameter and 10 feet long unless otherwise indicated.

- B. Grounding conductors shall be bare, except where installed in conduit with associated phase conductors. Insulated conductors of the same material as phase conductors and green color-coded, except that conductors shall be rated no more than 600 Volts. Bare conductors shall be ASTM B 8 soft-drawn unless otherwise indicated. Aluminum is not acceptable.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Installation shall comply with NFPA 70 and CALPUC G.O. 128.
- B. Comply with applicable Sections in Division 2 – Site Work Construction.
- C. For Electrical manholes, pull boxes and conduits, comply with Manufacturer's recommended installation requirements and as shown in Civil or Structural drawings whichever is stricter. Installation shall include, but not limited to, excavation, bedding, setting, floatation control, backfilling, grouting and knockouts.

3.02 TRENCHING AND BACKFILL

- A. Modify or re-route trench and duct banks to clear existing or new obstructions. 12" horizontal clearance shall be maintained between communication conduit and other piping systems.
- B. Location of the existing utilities indicated is approximate and may or may not show all existing utilities. The Contractor shall physically be responsible to verify the exact location and depths of all existing utilities in the project area prior to starting construction.

3.03 DUCT BANKS AND RACEWAYS

- A. Conduits shall slope if possible toward manholes and pull boxes. Conduits shall run in straight lines except where a change in direction is necessary. Couplings shall be staggered for maximum duct line strength. Rigid plastic conduit shall be Schedule 40 and 80 and rigid galvanized steel as indicated.
- B. Rigid plastic Schedule 80 or rigid galvanized steel conduits shall be utilized where raceways require additional mechanical strength as indicated.
- C. Changes in the direction of runs, either vertical or horizontal, shall be by long sweep bends having a minimum radius of curvature of 25', except that manufactured bends may be used at ends of short runs of 100' or less, and then only at or close to the end of run. The long sweep bends may be made up of one or more curved or straight sections or combinations thereof. Manufactured bends shall have a minimum radius of 18" for use with ducts of less than 3" in diameter and a minimum radius of 36" for ducts of 3" in diameter and larger. Sidewall pressure and bends shall be such that pulling tension limits for each cable shall not exceed manufacturer's recommendations.

- D. Conduits shall terminate in end-bells where duct lines enter manholes and pull boxes. During construction, protect partially completed duct lines from the entrance of debris such as mud, sand, and dirt by means of suitable conduit plugs. As each section of a duct line is completed, draw a testing mandrel not less than 12" long with a diameter 1/2" less than the size of the conduit through each conduit, followed by a brush with stiff bristles until the conduit is clear of all particles of earth, sand or gravel; then immediately install conduit plugs.
- E. Where it is necessary to install 45 and 90 factory elbows on long runs, install a reinforcing concrete collar for additional raceway strength.
- F. Install a minimum of 200 lb. test polypropylene yellow cord in all conduits not used. Provide a minimum of 24 inches slack from the conduit opening.
- G. Rigid galvanized steel conduit shall be plastic coated where installed directly in earth.
- H. Multiple Conduits: Unless otherwise indicated on the Drawings, separate multiple conduits by a minimum distance of 3 inches, except that a minimum distance of 12 inches shall separate power conduits from control, signal and telephone conduits. Stagger the joints of the conduits by rows and layers to strengthen the conduit assembly. Provide plastic duct spacers that interlock vertically and horizontally. Spacer assembly shall consist of base spacers, intermediate spacers, and top spacers to provide a completely enclosed and locked-in conduit assembly. Install spacers per manufacturer's instructions, but provide a minimum of three spacer assemblies per 10 feet of conduit assembly one foot from each end and one in the middle.
- I. For ductbank connections to existing structures, break the structure wall out to the dimensions required and preserve steel in the structure wall. Cut steel and extend into the duct bank envelope. Chip the perimeter surface of the ductbank opening to form a key or flared surface, providing a positive connection with the duct bank envelope.

3.04 GROUNDING SYSTEMS

- A. All equipment shall be grounded as shown on the Drawings.
- B. Provide and install a grounding network as required to provide a complete grounding system.
- C. Perform ground resistance tests for ground rods before any wire is connected. Take measurements in normally dry weather, not less than 48 hours after rainfall. Ground resistance shall also be measured for each piece of equipment and medium voltage cable splice to ground electrode. Use a portable ground testing megger in accordance with manufacturer's instructions to test each ground or group of grounds. The instrument shall be equipped with a meter reading directly in ohms or fractions thereof to indicate the ground value of the ground electrode under test.
- D. Ohmic requirements shall be 5 Ohms or less.

- E. Grounding Electrodes: Provide cone pointed driven ground rods driven full depth plus 6 inches, installed to provide an earth ground of the appropriate value for the particular equipment being grounded.
- F. Grounding Connections: Make grounding connections, which are buried or otherwise normally inaccessible, except specifically those connections for which access for periodic testing is required, by exothermic weld or compression connector.
 - 1. Make exothermic welds strictly in accordance with the weld manufacturer's written recommendations. Welds which are "puffed up" or which show convex surfaces indicating improper cleaning is not acceptable. Mechanical connectors are not required at exothermic welds.
 - 2. Make compression connections using a hydraulic compression tool to provide the correct circumferential pressure. Tools and dies shall be as recommended by the manufacturer. An embossing die code or other standard method shall provide visible indication that a connector has been adequately compressed on the ground wire.
- G. Grounding Conductors: Grounding conductors shall be stranded-bare copper conforming to ASTM B 8, Class B, for sizes No. 6 AWG and larger, and shall be solid-bare copper conforming to ASTM B 1 for sizes No. 8 and smaller. Cable sheaths and cable shields shall be grounded with No. 6 AWG.

3.05 AS-BUILT RECORD MANHOLE AND PULLBOX DRAWINGS

- A. Contractor shall provide as-built record drawing (in Autocadd 005) for each existing and new manhole and pullbox associated with the project. The minimum amount of information required for each manhole and pullbox are as follow:
 - 1. Drawing shall be prepared in a foldout (butterfly) position with north arrow and recorded date. Foldout drawing to match Supplier's approved shop drawings for Manholes and Pullboxes.
 - 2. Size and quantity of conduits and/or ducts including its arrangement on each applicable wall. Indicate spare conduits
 - 3. Cable or wire data: Number of conductors (including ground wires), cable tag identification, insulation and voltage class, cable's conduit location and splice location.
 - 4. Indicate adjacent manhole or pullbox identification and its direction.

END OF SECTION

SECTION 16315

OUTDOOR UNIT SUBSTATION

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. The Contractor shall furnish, install, test, and deliver outdoor 12.47kV–480/277V unit substation consisting of fused load interrupter switch, cast-coil transformer and low-voltage switchboard sections.
- B. The Contractor and/or his Equipment Supplier shall provide field commissioning and start-up services for the unit substation including all specified equipment.

1.02 RELATED DOCUMENTS

- A. Drawings are a part of this specification and further define equipment requirements, features and configurations:

1.03 REFERENCE TECHNICAL STANDARDS AND SPECIFICATIONS

- A. The cast-coil secondary unit substation transformers and protective devices in this specification shall be designed and manufactured according to the latest revision of the following standards (unless otherwise noted):
 - 1. ANSI C57.12.51, Requirements for Ventilated Dry-Type Power Transformers 501 KVA and Larger, Three-Phase with High-Voltage 601 – 34,500 Volts, Low-Voltage 208Y/120-4160 Volts
 - 2. ANSI C57.12.55, Dry-Type Transformers in Unit Installations, Including Unit Substations-Conformance Standard
 - 3. ANSI/NFPA 70, National Electrical Code
 - 4. IEEE C57.12.01, General Requirements for Dry-Type Distribution and Power Transformers Including Those with Solid Cast and/or Resin-Encapsulated Windings
 - 5. IEEE C57.12.60, Trial Use Standard Test Procedures for Thermal Evaluation of Insulation Systems For Solid-Cast and Resin-Encapsulated Power and Distribution Transformers
 - 6. IEEE C57.12.91, Test Code for Dry-Type Distribution and Power Transformers
 - 7. NEMA ST 20, Dry Type Transformers for General Applications

8. ANSI/NEMA PB 2, Deadfront Distribution Switchboards
9. ANSI/NEMA PB 2.1, General Instructions for Proper Handling, Installation, Operation, and Maintenance of Deadfront Distribution Switchboards Rated 600 Volts or Less
10. NEMA AB 1, Molded Case Circuit Breakers and Molded Case Switches
11. NEMA KS 1, Fused and Non - fused Switches
12. UL 489, Molded Case Circuit Breakers and Circuit Breaker Enclosures
13. UL 891, Dead Front Switchboards
14. UL 98, Enclosed and Dead Front Switches
15. UL 977, Fused Power Circuit Devices

1.04 SYSTEM DESCRIPTION

- A. Outdoor unit substations shall be suitable for operation on a 12.47kV, 3-phase, 3-wire solidly-grounded 60-Hz system. Substations shall be rated as shown on the referenced drawings.
- B. All equipment shall be factory-designed, manufactured, assembled, wired, and tested. All equipment and components shall be of new construction and of current manufacturer.

1.05 SUBMITTALS

- A. Supplier shall submit the following equipment data to Engineer for review and evaluation prior to releasing equipment for fabrication:
 1. Product catalog cuts.
 2. Shop drawings including fully-dimensioned Drawings, elevations and sections, single-line, three-line and control elementary diagrams.
 3. Equipment assembly drawings including detailed bill of materials, shipping splits, weight and center-of-gravity data.
 4. Design data and detailed component data (e.g.: current transformer connection diagrams and excitation curves, meter and alarm wiring diagrams).
 5. Certified time-current or other parametric curves applicable for each protective device.
 6. Certified copies of all design, production and verification test reports.
 7. Itemized spare parts list.

8. Equipment anchorage calculations and details based on UBC seismic zone 4 design criteria signed by a California-licensed civil or structural engineer.

1.06 OPERATION AND MAINTENANCE DATA

- A. Supplier shall provide copies of installation, commissioning, operation and maintenance procedures to Engineer. Installation and commissioning instructions shall be shipped with the equipment. Operation and maintenance information may be submitted up to four weeks after equipment shipment.
- B. Operation and maintenance data shall include all factory and field test reports, and operation and maintenance instructions for all equipment specified under this section.

1.07 QUALITY ASSURANCE (QUALIFICATIONS)

- A. All equipment for which UL standards exist shall be UL-listed and labelled.

1.08 WARRANTY

- A. Manufacturer warrants equipment to be free from defects in materials and workmanship for 1 year from date of installation or 18 months from date of purchase, whichever occurs first.

PART 2 - PRODUCTS

2.01 MANUFACTURER

- A. Approved manufacturers are ABB, Cutler-Hammer, General Electric, or Siemens.

2.02 EQUIPMENT

- A. Refer to Drawings for location and arrangement of equipment and components and for additional requirements.

2.03 PRIMARY SECTION

- A. Where indicated on the Drawings, the transformer shall have a load interrupter switch.
 1. The switch shall be a 2-position (open, closed) 3-pole, gang-operated, air-interrupter switch with stored-energy operating mechanism rated 15 kV, 600A continuous.
 2. The primary switch Basic Insulation Level (BIL) shall be 95 kV for operation on a 15kV-class system.
 3. The primary switch shall be key-interlocked to the secondary main device to prevent opening of the loadbreak switch unless the secondary main breaker is opened first.

4. Switches shall be of the non-fusible type unless indicated otherwise on the single-line diagrams. If fuses are to be provided, one set of three power fuses GE Type EJ, S&C Type SM4S or S&C Type SM5S shall be mounted in a separate compartment within the switch unit. Fuses shall be accessible through a hinged door, mechanically-interlocked with the switch such that entry may only be accomplished by de-energizing the switch. Fuse ratings shall be as indicated on the single-line diagrams.
 5. One three-phase set of intermediate class metal-oxide surge arrestors shall be mounted inside the terminal compartment of the load interrupter switch enclosure. Arrestors shall conform to ANSI/IEEE C62.11 and have a nominal MCOV of 7.65kV for line-to-ground operation on a 12.47 kV solidly-grounded system.
 6. Incoming medium-voltage cable terminations shall be made on NEMA termination pads (4-hole minimum). Sufficient termination space shall be provided to allow termination of two (2) 500 kcmil cables per phase.
 7. Thermostatically-controlled space heaters shall be provided in the load-interrupter switch section so that the temperature inside the section will be automatically maintained above the dew point temperature over an ambient temperature range of 20 °F to 104 °F. Space heaters shall be rated 240 Vac but shall be connected for operation at 120 Vac. An ammeter shall be provided in the heater circuit with full circuit ampacity clearly marked on the ammeter scale.
- B. Where no load interrupter switch is indicated on the Drawings, the transformer shall have a primary air terminal chamber for termination of incoming medium-voltage cables. Termination and surge protection provisions shall be the same as specified for load interrupter switches.

2.04 TRANSFORMER

A. General Construction

1. Transformer coils shall be of solid cast-epoxy resin-encapsulated dry-type construction. Each winding shall be separately cast as one rigid, tubular coil and arranged coaxially.
 - a. Cast coils shall be fully reinforced with fiberglass and cast under vacuum to assure complete, void-free resin impregnation throughout the entire insulation system. Coil construction shall prevent partial discharges within the resin material at up to 120 percent of nominal operating voltage.
 - b. Coils shall be supported by cast epoxy bottom supports, spacer blocks and spring-loaded top blocks in order to absorb thermal expansion and contraction of the coils. There shall be no rigid mechanical connection between the high and low voltage coils.

2. The transformer windings shall be copper and shall be provided with six high-accuracy thermistors (two per phase) to monitor winding temperature.
3. Transformer primary shall have four 2-1/2 percent full-capacity taps, two above and two below rated nominal voltage.
 - a. No-load taps shall be available on an internal terminal board located behind removable panels on the front of the transformer case.
 - b. Taps shall be for de-energized operation only. Taps shall be of the manually re-connectable type for changing tap settings when the transformer is de-energized.
4. The transformer core shall be constructed of high-grade, grain-oriented, silicon steel laminations with high magnetic permeability.
 - a. Magnetic flux density shall be kept well below the saturation point. Core shall be cruciform in shape with mitered joints to keep core losses, excitation current and noise level to a minimum.
 - b. The core shall be grounded via a flexible strap.
5. The core and coil assembly shall be enclosed in a 12-gauge (minimum) steel housing with ventilating louvers at the top and bottom of the enclosure's front and rear panels. Enclosures shall have special vents to baffle rain and water spray.

B. Ratings

1. Transformers shall be rated as indicated on the drawings.
2. The average winding temperature rise shall not exceed 80 degrees C when the transformer is operating at full load under the ambient conditions defined by ANSI/IEEE C57.12.91 (30 degrees C average ambient, not exceeding a 40 degrees C peak in a 24-hour period).
3. The insulation system shall have a minimum rating of 180 °C.
4. The transformer primary Basic Insulation Level (BIL) shall be a minimum of 95 kV for operation on 15 kV-class systems.
5. Where indicated, fan cooling shall be provided to obtain an increased capacity of 133 percent of the base (AA) kVA rating.
6. The unit shall be optimized for operation at 60 Hertz.
7. Sound level shall not exceed the maximum specified by NEMA TR-1 for the applicable kVA rating of the transformer.

C. Standard features

1. A stainless-steel diagrammatic nameplate showing ANSI-specified information shall be mounted on the exterior of the enclosure.
2. Provisions shall be incorporated for lifting and jacking the unit into place.
3. A base suitable for rolling and skidding the transformer parallel to its centerlines shall be provided.
4. Ground pads shall be located near the high- and low-voltage ends of enclosure.
5. Vibration isolation pads shall be provided to isolate the core and coil assembly from the enclosure.

D. Other Features

1. A winding temperature indicator with programmable alarm contacts shall be included in the fan cooling package.
2. All alarm contacts shall be wired out to a terminal strip in the auxiliary metering section of the low-voltage switchboard for future connection to the Port's SCADA system.

E. Accessories

1. Thermostatically-controlled space heaters shall be provided in the transformer section so that the temperature inside the section will be automatically maintained above the dew point temperature over an ambient temperature range of 20 °F to 104 °F. Space heaters shall be rated 240 Vac but shall be connected for operation at 120 Vac. An ammeter shall be provided in the heater circuit with full circuit ampacity clearly marked on the ammeter scale.
2. 120/240Vac power for the space heaters and fan package shall be obtained from the CPT/station power panelboard furnished as part of the low-voltage switchboard lineup.

F. Transition Section

1. The transformer shall have an integral transition section which shall allow a close-coupled connection between the transformer secondary and the low-voltage switchboard.
2. The connection to the secondary low-voltage equipment shall be made by flexible copper bus link or flexible-stranded copper cable.

G. Factory Testing

1. Each transformer shall receive all routine commercial tests in accordance with ANSI C57.12.91, latest revision, with test results available by transformer serial number upon request.

2. The following special tests shall be performed on each transformer in accordance with applicable ANSI standards:
 - a. Impulse test on the high voltage winding.
 - b. Temperature test at self-cooled rating.
 - c. Temperature test at maximum cooled rating.
 - d. Sound level test at self-cooled rating.
3. Manufacturer shall provide to the Engineer certified test reports verifying completion and documenting results of factory tests.

2.05 SWITCHBOARD

A. Structure and Enclosure

1. Switchboards shall be fully self-supporting structures with 90-inch tall (nominal) vertical sections (excluding lifting eyes and pull boxes) bolted together to form a rigid lineup. The depth of all switchboard sections shall be identical.
2. Switchboards shall be NEMA 3R, non-walk-in, deadfront construction. All switchboards shall be suitable for outdoor operation and shall consist of standard indoor cubicles with a front frame and roof assembly to provide a weather-resistant structure. Filtered front and rear roof vents shall be provided to enable adequate equipment ventilation.
3. Switchboard frame shall be die formed, 12-gauge steel with reinforced corner gussets. Frame shall be rigidly bolted to support cover plates (code gauge steel), bus bars and installed devices during shipment and installation.
4. All sections may be rolled, moved or lifted into position and shall incorporate full-depth, front-to-rear lifting beams. Switchboards shall be capable of being bolted directly to a concrete pad without the use of floor sills.
5. All switchboard sections shall have open bottoms and removable top plate(s) to install conduit.
6. Provide hinged, gasketed, lift-off panels for rear access to switchboard sections where no rear access doors are shown on the Drawings. Access panels shall be fastened by hex head bolts.
7. Front access to all switchboard sections and telecom cabinets shall be via hinged, gasketed doors. All doors shall have concealed hinges, wind-stop locking bars and full-height, heavy-duty, three-point latch mechanisms. Latch handles shall have provision for padlocking. Provide similar rear-access doors where shown on the Drawings.

8. Enclosure finish shall be ANSI 61 light gray paint over phosphate-type rust inhibitor. All surfaces shall be chemically cleaned prior to painting.
9. Switchboard protective devices shall be furnished as listed on Drawings and specified herein, including interconnections, instrumentation and control wiring. Switchboards and devices shall be rated for the voltage and frequency listed on the Drawings. Provide breakers with wire termination lugs suitable for the size and type of wire shown on the Drawings.
10. Switchboard current ratings, including all devices, shall be based on a maximum ambient temperature of 25 degrees C per UL Standard 891. With no derating required, temperature rise of switchboards and devices shall not exceed 65 degrees C in a 25-degree C ambient environment.
11. Furnish engraved laminate nameplates for each device. Nameplates shall have black characters on white background. Nameplates shall be fastened using stainless-steel screws.

B. Bus Bars

1. Bus bars shall be silver-plated copper. The bus bars shall have sufficient cross sectional area to meet UL 891 temperature rise requirements through actual tests. The bus bars shall be standard density rated for 1000 Amperes per square inch of copper. Phase and neutral bus ampacity shall be as shown on the Drawings. The neutral bus shall have the same ampacity as the phase bus.
2. Bus bars shall be mounted on high impact, non-tracking insulated supports. Joints in the vertical bus are not permitted.
3. Bus bars shall be braced to withstand mechanical forces exerted during short circuit conditions as indicated in drawings, but in no case less than 65 kA rms sym.
4. Bus joints shall be bolted with high-tensile steel Grade 5 bolts. Welded connections are unacceptable.
5. Ground bus shall be sized to meet UL 891. Ground bus shall extend full length of switchboard.
6. A-B-C bus arrangement (left to right, top to bottom, front to rear) shall be used throughout to assure convenient and safe testing and maintenance. Where special circuitry precludes this arrangement, bus bars shall be labeled.
7. All feeder device line and load connection straps shall be rated to carry the full current rating of the device frame (not the trip rating).
8. The main incoming bus bars shall be rated for the main overcurrent protective device frame size or for the main incoming conductors if there is no main device.

9. Main horizontal bus bars shall be fully-rated and arranged for future extensions.

C. Main Incoming Compartment

1. Furnish switchboard(s) with a transition for close-coupled connection to a transformer and as indicated on Drawings.

D. Main and Distribution Sections

1. Main devices with trip ratings greater than 600 A shall be insulated-case circuit breakers. Provide breakers as specified in the applicable paragraph below.
2. Feeder devices shall be group-mounted molded-case circuit breakers. Provide breakers as specified in the applicable paragraph below.
3. All circuit protective devices shall have the minimum rms symmetrical current interrupting capacities shown on the Drawings for each switchboard.

E. Insulated-Case Circuit Breakers

1. Insulated-case circuit breakers shall be manually-operated and individually-mounted in a stationary frame.
2. Breakers shall be constructed of a high dielectric strength, glass-reinforced insulating case. The interrupting mechanism shall be arc chutes. Steel vent grids shall be used to suppress arcs and cool vented gases. Interphase barriers shall be provided to completely isolate each pole.
3. Breakers shall contain a true two-step stored-energy operating mechanism which shall provide quick-make, quick-break operation with a maximum five-cycle closing time. Breakers shall be trip-free at all times. Common tripping of all poles shall be standard.
4. Insulated-case circuit breakers shall be rated to carry 100 percent of their frame ampacity continuously.
5. A charging HANDLE, CLOSE PUSH-BUTTON, OPEN PUSH-BUTTON, AND OFF/ON/CHARGE indicator shall be located on the breaker escutcheon and shall be visible with the breaker compartment door closed.
6. Breakers shall have digital electronic trip units as described below.

F. Molded-Case Circuit Breakers

1. Breakers with trip ratings of above 100 A shall have digital electronic trip units. Rating plugs shall be used to determine maximum breaker trip adjustment setting.
2. Thermal-magnetic breakers shall be provided for trip ratings of 100A or less.

3. Group-mounted breakers shall be connected to the vertical bus by bolted connections.
4. Individually-mounted, molded-case circuit breakers shall be stationary mounted.
5. Circuit breaker frames shall be constructed of a high-strength, molded, glass-reinforced polyester case and cover.
6. Breakers shall have an over-center, toggle handle-operated, trip-free mechanism with quick-make, quick-break action independent of the speed of the toggle handle operation.
7. The design shall provide common tripping of all poles. Breakers shall be suitable for reverse feeding.
8. Breakers shall have ON and OFF position clearly marked on escutcheon. Breakers shall include a push-to-trip means on the escutcheon for manually tripping the breaker and exercising the mechanism and trip latch.
9. Breakers shall include factory-installed mechanical lugs. Lugs shall be UL-listed and rated for continuous operation at 75 degrees C. Breakers shall be 80 percent rated unless otherwise noted.
10. Breakers with trip ratings of 400A and above shall be UL-listed for 100 percent continuous duty.

G. Digital Electronic Trip (DET) Units for Circuit Breakers

1. Each main breaker and each feeder breaker (where indicated or specified) shall be equipped with a digital electronic trip unit. The trip unit shall provide overcurrent protection as specified below. The trip unit shall consist of a solid-state, microprocessor-based programmer, tripping means, current sensors, power supply and other devices as required for proper operation.
2. As a minimum, the trip unit shall have the following protective functions:
 - a. Adjustable long time pickup and delay,
 - b. Adjustable short time pickup and delay,
 - c. Adjustable, defeatable instantaneous pickup,
 - d. Adjustable, defeatable ground-fault pickup and delay for all main breakers and where indicated on the Drawings.
3. As a minimum, the trip unit shall include the following features:
 - a. Long time and short time protective functions shall utilize true RMS sensing technology.

- b. The ground fault function, if provided, shall contain a memory feature to integrate low-level arcing fault currents over time, and to initiate breaker tripping based on accumulated ground-fault energy.
 - c. High contrast liquid crystal display (LCD) unit shall display settings, trip targets, and the specified metering displays.
 - d. Multi-button keypad to provide local setup and readout of all trip settings on the LCD.
 - e. UL-listed interchangeable rating plug. It shall not be necessary to remove the trip unit to change the rating plug.
 - f. An integral test jack for testing via a portable test set and connection to a battery source.
 - g. A mechanism for sealing the rating plug and the trip unit to deter unauthorized alteration of trip settings.
 - h. Noise immunity shall meet the requirements of IEEE C37.90.
 - i. Display trip targets for long-time, short-time, instantaneous and ground-fault (if provided) events.
4. The trip unit for the main and as indicated for feeder breakers shall include the following power monitoring (PM) functions, which shall be displayed on the LCD (if the manufacturer's trip unit cannot incorporate the specified functions, two separate device(s) for protective and metering functions shall be provided for each breaker):
- a. Current, rms, each phase;
 - b. Voltage, rms, line-to-line, and line-to-neutral;
 - c. Real power, kW;
 - d. Total (apparent) power, KVA;
 - e. Peak demand kW, field-selectable interval and user-resettable register;
 - f. Energy, kWh total, user-resettable register;
 - g. Demand kWh, over an adjustable time period of 5 to 60 minutes.

H. Metering Transformers

- 1. All instrument transformers shall be UL listed and classified as indicated in drawings.
- 2. Current transformers (if used) shall be as shown on drawings with burden and accuracy to support connected meters and relays as required by ANSI/IEEE C57.13. Minimum metering accuracy class shall be 0.3B0.5.

3. Potential transformers shall be as shown on drawings with burden and accuracy to support connected meters and relays as required by ANSI/IEEE C57.13. Minimum metering accuracy class shall be 0.3W,X,M,Y.

I. Control Power Transformers (CPT's)

1. CPT's shall be designed for continuous operation at rated kVA with normal life expectancy as defined in ANSI C57.96.
2. CPT's shall be dry-type, two-winding transformers rated for 115 degree C rise above a 40 degree C maximum ambient and designed for mounting inside switchboard auxiliary compartments.
3. CPT's shall be provided by the Manufacturer with Manufacturers recommended rating.

J. Meter:

1. Provide a 7 jaw metering socket for an Itron SENTINAL Multimeasurement Meter as specified below.
2. Provide an Itron SENTINEL Multimeasurement Meter with the following characteristics to the Engineer for installation by the Port.

Mounting Type: Socket

Form Number: Class 200 – Form 16S (14S, 15S, 17S) (3EL) solid-state meter with auto-ranging from 120V-480V. Mass memory with 48kB, battery backup, level 2 and with Time-of-use and equipped with internal modem. Provide shorting circuit test block with 10 pole test switch block.

Frequency: 60Hz

Firmware Version: 5.0

Measurement Version: Level 1

Cover Option: Without Demand Reset

Communication Type Selected: Yes

Communication Option: R300S

ERT ID: 04

Power Supply Option: Standard Singlephase Power Supply (120 – 480V)

Nameplate Information: Coordinate with the Engineer

K. Panelboards

1. Provide dead-front lighting and appliance panelboards suitable for use as service equipment. Provide all grounding and bonding required by NEC Article 250.
2. Panelboard shall have copper bus bars, full-sized neutral bar, and bare uninsulated grounding bar suitable for bonding to enclosure.
3. Provide suitable lugs on neutral and ground busses for each outgoing feeder circuit. Lugs shall be of the anti-burn solderless pressure-type connectors approved for copper conductors.
4. Panelboard shall be arranged for connecting incoming feeder from CPT at bottom of panel or incoming feeder from switchboard breaker at top of panel.
5. Provide required circuit breakers for both manufacturer (applies to station power "SP" panelboards only) and customer use. Refer to Drawings for required customer breaker sizes and types.
6. Breakers shall be bolt-on, heavy-duty, quick-make, quick-break breakers with pole arrangements and interrupting capacities as shown on the Drawings.
7. Provide galvanized sheet steel, NEMA 1, code-gage thickness enclosure with multiple knockouts and wiring gutters. Enclosures shall be of the same manufacture as, and shall mate properly with, panelboard interiors.
8. Provide panelboard fronts with adjustable indicating trim clamps, concealed piano-type door hinges, and doors with flush locks and keys. All panelboard enclosures shall be keyed alike.
9. Equip with interior circuit-directory frame and 8.5" x 11" panel directory with clear plastic covering.
10. Provide baked gray enamel finish over a rust inhibitor coating.

L. Annunciator

1. Provide a local solid state annunciator that will alarm on the following:
 - a. Transformer Winding Temperature
 - b. Transformer Alarm contacts
 - c. Main secondary breaker trip
2. Provide an outdoor mounted rotating beacon light that will illuminate if any points on the annunciator drops.
3. Provide an external alarm horn with silence circuit and resettable switch that will sound whenever any points on the annunciator drops.
4. Provide a minimum of four spare annunciator points for future.

M. Miscellaneous Power Requirements

1. An enclosed and gasketed fluorescent fixture shall be mounted inside the enclosure vestibule, above each vertical section to maintain an illumination level of 30 footcandles on front faces of compartments. All fixtures shall be controlled by a single switch. Lighting circuits shall be installed in EMT conduits supported with conduit clamps.
2. One 120 Vac duplex GFCI receptacle shall be provided in the lower cubicle panel of each switchboard section.
3. Thermostatically-controlled space heaters shall be provided in each switchboard section so that the temperature inside the section will be automatically maintained above the dew point temperature over an ambient temperature range of 20 °F to 104 °F. Space heaters shall be rated 240 Vac but shall be connected for operation at 120 Vac. An ammeter shall be provided in the heater circuit with full circuit ampacity clearly marked on the ammeter scale.

N. Yard Lighting Control System

1. The yard lighting control system for the highmast lighting equipment shall be composed of a future PC-based operator control console networked with several remote lighting control panels (LCP's). The LCP's shall be located at each 480V switchboard where yard lighting circuits originate. System configuration and control details are shown on the Drawings.
2. Manufacturer: Siemens LCP2000, Lithonia Synergy or Approved Equal
3. Lighting control system shall be from a Manufacturer who has supplied and successfully installed similar equipment for a minimum of 7 years. Provide a minimum of three references.
4. The future central lighting control station (not in contract) will include a PC computer system, lighting control system interface panel, all software and licenses required to configure and operate the lighting control system. In addition, the supplier will develop a graphic lighting control screen to be displayed on the operator's vision touch screen display.

The operator shall have the capability of performing global control operations on all yard lighting poles from the overall screen.

Selecting a group displays a separate detail screen with the applicable poles and lighting circuit status shown. From this screen, the operator shall be capable of selecting individual poles for control action.

5. Separate free-standing, full-height switchboard section(s) shall be used to house the following lighting control system components and as shown on Drawings:

- a. Lighting Contactor Enclosure (LCE). The LCE shall include the following devices and features:
 - (1) Electrically-held lighting contactors rated 600V, 30A, 2- or 3-pole as shown on the drawings.
 - (2) Front panel-mounted 3-position selector switches to place lighting control mode into MANUAL OFF, MANUAL ON, or AUTO mode. One selector switch shall be provided for each contactor.
 - (3) The LCE shall have a metal barrier that divides the enclosure into front and rear compartments. The front compartment shall be used for all 120Vac control wiring, terminal blocks, selector switches and lighting control panel. The rear compartment shall provide mounting space for lighting contactors and wiring space for all 480 Vac wiring. Relay and contactors shall be totally compatible with the lighting control panel components.

- b. Lighting Control Panel (LCP). The lighting control panel shall be a standalone, solid-state lighting controller that communicates with the future central lighting control station via a network cable connection and that actuates output relays to control the lighting contactors. The LCP shall be capable to the control the relays via timer and photocell control. The timer shall be integrated with the programmable logic controller (PLC) and a photocell shall be provided and mounted on the outside of the enclosure. The following minimum function and system features shall be provided:
 - (1) The LCP shall be installed within the front (120 Vac) compartment of the LCE section.
 - (2) Astronomical Clock
 - (3) Network capabilities
 - (4) Over 500 schedules, 32 holiday dates
 - (5) Keypad programming with LCD display with self-prompting instructions
 - (6) Timed and Priority inputs
 - (7) Photocell and Daylight Controls
 - (8) All required software including programming assistance and startup service.
 - (9) Telephone Interface Modules allowing of override of relays from remote location

- (10) Future capability to operate with visiontouch software.
 - (11) The PLC shall be capable of independently controlling each light pole as follow:
 - Normal lighting ON/OFF
 - Security lighting ON/OFF
 - Floodlighting ON/OFF
6. Supplier shall guarantee proper, reliable operation of the lighting control system. Incompatible lighting components are not acceptable. All components of the lighting control system shall be fully compatible with one another (e.g., LCP shall be compatible with the lighting contactors furnished and shall operate the contactors reliably). Any misoperation, unreliable operation, or other deficiencies shall be promptly remedied (at not cost to the Owner) by the Supplier to the satisfaction of the Owner up to and including replacement of lighting contactors, lighting control panels, central lighting control station, and interconnecting wiring and interface devices.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Refer to specification Section No. 16273 for installation requirements.

3.02 ON-SITE DELIVERY

- A. Deliver each transformer, loadbreak switch section and low-voltage switchboard shipping unit on individual shipping skids for ease of handling. Each piece of equipment shall be plastic shrink-wrapped to provide nominal weather protection.
- B. Deliver all equipment and materials to the Roundhouse project site. All equipment and materials shall be stored in their original shipping package and shall be suitable for outdoor storage.
- C. The Supplier shall have a designated representative to provide supervision to properly receive, inspect, off load and place into storage all equipment and materials specified. Contractor shall be responsible for off loading the equipment to the concrete pad.
- D. The Port will designate storage areas on the site if the concrete pad is not ready upon delivery. The equipment shall be stored and separated in accordance with assigned laydown areas per container yard. The Contractor shall be responsible for handling, transporting the equipment from and to the storage yard.
- E. Provide a complete list of materials and spare parts.

- F. The Supplier shall replace all materials and equipment, lost or damaged while in transit. Replacement materials and equipment shall be of a type and quality equal to the original materials and equipment, shall be acceptable to the Port, and shall be obtained expeditiously to prevent delay of work. Extensions of time will not be granted for delays caused by failure to receive replacement materials and equipment at the time required for their installation.
- G. The Supplier shall handle all equipment and materials carefully to prevent damage or loss, and shall store them in an orderly manner as directed by the Port.
- H. Handle in accordance with NEMA SG-5. Lift only by installed lifting eyes. The use of bare wire rope slings for unloading and handling materials and equipment is prohibited except with the specific permission of the Port.
- I. Stored equipment and materials shall be adequately supported and protected to prevent damage.
- J. Stored materials and equipment shall not be allowed to contact the ground. In warehouses that do not have dry concrete or suspended floors, materials and equipment shall be stored on platforms or shoring.
- K. Equipment space heater circuits shall be energized during storage.

3.02 TOUCH-UP PAINTING

- A. The Supplier shall field paint surfaces of equipment where nicks and scratches resulted due to shipping and delivery.

3.03 EQUIPMENT SUPPLIER'S STARTUP ASSISTANCE

- A. The Equipment Supplier designated representative shall provide at least "2" man day consisting of "1" trip with travel and lodging expenses included, for the purpose of providing assistance for the installation and testing of the outdoor unit substations and lighting control system. Contractor shall coordinate with the Port and his Equipment Supplier.
- B. The Port will, at their discretion, select the date and time as to when the Supplier's installation and testing assistance is needed. The Port reserves the right to request Supplier's assistance until installation of all equipment and material, and performance of all testing have been completed. Contractor shall coordinate with the Port and his Equipment Supplier.
- C. At a minimum, the Supplier's representative shall review the installation procedure for complete assembly and provide assistance during Contractor's installation. In addition, the Supplier shall provide recommended testing procedures for the equipment. The representative shall visually inspect all of the Contractor-installed unit substations at each project site and provide an inspection report to the Port. The report shall indicate compliance with manufacturer's installation requirements and shall also highlight any deficiencies in materials, installation or performance that are observed. Supplier's representative shall check tightness of all accessible

mechanical and electrical connections with a calibrated torque wrench. Minimum acceptable values shall be specified in manufacturer's instructions.

END OF SECTION

SECTION 16325

MEDIUM-VOLTAGE METAL-ENCLOSED SWITCHGEAR

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. The work under this section of the Specifications consists of furnishing, fabricating, assembling, shipping, installation, start-up, commissioning, and testing outdoor weatherproof medium-voltage metal-enclosed switchgear lineups and related material. Construction and commissioning support is also included in Supplier's scope of work.
- B. Switchgear lineups shall be provided for the Main Substation.

1.02 RELATED DOCUMENTS

- A. The Drawings are a part of this specification and further define the equipment requirements, features and configurations.

1.03 REFERENCE TECHNICAL STANDARDS AND SPECIFICATIONS

- A. The medium-voltage metal-enclosed switchgear and protective devices in this specification are designed and manufactured according to latest revision of the following standards (unless otherwise noted).
 1. ANSI C37.20.3, Standard for Metal-Enclosed Interrupter
 2. ANSI C37.57, Standard Enclosure Security Requirements
 3. ANSI C57.12.38, Testing Requirements for Outdoor Metal Enclosed Switchgear
 4. IEEE C37.90, Standard for Relays and Relay Systems Associated with Electric Power Apparatus
 5. ANSI C39.1, Electrical Analog Indicating Instruments, Requirements for
 6. ANSI/IEEE C57.13, Instrument Transformers, Requirements for
 7. NEMA SG 2, High Voltage Fuses
 8. NEMA SG 5, Power Switchgear Assemblies

1.04 SUBMITTALS

- A. Provide six bounded copies of the following documents to Engineer for review and evaluation:
 - 1. Product data.
 - 2. Shop drawings including fully-dimensioned Drawings and elevations, single-line, three-line and control elementary diagrams.
 - 3. Equipment assembly drawings including detailed bill of materials, shipping splits, weight and center-of-gravity data.
 - 4. Design data and detailed component data (e.g.: current transformer connection diagrams and excitation curves, meter wiring diagrams).
 - 5. Certified time-current or other parametric curves applicable for each protective device.
 - 6. Certified copies of all design, production and verification test reports.
 - 7. Itemized spare parts list.
 - 8. Installation, Operation and Maintenance Manual
 - 9. Owner's manual for relays and meters.
 - 10. Equipment anchorage calculations and details based on UBC Seismic Zone 4 design criteria signed by a California licensed Civil or Structural Professional Engineer.

1.05 FACTORY TEST REPORTS

- A. Provide six copies of certified factory and production tests within 5 days after shipping.
- B. Operation and maintenance data shall include with factory and field test reports shall be provided.

1.06 QUALITY ASSURANCE (QUALIFICATIONS)

- A. Supplier shall have specialized in the manufacture and assembly of medium-voltage metal-enclosed switchgear for a minimum of 25 years.
- B. Supplier's Certificate of ISO 9002 Compliance.

1.07 WARRANTY

- A. Equipment shall be warranted to be free from defects in materials and workmanship for 1 year from date of installation or 18 months from date of purchase, whichever occurs first.

PART 2 - PRODUCTS

2.01 MANUFACTURER

- A. Manufacturers shall be Cutler Hammer, S & C Electric, Square D or equal.

2.02 EQUIPMENT

- A. Furnish an outdoor, Medium Voltage Metal Enclosed Switchgear as indicated in Drawings.

2.03 COMPONENTS

Refer to Drawings for: actual layout and location of equipment and components; current ratings of devices, bus bars, and components; voltage ratings of devices, components and assemblies; and other required details.

A. General

- 1. The outdoor metal-enclosed switchgear assembly shall consist of self-supporting bays, containing interrupter switches, surge arrestors, and power fuses, accessory components, all completely factory-assembled and operationally checked.

- 2. Ratings

Nominal Voltage, 13.8kV
Maximum Voltage, 15kV
BIL, 95kV
Main Bus Continuous, 600 Amperes
Short-Circuit Ratings RMS Symmetrical, 25,000 Amperes
MVA Three-Phase Symmetrical At Rated Nominal Voltage, 600MVA
Duty-Cycle Fault-Closing – One Time Duty
RMS Asymmetrical, 61,000 Ampere

B. Enclosure

- 1. Switchgear enclosure shall be suitable for outdoor application, modular design fabricated from a minimum of 11-gauge steel with an integral base around all four sides. The enclosure shall be UL certified and conform with the enclosure security requirements of ANSI C37.57.
- 2. Switchgear units shall be arranged as shown on the Plan documents.

3. For rigidity during fault conditions all connections to roll-out potential transformer trays and control power transformer trays shall be rigid bus bars insulated to full voltage rating of switchgear assembly.
4. The finished enclosure shall meet the requirements of ANSI C57.12.28.
5. Furnish nameplates for each device. Nameplates shall be black letters on white background. Nameplates shall be fastened by plastic rivets, standard.
6. Doors shall be constructed of 11-gauge hot-rolled, pickled and oiled steel sheet. Provide 90-degree flanges which overlaps with the door openings. Door flanges shall be welded at the corners and be formed with a double bend so that the sheared-edge flanges at the top and both sides fold back parallel to the inside of the door.
7. Doors providing access to interrupter switches (fuses and non-fuses) shall be provided with a wide-view window, constructed of an impact-resistant material.
8. Doors shall be equipped with handle and padlockable. Door holder shall be sturdy, self-latching, zinc-nickel plated and chromate dipped.
9. One three-phase set of intermediate class metal-oxide surge arrestors shall be mounted inside the terminal compartment of the main incoming feeder compartment (Port's Metering) enclosure. Arrestors shall conform to ANSI/IEEE C62.11 and have a nominal MCOV of 7.65kV for line-to-ground operation on a 12.47 kV solidly-grounded system.

C. Main Bus

1. The main bus shall be tin plated copper and rated as indicated in drawings. Bus bars shall have a continuous current rating based on temperature rise and documented by design tests. All joints will be tin plated with at least 2 bolts per joint. Bus bars will be braced to withstand magnetic stresses developed by currents equal to main power circuit breaker close, carry, and interrupt ratings. Access to bus bars shall be through removable front panels. Bus bars shall have fluidized bed epoxy flame retardant and non-hydroscopic insulation with a continuous current rating.

D. Ground Bus

1. A ground bus (1/4 by 2 inch copper) shall extend throughout assembly with connections to each breaker grounding contact and cable compartment ground terminal. Station ground connection points shall be located in each end section.

E. Interrupter Switches

1. Interrupter switches shall have a one-time or two-time duty-cycle fault-closing rating equal to or exceeding the short-circuit rating of the switchgear.

These ratings define the ability to close the interrupter switch either alone (unfused) or in combination with the appropriate fuse, once or twice (as applicable) against a three-phase fault with asymmetrical current in at least one phase equal to the rated value, with the switch remaining operable and able to carry and interrupt rated current. Tests substantiating these rating shall be performed at maximum voltage.

2. Interrupter switches shall be for manual operation shall be operated by means of an externally operable, non-removable handle. The handle shall have provisions for padlocking in both open and closed positions.
3. Interrupter switches shall utilize a quick-make quick break mechanism and shall operate swiftly and positively open and close the interrupter switch independent of the switch-handle. The mechanism shall be integrally mounted with the switch frame.
4. Circuit interruption shall be accomplished by use of an interrupter which is positively sequenced with the blade position. Circuit interruption shall take place completely within the interrupter, with no external arc or flame. Any exhaust shall be vented in a controlled matter through a labyrinthine muffler or a deionizing vent.
5. Interrupter switches shall have a visible open gap when in the open position to allow positive verification of switch position.
6. Provide cable terminations for all 600 Ampere rated switches. Each cable termination compartment shall be equipped with grounding provisions.
7. Provide key-interlock system as indicated in the drawings.

F. Instrument Transformers

1. Voltage transformers shall be drawout type, with current-limiting fuses and with BIL rating equal to the switchgear. Transformer ratios are listed on the Drawings. Transformers shall conform to ANSI C57.13. Transformer shall be so installed that the assembly shall be de-energized and grounded before it is exposed.
2. Secondary control wiring shall be No. 14, extra flexible, stranded, tinned-copper control wire, Type SIS cross-linked polyethylene, rated 600 Volts, except for specific circuits requiring larger wire. Crimp-type, uninsulated spade terminals shall be furnished on all wire ends, except where non-insulated ring terminals are used to connect to fuse blocks, instrument studs, or terminal block points with two or more wire connections. Secondary control wires shall be armored where they pass through primary compartments.

2.04 FUSES

- A. Solid-material power fuses shall be of the solid-material type, helically coiled and shall utilize refill-unit-and-holder or fuse-unit-and-end-fitting construction. The refill unit or fuse unit shall be readily replaceable.
- B. Fuses shall have melting time-current characteristics that are permanently accurate with a maximum total tolerance of 10% in terms of current. Time-current characteristics shall be available which permit coordination with protective relays and other fuses.
- C. Fuse operation shall be contained the arcing and that any by-products and gases shall be vented through exhaust controlled devices.
- D. Short circuit and protective device coordination calculations and settings: Refer to Section 3.03 for requirements.

2.05 CONTROL POWER TRANSFORMER

- A. Transformers shall be designed for continuous operation at rated 7.5 kVA minimum, 24 hours a day, 365 days a year with normal life expectancy as defined in ANSI C57.96. Dry-type, two winding type, 115 degrees C rise above 40 degrees C maximum ambient designed for mounting in switchgear cubicle drawout compartment. Transformer shall be sized as indicated to serve the connected load and shall have a voltage rating of 12.47kV primary, and 120/240V secondary, 60Hz.

2.06 PANELBOARD

- A. Provide dead-front lighting and appliance panelboard suitable for use as service equipment. Provide all grounding and bonding required by NEC Article 250.
- B. Panelboard shall have copper bus bars, full-sized neutral bar, and bare uninsulated grounding bar suitable for bonding to enclosure.
- C. Provide suitable lugs on neutral and ground busses for each outgoing feeder circuit. Lugs shall be of the anti-burn solderless pressure-type connectors approved for copper conductors.
- D. Panelboard shall be arranged for connecting incoming feeder from CPT.
- E. Provide required circuit breakers for both Supplier's and Engineer's use. Refer to Drawings for required Engineer breaker sizes and types.
- F. Breakers shall be bolt-on, heavy-duty, quick-make, quick-break, single-pole breakers with interrupting capacities as shown on the Drawings.
- G. Provide galvanized sheet steel, NEMA 1, code-gage thickness enclosure with multiple knockouts and wiring gutters. Enclosures shall be of the same manufacture as, and shall mate properly with, panelboard interiors.

- H. Provide panelboard fronts with adjustable indicating trim clamps, concealed piano-type door hinges, and doors with flush locks and keys. All panelboard enclosures shall be keyed alike.
- I. Equip with interior circuit-directory frame and 8.5" x 11" panel directory with clear plastic covering.
- J. Provide baked gray enamel finish over a rust inhibitor coating.

2.07 SPACE HEATERS

- A. Thermostatically-controlled space heaters shall be provided in each vertical sections so that the temperature inside the cubicle will be automatically maintained above the dew point temperature over an ambient temperature range of 0 °F to 104 °F. Space heaters shall be rated 240 Vac. An ammeter shall be provided in the heater circuit with full circuit ampacity clearly marked on the ammeter scale.

2.08 PORT'S METERING ENCLOSURE

- A. Provide outdoor weatherproof enclosure to comply with PG&E's "High-Voltage Metering Enclosure for 2,400 to 25,000 Volt service" as described in their "Greenbook" and EUSERC.
- B. Prior to any fabrication, the Port's Utility Administration Department (Joseph Hu, 510-627-1558) will need to review and approve the Supplier's shop drawings. Consult with the Port regarding the types, accuracies and models of instrument transformer (voltage and current transformer) to be furnish and install in the enclosure.
- C. Enclosure shall comply with the dimensions as indicated in Table 13-1, section 13 of the PG&E Greenbook.
- D. Meter:
 - 1. Provide a 7 jaw metering socket for an Itron SENTINAL Multimeasurement Meter as specified below.
 - 2. Provide an Itron SENTINEL Multimeasurement Meter with the following characteristics to the Engineer for installation by the Port.
 - a. Mounting Type: Socket
 - b. Form Number: Class 200 – Form 16S (14S, 15S, 17S) (3EL) solid-state meter with auto-ranging from 120V-480V. Mass memory with 48kB, battery backup, level 2 and with Time-of-use and equipped with internal modem. Provide shorting circuit test block with 10 pole test switch block.
 - c. Frequency: 60Hz

- d. Firmware Version: 5.0
- e. Measurement Version: Level 1
- f. Cover Option: Without Demand Reset
- g. Communication Type Selected: Yes
- h. Communication Option: R300S
- i. ERT ID: 04
- j. Power Supply Option: Standard Singlephase Power Supply (120 – 480V)
- k. Nameplate Information: Coordinate with the Engineer

2.09 GFCI RECEPTACLES

- A. Provide 20A, 120V rated GFCI receptacle for every other vertical section of switchgear.
- B. Provide proper weatherproof cover complying with NEC.

2.10 SECONDARY WIRING

- A. Secondary power and control wiring shall be Type SIS switchboard wire with extra-flexible stranded, tinned-copper wire, 600V-rated cross-linked polyethylene insulation. Minimum sizes shall be as follows:
 - 1. Power: Sized per NEC according to load; #12 AWG minimum.
 - 2. Control: #14 AWG minimum.
 - 3. CT Circuits: #10 AWG.
 - 4. PT Circuits: #12 AWG.
- B. Secondary wiring shall be armored where passing through primary compartments.
- C. Crimp-type, nylon-insulated ring-tongue lugs shall be furnished on all wire ends. Lugs shall be crimped on wires using a ratchet-type crimping tool to ensure that full crimp cycles are completed.
- D. Unless otherwise required (e.g.: for CT circuits), wiring terminal blocks shall be front-connected, sliding-link blocks with nickel-plated brass contacts, inter-pole barriers and swing-out white marker strip; States M25012 or approved equal.
- E. All wiring shall be tagged in accordance with wire numbers shown on Supplier's wiring diagrams. Wire markers shall be machine-imprinted, slip-on sleeves.

2.11 ACCESSORIES

- A. Spare fuse units (for each Ampere rating shown on Drawings) per assembly.
- B. Fuse handling tool as recommended by fuse manufacturer per assembly.
- C. Two sets of three grounding jumpers (10ft length) shall be provided complete with a storage bag for each set.
- D. One shotgun clamp stick (6'-5-1/2") length shall be provided with a canvas storage bag.

2.12 FACTORY PRODUCTION TESTING

- A. The switchgear equipment shall receive factory production test as listed below:
 - 1. Equipment
 - a. Low frequency dielectric test
 - b. Grounding of instrument cases
 - c. Control wiring and device functional test
 - d. Polarity verification
 - e. Sequence test
 - f. Low frequency withstand voltage test on major insulation components
 - g. Low frequency withstand test on secondary control wiring
 - 2. Fused and Non-fused Load Interrupter Switches
 - a. Operation test
 - b. Clearance and mechanical adjustment
 - c. Conductivity of current path test
- B. Manufacturer shall provide to the Engineer documents verifying completion of factory production tests.

2.13 FINISH

- A. All steel surfaces shall be chemically cleaned and given an iron phosphate corrosion resistant treatment providing a strong bond for paint adhesion. All parts shall be immersed in paint applying 0.7 - 0.8 mils of cathodic epoxy paint

electrically bonded to all surfaces for maximum adhesion. The finish shall be cured in an oven at to insure maximum toughness and prolong service in severe outdoor environments.

- B. All exterior surfaces of the switchgear assembly shall be given final finish coats of ANSI Z55.1 for No. 61 light gray air dried acrylic enamel light gray air dried acrylic enamel. Dry film thickness shall be a minimum of 2.7 mils.
- C. The enclosure shall resist corrosion and protect the steel enclosure. Furnish certified factory test report indicating satisfactory passing of the following tests:
 - 1. Salt-spray testing per ASTM B117.
 - 2. Humidity testing per ASTM D2247.
 - 3. Accelerated weathering testing per ASTM G53 with no chalking as evaluated per ASTM D659.
 - 4. Crosshatch adhesion testing per ASTM D3359 Method B with no loss of paint.

2.14 WARNING SIGNS

- A. All external doors providing access to high voltage shall be provided with “Caution - High Voltage – Keep Out” signs.
- B. All internal screens providing access to high voltage shall be provided with “Danger – High Voltage – Keep Out – Qualified Persons Only” signs.
- C. All internal screens providing access to interrupter switches shall be provided with warning signs indicating that “Switch Blades May Be Energized In Any Position.”
- D. All internal screens providing access to power fuses shall be provided with warning signs indicating that “Fuses May Be Energized in Any Position.”

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Refer specification Section No. 16273 for additional installation requirements.

3.02 ON-SITE DELIVERY

- A. Delivery schedule shall be as follows:

1. Delivery of the equipment shall be within 120 calendar days after acceptance of the equipment shop drawing submittal. Submittal of the complete equipment shop drawings shall be within 30 days after the notice to proceed is issued.
- B. Deliver switchgear and related materials to the Roundhouse project sites. All equipment and materials shall be stored in their original shipping package and shall be suitable for outdoor storage. The Supplier shall coordinate the shipping and delivery dates in accordance with the indicated delivery schedule.
- C. The Supplier shall have a designated representative to provide supervision to properly receive, inspect, off load and place into storage all equipment and materials specified. The Contractor shall be responsible for off loading the equipment to the concrete pad, inspection, inventory, storage and protection of equipment.
- D. The Port will designate storage areas on the site if the concrete pad is not ready. The equipment shall be stored and separated in accordance with assigned laydown areas per container yard. Contractor shall be responsible for handling, transporting equipment from and to storage area.
- E. Provide a complete list of materials and spare parts.
- F. The Contractor's Supplier shall replace all materials and equipment, lost or damaged while in transit. Replacement materials and equipment shall be of a type and quality equal to the original materials and equipment, shall be acceptable to the Port, and shall be obtained expeditiously to prevent delay of work. Extensions of time will not be granted for delays caused by failure to receive replacement materials and equipment at the time required for their installation.
- G. The Contractor shall handle all equipment and materials carefully to prevent damage or loss, and shall store them in an orderly manner as directed by the Port.
- H. Handle in accordance with NEMA SG-5. Lift only by installed lifting eyes. The use of bare wire rope slings for unloading and handling materials and equipment is prohibited except with the specific permission of the Port.
- I. Stored equipment and materials shall be adequately supported and protected to prevent damage.
- J. Stored materials and equipment shall not be allowed to contact the ground. In warehouses that do not have dry concrete or suspended floors, materials and equipment shall be stored on platforms or shoring.
- K. Equipment space heater circuits shall be energized during storage.

3.03 TOUCH-UP PAINTING

- A. The Supplier shall field paint surfaces of equipment where nicks and scratches resulted due to shipping and delivery.

3.04 EQUIPMENT SUPPLIER'S STARTUP ASSISTANCE

- A. The Equipment Supplier designated representative shall provide at least "1" man days consisting of "1" trip with travel and lodging expenses included, for the purpose of providing assistance for the installation and testing of the switchgear. Contractor shall coordinate with the Port and his Equipment Supplier.
- B. The Port will, at their discretion, select the date and time as to when the Supplier's installation and testing assistance is needed. The Port reserves the right to request Supplier's assistance until installation of all equipment and material, and performance of all testing have been completed. Contractor shall coordinate with the Port and his Equipment Supplier.
- C. At a minimum, the Supplier's representative shall review the installation procedure for complete assembly and provide assistance during Contractor's installation and field testing. In addition, the Supplier shall provide recommended testing procedures for the equipment. The representative shall visually inspect all of the Contractor-installed switchgear lineups at each project site and provide an inspection report to the Port. The report shall indicate compliance with Supplier's installation requirements and shall also highlight any deficiencies in materials, installation or performance that are observed. Supplier's representative shall check tightness of all accessible mechanical and electrical connections with a calibrated torque wrench. Minimum acceptable values shall be specified in Supplier's instructions.

END OF SECTION

SECTION 16510

HIGHMAST LIGHTING SYSTEM

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. The work under this Section includes furnishing all labor, materials, appliances, tools, equipment, transportation, services and supervision required for furnishing, installation and testing for a complete outdoor highmast lighting system consisting of poles, anchor bolts, base plates, luminaire ring, cables, breakers and lighting luminaries (fixtures) for Phase 3B and 3C area.
- B. The Contractor shall furnish the highmast luminaires, poles, anchor bolts, etc. for the Phase 3D area and properly stored the materials as directed by the Engineer.
- C. Furnish and install all related materials, i.e., wires, foundations, and other incidentals to provide a complete, functional highmast lighting and local lighting control system.
- D. The Highmast Lighting Supplier shall furnish and provide installation assistance during the installation of the outdoor highmast lighting system.

1.02 RELATED DOCUMENTS

- A. Attached Plans shall be part of these specifications.

1.03 REFERENCE TECHNICAL STANDARDS AND SPECIFICATIONS

The latest edition of these standards and specifications shall apply.

- A. American National Standards Institute (ANSI)
 - 1. ANSI C78.42, Electrical Lamps – Guidelines for High-Pressure Sodium Lamps
 - 2. ANSI C82.4, Ballasts for High-Intensity Discharge and Low-Pressure Sodium Lamps (Multiple-Supply Type)
- B. American Society for Testing and Materials (ASTM)
 - 1. ASTM A36, Standard Specification for Carbon Structural Steel
 - 2. ASTM A123, Standard Specifications for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
 - 3. ASTM A 153 Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware

4. ASTM A588 Standard Specification for High-strength Low-Alloy Structural steel with 50 KSI Minimum Yield Point to 4-Inch Thick
 5. ASTM A595 Standard Specification for Steel Tubes, Low-Carbon, Tapered for Structural Use
 6. ASTM A572 (Grade 50 and 65) Standard specification for High-strength Low Alloy Columbium-vanadium Steel
- C. American Welding Society
1. AWS D1.1, Section 8 Structural Welding Code-Steel
- D. American Association of State Highway Transportation Officials
1. AASHTO LTS-4, Standard Specifications as further detailed in Paragraph 1.04.E.3 of this Section.
- E. Illuminating Engineering Society of North America (IESNA)
1. IESNA HB Lighting Handbook
- F. Institute Electrical Electronic Engineers (IEEE)
1. ANSI/IEEE C2, National Electrical Safety Code
- G. National Fire Protection Association (NFPA)
1. NFPA 70, National Electrical Code
- H. Underwriters Laboratories Inc. (UL)
1. UL 1029, High-Intensity-Discharge Lamp Ballasts
 2. UL 1598, Luminaires

1.04 MATERIAL AND CALCULATION SUBMITTALS

- A. Manufacturer's Catalog Data
1. Luminaires
 2. Lamps
 3. Ballasts
 4. Poles
 5. Mounting brackets

B. Manufacturer's Shop Drawings

1. Luminaires
2. Photometrics for each luminaire
3. Base template for bolt mounting
4. Assembly drawings for poles and mounting brackets
5. Instructions and Assembly Drawings for Wiring and Terminations

C. Manuals

1. Provide installation, operating and maintenance manuals for complete assembly of highmast lighting, pole and related material.

D. Manufacturer's Calculations

1. Submit computer printout calculations (on AutoCad Version 2004 or higher) for the furnished luminaire, demonstrating full compliance with the Port's illumination level criteria as described in Section 1.05. The computer printout shall indicate the required directional aiming of all directional flood lighting type luminaires. The Port will furnish AutoCad files with project sites and pole locations.
2. Immediately notify the Engineer if the lighting calculations do not meet the lighting criteria as indicated in 1.05 and the number of poles and fixtures will differ from the schedule indicated in the Plans.
3. Provide calculations for Phase 3B, 3C and 3D area.

E. Material and Calculation Submittal

1. Supplier shall submit lighting calculations using industry acceptable lighting calculation software program conforming to IESNA calculation methods. The computer printout shall be in AutoCad (2004 or higher) format with graphic scale illustrating the pole locations, project limits, point-by-point footcandles on a 25' x 25' grid pattern and a summary table with the following data as a minimum: Pole symbol, label, Catalog number, Description, lamp, file, lumens, light loss factor (LLF), watts, average, maximum, and minimum footcandles, maximum/minimum and average/minimum uniformity ratios. An LLF of 0.81 shall be used in all calculations.
2. Prior to any manufacturer fabrication the Port shall approve all submittals. All materials and re-calculation (with final Port approved pole locations) shall be submitted at one time in a three ring binder with tabs and indexes. Partial submittal will not be accepted. Provide six copies of calculations, catalog cuts, drawings and manual.

3. Pole and Anchorage Structural Calculations: Supplier shall submit calculations prepared by a California registered Civil or Structural Engineer. The calculations shall demonstrate that the following structural elements meet the seismic design requirements of the 2001 California Building Code (CBC), and the wind design requirements of either a) 2001 AASHTO Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals (LTS-4), Section 3.8, Exposure "D", Fatigue Category 1, b) 2001 AASHTO Specifications for Structural Supports (LTS-4) Appendix C, "Alternate Method for Wind Pressures" or c) 2001 California Building Code, Exposure "D", whichever is more stringent.

- a. Pole and attachments
- b. Base Plate
- c. Anchor Bolts

AASHTO Specifications referenced above shall include, 2002 Interim (LTS-4-11) and 2003 Interim (LTS-4-12) requirements.

1.05 LIGHTING LEVEL

A. Container Yard Lighting

1. The area general yard lighting system as specified and as shown on the attached drawings shall meet the following criteria for average and minimum illumination and illumination uniformity within the yard.
 - a Average Maintained Illumination 5.0 fc
 - b, Minimum Maintained Illumination 2.5 fc
 - c. Uniformity Ratio, Average to Minimum 3:1
2. The light loss factor (LLF) shall be 0.81.
3. Average Maintained Illumination level as indicated will be met by utilizing all luminaries..

PART 2 - PRODUCTS

2.01 MANUFACTURER

- A. Approved Manufacturer: Holophane and Carolina Highmast/General Electric.

2.02 LIGHT POLES

- A. The assembled overall lengths of the poles shall be 80 feet from top of pole to bottom of base plate and shall include shaft, handhole, access holes, support plate, anchor base and bolt covers. Poles shall be fabricated from high strength low alloy steel conforming to ASTM A588, Structural Shapes.

Tensile Strength: Tapered tube to be used for pole sections shall meet ASTM A595, Grade "B" or ASTM A572 Grade 65.

Pole shafts shall be hot dipped galvanized per ASTM A 123, after fabrication, round or 16-sided tapered steel using a maximum of three sections with no more than two telescoping joints. The pole sections shall telescope into each other and have a minimum overlap of 1-1/2 times the inside diameter of the female section. Top pole sections, which telescope onto a section below, shall contain a drilled hole of approximately ½ inch diameter to confirm compliance with the overlap requirement. The hole shall be located above the bottom edge of that section, 1-1/2 times the base diameter of the pole section. Poles shall maintain a uniform taper from top to bottom. A representative from the Port will have the option to inspect the poles and galvanizing process at the manufacturing site prior to shipment.

- B. All welding shall be done by the shielded metal-arc, gas shielded fluxcore, gas metal-arc or submerged-arc process. Certified welders shall perform welding and the quality shall conform to the current AWS D1.1, Section 8. There shall be only one longitudinal weld in the tapered sections of the shaft except, two longitudinal welds when the "break" process, which shall be made by automatic seam welding, constructs the poles. The longitudinal weld seams shall have not less than 60 percent penetration, except in the areas where the shaft section telescopes over another. In overlapping areas, the weld penetration shall be 100 percent. No transverse butt welds may be used in fabricating the shafts.
- C. The Base Plate shall be integrally welded to the pole shaft using a full penetration butt weld with backup bar. The base plate shall be ASTM A 36 or ASTM A572 Grade 65. The base plate shall be welded in the same position for all poles resulting in the same positioning of the anchor bolts.
- D. The handhole shall be a minimum of 10.5 inches x 30 inches externally reinforced by a 0.25 inch reinforcement. The handhole will have access to circuit breakers, power cords and related components. There shall be no internal reinforcement, which could trap acid in the galvanizing process. The handhold shall begin 15 inches up from the base of the pole. A ½ inch -13, UNC-2A nut shall be welded inside the pole adjacent to the handhole for grounding. The handhole cover shall be at least 11-gage steel and shall be hinged. The cover hinging shall be industrial grade, of suitable strength and durability for the cover provided. A closed cell neoprene gasket meeting MIL-R-6130B, Type 11, Grade A or B, Soft shall be provided on the cover for weatherproofing.
- E. The luminaire ring shall be fabricated of steel channel with appropriate number of steel mounting arms. The ring shall be factory prewired with appropriately sized and type power cords and distribution cords.
- F. The pole, complete with pole top mounting (head frame assembly) brackets and luminaires in place, shall conformed with AASHTO LTS-4 (2001 edition) and be capable of withstanding a sustained wind velocity of not less than 80 mph with 3 second gust. The entire pole assembly shall be capable of providing a 15% maximum total deflection in any one direction of its total height as measured from

the centerline of the pole perpendicular to the ground when fully loaded with luminaires and its mounting arms and brackets.

- G. Anchor bolts, nuts, steel washers and vibration absorbing washers shall be engineered and furnished by the pole manufacturer (Supplier) in accordance with the structural requirements specified in Paragraph 1.04.E.3 of this Section and the following:
1. Anchor bolts, nuts and washers shall be galvanized and meet the requirements specified in Section 05050. Installation shall be as directed by the Supplier and as indicated on the light pole foundation drawings.
 2. Vibration absorbing washers shall be manufactured by Fabreeka and shall meet the following requirements:
 - a. Four ½-inch thickness each vibration absorbing washers shall be installed at each anchor bolt.
 - b. The inside diameter of the vibration absorbing washers shall be equal to the diameter of the anchor bolt plus 1/8-inch.
 - c. The outside diameter of the vibration absorbing washers shall be such that the bearing pressure on the washers is less than 1000 psi for dead load plus wind load.
 - d. Two each galvanized steel washers 3/16 inch thickness, matching the outside diameter of the vibration absorbing washer, shall be installed between the vibration absorbing washers and each of the standard galvanized washers at each anchor bolt.
 - e. Nuts shall be tightened from snug tight to achieve a total deflection of 3/16-inch in the set of four vibration absorbing washers.
 - f. Installation shall be as directed by the Supplier and as indicated on the light pole foundation drawings.
- H. The Supplier, as part of his submittals, shall furnish certificates of compliance to demonstrate that all products and complete pole assembly with all required components meet or exceed the requirements specified in Paragraph 1.04.E.3 of this Section..

2.03 LUMINAIRES

A. Container Yard

1. Highmast Down Lights (Type DL)

Luminaire housing shall be heavy duty, made of copper free die cast aluminum alloy. All painted parts shall have a zinc-chromate primer and a powder paint finish.

The optical assembly shall consist of a spun borosilicate prismatic glass reflector with sealed, spun aluminum cover. The electronic components shall include an electronic protected starter board that senses the presence of an inoperative lamp and removes the pulse within a 3 to 10 minute period with no further striking after power is applied.

Luminaires shall be supplied complete with Phillips HPS PC 1000/W-S52/ED37 lamp or approved equivalent.

Highmast down light luminaires shall be 1000W, HPS 480V. There shall be a five (5) year warranty by the luminaire manufacturer on all electrical components. Down light luminaires shall be Holophane Catalog Number HMSPSCP1HP48S9 or General Electric HMAA01S5A1GSC5.

2. Highmast Flood Lights (Type FL)

Luminaire housings shall be heavy duty, made of copper free die cast aluminum alloy. All painted parts shall have a zinc-chromate primer and a powder paint finish. All exposed hardware shall be stainless steel. Luminaire door shall be hinged to provide easy access during lamp installations and shall be secured to the luminaire while open. The door fastening devices shall be captive and the door assembly shall include mechanical stops to assure proper compression of the gasket. All electrical components shall be removable as a single unit without disturbing the aiming. Luminaires shall include anodized hydroformed reflectors. The reflector shall have transverse elliptical fluting to minimize re-direction of light energy through the ark tube and to provide even illumination on the lighted surface, free from streaks or striations. The luminaire electronic components shall include an electronic protected starter, which senses the presence of an inoperative lamp and removes the strike pulse within a 3 to 10 minute period with no further striking after power is applied.

Provide visors, shields, guards or louvers to minimize glare that will comply with the Port's "Dark Skies" policy. For a copy of the Port's "Dark Skies" policy contact Charles Chaloeicheep, Port Engineer, 510.627.1539 or cchaloei@portoakland.com.

Highmast flood light luminaires shall be 1000W, HPS 480V with louver shield to meet the Port's "Dark Sky Policy". For a copy of the Port's "Dark Skies" policy contact Charles Chaloeicheep, Port Engineer, 510.627.1539 or cchaloei@portoakland.com. There shall be a five (5) year warranty by the luminaire manufacturer on all electrical components.

Luminaire shall be supplied complete with Phillips HPS PC 1000W-S52/ED37 lamp or approved equal.

Flood light luminaires shall be Holophane, Catalog Number PB2C10HP4833WL or General Electric PF1K01S5A16X2DBF.

B. Fixture Substitutions

Submittal of highmast area luminaires, other than those listed as approved in this specification is not acceptable.

2.04 BALLASTS

- A. Comply with ANSI C82.4 and UL 1029 and include the following features:
 - 1. Ballast Circuit: Constant-wattage autotransformer or regulating high power factor type.
 - 2. Minimum starting temperature: Minus 40 degrees C.
- B. High-Pressure Sodium Ballasts: Electromagnetic type with solid-state igniter/starter and capable of open-circuit operation without reduction of average lamp life. Igniter/starter shall have an average life in pulsing mode of 10,000 hours at an igniter/starter-case temperature of 90 deg C.
- C. Designed to operate on voltage system to which they are connected.

2.05 WIRES AND TERMINATIONS

- A. The Supplier shall provide installation instructions to the Contractor on proper installation of wiring and terminations inside the pole. The Supplier will specify any additional materials such as wiring grips, wire splice kits, etc. to be furnished and installed by the Contractor to insure proper wiring and termination within the entire highmast lighting assembly. The Supplier shall provide specific wiring assembly instructions and installation drawings for wiring the normal and security lighting system.

2.06 MISCELLANEOUS HARDWARE

- A. The Supplier shall furnish the required anchor bolts, nuts and washers for the highmast light poles.

2.07 FACTORY PAINT FINISH

- A. Supplier shall provide factory painted light poles and luminaire rings. Submit paint color recommendation for the rings.
- B. Preparation: All surfaces shall be completely cleaned and free of oils and lubricants prior to applying prime and finish coats. Surface preparation shall be as specified below.
 - 1. SSPC-SP-1 (solvent cleaning) shall be used whenever surface is contaminated with oil, grease, dirt, etc. The Supplier shall surface clean the light poles of all dirt, grease and oil with methods, which are acceptable to all local environment agencies and shall conform to all local regulations. The use of steam cleaning and high pressure washing with solvent is not allowed.

2. The Supplier shall use any surface solvent cleaner approved by the paint manufacturer for removing dirt, grease, and oil, etc. The Supplier may use any method of surface cleaning, except that prohibited above, that will result in clean and tight surface ready to accept the specified coating system. The method shall be acceptable to the Port and Environmental Protection Agency.
3. Only SSPC-SP-2 (hand tool cleaning) and SSPC-SP-3 (power tool cleaning) shall be used to remove loose rust, loose mill scales, rust stain bleeding through top coat, and loose paint to produce clean and rust scale free surface to a degree specified by the paint manufacturer.

No sand blasting is allowed.

- C. Galvanizing: The high mast lighting components shall be hot-dip galvanized to the requirements of ASTM A123 (fabricated products) and ASTM A153 (hardware items) by immersion in a molten bath of prime western grade zinc maintained between 810°F-850°F. Maximum aluminum content of the bath shall be controlled to 0.01%. Flux ash shall be skimmed from the bath surface prior to immersion and extraction of the product to assure a debris-free zinc coating.
- D. Top Coat: All galvanized exterior surfaces visually exposed shall be coated with a Urethane or Triglycidyl Isocyanurate (TGIC) Polyester Powder to a minimum dry film thickness (DFT) of 2.0 mils. The color of the powder shall be similar to Carboline Marine Division No. 133HB. Submit color sample for Port approval. Prior to application, the surfaces to be powder-coated shall be mechanically etched by brush blasting (Reference: SSPC-SP7) and the zinc coated substrate preheated to 450°F for a minimum of one (1) hour in a gas-fired convection oven. The coating shall be electrostatically applied and cured by elevating the zinc-coated substrate temperature to a minimum of 400°F in a gas-fired convection oven.
- E. Packaging: Prior to shipment, poles shall be cradled in a 1.0 inch rubberized foam base.

PART 3 - EXECUTION

3.01 ON-SITE DELIVERY

- A. Deliver all materials to the project site. All materials shall be stored in their original shipping package and shall be suitable for outdoor storage. The Supplier shall coordinate with Contractor and Port, the shipping and delivery dates.
- B. The Supplier shall have a designated representative to properly provide supervision to receive, inspect, unload and place into storage all area lighting system materials and supplies as specified.
- C. The lighting materials shall be stored and separated in accordance with assigned laydown areas per container yard.

- D. Provide a complete list of materials and spare parts.
- E. The Contractor and/or his Supplier shall replace all materials and equipment, lost or damaged while in transit. Replacement materials and equipment shall be of a type and quality equal to the original materials and equipment, shall be acceptable to the Port, and shall be obtained expeditiously to prevent delay of work. Extensions of time will not be granted for delays caused by failure to receive replacement materials and equipment at the time required for their installation.
- F. The Contractor and/or his Supplier shall handle all equipment and materials carefully to prevent damage or loss, and shall store them in an orderly manner as directed by the Port.
- G. The use of bare wire rope slings for unloading and handling materials and equipment is prohibited except with the specific permission of the Port.
- H. Stored equipment and materials shall be adequately supported and protected to prevent damage.
- I. Stored materials and equipment shall not be allowed to contact the ground. In warehouses that do not have dry concrete or suspended floors, materials and equipment shall be stored on platforms or shoring.

3.02 EQUIPMENT SUPPLIER'S STARTUP ASSISTANCE

- A. The Supplier designated representative shall provide at least "2" man days consisting of "1" trip with travel and lodging expenses included, for the purpose of providing assistance for the installation and testing of the complete lighting pole and luminaire assembly.
- B. The Port will, at their discretion, select the date and time as to when the Supplier's installation and testing assistance is needed. The Port reserve's the right to request Supplier's assistance until installation of all the poles, accessories and testing have been completed.
- C. At a minimum, the Supplier's representative shall review the installation procedure for complete assembly and provide assistance during Contractor's installation. The representative shall inspect 25% of the Contractor-installed pole assemblies at each project site and provide an inspection report to the Port. The report shall indicate compliance with manufacturer's installation requirements and shall also highlight any deficiencies in materials, installation or performance that are observed.

3.03 HANDLING AND TRANSPORTATION

- A. The lighting poles, luminaires and related components shall be installed and wired as shown on the Drawings and as indicated by the Supplier's shop drawings. The Contractor shall be responsible for handling, off-loading and transporting the lighting poles and luminaires to the project site. The Contractor shall coordinate delivery date with the Supplier prior to transporting.

3.04 ANCHORING AND FOUNDATION

- A. The anchoring and foundation requirements are as indicated on the Civil and/or Structural Drawings.
- B. Contractor shall consult with Equipment Supplier for proper installation requirements. Install anchor bolts, nuts, washers and covers as indicated in pole manufacturer's final approved shop drawings.
- C. The base plate, exposed portion of the anchor bolts, nuts, washers, the lower 12 inches of the interior surface of the pole and the lower eight inches of the exterior surface of the pole shall be etched with Galvaprep 45 and then coated with Tarmastec 100, both manufactured by Porter Paint Company, or equal, 14 mils minimum dry film thickness.
- D. The exterior pole surface shall be masked to ensure a neat edge at the upper coating limit.

3.05 INSTALLATION OF HIGHMAST LIGHTING SYSTEM ASSEMBLY

- A. Contractor shall coordinate and consult with Manufacturer's Installation representative prior to fabrication to ensure that wiring shown on these drawings will be compatible with the Port's final approved highmast lighting system including but not limited to, voltage drop, wire sizes and number of wires. The Supplier/Manufacturer's Representative shall be available to review proper procedure for installation of highmast assembly. This consultation service shall be coordinated through the Engineer.
- B. Adhere to manufacturer's Port final approved instructions and assembly drawings, and installation manuals.
- C. Provide labor and equipment to aim and set the flood light luminaires on a clear night(s) in accordance with luminaire submitted aiming schedule and instructions. Nighttime field adjustments will be required to achieve the intended lighting uniformity.
- D. Provide wiring and connections between the highmast lighting poles to the 480V lighting contactor and control panel located in the unit substations.

3.06 GROUNDING

- A. Ground non-current carrying parts of the equipment as indicated on the Drawings and in accordance with Supplier instructions.

3.07 POLE IDENTIFICATION AND SIGNAGE

- A. Each pole shall be identified. The Contractor shall label all poles, according to their number, as indicated on the Drawings.

1. Labeling shall consist of “spray on” stenciled letters and numbers, four inches high, installed at an elevation of 15 feet above grade and shall read “L01” for example.
2. Three labels shall be sprayed on each pole at an equal distance from one another.
3. The label color shall be as directed by the Engineer.
 - a. Provide additional signage in accordance with Drawings.

3.08 ACCEPTANCE TESTING AND TRAINING

- A. Comply with testing requirements as described in Section 16030, “Electrical Acceptance Testing,” and as indicated in this section.
- B. Perform required foot-candle measurements after initial burn-in time (of five consecutive nights) of the lamps. Measurements shall be compared with the Supplier’s computer calculations. Provide report summarizing measurements and compliance with Supplier’s calculated foot-candle results. Identify any discrepancies.
- C. Perform operational and testing of the lighting control equipment and highmast lighting system to determine its compliance with Specification and Drawings. Refer to Section 16273 for Lighting Control System installation, programming and testing requirements.

3.09 TOUCH-UP PAINTING

- A. Following highmast lighting installation, Contractor shall field paint surface of poles and rings where nicks and scratches resulted due to installation of the pole assembly.
- B. Coordinate with the supplier to ensure proper paint color and procedures.
- C. Refer to Drawings for “Fire Hydrant” paint requirement.

- END OF SECTION -

Attachment 1

ADDENDUM NO. 1 (Revised)
Electrical System Construction at the Maritime Support Center

DOCUMENT 00400

BID FORM

To be submitted by date and time noted in Document 00100

PORT OF OAKLAND

To: The Chief Engineer
530 Water Street
Oakland, California 94607

Re: Contract: Performed as instance of work under annual contract.

**ELECTRICAL SYSTEM CONSTRUCTION
AT THE MARITIME SUPPORT CENTER,
OAKLAND, CALIFORNIA**

1. The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an agreement with the City of Oakland, a municipal corporation, acting by and through its Board of Port Commissioners ("Port") in the form included in the Contract Documents work as a subcontractor to the Phase 3B Grading and Paving Contractor for the 21-Acre Container Yard Improvements Project to perform and furnish bid items 1 to 4, 6, 7, 9, 10, 11 and 14 to 24 and Additive Alternate A19 for the Contract Sum and within the Contract Time indicated in this Bid and in accordance with all other terms and conditions of the Contract Documents. Bid items 5, 8, 12 and 13 will be paid under separate contract.
2. The Bidder accepts all of the terms and conditions of the Contract Documents. This Bid will remain subject to acceptance for sixty (60) calendar days after the day of Bid opening, unless a greater period is authorized by the Board, and may not be withdrawn during that time period.
3. Determination of Successful Bidder. Pursuant to Port Ordinance 1606, Section 5(i), the Board of Port Commissioners have authorized the award of this Contract without lowest-sealed bid procedures, to the Bidder whose Bid best meets the needs of the Port, as determined by the Executive Director. As authorized by the Board, the Port may award the Contract to any Bidder, regardless of price, whose Bid is determined to best meet the needs of the Port. All Bidders are required to submit Bids on all Bid items.
4. In submitting this Bid, the Bidder represents that:
 - (a) Bidder has examined all of the Contract Documents and of the following Addenda (receipt of all of which is hereby acknowledged).

<u>Date</u>	<u>Number</u>
<u>March 16, 2006</u>	<u>1</u>
_____	_____
_____	_____

Attachment 1

[Attach additional pages if necessary]

- (b) Bidder has visited the Site and performed all tasks, research, investigation, reviews, examinations, analysis, and given notices, regarding the Project and the Site, as set forth in the Contract Documents.
5. Based on the foregoing, Bidder proposes and agrees to fully perform the Work within the time stated and in strict accordance with the Contract Documents for the following sum of money listed in the following Bid Schedule:

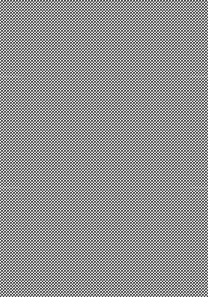
SCHEDULE OF BID PRICES

All bid items, including lump sums, unit prices, and additive alternates must be filled in completely. Bid items are described in Section 01100, Summary of Work. Quote in numerals only, unless words are specifically requested.

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>ESTIMATED QUANTITY</u>	<u>UNIT PRICE (Figures)</u>	<u>TOTAL</u>
1.	Mobilization and Demobilization for Eletrical Work	lump sum		\$50,000.00
2.	All Other Electrical Contract Work Other than Electrical Work Separately Provided for Under Other Electrical Bid Items	lump sum		\$90,000.00
3.	Medium-Voltage Cable Splice	lump sum		\$15,000.00
4.	Medium-Voltage Tap	lump sum		\$10,000.00
5.	Furnish Main Medium-Voltage Substation, Meter Enclosure and Accessories	Paid under separate contract.		
6.	Install Main Medium-Voltage Substation, Meter Enclosure and Accessories	lump sum		\$75,000.00
7.	Furnish and Install Revenue Rated Electrical Meter	1 EA	\$2,500.00	\$2,500.00

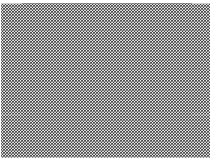
Attachment 1

ADDENDUM NO. 1 (Revised)
Electrical System Construction at the Maritime Support Center

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>ESTIMATED QUANTITY</u>	<u>UNIT PRICE (Figures)</u>	<u>TOTAL</u>
8.	Furnish One Unit Substation and Associated Disconnects, Transformers, Panelboards, Breakers, and Accessories	Paid under separate contract.		
9.	Install One Unit Substation and Associated Disconnects, Transformers, Panelboards, Breakers, and Accessories	1 EA	\$50,000.00	\$50,000.00
10.	Grounding of Equipment Pads and Fencing	2 EA	\$5,000.00	\$10,000.00
11.	Furnish and Install 12.47kV Service	1800 LF	\$20.00	\$36,000.00
12.	Furnish Light Poles	Paid under separate contract.		
13.	Furnish Luminaires	Paid under separate contract.		
14.	Install Light Poles	15 EA	\$10,000.00	\$150,000.00
15.	Install Luminaires	lump sum		\$38,000.00
16.	Furnish and Install Lighting Control System	lump sum		\$35,140.00
17.	Furnish and Install 600V Wiring System and Ground Wire	lump sum		\$135,000.00
18.	Furnish and Install 6" Power Conduit	200 LF		\$100.00
19.	Furnish and Install Power, Electrical and Telecommunication Duct Banks	lump sum		\$700,000.00
20a.	Furnish High Voltage Manhole	Paid under separate contract.		
20b.	Install High Voltage Manhole	7 EA	\$22,700.00	\$158,900.00
21a.	Furnish Electrical Pullbox	Paid under separate contract.		
21b.	Install Electrical Pullbox	18 EA	\$3,700.00	\$66,600.00
22a.	Furnish Telecommunication Pullbox	Paid under separate contract.		
22b.	Install Telecommunication Pullbox	17 EA	\$3,700.00	\$62,900.00
23.	Furnish and Install 50 Pair Telecommunication Service	1100 LF	\$20.00	\$22,000.00
24.	Furnish and Install 4 Pair Telecommunication Cable	1000 LF	\$10.00	\$10,000.00

Attachment 1

ADDENDUM NO. 1 (Revised)
Electrical System Construction at the Maritime Support Center

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>ESTIMATED QUANTITY</u>	<u>UNIT PRICE (Figures)</u>	<u>TOTAL</u>
25a.	Furnish High Voltage Manhole (inside main substation)	Paid under separate contract.		
25b.	Install High Voltage Manhole	2 EA	\$22,700.00	\$45,400.00
BASE BID PRICE				\$1,082,440.00
(Total of Items 1 through 4, 6,7, 9 through 11 and 14 through 22)				
A19.	Furnish and Install Power, Electrical and Telecommunication Duct Banks (36" minimum cover, not encased)	lump sum		\$575,000.00
TOTAL BID PRICE				\$1,657,440.00
(Base Bid Price + Additive Alternate A19)				

6. Subcontractors and their sub-bids for work included in all bid items are listed on the attached Document 00430, Port of Oakland Subcontractor and Supplier List Form.
7. The undersigned understands that the Port reserves the right to reject this Bid, or all bids.
8. Notice of Award or request for additional information may be addressed to the undersigned at the address set forth below.
9. The undersigned agrees to commence work under the Contract Documents on the date established in Section 01100, Summary of Work, and to complete all work within the times specified in Section 01100, Summary of Work.
10. The undersigned agrees that, in accordance with Document 00700, General Conditions, liquidated damages for failure to complete all Work under the Contract Documents within the times specified in Section 01100, Summary of Work, shall be as set forth in Section 01100, Summary of Work.
11. The attention of the Bidder is directed to the necessity of including in the total for each Bid Item \$0.15 per hour of on-site craft work associated with that Bid Item, to be contributed to the Social Justice Program established under the terms of the Maritime and Aviation Project Labor Agreement. Refer to Document 00825, "Social Justice Labor Management Cooperation Trust Fund."
12. The implementation costs of the Maritime and Aviation Project Labor Agreement Uniform Substance Abuse Policy must be included in the Total Bid Price. These costs are stated

Attachment 1

ADDENDUM NO. 1 (Revised)
Electrical System Construction at the Maritime Support Center

in Document 00824, "Port of Oakland Maritime and Aviation Project Labor Agreement Substance Abuse Prevention Policy Drug Testing."

13. The names of all persons interested in the foregoing Bid as principals are:

(IMPORTANT NOTICE: If Bidder or other interested person (including any partner or joint venturer of any partnership or joint venture bidder, respectively) is a corporation, give the legal name of corporation, state where incorporated, and names of president and secretary thereof; if a partnership, give name of the firm and names of all individual co-partners composing the firm; if Bidder or other interested person is an individual, give first and last names in full).

licensed in accordance with an act for the registration of Contractors, and with license number: _____.

BIDDER:

By: _____
[Signature]

[Printed Name]

Its: _____
[If Corporation: Chairman, President or Vice President]

By: _____
[Signature]

[Printed Name]

Its: _____
[If Corporation: Secretary, Assistant Secretary, Chief Financial Officer or Assistant Treasurer]

Attachment 1

ADDENDUM NO. 1 (Revised)
Electrical System Construction at the Maritime Support Center

NOTE: If the Bidder is a corporation, set forth the legal name of the corporation together with the signature of the officer or officers authorized to sign contracts on behalf of the corporation. If the Bidder is a partnership, set forth the name of the firm together with the signature of the partner or partners authorized to sign contracts on behalf of the partnership.

Business Address:

Telephone Number:

Fax Number:

Date of Bid:

END OF SECTION

Attachment 1

Electrical System Construction at the Maritime Support Center

ELECTRICAL BID ITEMS

- A. Any bid item may be deleted in total or in part prior to or after award of Contract without compensation in any form or adjustment of other bid items or prices therefore.
- B. Measurement and payment of bid items will be in accordance with the following:

ELECTRICAL BASE BID ITEMS:

ITEM 1: Mobilization and Demobilization for Electrical Work will not be measured. The lump sum price to be paid under this Item includes full compensation for furnishing all labor, materials, appliances, tools, equipment, transportation, services and supervision for accomplishing all work involved in the electrical mobilization and demobilization.

Except as otherwise specified, electrical mobilization shall consist of preparatory work and operations, including but not limited to, those necessary for the movement of personnel, equipment, supplies, and incidentals to the project site; for the establishment of all offices, buildings and other facilities necessary for the work on the project; and for all other work and operations which must be performed or costs incurred prior to beginning work on the various bid items on the project site.

Refer to Document 1200, Measurement and Payment on progress payment for mobilization and demobilization.

ITEM 2: All Other Electrical Contract Work Other than Electrical Work Separately Provided for Under Other Electrical Bid Items will not be measured. The lump sum price to be paid under this Item includes full compensation for accomplishing all Electrical Work shown on the Plans or specified herein or in the Contract Documents, but not to be paid for under separate electrical bid items.

ITEM 3: Medium Voltage Cable Splice will not be measured. The lump sum price to be paid under this item includes full compensation for providing all labor, materials, appliances, tools, equipment, transportation, services and supervision for deenergizing the feeder circuit to Switch "A" and deenergizing Switch "A", splicing the line and the load side of Switch "A" and reenergizing the circuit to feed the STE trailers' main transformer, TR-15AC-1, as shown on the Plans and specified herein. For bidding purposes, it can be assumed that the work for this item will occur during non business hours.

Attachment 1

Electrical System Construction at the Maritime Support Center

- ITEM 4: Medium Voltage Tap** will not be measured. The lump sum price to be paid under this item includes full compensation for providing all labor, materials, appliances, tools, equipment, transportation, services and supervision for deenergizing the 12kV overhead circuit and taping the 12kV overhead circuit as well as installation of the required electrical hardware and grounding as shown on the Plans and specified herein. For bidding purposes, it can be assumed that the work for this item will occur during non business hours.
- ITEM 5: Furnish Main Medium-Voltage Substation, Meter Enclosure, and Accessories** will be paid under a separate contract.
- ITEM 6: Install Main Medium-Voltage Substation, Meter Enclosure, and Accessories** will not be measured. The lump sum price to be paid under this item includes full compensation for providing all labor, materials, appliances, tools, equipment, transportation, services and supervision for accomplishing all work involved in installing and testing an outdoor main medium-voltage substation which includes the main switch gear, and the associated grounding as shown on the Plans and specified herein.
- ITEM 7: Furnish and Install Revenue Rated Electrical Meter** will be measured by each revenue rated electrical meter furnished and installed. The unit price to be paid under this item includes full compensation for providing all labor, materials, appliances, tools, equipment, transportation, services and supervision for accomplishing all work involved in furnishing and installing each revenue rated electrical meter as shown on the Plans and specified herein.
- ITEM 8: Furnish One Unit Substations and Associated Disconnects, Transformers, Panelboards, Breakers, and Accessories** will be paid under a separate contract.
- ITEM 9: Install One Unit Substations and Associated Disconnects, Transformers, Panelboards, Breakers, and Accessories** will be measured by each substation installed. The unit price to be paid under this item includes full compensation for providing all labor, materials, appliances, tools, equipment, transportation, services and supervision for accomplishing all work involved in installing and testing a unit substation disconnects, transformers, panelboards, breakers, accessories and the associated grounding as shown on the Plans and specified herein.
- ITEM 10: Grounding of Equipment Pads and Fencing** will be measured by each substation location grounded. The unit price to be paid under this item includes full compensation for providing all labor, materials, appliances, tools, equipment, transportation, services and supervision for accomplishing all work involved in grounding of the Main Medium-Voltage Substation equipment pad and associated fencing, and the Unit Substation equipment pads and associated fencing.

Attachment 1

Electrical System Construction at the Maritime Support Center

- ITEM 11: Furnish and Install 12.47 kV Service** will be measured by the length of 12.47kV Service installed in linear feet. The unit price to be paid under this item includes full compensation for providing all labor, materials, appliances, tools, equipment, transportation, services and supervision for accomplishing all work involved in furnishing and installing 12.47kV Service including supports, mounting hardware, terminations, splices and associated grounding as shown on the Plans and specified herein. One linear foot of 12.47kV Service includes all 3 phases of 12.47kV Hypalon or Low Smoke Zero Halogen (LSZH) jacketed cable and the associated ground wire. For example 100ft of 3-500MCM EPR with Hypalon or LSZH Jacket and 4/0 ground equals 100ft of 12.47kV Service.
- ITEM 12: Furnish Light Poles** will be performed and paid under a separate contract.
- ITEM 13: Furnish Luminaires** will be performed and paid under a separate contract.
- ITEM 14: Install Light Poles** will be measured by the number of light poles installed. The unit price to be paid under this Item includes full compensation for providing all labor, materials, appliances, tools, equipment, transportation, services and supervision for accomplishing all work involved in mounting each 80-foot light pole and luminaire ring assembly on top of existing anchor bolts and foundation, including all wiring between the switchgear and luminaires, wiring the control system and the electrical panel and the associated grounding. The Contractor shall furnish all wiring and associated equipment required for a complete installation as shown on the Plans and specified herein.
- ITEM 15: Install Luminaires** will be measured by the number of luminaires installed. The unit price to be paid under this Item includes full compensation for providing all labor, materials, appliances, tools, equipment, transportation, services and supervision for accomplishing all work involved in installing each luminaire onto the luminaire ring assembly on the 80-foot light poles. The Contractor shall terminate all wiring and associated equipment required for a complete installation as shown on the Plans and specified herein.
- ITEM 16: Furnish and Install Lighting Control System** will not be measured. The lump sum price to be paid under this Item includes full compensation for providing all labor, materials, appliances, tools, equipment, transportation, services and supervision for accomplishing all work involved in furnishing and installing a lighting control system, including all wiring between the switchgear, lighting control system and luminaires and shall include all wiring, grounding and associated equipment required for a complete installation as shown on the Plans and specified herein.

Attachment 1

Electrical System Construction at the Maritime Support Center

- ITEM 17: Furnish and Install 600V Wiring System and Ground Wire** will not be measured. The lump sum price to be paid under this item includes full compensation for providing all labor, materials, appliances, tools, equipment, transportation, services and supervision required to furnish and install a 600V wiring system, and the associated grounding and shall include all wiring and associated equipment required for complete installation as shown on the Plans and specified herein.
- ITEM 18: Furnish and Install 6" Power Conduit** will be measured by the length of 6" Power Conduit installed in linear feet. The unit price to be paid under this item includes full compensation for providing all labor, materials, appliances, tools, equipment, transportation, services and supervision for accomplishing all work involved in furnishing and installing the 6" Power Conduit from (E) Pole A4 to the Main Substation and the associated trench excavation, concrete encasement and backfill as shown on the Plans and specified herein.
- ~~**ITEM 19: Furnish and Install Power, Electrical and Telecommunication Duct Banks** will not be measured. The lump sum price to be paid under this Item includes full compensation for providing all labor, materials, appliances, tools, equipment, transportation, services and supervision for accomplishing all work involved in furnishing and installing the Power, Electrical and Telecommunication Duct Banks and the associated trench excavation, concrete encasement and backfill as shown on the Plans and specified.~~
- ITEM 20a: Furnish High Voltage Manhole** will be performed and paid under a separate contract.
- ITEM 20b: Install High Voltage Manhole** will be measured by each High Voltage Manhole installed. The unit price to be paid under this item includes full compensation for providing all labor, materials, appliances, tools, equipment, transportation, services and supervision for accomplishing all work involved in installing the High Voltage Manhole and the associated trench excavation and backfill as shown on the Plans and specified herein.
- ITEM 21a: Furnish Electrical Pullbox** will be performed and paid under a separate contract.
- ITEM 21b: Install Electrical Pullbox** will be measured by each Electrical Pullbox installed. The unit price to be paid under this item includes full compensation for providing all labor, materials, appliances, tools, equipment, transportation, services and supervision for accomplishing all work involved installing the Electrical Pullbox and the associated trench excavation and backfill as shown on the Plans and specified herein.

Attachment 1

Electrical System Construction at the Maritime Support Center

ITEM 22a: Furnish Telecommunication Pullbox will be performed and paid under a separate contract.

ITEM 22b: Install Telecommunication Pullbox will be measured by each Telecommunication Pullbox installed. The unit price to be paid under this item includes full compensation for providing all labor, materials, appliances, tools, equipment, transportation, services and supervision for accomplishing all work involved in installing the Telecommunication Pullbox and the associated trench excavation and backfill as shown on the Plans and specified herein.

ITEM 23: Furnish and Install 50 Pair Telecommunication Service will be measured by the length of 50 pair Telecommunication Service installed in linear feet. The unit price to be paid under this item includes full compensation for providing all labor, materials, appliances, tools, equipment, transportation, services and supervision for accomplishing all work involved in furnishing and installing 50 pair telecommunication service including supports, mounting hardware, termination blocks, and terminations, as shown on the Plans and specified herein.

ITEM 24: Furnish and Install 4 Pair Telecommunication Cable will be measured by the length of 4 pair Telecommunication Service installed in linear feet. The unit price to be paid under this item includes full compensation for providing all labor, materials, appliances, tools, equipment, transportation, services and supervision for accomplishing all work involved in furnishing and installing 4 pair telecommunication service including terminations, as shown on the Plans and specified herein.

ITEM 25a: Furnish High Voltage Manhole (inside main substation) will be performed and paid under a separate contract.

ITEM 25b: Install High Voltage Manhole (inside main substation) will be measured by each High Voltage Manhole installed. The unit price to be paid under this item includes full compensation for providing all labor, materials, appliances, tools, equipment, transportation, services and supervision for accomplishing all work involved in installing the full traffic rated High Voltage Manhole inside the main substation and the associated trench excavation and backfill as shown on the Plans and specified herein.

Attachment 1

Electrical System Construction at the Maritime Support Center

ELECTRICAL ADDITIVE ALTERNATE

ITEM A19: Furnish and Install Power, Electrical and Telecommunication Duct Banks (36" minimum cover, not encased) will not be measured. The lump sum price to be paid under this Item includes full compensation for providing all labor, materials, appliances, tools, equipment, transportation, services and supervision for accomplishing all work involved in furnishing and installing a Power, Electrical and Telecommunication Duct Banks with a 36" minimum cover and the associated trench excavation and backfill. The number of conduits and spacing requirements shall be consistent with what is shown in the Plans and specified herein.

END OF SECTION

MARITIME SUPPORT CENTER
 CONSTRUCTION OF PHASE 3B CONTAINER TERMINAL YARD IMPROVEMENTS
 OAKLAND, CALIFORNIA

PREPARED FOR
PORT OF OAKLAND



530 WATER ST. OAKLAND, CALIFORNIA

BY
HPA, INC
YEI ENGINEERS, INC

PRINT DATE: 04-10-06 15:03:29 P:\Active Projects\DNV\MSC--Port of Oakland MSC Development\CADD\project sheets\1-AA-3956-C1.dwg Printed by: yingyee

W.O.# 104879

CAUTION: THIS PLAN MAY BE REDUCED

0 1" 2" ORIGINAL SCALE

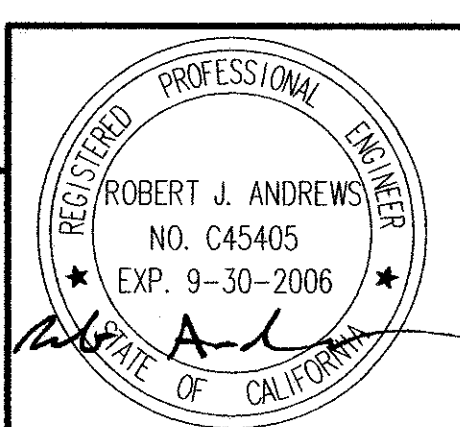
REFERENCES:
 PLANS
 FIELD BOOKS
 "PORT OF OAKLAND DATUM"
 IS 3.20' BELOW N.G.V.D. '29
 CAUTION:
 CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

DRAWN _____ STAFF
 DESIGNED _____
 CHECKED _____
 REG. ENGINEER NO. _____
 REG. ENGINEER NO. _____

PORT OF OAKLAND
 530 WATER ST. OAKLAND, CALIFORNIA

PURSUANT TO SECTION 830.6 OF THE GOVERNMENT CODE, THE PORT APPROVES THESE PLANS AND DESIGNS. IN GRANTING THIS APPROVAL, THE PORT HAS RELIED UPON THE JUDGMENT OF THE PERSON IN RESPONSIBLE CHARGE OF THE WORK TO PROVIDE PLANS AND DESIGNS IN CONFORMANCE WITH THE CONTRACT DOCUMENTS.
 APPROVED BY: *[Signature]*
 RECOMMENDED BY: *[Signature]*



MARITIME SUPPORT CENTER
 CONSTRUCTION OF PHASE 3B CONTAINER TERMINAL YARD IMPROVEMENTS
TITLE SHEET

DATE: 3-24-06
 SCALE: NO SCALE
 SHEET: 1 OF 5/6 SHEETS
G1 AA-3956

- SHEET NO. GENERAL**
- 1 G1 TITLE SHEET
 - 2 G2 INDEX OF DRAWINGS AND VICINITY/LOCATION PLAN
 - 3 G3 STANDARD GRAPHIC SYMBOLS AND LINETYPES - DESIGN CRITERIA
 - 4 G4 STANDARD ABBREVIATIONS
 - 5 G5 INSPECTION AND GENERAL NOTES
 - 6 G6 GENERAL SITE PLAN
 - 7 G7 SURVEY CONTROL PLAN

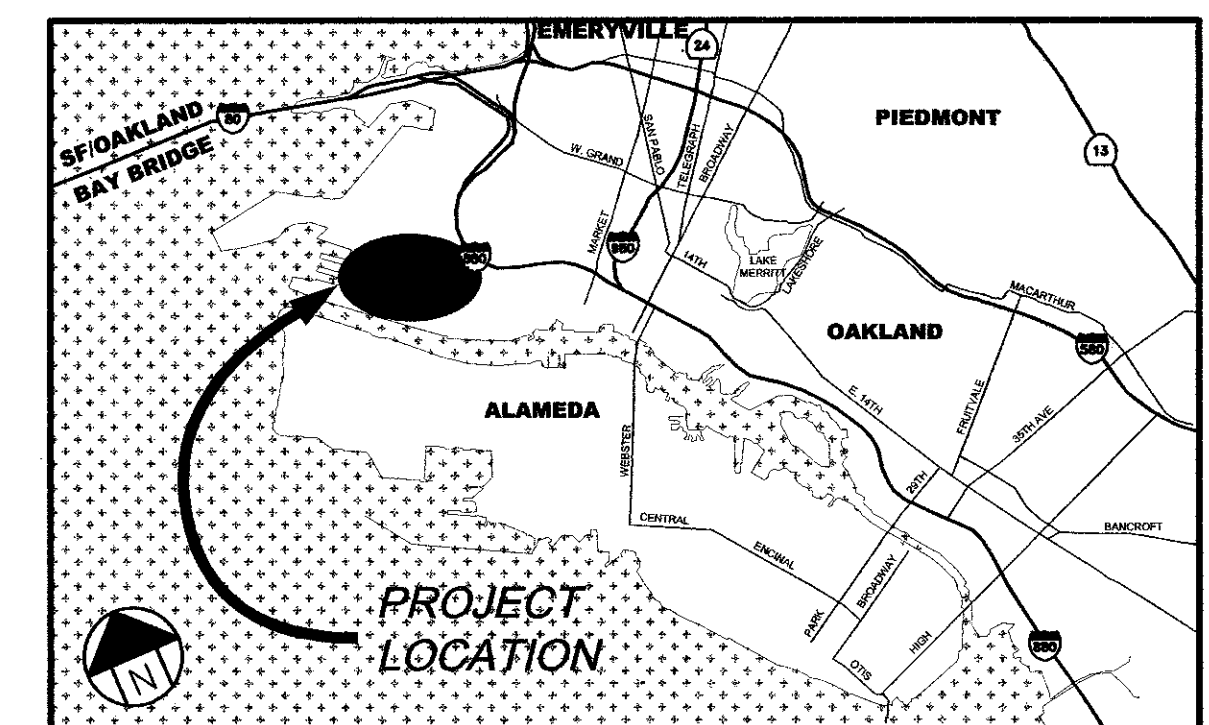
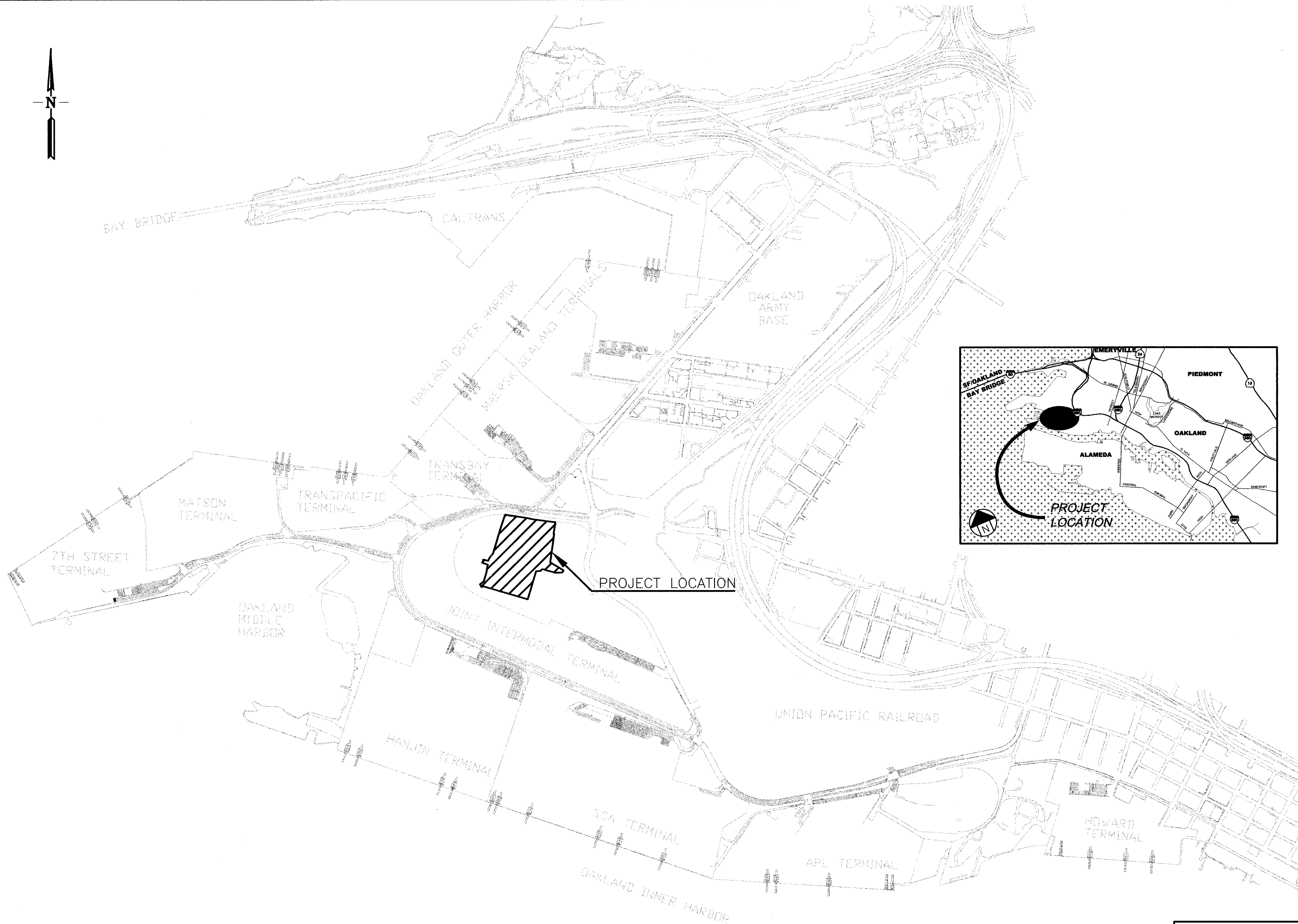
- DEMOLITION**
- 8 D1 DEMOLITION AND SITE PREPARATION SHEET 1 OF 2
 - 9 D2 DEMOLITION AND SITE PREPARATION SHEET 2 OF 2
 - 10 D3 DEMOLITION AND SITE PREPARATION KEY AND NOTES
 - 11 D4 CONSTRUCTION PHASING AND SEQUENCING

- CIVIL**
- 12 C1 GRADING PLAN SHEET 1 OF 2
 - 13 C2 GRADING PLAN SHEET 2 OF 2
 - 14 C3 GRADING TYPICAL DETAILS
 - 15 C4 STORM DRAINAGE PLAN SHEET 1 OF 2
 - 16 C5 STORM DRAINAGE PLAN SHEET 2 OF 2
 - 17 C6 STORM DRAINAGE PROFILES SHEET 1 OF 2
 - 18 C7 STORM DRAINAGE PROFILES SHEET 2 OF 2
 - 19 C8 STORM DRAINAGE SYSTEM DETAILS
 - 20 C9 COMPOSITE UTILITY PLAN SHEET 1 OF 2
 - 21 C10 COMPOSITE UTILITY PLAN SHEET 2 OF 2

- STRUCTURAL**
- 22 S1 LIGHT POLE FOUNDATION
 - 23 S2 EQUIPMENT PADS
 - 24 S3 MISCELLANEOUS STRUCTURAL DETAILS

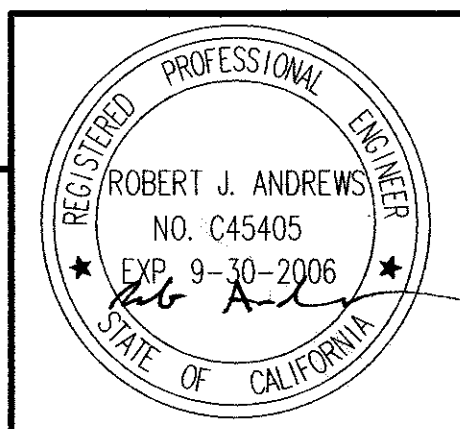
- MECHANICAL**
- 25 M1 WATER SYSTEM PLAN SHEET 1 OF 2
 - 26 M2 WATER SYSTEM PLAN SHEET 2 OF 2
 - 27 M3 WATER SYSTEM DETAILS
 - 28 M4 SANITARY SEWER SYSTEM PLAN SHEET 1 OF 2
 - 29 M5 SANITARY SEWER SYSTEM PLAN SHEET 2 OF 2
 - 30 M6 SANITARY SEWER SYSTEM DETAILS

- ELECTRICAL**
- 31 E01 ABBREVIATIONS, SYMBOLS, LEGEND & GENERAL NOTES
 - 32 E02 SINGLE LINE DIAGRAM
 - 33 E03 UNIT SUBSTATION NO. 1 - SINGLE LINE DIAGRAM
 - 34 E04 NOT USED
 - 35 E05 ELECTRICAL GENERAL PLAN
 - 36 E06 SITE ELECTRICAL PLAN - AREA 1
 - 37 E07 SITE ELECTRICAL PLAN - AREA 2
 - 38 E08 MAIN SUBSTATION EQUIPMENT LAYOUT AND ELEVATION
 - 39 E09 MAIN SUBSTATION CONDUIT AND GROUNDING PLANS
 - 40 E10 UNIT SUBSTATION NO. 1 EQUIPMENT LAYOUT AND ELEVATION
 - 41 E11 UNIT SUBSTATION NO. 1 CONDUIT AND GROUNDING PLAN
 - 42 E12 NOT USED
 - 43 E13 NOT USED
 - 44 E14 TYPICAL UNDERGROUND ELECTRICAL PLAN, SECTION & DETAILS
 - 45 E15 MANHOLE AND PULLBOX TYPICAL DETAILS
 - 46 E16 GROUNDING - TYPICAL DETAILS
 - 47 E17 HIGHMAST LIGHTING SCHEDULE & TYPICAL DIAGRAM
 - 48 E18 HIGHMAST LIGHTING POLE TYPICAL DETAILS
 - 49 E19 CABLES AND WIRE SCHEDULE
 - 50 E20 PANEL SCHEDULES
 - 51 E21 ELECTRICAL DETAILS SHEET 1 OF 2
 - 52 E22 ELECTRICAL DETAILS SHEET 2 OF 2
 - 53 E23 12.47 KV SYSTEM ROUTING CIRCUIT DIAGRAM
 - 54 E24 UNIT SUB NO. 1 ROUTING CIRCUIT DIAGRAM SHEET 1 OF 2
 - 55 E25 UNIT SUB NO. 1 ROUTING CIRCUIT DIAGRAM SHEET 2 OF 2
 - 56 E26 TELECOMMUNICATION ROUTING CIRCUIT DIAGRAM



VICINITY/LOCATION MAP
1" = 800'

CAUTION: THIS PLAN MAY BE REDUCED ORIGINAL SCALE



W.O.# 104879
REFERENCES:
PLANS
FIELD BOOKS
"PORT OF OAKLAND DATUM"
IS 3.20' BELOW N.G.V.D. '29
CAUTION:
CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

DRAWN	STAFF
DESIGNED	REG. ENGINEER NO.
CHECKED	REG. ENGINEER NO.

PORT OF OAKLAND
530 WATER ST. OAKLAND, CALIFORNIA

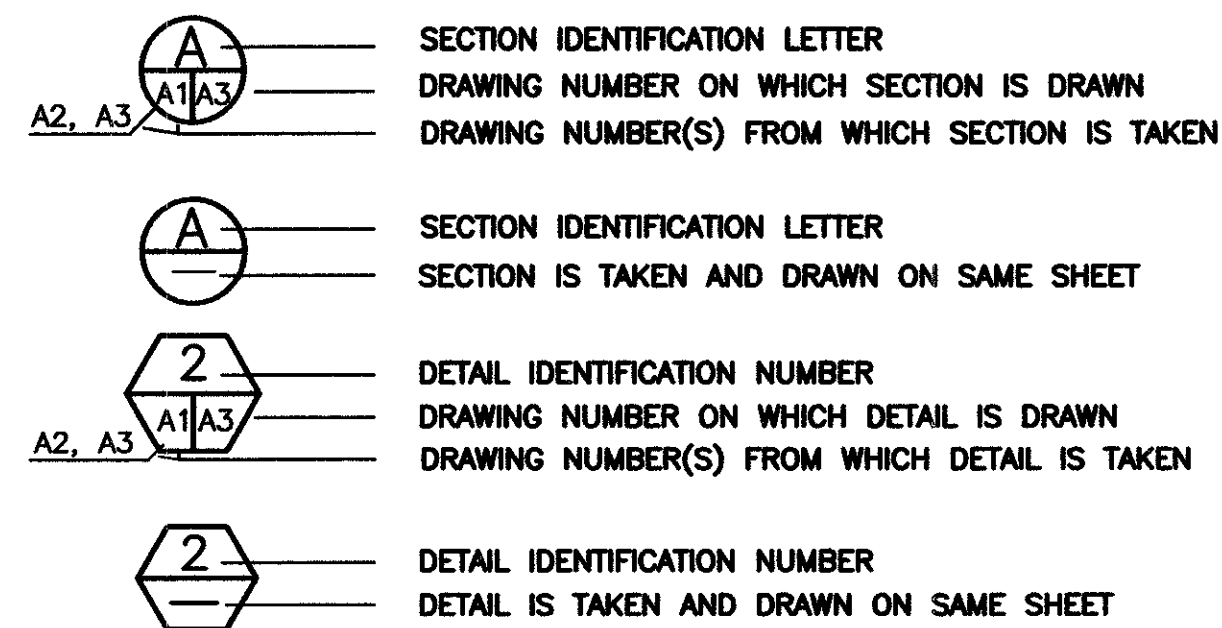
MARITIME SUPPORT CENTER	DATE: 3-24-06
CONSTRUCTION OF PHASE 3B CONTAINER TERMINAL YARD IMPROVEMENTS	SCALE: AS SHOWN
INDEX OF DRAWINGS AND VICINITY/LOCATION PLAN	SHEET: 2 OF 56 SHEETS
G2	AA-3956

PRINT DATE: 04-11-06 10:49:23 P:\Active Projects\DN01MSC-Port of Oakland MSC Development\CADD\project sheets\2-AA-3956-C2.dwg, Printed by: jingqiao

LEGEND:

	EXISTING	NEW
BACKFLOW PREVENTER		
BOLLARD		
CATCH BASIN		CB
CLEAN OUT, SANITARY SEWER		
CONCRETE BARRIER		
CONCRETE BARRIER WITH SECURITY FENCE		
CONDENSATION		
CONTOUR (PAVEMENT)	17	15.0
CONTOUR (SUBGRADE)		15.0
ELECTRICAL MANHOLE		
ELECTRICAL PULLBOX		
FENCE, CHAIN LINK		
FIRE ALARM		
FIRE HYDRANT (ABOVE GRD)		
GASOLINE LINE		
GROUNDWATER MONITORING WELL		
HIDDEN		
HIGH VOLTAGE OVERHEAD LINE		
HIGH VOLTAGE UNDERGROUND LINE	UG	
LIGHT POLE, 80'		
LIGHT POLE, 40'		
OVERHEAD POWERLINE		
NATURAL GAS LINE		2" GAS
POWER POLE		
PROJECT LIMIT		
PUMP STATION		
RAIL ALIGNMENT		
REDUCER		
RETAINING WALL		
SANITARY SEWER LINE		
SANITARY SEWER MANHOLE		
SAW CUT		
SPOT ELEVATION	13.99	13.99
STEEL CASING		12" SD
STORM DRAIN LINE		
STORM DRAIN MANHOLE		
TELECOMMUNICATION PULLBOX		
TELECOMMUNICATIONS LINE		
UNDERGROUND LOW VOLTAGE POWER CONDUIT		
UNDERGROUND MEDIUM VOLTAGE POWER CONDUIT		
WATER LINE - FIRE PROTECTION	10" W	
WATER LINE - POTABLE		
WATER VALVE		

CALLOUTS:



DESIGN CRITERIA:

- WIND LOAD
BASIC WIND SPEED = 80 MPH
EXPOSURE C
- UNDERGROUND UTILITIES AND BOX COVERS:
MAXIMUM LOADING: 150 LBS/SQ. IN. - 30 IN. X 30 IN.
- AC PAVEMENT:

TRAFFIC DESIGN DATA

AREA	EQUIPMENT	WHEEL LOADS (KIPS)		ANNUAL REPETITIONS
		FRONT	BACK	
TOP PICK CONTAINER YARD	TOP PICK WITH EMPTY SPREADER	55	25	18,000
	TOP PICK WITH LOADED BOX	90	10	
MAIN AISLE	TRUCK EMPTY	4	4	105,000
	TRUCK FULL	6	9	

EQUIPMENT

EQUIPMENT TYPE	GEAR CONFIGURATION	DYNAMIC FACTORS	TIRE PRESSURE (PSI)	WHEEL LOADS (KIPS)	
				FRONT	BACK
TOP PICK	4 TIRES FRONT 2 TIRES BACK	BRAKING CORNERING	120	90/55	10/25
TRUCK	4 TIRES PER SIDE	N/A	120	6/4	9/4

PRINT DATE: 04-10-06 15:05:58 P:\Active Projects\DN\MSDC--Port of Oakland MSC Development\CADD\project sheets\3-AA-3956-G3.dwg Printed by yingyee

W.O.# 104879

CAUTION: THIS PLAN MAY BE REDUCED ORIGINAL SCALE

REFERENCES:

PLANS

FIELD BOOKS

"PORT OF OAKLAND DATUM"
IS 3.20' BELOW N.G.V.D. '29

CAUTION:
CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

DRAWN _____ STAFF

DESIGNED _____ REG. ENGINEER NO. _____

CHECKED _____ REG. ENGINEER NO. _____

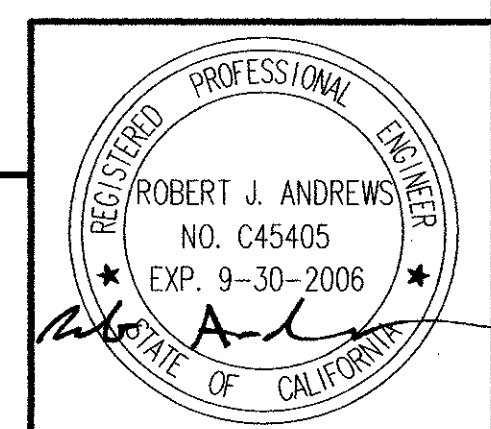
PORT OF OAKLAND

530 WATER ST. OAKLAND, CALIFORNIA

MARITIME SUPPORT CENTER

CONSTRUCTION OF PHASE 3B CONTAINER
TERMINAL YARD IMPROVEMENTS

STANDARD GRAPHIC SYMBOLS AND LINETYPES
- DESIGN CRITERIA



DATE: 3-24-06

SCALE: NO SCALE

SHEET: 3 OF 5 SHEETS

G3 AA-3956

ABBREVIATIONS	DESCRIPTIONS	ABBREVIATIONS	DESCRIPTIONS	ABBREVIATIONS	DESCRIPTIONS	ABBREVIATIONS	DESCRIPTIONS	ABBREVIATIONS	DESCRIPTIONS
ACP	ASBESTOS CEMENT PIPE	DW	DRIVEWAY	INV.	INVERT	ORD.	ORDINANCE	SQ	SQUARE
AB	AGGREGATE BASE	DWG.	DRAWING	IP	IRON PIPE	ORIG.	ORIGINAL	SS	SANITARY SEWER
AC	ASPHALT CONCRETE OR ACRES	DWL.	DOWEL	IV	IRRIGATION VALVE			SSD	SUBSURFACE DRAIN
ADD	ADDITIONAL, ADDITION					PB	PULL BOX	STA.	STATION
ADJ	ADJACENT	E	EAST, EASTING	JB	JUNCTION BOX	PC	POINT OF CURVATURE	STD	STANDARD
ALT	ALTERNATE	EA.	EACH	JCT	JUNCTION	PCC	PORTLAND CEMENT CONCRETE,	STL	STEEL
ASB	AGGREGATE SUBBASE	EB	ELECTRICAL BOX	JP	JOINT POWER POLE		POINT OF COMPOUND CURVE	STRUCT.	STRUCTURAL
ASPH	ASPHALT	EBMUD	EAST BAY MUNICIPAL UTILITY DISTRICT	JT	JOINT	PERP.	PERPENDICULAR	SW	STORM WATER
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS	EC	END CURVE			PG&E	PACIFIC GAS & ELECTRIC	SYMM.	SYMMETRICAL
AVE	AVENUE	EL	ELEVATION (HT)	K	KIP OR 1000 POUNDS	PI	POINT OF INTERSECTION		
AVG	AVERAGE	ELEC.	ELECTRICAL			PV	POST INDICATOR VALVE		
AZ	AZIMUTH	ELEV.	ELEVATOR	LH	LAMP HOLE	PK	PK NAILSURVEY	TAN	TANGENT
		ENGR.	ENGINEER	LIP	LIP OF GUTTER	PL	PROPERTY LINE	TB	TELEPHONE BOX
		EQ.	EQUAL	LP	LOW POINT	PLT	PLATE	T&B	TOP AND BOTTOM
BARTD	BAY AREA RAPID TRANSIT DISTRICT	EP	EDGE OF PAVEMENT	LPP	LIGHT POLE OR ELECTROLIER	POB	POINT OF BEGINNING	TBM	TEMPORARY BENCH MARK
BC	BEGINNING OF CURVE	ESMT	EASEMENT	LT	LEFT	POC	POINT OF CURVE	TC	TOP (FACE) OF CURB
BCDC	BAY CONSERVATION and DEVELOPMENT COMMISSION	ETW	EDGE OF TRAVELED WAY			POF	POINT OF FROG	TP	TURNING POINT
		EVC	END VERTICAL CURVE	MATL	MATERIAL	POS	POSITIVE	TPP	TELEPHONE POLE
BL	BASE LINE	E.W.	EACH WAY	MAX	MAXIMUM	POT	POINT ON TANGENT	TEMP.	TEMPORARY OR TEMPERATURE
BLVD	BOULEVARD	EXP.	EXPANSION	MDL	MIDWAY OR MIDDLE	PP	POWER POLE	TH	TEST HOLE
BLDG	BUILDING	EX.	EXISTING	MEAS.	MEASURE	PRL	PARALLEL	THK.	THICK OR THICKNESS
BNDY	BOUNDARY	EXT.	EXTERIOR	MECH.	MECHANICAL	PROP.	PROPOSED	THD.	THREAD OR THREADED
BM	BENCH MARK			MED.	MEDIAN	PRC	POINT OF REVERSE CURVE	TOC	TOP OF CONCRETE
BRG	BEARING	F	FENCE	MFR.	MANUFACTURER	PT	POINT OF TANGENCY	TOE	TOE OF SLOPE
BRG	BEARING	FAA	FEDERAL AVIATION ADMINISTRATION	MH	MANHOLE	PVC	POLYVINYL CHLORIDE	TOP	TOP OF PAVEMENT
BRM	BERM	FDN	FOUNDATIONS	MIN.	MINIMUM OR MINUTE	PVI	POINT OF VERTICAL INTERSECTION	TOPO	TOPOGRAPHY
BVC	BEGINNING OF VERTICAL CURVE	FF	FINISHED FLOOR	MISC.	MISCELLANEOUS	PVMT	PAVEMENT	TRANSV.	TRANSVERSE
BW	BACK OF WALK	FH	FIRE HYDRANT	MK	MARKED			TOR	TOP OF RAIL
		FIN	FINISH	M.L.	MATCH LINE	QTY	QUANTITY	TOS	TOP OF SLOPE
CALC	CALCULATED, CALCULATIONS	FL	FLOW LINE	MLLW	MEAN LOWER LOW WATER			TW	TOP OF WALL
CALTRANS	CALIFORNIA DEPARTMENT OF TRANSPORTATION	FLR.	FLOOR	MOD	MODIFY	R	RADIUS	TYP.	TYPICAL
		FM	FLIGHT MARKER	MON	MONUMENT	RBR	REBAR		
CB	CATCH BASIN	FND	FOUND	MSL	MEAN SEA LEVEL	RCD	RECORD	UB	UTILITY BOX
CBR	CALIFORNIA BEARING RATIO	FT OR (')	FOOT OR FEET	MW	MONITORING WELL	RCP	REINFORCED CONCRETE PIPE	U.O.N.	UNLESS OTHERWISE NOTED
CCS	CALIFORNIA COORDINATE SYSTEM	FTG	FOOTING			RD	ROAD		
CHX	CHISELED CROSS			N	NORTH, NORTHING	RDWY	ROADWAY	VC	VERTICAL CURVE
CHD	CHORD	G	GAS	NAD83	NORTH AMERICAN DATUM of 1983	REINF.	REINFORCED OR REINFORCING	VCP	VITRIFIED CLAY PIPE
CI	CURB INLET	GA	GAGE	NEG	NEGATIVE	REF	REFERENCE	VERT.	VERTICAL
CIP	CAST IRON PIPE	GALV	GALVANIZED	N.I.C	NOT IN CONTRACT	REQD.	REQUIRED		
CIPP	CAST-IN-PLACE PIPE	GM	GAS METER	NGVD29	NATIONAL GEODETIC VERTICAL DATUM of 1929	RET. WALL	RETAINING WALL	W	WEST, WIDE OR WIDTH
CLR.	CLEAR OR CLEARANCE	GV	GAS VALVE			REV.	REVISION	WB	WATER BOX
CJ	CONSTRUCTION JOINT	GATE	GATE POST	NO.	NUMBER	RM	REFERENCE MARK	WM	WATER METER
CL or CL	CENTERLINE	GENL	GENERAL	NS	NAIL AND SHINER	RP	RADIUS POINT	WP	WORK POINT
CMP	CORRUGATED METAL PIPE	GRT	GRATE	N.T.S.	NOT TO SCALE	RR	RAILROAD	WV	WATER VALVE
CO	CLEAN OUT	GB	GRADE BREAK			RR1	RAIL #1	WW	WING WALL
COE	ARMY CORPS OF ENGINEERS	GRV	GRAVEL	O.C.	ON CENTER	RT	RIGHT		
CONC.	CONCRETE	GND	GROUND	O.D.	OUTSIDE DIAMETER	RW	RIGHT OF WAY	XFMR	TRANSFORMER
CONST.	CONSTRUCTION	GR	GROUND ROD	OPNG	OPENING			X-SECT	CROSS SECTION
CONT.	CONTINUED, CONTINUOUS	GP	GUARD POST			S	SOUTH		
CONTR.	CONTRACTION	GUT	GUTTER			SCHED.	SCHEDULE	Ø	DIAMETER
CORR.	CORRUGATED	GUY	GUY WIRE			SD	STORM DRAIN	φ	SQUARE
CR	CRANE RAIL	GW	GROUND WATER			SDW	SIDEWALK	Δ	ANGLE/Delta
CT.	COURT					SECT.	SECTION	#	POUND, NUMBER
CTR	CENTER	HORZ.	HORIZONTAL			SF	SQUARE FOOT	CL	CENTER LINE
CULV	CULVERT	HCR	HANDICAP RAMP			SHT.	SHEET	⊙	AT
X-SECT	CROSS SECTION	HH	HAND HOLE			SIG	SIGNAL	±	PLUS OR MINUS (APPROXIMATE)
		HP	HIGH POINT			SIM.	SIMILAR	'	FEET (OR MINUTES FOR ANGLES)
D	DIRT	HS	HIGH STRENGTH			SP	SIGNPOST	"	INCHES (OR SECONDS FOR ANGLES)
DEG. OR (°)	DEGREE	HT	HEIGHT			SPECS.	SPECIFICATIONS	&	AND
DET.	DETAIL	HWY	HIGHWAY						
DI	DRAINAGE INLET								
DIA.	DIAMETER	I.D.	INSIDE DIAMETER						
DIM.	DIMENSION	ID.	IDENTIFICATION						
DIP	DUCTILE IRON PIPE	IN OR (")	INCHES						
DR	DOOR OR DRIVE	INT.	INTERSECTION						

PRINT DATE 04-10-06 13:32:20 P:\Active Projects\DNOMSC--Port of Oakland MSC Development\CADD\Project sheets 4-AA-3956-C4.dwg Printed by jingieo

W.O.# 104879

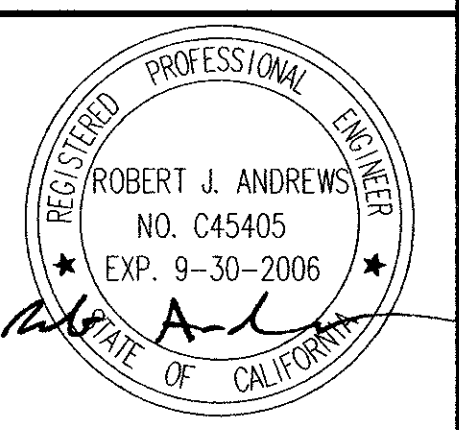
CAUTION: THIS PLAN MAY BE REDUCED  ORIGINAL SCALE

REFERENCES:	NO.	REVISIONS	DATE	REV'D	APP'D
PLANS					
FIELD BOOKS					
"PORT OF OAKLAND DATUM" IS 3.20' BELOW N.G.V.D. '29					
CAUTION: CHECK TRACING FOR LATEST REVISIONS					

DRAWN	STAFF	REG. ENGINEER NO.
DESIGNED		REG. ENGINEER NO.
CHECKED		REG. ENGINEER NO.


PORT OF OAKLAND
 530 WATER ST. OAKLAND, CALIFORNIA

MARITIME SUPPORT CENTER	DATE: 3-24-06
CONSTRUCTION OF PHASE 3B CONTAINER TERMINAL YARD IMPROVEMENTS	SCALE: NO SCALE
STANDARD ABBREVIATIONS	SHEET: 4 OF 56 SHEETS



G4 AA-3956

GENERAL NOTES:

1. INSPECTION SHALL BE PERFORMED BY THE PORT OF OAKLAND. REQUEST FOR INSPECTION SHALL BE GIVEN A MINIMUM OF 24 HOURS IN ADVANCE OR AS OTHERWISE REQUIRED IN THE SPECIFICATIONS.
2. ATTENTION IS DIRECTED TO THE SPECIFICATIONS WHERE BIDDERS ARE REQUIRED TO EXAMINE AND JUDGE, AS THEIR OWN RESPONSIBILITY, THE LOCATION, PHYSICAL CONDITIONS, AND SURROUNDINGS OF THE PROPOSED WORK.
3. CONTRACTOR SHALL VERIFY ALL FIELD DIMENSIONS AND ELEVATIONS SHOWN ON THE PLANS AND SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES FOR CORRECTIVE ACTION PRIOR TO PROCEEDING WITH WORK.
4. HORIZONTAL DATUM IS BASED UPON CALIFORNIA COORDINATE SYSTEM OF 1983 ZONE III. ALL DISTANCES DERIVED FROM DATA SHOWN ARE GRID DISTANCES. TO OBTAIN GROUND DISTANCES MULTIPLY GRID DISTANCES BY 1.000707. ALL ELEVATIONS SHOWN IN THIS PLAN SET ARE BASED UPON PORT OF OAKLAND VERTICAL DATUM. PORT OF OAKLAND VERTICAL DATUM IS 3.2 FEET BELOW N.G.V.D. OF 1929.
5. VERIFY LOCATIONS AND ELEVATIONS OF EXISTING FACILITIES TO WHICH NEW FACILITIES WOULD CONNECT PRIOR TO COMMENCING WORK SO THAT IF NECESSARY ADJUSTMENTS MAY BE MADE TO PROVIDE FOR SMOOTH CONFORMS AND TRANSITIONS.
6. SURFACE GRADES SHOWN ARE TO BE FINISHED GRADES. PLACEMENT OF ASPHALT CONCRETE TO FINISH GRADE NOT INCLUDED IN THIS CONTRACT.
7. POWER, ELECTRICAL, TELECOMMUNICATIONS AND FIRE PROTECTION WATER SHOWN ON COMPOSITE UTILITY PLANS ARE FOR ILLUSTRATING THE GENERAL ALIGNMENT COORDINATION AND FOR SPECIFIC LOCATION OF LIGHTPOLES. REFER TO ELECTRICAL AND MECHANICAL DRAWINGS FOR THEIR DETAILS. THE LOCATION OF THE LIGHTPOLES AND THE FIRE HYDRANTS TOGETHER DEFINE THE LOCATION AND ORIENTATION OF THE LIGHT POLE FOUNDATIONS. RELOCATE CONFLICTING UTILITIES AS DIRECTED BY THE ENGINEER.
8. MAINTAIN SERVICES DURING DEMOLITION AND CONSTRUCTION OPERATIONS SUCH AS TO MAINTAIN CONTINUOUS PUBLIC SAFETY, ACCESS, DRAINAGE, AND UTILITY SERVICES TO EXISTING FACILITIES REQUIRING THESE SERVICES. NOTIFY THE ENGINEER AT LEAST SEVEN (7) DAYS IN ADVANCE, UNLESS OTHERWISE APPROVED, OF INTERRUPTION OF THESE SERVICES.
9. CONTRACTOR SHALL SEQUENCE WORK SUCH THAT ACCESS TO THE SHIPPERS TRANSPORT EXPRESS (STE) TERMINAL SITE SHALL BE MAINTAINED AT ALL TIMES DURING DEMOLITION AND CONSTRUCTION. CONTRACTOR SHALL CONSTRUCT A NOMINAL 40' WIDE, 3" THICK ACCESS ROAD TO THE TERMINAL OVER FILL AND AGGREGATE BASE LAYERS PLACED UNDER THIS CONTRACT IN ORDER TO MAINTAIN A PAVED ACCESS ROUTE TO THE TERMINAL. ASPHALT BINDER TO BE USED SHALL BE A PG-70-10. AGGREGATE SHALL BE TYPE A 3/4 INCH MAXIMUM SIZE MEDIUM GRADING REQUIREMENT OF SECTION 39 OF THE STATE SPECIFICATIONS. AGGREGATE SHALL BE 100% THE PRODUCT OF CRUSHING OPERATIONS WITH NO NATURAL SAND. MINIMUM STABILOMETER VALUE SHALL BE 40.
10. AS-BUILTS OF THIS AREA AND CONSTRUCTION DOCUMENTS OF ADJACENT PROJECTS MAY BE REVIEWED IN THE PORT OF OAKLAND OFFICE LOCATED AT 530 WATER STREET, OAKLAND, CALIFORNIA.
11. SAFE CONSTRUCTION PRACTICES DURING EXCAVATION INCLUDING PROPER SLOPES AND SHORING ARE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL COMPLY WITH ALL OSHA AND OTHER APPLICABLE SAFETY REGULATIONS. A COPY OF THE SOILS REPORT, COMMENTS ON SHORING AND TEST BORINGS IS AVAILABLE AT THE PORT OF OAKLAND, 530 WATER STREET, OAKLAND, CA 94607.
12. WHERE NEW SUBSURFACE IMPROVEMENTS CROSS EXISTING SUBSTRUCTURES, THE CONTRACTOR SHALL TRENCH WITH EXTREME CAUTION TO LOCATE ALL ACTIVE AND IDLE SUBSTRUCTURES AT THESE CROSSINGS AS DESCRIBED IN THE SPECIFICATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE TO REPAIR ALL ACTIVE UTILITY SUBSTRUCTURES DAMAGED DURING CONSTRUCTION AT NO ADDITIONAL COST TO THE PORT OF OAKLAND.
13. THE CONTRACTOR SHALL NOTE THE PRESENCE OF PG&E POLES AND OVERHEAD POWER LINES WITHIN AND ADJACENT TO THE PROJECT SITE AND SHALL COMPLY WITH ALL OSHA AND OTHER APPLICABLE SAFETY REGULATIONS WHEN WORKING IN THE VICINITY.
14. TRAFFIC DISRUPTION SHALL BE KEPT TO A MINIMUM BY THE CONTRACTOR DURING CONSTRUCTION. ALL LANE CLOSINGS AT ROAD CROSSINGS SHALL BE COORDINATED BEFOREHAND WITH THE ENGINEER.
15. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO INFORM APPLICABLE POLICE, FIRE AND EMERGENCY SERVICE AGENCIES 48 HOURS IN ADVANCE OF PROPOSED LANE OR STREET CLOSURES. TRAFFIC CONTROL SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE "CALTRANS MANUAL OF TRAFFIC CONTROLS".
16. THE CONTRACTOR SHALL SCHEDULE AND COORDINATE WITH THE PORT OF OAKLAND, THE VARIOUS COMPANIES, AND AGENCIES LISTED IN THE SPECIFICATIONS AND IDENTIFIED BY THE ENGINEER DURING CONSTRUCTION WHO MAY BE AFFECTED BY THIS PROJECT. THE CONTRACTOR SHALL OBTAIN ANY NEEDED ENCROACHMENT PERMITS.
17. ANY MONUMENT OR BENCHMARK WHICH IS DISTURBED OR DESTROYED BY THE CONTRACTOR OR HIS SUBCONTRACTORS OR SUPPLIERS, SHALL BE REESTABLISHED AND REPLACED BY A REGISTERED CIVIL ENGINEER OR LICENSED LAND SURVEYOR AT CONTRACTOR'S EXPENSE.
18. PHASE 3B ELECTRICAL CONTRACTOR - CONTRACTOR FOR THIS PROJECT, ELECTRICAL SYSTEM CONSTRUCTION AT THE MARITIME SUPPORT CENTER. IN GENERAL IS RESPONSIBLE FOR PROCUREMENT OF LONG LEAD TIME ELECTRICAL ITEMS SUCH AS SWITCHGEAR EQUIPMENT AND LIGHT POLES AND WILL ACT AS THE ELECTRICAL SUB CONTRACTOR TO THE PHASE 3B GRADING AND PAVING CONTRACTOR FOR ALL ELECTRICAL WORK SHOWN ON THESE PLANS AND AS SPECIFIED. SEE DOCUMENT 400, BID ITEMS, FOR MORE DETAILS.
19. PHASE 3B GRADING AND PAVING CONTRACTOR - CONTRACTOR FOR THE 21 ACRE CONTAINER TERMINAL YARD IMPROVEMENTS PROJECT. IN GENERAL IS RESPONSIBLE FOR FILL OF THE 21 ACRES, LIGHT POLE FOUNDATIONS, ELECTRICAL EQUIPMENT PADS, AND MANAGING THE PHASE 3B ELECTRICAL CONTRACTOR FOR ELECTRICAL WORK SHOWN ON THESE PLANS AND AS SPECIFIED UNDER THE ELECTRICAL SYSTEM CONSTRUCTION AT THE MARITIME SUPPORT CENTER PROJECT.

PRINT DATE: 04-10-06 13:27:26 P:\Active Projects\JONMSC--Port of Oakland MSC Development\CADD\project sheets\5-AA-3956-05.dwg Printed by: yingyeo

W.O.# 104879

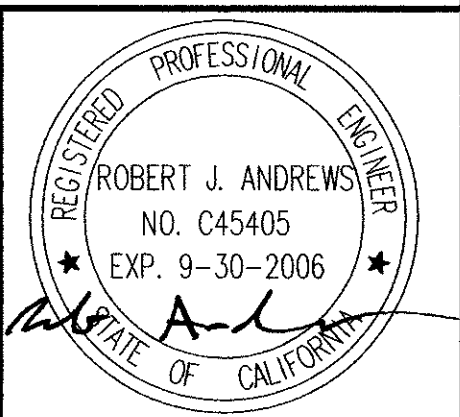
CAUTION: THIS PLAN MAY BE REDUCED  ORIGINAL SCALE

REFERENCES:	NO.	REVISIONS	DATE	REV'D	APP'D
PLANS					
FIELD BOOKS					
"PORT OF OAKLAND DATUM" IS 3.20' BELOW N.G.V.D. '29					
CAUTION: CHECK TRACING FOR LATEST REVISIONS					

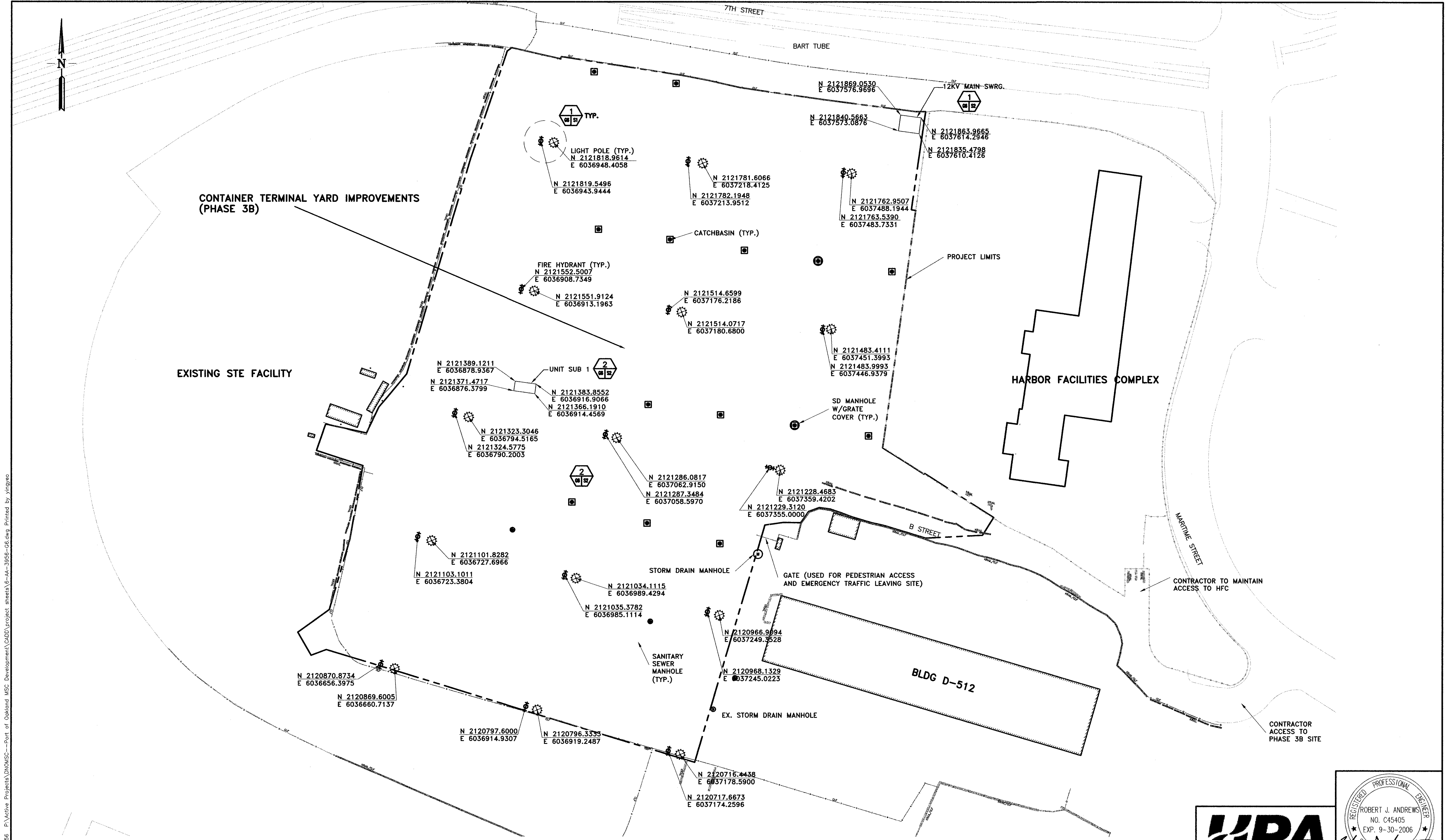
DRAWN _____ STAFF
 DESIGNED _____ REG. ENGINEER NO. _____
 CHECKED _____ REG. ENGINEER NO. _____

PORT OF OAKLAND
 530 WATER ST. OAKLAND, CALIFORNIA

MARITIME SUPPORT CENTER
 CONSTRUCTION OF PHASE 3B CONTAINER TERMINAL YARD IMPROVEMENTS
 GENERAL NOTES



DATE: 3-24-06
 SCALE: NO SCALE
 SHEET: 5 OF 56 SHEETS
 G5 AA-3956



PRINT DATE: 04-10-06 13:36:56 P:\Active Projects\DNOMSC--Port of Oakland MSC Development\CADD\project sheets\6-AA-3956-06.dwg Printed by: yingqeo

W.O.# 104879

REFERENCES:

PLANS
FIELD BOOKS
"PORT OF OAKLAND DATUM" IS 3.20' BELOW N.G.V.D. '29
CAUTION: CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

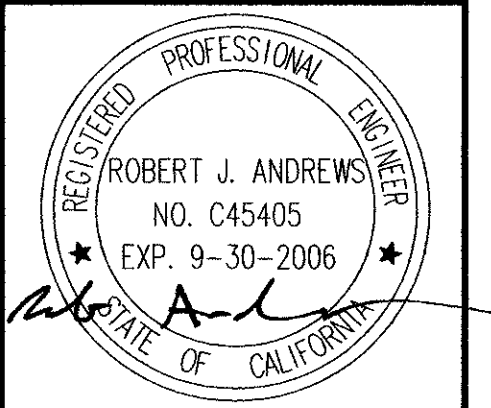
DRAWN	STAFF
DESIGNED	
CHECKED	
	REG. ENGINEER NO.
	REG. ENGINEER NO.

CAUTION: THIS PLAN MAY BE REDUCED ORIGINAL SCALE

PORT OF OAKLAND

 530 WATER ST. OAKLAND, CALIFORNIA

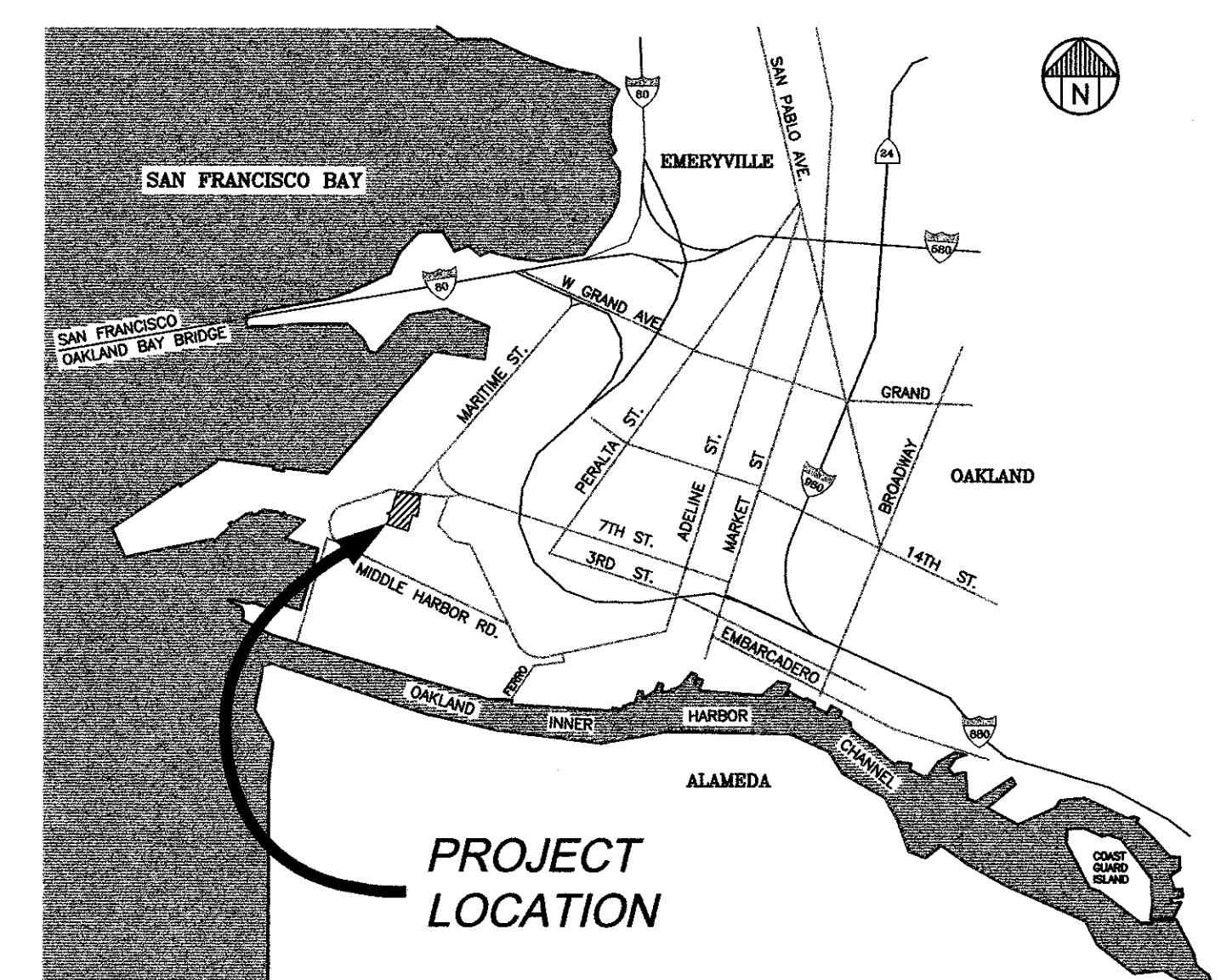
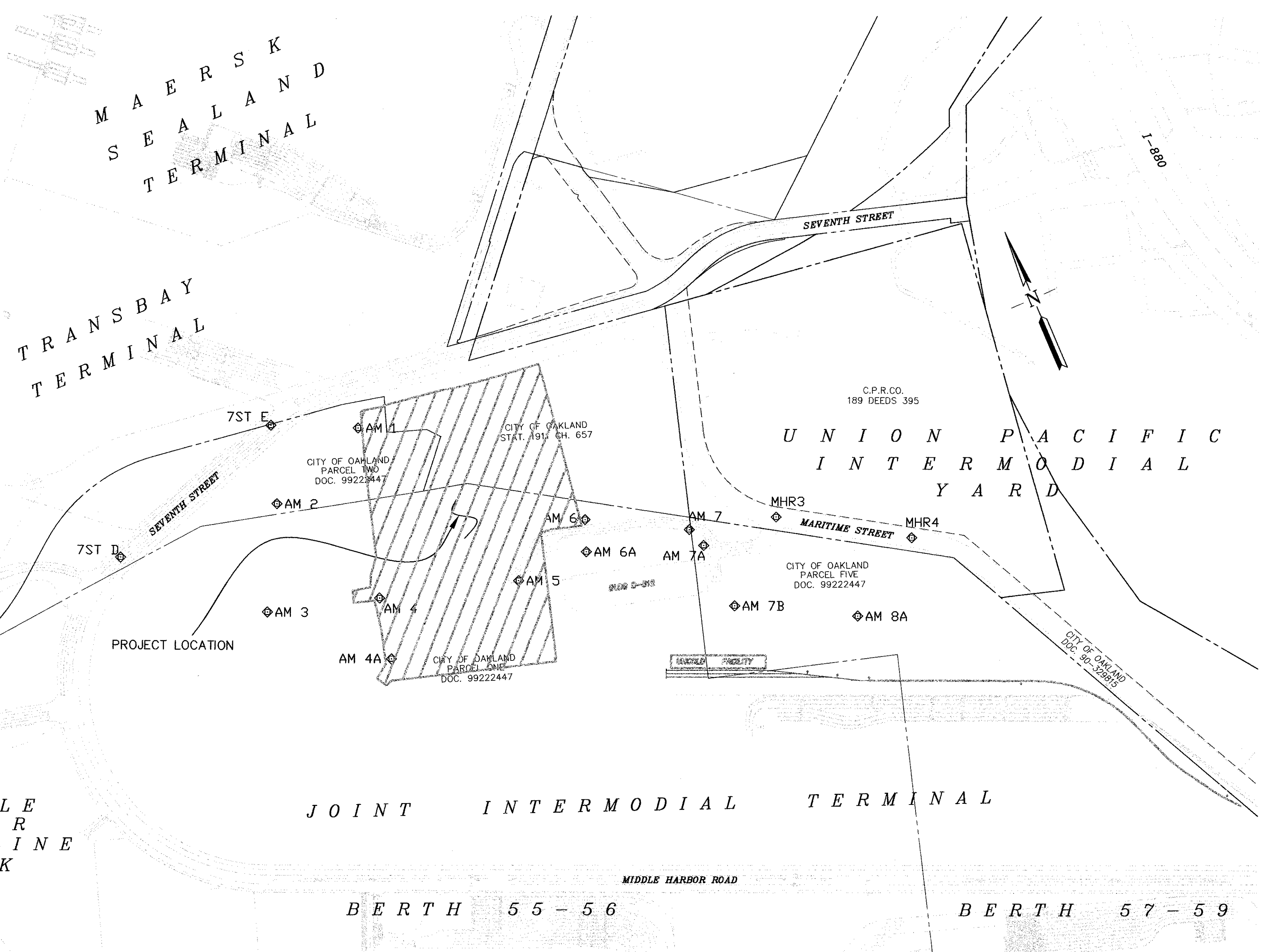
MARITIME SUPPORT CENTER
CONSTRUCTION OF PHASE 3B CONTAINER TERMINAL YARD IMPROVEMENTS
GENERAL SITE PLAN



DATE: 3-24-06
SCALE: 1" = 80'
SHEET: 6 OF 56 SHEETS
G6 AA-3956

Project Survey Control

Pt. No.	North	East	Elev	Name	Description
153	2120888.356	6038290.318	14.70	MHR3	P.O.O. Brass Disk in Mon. Well
154	2120581.714	6038778.438	15.95	MHR4	P.O.O. Brass Disk in Mon. Well
800	2122085.418	6036495.942	---	7ST E	Alloy Spike/Towill Inc. Washer
801	2121826.642	6035696.181	---	7STD	Alloy Spike/Towill Inc. Washer
901	2121929.631	6036827.948	17.10	AM 1	Alloy Spike/Towill Inc. Washer
902	2121772.333	6036388.406	17.97	AM 2	Alloy Spike/Towill Inc. Washer
906	2121370.863	6036170.801	17.84	AM 3	Alloy Spike/Towill Inc. Washer
909	2121237.258	6036626.695	13.77	AM 4	Alloy Spike/Towill Inc. Washer
912	2121071.903	6037191.749	13.45	AM 5	Alloy Spike/Towill Inc. Washer
913	2120986.668	6036573.124	14.22	AM 4A	Alloy Spike/Towill Inc. Washer
916	2121196.625	6037550.026	14.18	AM 6	Alloy Spike/Towill Inc. Washer
919	2120984.014	6037935.069	13.88	AM 7	Alloy Spike/Towill Inc. Washer
920	2121070.058	6037500.823	13.59	AM 6A	Alloy Spike/Towill Inc. Washer
921	2120899.243	6037963.501	13.19	AM 7A	Alloy Spike/Towill Inc. Washer
926	2120615.563	6037982.462	17.07	AM 7B	P.O.O. Brass Disk in Mon. Well
932	2120370.967	6038439.932	17.48	AM 8A	P.O.O. Brass Disk in Mon. Well

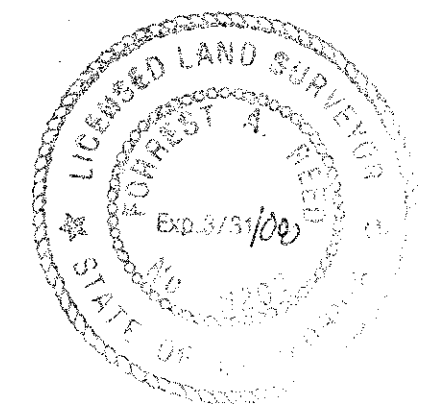


- Legend**
- ◆ PROJECT CONTROL MONUMENT
 - PROPERTY/PARCEL BOUNDARY
 - FACILITY BOUNDARY/PROJECT LIMIT
 - (VESTED OWNER) GRANTEE OF RECORD
 - DOCUMENT REFERENCES:
 - XX O.R. XX BOOK/PAGE OF OFFICIAL RECORDS ALAMEDA COUNTY RECORDS
 - RE: XX IM: XX REEL/IMAGE OF OFFICIAL RECORDS ALAMEDA COUNTY RECORDS
 - S.N. XX-XXXXX SERIES NUMBER OF OFFICIAL RECORDS ALAMEDA COUNTY RECORDS

Port Land Surveyor's Statement

This Survey Control Diagram has been examined by me, or by a Professional Land Surveyor under my direction, pursuant to sec. 8726 of the Business and Professions Code of the State of California. I hereby state that the information shown hereon has been geospatially corrected to the Port Control System, that the existing monumentation shown hereon is a sufficient basis from which the construction lines and grades can be set, and that the monument descriptions are sufficient to allow for recovery and identification by someone who is unfamiliar with the area. I have also examined the associated electronic files for this survey control plan and, to the best of my knowledge, these files accurately represent the same information shown hereon.

Forrest A. Reed
 Forrest A. Reed, L.S. 6207
 Port Land Surveyor
 License expires 3/31/2008



04/11/06
 Date

Notes to Contractor

- The contractor shall employ or engage a Professional Land Surveyor, licensed to practice land surveying in the State of California, competent to practice in the endeavor in which he/she will be engaged, to be in Responsible Charge of all surveying and related layout work which the Contractor is required to perform in order to construct the intended improvements in conformance with design. (Responsible charge requirements pursuant to Code of Regulations, Title 16, Chapter 5, State of California, Section 404.2 "Definition of Responsible Charge for Land Surveyors", and Section 415 "Practice within Area of Competence".)
- The Contractor shall submit a letter from the Professional Land Surveyor or engineer licensed to practice Land Surveying, indicating his/her employment by the Contractor in Responsible Charge. This letter shall be signed by and bear the professional seal of the individual (not the company) engaged in that capacity. This letter shall be submitted to the Engineer prior to the commencement of work along with a copy to the Port Land Surveyor.
- The Contractor, having engaged or employed a Professional Land Surveyor and related support staff, is responsible for survey layout work, defined herein as Contractors Line and Grade. Line and Grade points shall be set from the Construction Control points provided by the Port Land Surveyor (under the direction of the Engineer), and shall also serve as the Contractor's preservation and/or perpetuation of that control. These points shall be set with precision and methods commensurate with the tolerances required by the intended construction.
- The Contractor shall check and verify the internal integrity of the Construction Control to its own satisfaction and shall notify the Engineer of any apparent discrepancy prior to use for layout of line and grade points.
- For other matters relating to Field Survey, see section 01720 of the Project Manual.

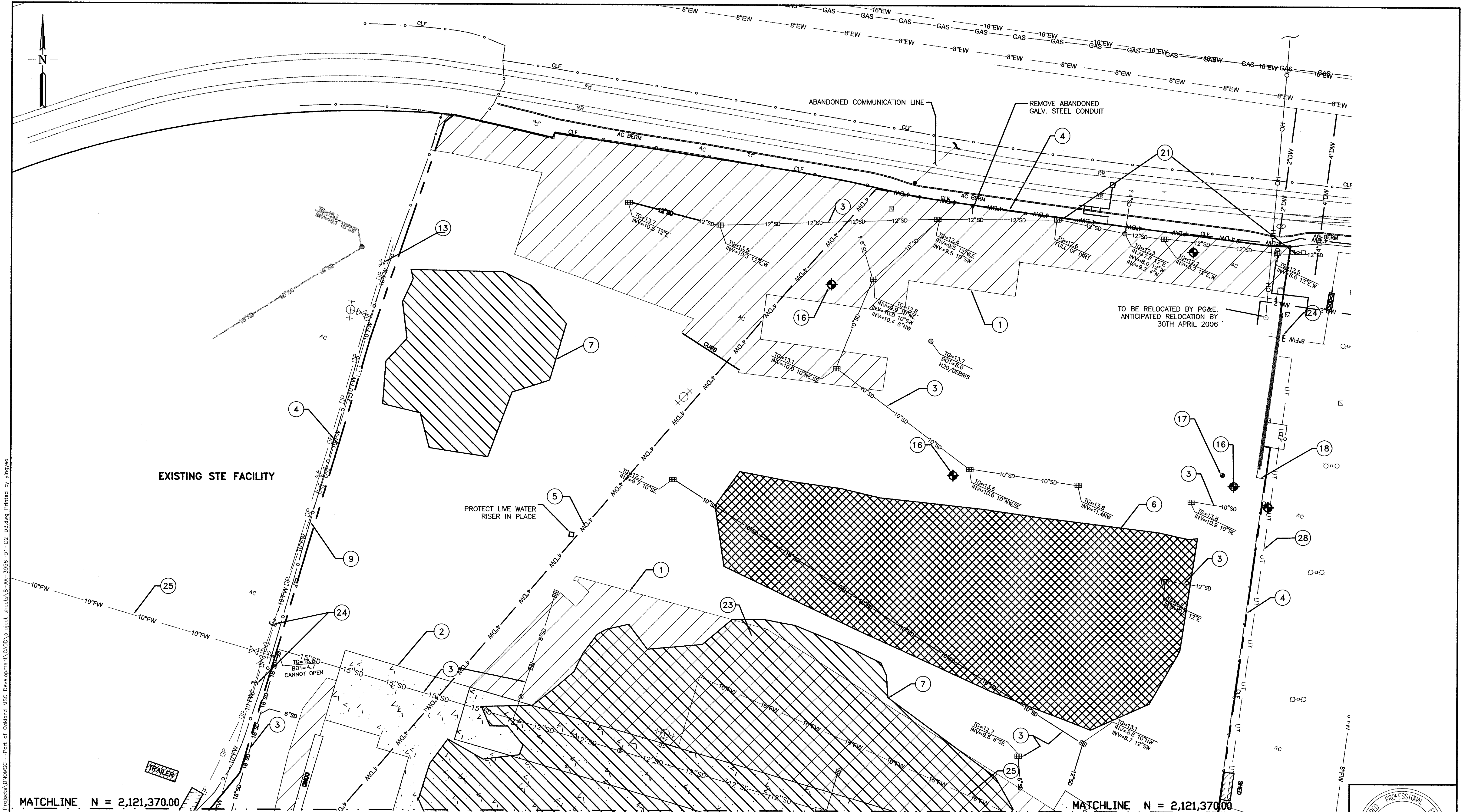
Notes

- THIS PLAN REFLECTS MONUMENTATION DESIGNATED BY THE PORT OF OAKLAND LAND SURVEYS AND MAPPING GROUP TO CONTROL CONSTRUCTION SURVEYS ANTICIPATED IN CONNECTION WITH THIS PROJECT.
- COORDINATES, BEARINGS, AND DISTANCES SHOWN ON THIS PLAN ARE BASED UPON CALIFORNIA COORDINATE SYSTEM OF 1983, ZONE III "1986 ADJUSTMENT" AS SHOWN UPON RECORD OF SURVEY 990, FILED IN BOOK 18 OF RECORD OF SURVEYS, PAGES 50-60, ALAMEDA COUNTY RECORDS. ALL DISTANCES SHOWN ON THIS PLAN ARE GRID DISTANCES, GIVEN IN U.S. SURVEY FEET. MULTIPLY DISTANCES SHOWN BY 1.0000705 TO OBTAIN GROUND LEVEL DISTANCES.
- ALL ELEVATIONS SHOWN ON THIS PLAN ARE BASED UPON PORT OF OAKLAND VERTICAL DATUM, GIVEN IN U.S. SURVEY FEET.

CAUTION: THIS PLAN MAY BE REDUCED
 0 1" 2" ORIGINAL SCALE

REFERENCES: PLANS FIELD BOOKS "PORT OF OAKLAND DATUM" IS 3.20' BELOW MEAN SEA LEVEL. CAUTION: CHECK TRACING FOR LATEST REVISIONS	REVISIONS NO. DATE APP'D		REVIEWED _____ REVIEWED _____ REVIEWED _____ VISION 2000 PROJECT ENGINEER	DRAWN _____ DESIGNED _____ CHECKED _____ REVIEWED _____ REG. ENGINEER NO. _____ REG. ENGINEER NO. _____ REG. ENGINEER NO. _____	PORT OF OAKLAND 530 WATER ST. OAKLAND, CALIFORNIA	MARITIME SUPPORT CENTER DATE: 3-24-06
	CONSTRUCTION OF PHASE 3B CONTAINER TERMINAL YARD IMPROVEMENTS		SURVEY CONTROL PLAN G7 AA-3956	SCALE: 1" = 300' SHEET: 7 OF 56 SHEETS		

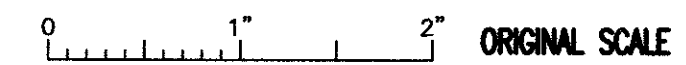
W.O.#104879



PRINT DATE: 04-12-06 14:22:55 P:\Active Projects\UNCOMSEC--Port of Oakland MSC Development\CADD\project sheets\8-AA-3956-D1-D2-D3.dwg Printed by yingyao
 W.O.# 104879

NOTE:
REFER TO DRAWING D3 FOR KEY NOTES, GENERAL NOTES, AND LEGEND.

CAUTION: THIS PLAN MAY BE REDUCED



REFERENCES:
PLANS
FIELD BOOKS
"PORT OF OAKLAND DATUM"
IS 3.20' BELOW N.G.V.D. '29
CAUTION:
CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

DRAWN _____ STAFF
 DESIGNED _____
 CHECKED _____
 REG. ENGINEER NO. _____
 REG. ENGINEER NO. _____

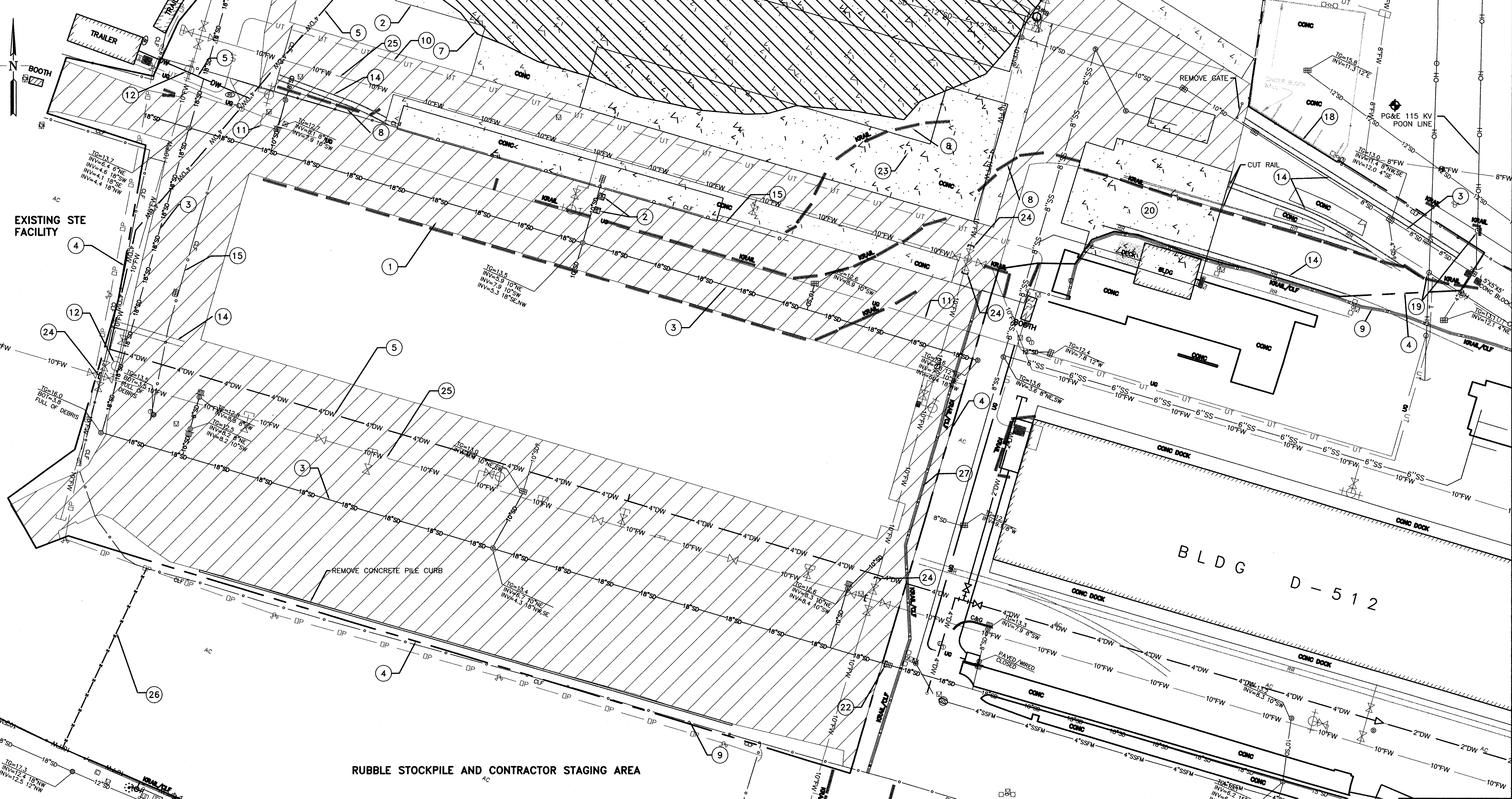
PORT OF OAKLAND
 530 WATER ST. OAKLAND, CALIFORNIA

MARITIME SUPPORT CENTER
 CONSTRUCTION OF PHASE 3B CONTAINER
 TERMINAL YARD IMPROVEMENTS
 DEMOLITION AND SITE PREPARATION SHEET 1 OF 2

DATE: 3-24-06
 SCALE: 1" = 40'
 SHEET: 8 OF 56 SHEETS
 D1 AA-3956

MATCHLINE N = 2,121,370.00

MATCHLINE N = 2,121,370.00



NOTE:
REFER TO DRAWING D3 FOR KEY NOTES, GENERAL NOTES, AND LEGEND.

CAUTION: THIS PLAN MAY BE REDUCED ORIGINAL SCALE

W.O.# 104879

REFERENCES:
PLANS
FIELD BOOKS
"PORT OF OAKLAND DATUM"
IS 3.20' BELOW N.G.V.D. '29
CAUTION:
CHECK TRACING FOR LATEST REVISIONS

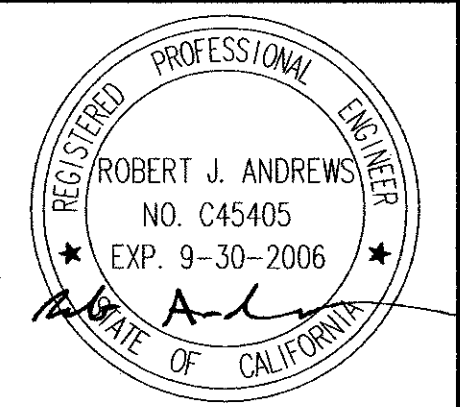
NO.	REVISIONS	DATE	REV'D	APP'D

DRAWN _____ STAFF
DESIGNED _____ REG. ENGINEER NO. _____
CHECKED _____ REG. ENGINEER NO. _____

PORT OF OAKLAND
530 WATER ST. OAKLAND, CALIFORNIA

MARITIME SUPPORT CENTER
CONSTRUCTION OF PHASE 3B CONTAINER
TERMINAL YARD IMPROVEMENTS
DEMOLITION AND SITE PREPARATION SHEET 2 OF 2

DATE: 3-24-06
SCALE: 1" = 40'
SHEET: 9 OF 18 SHEETS
D2 AA-3956

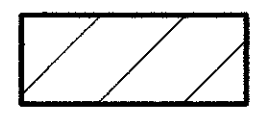
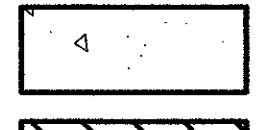




PRINT DATE 04-12-06 14:22:21 P:\Active Projects\DMO\SC-Port of Oakland MSC Development\CADD\project sheets\B-AA-3956-D1-D2-D3.dwg Printed by yingqiao

KEY NOTES:

- 1 AC PAVEMENT - REMOVE AND REDUCE TO MAX. 2' DIMENSION AND STOCKPILE AS DIRECTED BY THE ENGINEER. SEE SHT D2 FOR APPROXIMATE LOCATION OF STOCKPILE.
- 2 PCC SLAB - REMOVE AND CRUSH TO MAX. 2' ANY DIMENSION AND CUT OFF ANY EXPOSED REBAR. STOCKPILE AS DIRECTED BY THE ENGINEER.
- 3 DEMO EX. STORM DRAIN SYSTEM.
- 4 PROJECT LIMITS.
- 5 PROTECT EX. DW IN-PLACE.
- 6 APPROXIMATE LOCATION OF AGGREGATE BASE STOCKPILE.
- 7 APPROXIMATE LOCATION OF SOIL STOCKPILE FOR USE AS ENGINEERED FILL.
- 8 RELOCATE K-RAIL AS DIRECTED BY THE ENGINEER.
- 9 PROTECT EX. FENCE IN PLACE.
- 10 PROTECT EX. TELECOMMUNICATIONS CONDUITS, CABLE, VAULTS IN PLACE UNTIL REPLACEMENT SERVICE IS IN PLACE AND OPERATIONAL.
- 11 PROTECT EX. ELECTRICAL SERVICE SYSTEM TO SHIPPERS TRANSPORT EXPRESS TRAILERS UNTIL REPLACEMENT SYSTEM IS INSTALLED AND OPERATIONAL.
- 12 REMOVE EXISTING FIRE HYDRANTS WITHIN PROJECT LIMITS.
- 13 PROTECT EX. OVERHEAD ELECTRICAL AND LIGHT POLES ADJACENT TO PROJECT LIMITS.
- 14 REMOVE RAILROAD TRACK, TIES AND ALL APPURTENANT HARDWARE.
- 15 REMOVE AND DISPOSE OF CHAIN LINK FENCE. REMOVE ALL CONCRETE FENCE POST FOOTINGS.
- 16 PROTECT GROUNDWATER MONITORING WELL IN PLACE AND RAISE VAULT TO FINISH GRADE.
- 17 PROTECT GROUNDWATER EXTRACTION WELL IN PLACE AND RAISE VAULT TO FINISH GRADE.
- 18 REMOVE EXISTING CHAIN LINK FENCE ALONG EASTERN BOUNDARY WITH HARBOR FACILITIES COMPLEX (HFC). DELIVER ALL MATERIAL TO THE PORT. PROTECT IN PLACE ADJACENT FENCE ON HFC SITE. COORDINATE REMOVAL WITH PORT FACILITIES STAFF.
- 19 PROTECT HIGH VOLTAGE LINES, POLES AND GUY WIRES IN-PLACE.
- 20 BUILDING SLAB TO REMAIN.
- 21 PROTECT EXISTING CATCH BASINS AND STORM DRAIN PIPES IN PLACE.
- 22 CUT EX. STORM DRAIN LINE.
- 23 POSSIBLE LOCATIONS OF ONE 2,000 AND ONE 2,500 GALLON UNDERGROUND WASTE OIL TANK FILLED WITH SAND. EXACT LOCATIONS ARE UNKNOWN. NOTIFY ENGINEER IF UNDERGROUND TANKS ARE ENCOUNTERED.
- 24 CUT AND CAP EX. FIRE WATER LINE.
- 25 DEMO EX. FIRE WATER LINE.
- 26 INSTALL TEMPORARY SECURITY FENCE TO SECURE SITE DURING THE WORK. EXACT LOCATION WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
- 27 RELOCATE EX. FENCE ON KRAIL 5' EAST OF PROJECT LIMITS.
- 28 PROTECT EX. UNDERGROUND TELECOMMUNICATION CONDUITS, CABLE IN PLACE.

LEGEND:

-  ASPHALT CONCRETE
-  PORTLAND CEMENT CONCRETE
-  ENGINEERED FILL MATERIAL
-  PORT-SUPPLIED AGGREGATE BASE

GENERAL NOTES:

1. STOCKPILE CONCRETE AND ASPHALT CONCRETE RUBBLE AND OTHER MATERIALS ONLY WHERE APPROVED BY THE ENGINEER. DAMAGE DUE TO DIFFERENTIAL SUBSIDENCE, HEAVING OR PAVEMENT SURFACE DAMAGE RESULTING FROM UNAUTHORIZED STOCKPILING SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE. STOCKPILE LOCATION IS WITHIN 2 MILES OF THE PROJECT SITE.
2. COMPLETELY CLEAR THE SITE OF ALL SURFACE IMPROVEMENTS AND DEBRIS (UNLESS OTHERWISE NOTED) INCLUDING BUT NOT NECESSARILY LIMITED TO FOUNDATIONS, CURBS, WALKS, IRRIGATION SYSTEMS, FENCES, GUARD POSTS, BOLLARDS, UTILITY AND LIGHTING FACILITIES, WATER SYSTEMS, PAVEMENTS, PAVED APRONS, SIGNS, WALLS, AND DELETERIOUS AND EXTRANEOUS MATERIALS.
3. BACKFILL ALL HOLES AND DEPRESSIONS AND COMPACT TO 95% MINIMUM RELATIVE DENSITY IN ACCORDANCE WITH ASTM D1557-78.
4. DO NOT COVER OR BACKFILL PLUGGED UTILITIES TO BE ABANDONED UNTIL INSPECTED AND APPROVED BY THE ENGINEER.
5. USE LEAN CONCRETE TO PLUG OR CAP PIPES OR OPENINGS WHERE NOTED, UNLESS OTHERWISE DIRECTED BY THE ENGINEER. PLUG OR CAP ENDS OF PIPES FOR AT LEAST 5'.
6. PRIOR TO COMMENCING DEMOLITION WORK, VERIFY THAT ALL AFFECTED UTILITIES HAVE BEEN DECOMMISSIONED.

BUILDING SLAB, SANITARY SEWER AND STORM DRAIN DEMOLITION

1. REMOVE ALL DEBRIS, CONCRETE BUILDING SLABS, ASPHALT CONCRETE, CONCRETE AND ALL OTHER PAVEMENTS AND APRONS INCLUDING FOUNDATIONS, FOOTINGS AND CURBS, UNLESS OTHERWISE NOTED.
2. REMOVE MANHOLE CONES AND WALLS AND BREAK BOTTOM SLAB SUCH THAT THE STRUCTURE WILL BE FREE-DRAINING, AND BACKFILL VOID WITH ENGINEERED FILL, COMPACT TO 95% MINIMUM RELATIVE DENSITY IN ACCORDANCE WITH ASTM D1557-78.
3. PLUG ALL ENDS OF PIPES AND OPENINGS AT REMAINING MANHOLES AND STRUCTURES FOR A MINIMUM DISTANCE OF 5' WITH LEAN CONCRETE.
4. REMOVE CLEANOUT BOXES AND INLETS. REMOVE PIPELINES, RISER PIPES, AND OTHER STRUCTURES LOCATED WITHIN 4' OF TOP OF SUBGRADE. CUT RISERS AND PLUG. BACKFILL WITH ENGINEERED FILL AND COMPACT TO 95% MINIMUM RELATIVE DENSITY IN ACCORDANCE WITH ASTM D1557-78.
5. FOR PIPES 10" DIAMETER AND OVER PLUG ENDS AND FILL WITH LEAN CONCRETE. FOR PIPES LESS THAN 10" IN DIAMETER, PLUG ENDS FOR A MINIMUM DISTANCE OF 5'.

ELECTRICAL AND TELEPHONE SYSTEM DEMOLITION

1. DISCONNECT EXISTING CABLES FROM EQUIPMENT. REMOVE ALL ELECTRICAL EQUIPMENT WITHIN PROJECT LIMITS AND DELIVER TO THE PORT.
2. REMOVE ALL EXISTING ELECTRICAL MANHOLES, PULLBOXES, CONDUITS, WIRE, CABLE, EQUIPMENT AND FACILITIES UNLESS OTHERWISE NOTED, DOWN TO BASE SLAB.
3. REMOVE ALL EXISTING WIRE AND CABLES FROM EQUIPMENT TO MANHOLES. REMOVE ALL WIRE AND CABLE IN AND BETWEEN MANHOLES AND PULLBOXES WITHIN PROJECT LIMITS TO THE NEXT MANHOLE OR PULLBOX JUST OUTSIDE THE PROJECT LIMITS. REMOVE TOP SLABS, ANY OVERHANGING SECTIONS, AND WALLS OF ALL MANHOLES AND PULLBOXES REGARDLESS OF ELEVATION. BREAK UP BOTTOM SLABS. BACKFILL REMAINING VOIDS WITH ENGINEERED FILL COMPACTED TO 95% MINIMUM RELATIVE DENSITY IN ACCORDANCE WITH ASTM D1557-78.
4. PLUG ENDS AND FILL CONDUITS 6" DIAMETER AND OVER WITH LEAN CONCRETE. PLUG ENDS OF CONDUIT LESS THAN 6" IN DIAMETER WITH LEAN CONCRETE FOR A MINIMUM LENGTH OF 5'.

WATER SYSTEM DEMOLITION

1. REMOVE ALL VALVES, FIRE HYDRANTS, PIPE RISERS AND BOXES. CAP REMAINING OPENINGS AT MAINS UNLESS SHOWN OTHERWISE.
2. REMOVE PIPES AT DEPTHS OF LESS THAN 4' BELOW SUBGRADE ELEVATION.
3. PLUG ENDS AND FILL ALL PIPES 10" DIAMETER OR LARGER WITH LEAN CONCRETE.
4. PLUG ENDS OF PIPES LESS THAN 10" DIAMETER WITH LEAN CONCRETE FOR A MINIMUM DISTANCE OF 5'.

PRINT DATE 04-10-06 15:30:28 P:\Active Projects\DNOS\SC-Port of Oakland MSC Development\CADD\project sheets\B-AA-3956-D1-D2-D3.dwg Printed by yingyeo

W.O.# 104879

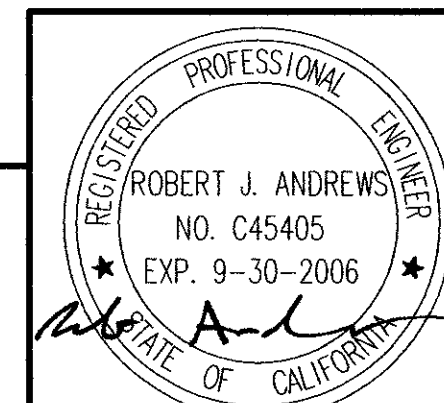
REFERENCES:	NO.	REVISIONS	DATE	REV'D	APP'D
PLANS					
FIELD BOOKS					
"PORT OF OAKLAND DATUM" IS 3.20" BELOW N.G.V.D. '29					
CAUTION: CHECK TRACING FOR LATEST REVISIONS					

DRAWN	STAFF
DESIGNED	REG. ENGINEER NO.
CHECKED	REG. ENGINEER NO.

CAUTION: THIS PLAN MAY BE REDUCED

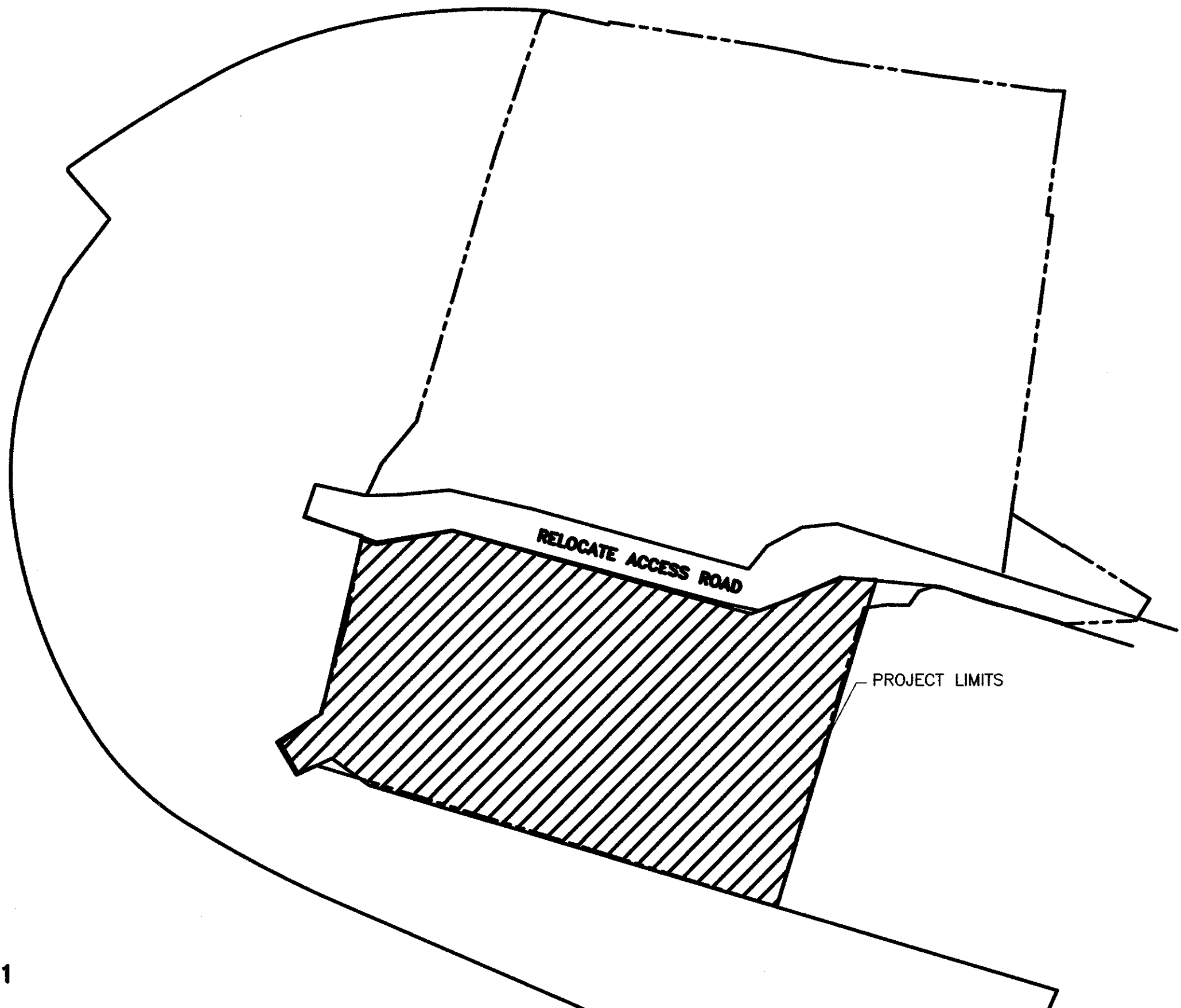
0 1 2 ORIGINAL SCALE

PORT OF OAKLAND
530 WATER ST. OAKLAND, CALIFORNIA

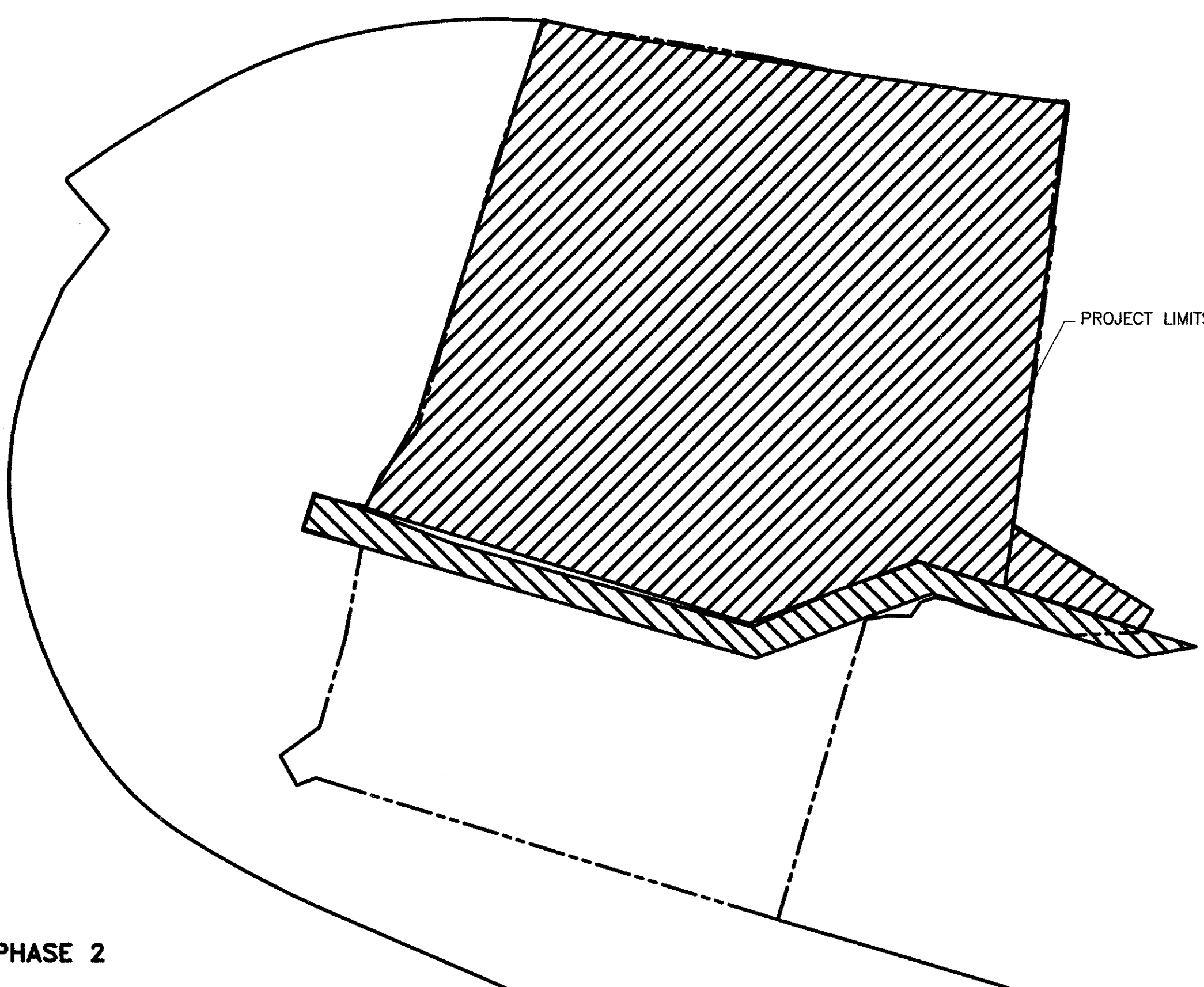


MARITIME SUPPORT CENTER	DATE: 3-24-06
CONSTRUCTION OF PHASE 3B CONTAINER TERMINAL YARD IMPROVEMENTS	SCALE: NO SCALE
DEMOLITION AND SITE PREPARATION DETAILS	SHEET: 10 OF 56 SHEETS
D3	AA-3956

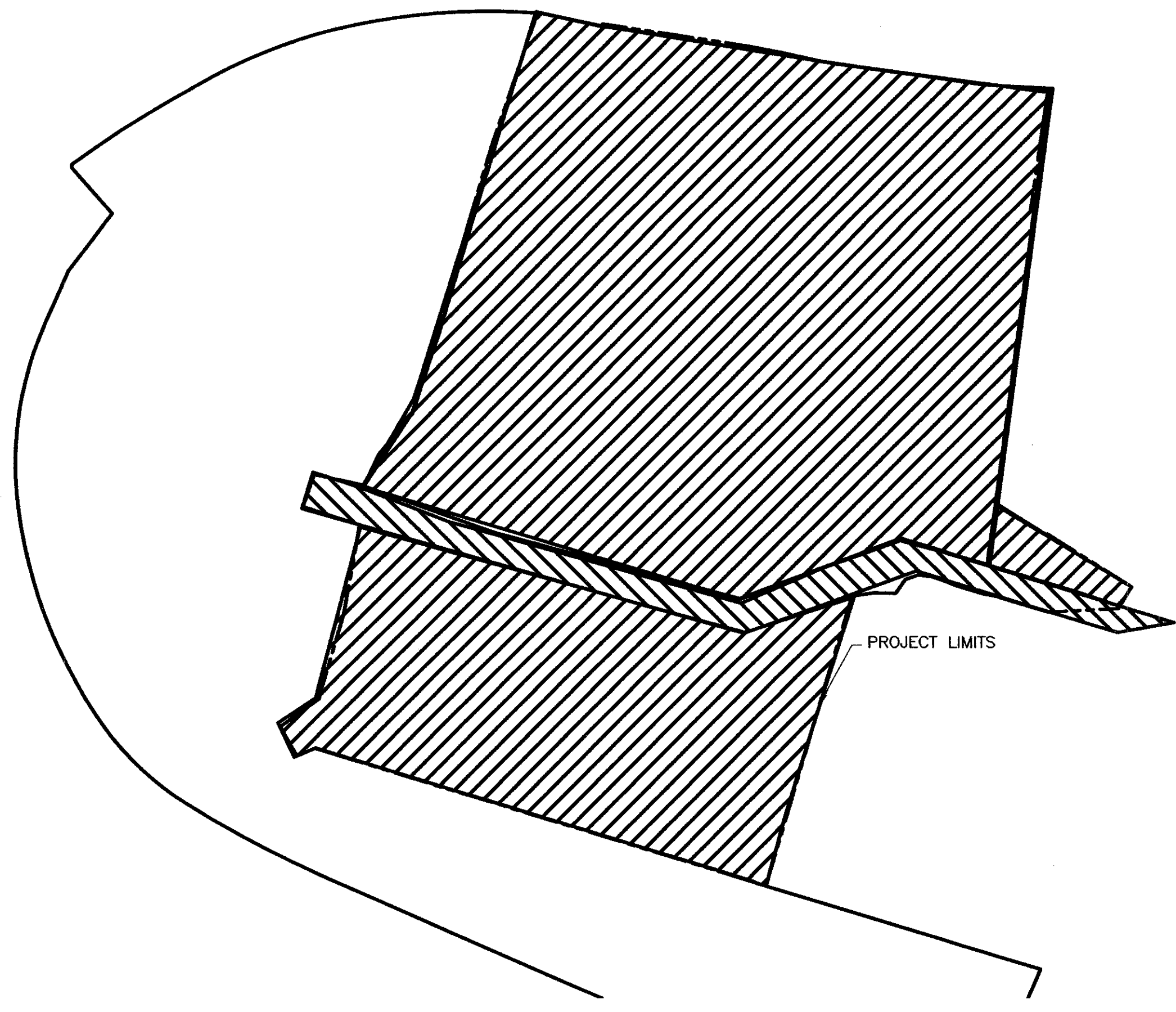
P:\Active Projects\DNOMSC--Port of Oakland MSC Development\CADD\project sheets\11-AA-3956-D4.dwg Printed by yingyao
 PRINT DATE 04-10-06 13:51:43



PHASE 1



PHASE 2



PHASE 3

NOTES:

PHASES SHOWN ARE ILLUSTRATIVE ONLY. CONTRACTOR SHALL SUBMIT A DETAILED PHASING PLAN TO THE PORT FOR APPROVAL PRIOR TO COMMENCING WORK. CONTRACTOR SHALL PROVIDE AND MAINTAIN A PAVED ACCESS ROUTE TO THE EXISTING STE TERMINAL AT ALL TIMES THROUGHOUT CONSTRUCTION.

PHASE 1

1. RELOCATE SITE ACCESS ROUTE USING EXISTING K-RAIL AND PAVEMENT.
2. COMPLETE SITE PREPARATION ON SOUTHERN HALF OF THE SITE.
3. PLACE FILL AND AGGREGATE AND GRADE SOUTHERN HALF OF SITE.

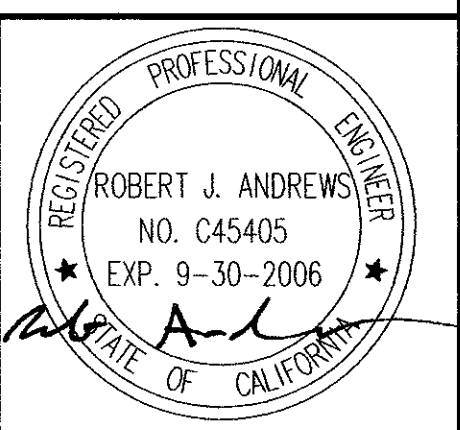
PHASE 2

1. PROVIDE INTERIM ACCESS ROUTE TO STE TERMINAL AT NORTHERN EDGE OF SOUTHERN HALF OF SITE (ON GRADES DEVELOPED DURING PHASE 1). SEE GENERAL NOTES (SHT G6) FOR DETAILS.
2. COMPLETE SITE PREPARATION ON NORTHERN HALF OF THE SITE.
3. PLACE FILL AND AGGREGATE AND GRADE NORTHERN HALF OF THE SITE.

PHASE 3

1. COMPLETE DEVELOPMENT OF THE ENTIRE PROJECT SITE.

CAUTION: THIS PLAN MAY BE REDUCED ORIGINAL SCALE



W.O.# 104879

REFERENCES:
 PLANS
 FIELD BOOKS
 "PORT OF OAKLAND DATUM"
 IS 3.20' BELOW N.G.V.D. '29
 CAUTION:
 CHECK TRACING FOR LATEST REVISIONS

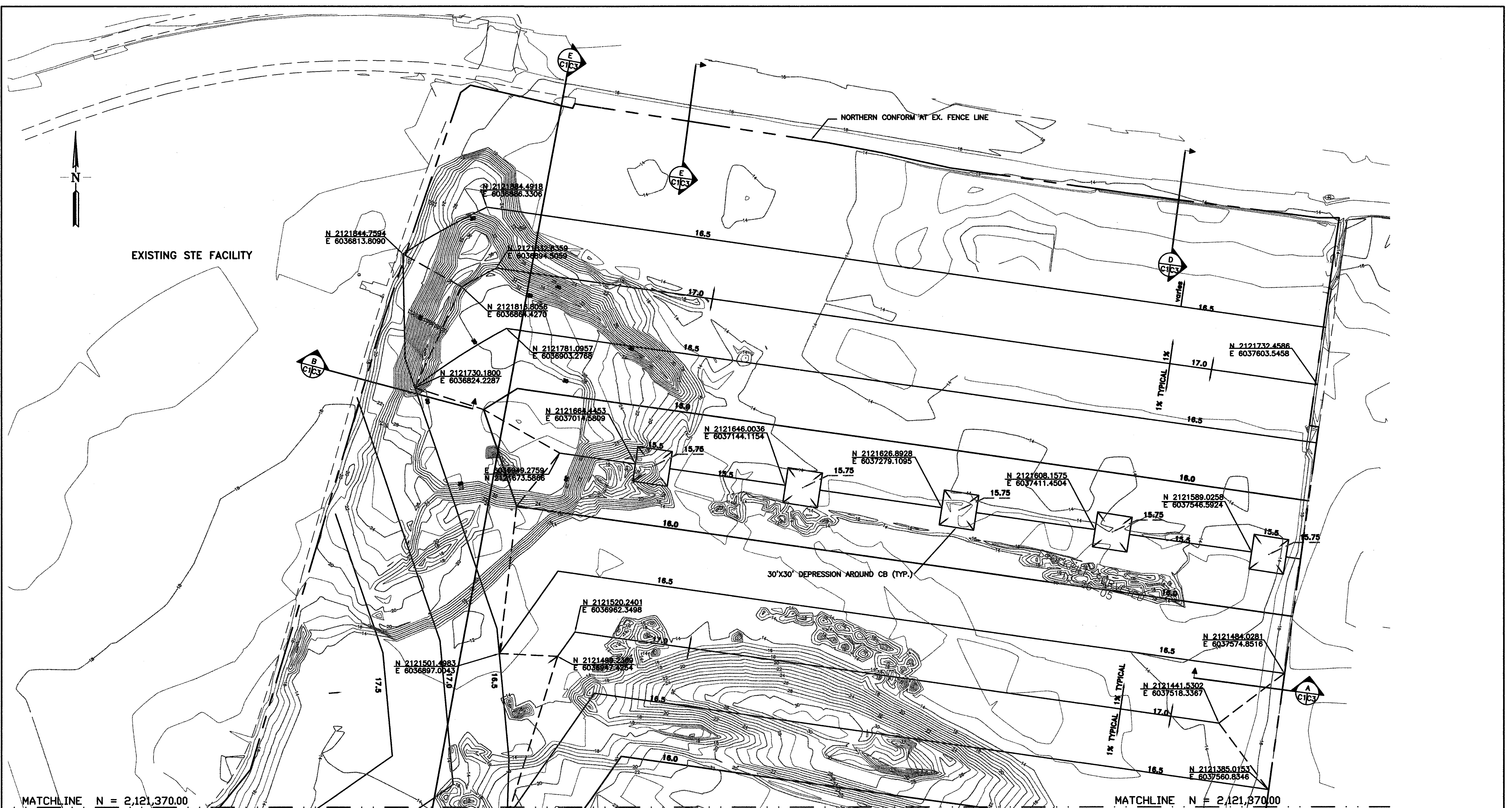
NO.	REVISIONS	DATE	REV'D	APP'D

DRAWN _____ STAFF
 DESIGNED _____ REG. ENGINEER NO.
 CHECKED _____ REG. ENGINEER NO.

PORT OF OAKLAND
 530 WATER ST. OAKLAND, CALIFORNIA

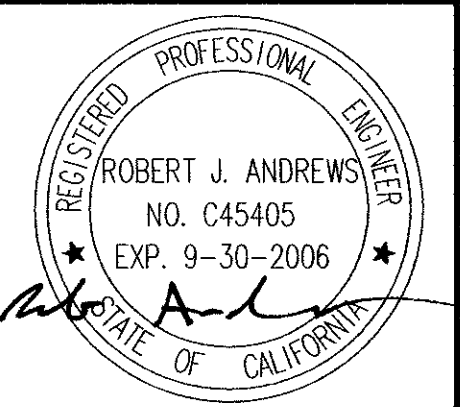
MARITIME SUPPORT CENTER
CONSTRUCTION OF PHASE 3B CONTAINER TERMINAL YARD IMPROVEMENTS
 COSTRUCTION PHASING AND SEQUENCING

DATE: 3-24-06
 SCALE: 1" = 160'
 SHEET: 11 OF 56 SHEETS
D4 AA-3956



NOTES:
 1. SITE SURVEY COMPLETED OCTOBER 26 AND 27, 2005.

CAUTION: THIS PLAN MAY BE REDUCED ORIGINAL SCALE



W.O.# 104879
 REFERENCES:
 PLANS
 FIELD BOOKS
 "PORT OF OAKLAND DATUM"
 IS 3.20' BELOW N.G.V.D. '29
 CAUTION:
 CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

DRAWN _____ STAFF
 DESIGNED _____
 CHECKED _____

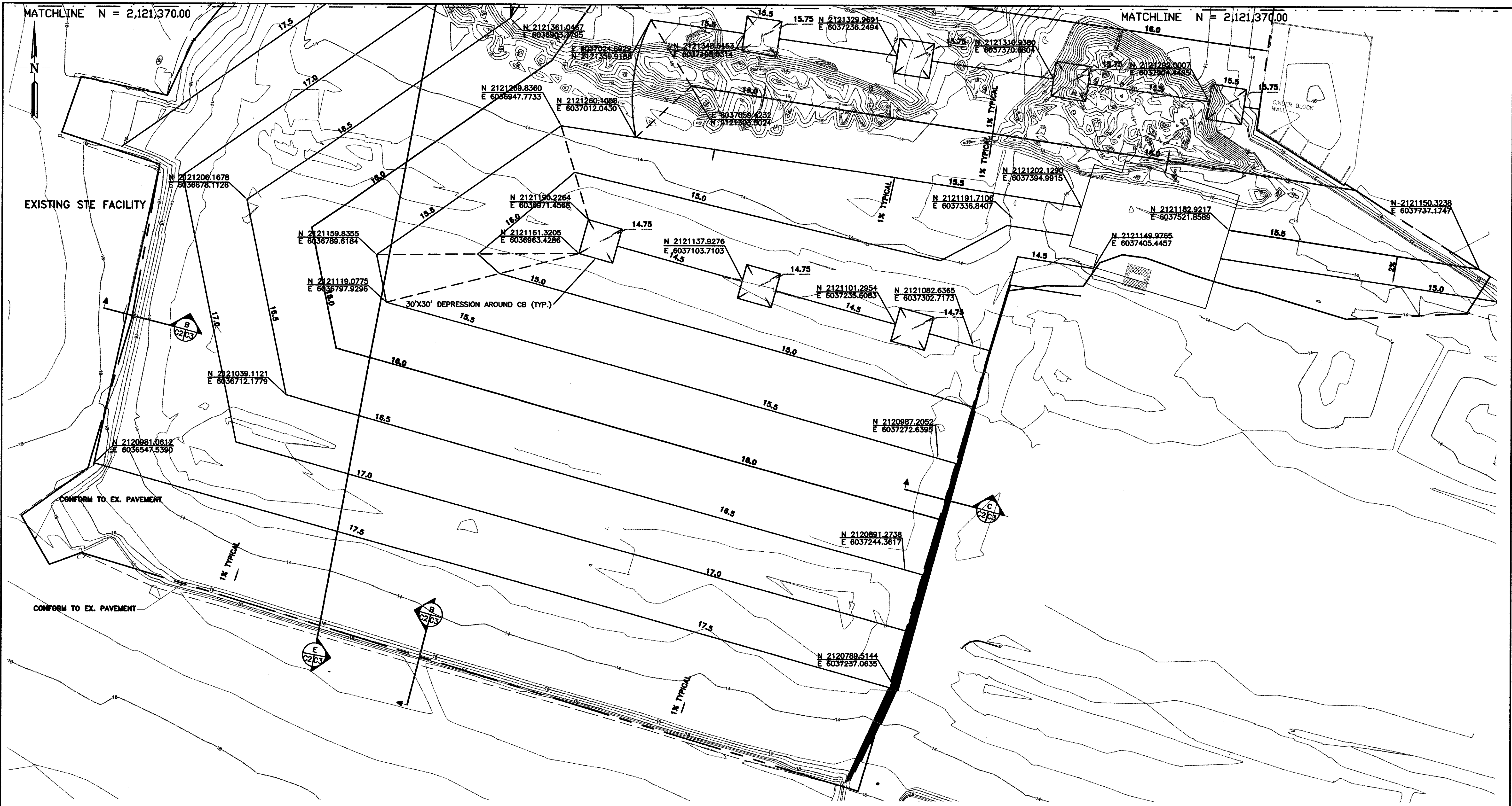
REG. ENGINEER NO. _____
 REG. ENGINEER NO. _____

PORT OF OAKLAND
 530 WATER ST. OAKLAND, CALIFORNIA

MARITIME SUPPORT CENTER
 CONSTRUCTION OF PHASE 3B CONTAINER
 TERMINAL YARD IMPROVEMENTS
 GRADING PLAN SHEET 1 OF 2

DATE: 3-24-06
 SCALE: 1" = 40'
 SHEET: 12 OF 56 SHEETS
 C1 AA-3956

PRINT DATE: 04-10-06 13:52:37 P:\Active Projects\DKM\SC-Port of Oakland MSC Development\CADD\Project sheets\12-AA-3956-C1-C2.dwg Printed by yinyue



NOTES:
 1. SITE SURVEY COMPLETED OCTOBER 26 AND 27, 2005.

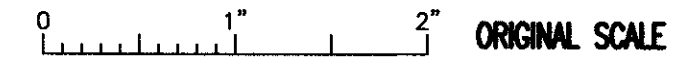
W.O.# 104879

REFERENCES:
 PLANS
 FIELD BOOKS
 "PORT OF OAKLAND DATUM"
 IS 3.20' BELOW N.G.V.D. '29
 CAUTION:
 CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

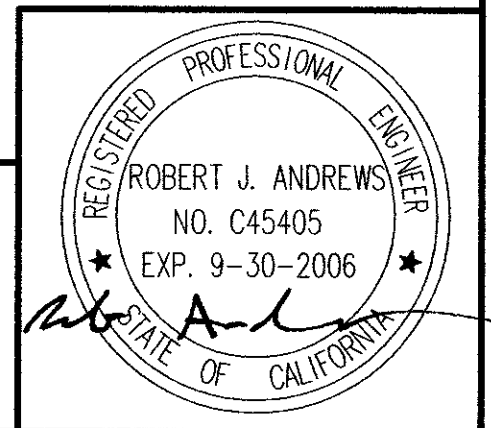
DRAWN _____ STAFF
 DESIGNED _____
 CHECKED _____
 REG. ENGINEER NO. _____
 REG. ENGINEER NO. _____

CAUTION: THIS PLAN MAY BE REDUCED



PORT OF OAKLAND
 530 WATER ST. OAKLAND, CALIFORNIA

MARITIME SUPPORT FACILITIES
 CONSTRUCTION OF PHASE 3B CONTAINER
 TERMINAL YARD IMPROVMENTS
 GRADING PLAN SHEET 2 OF 2

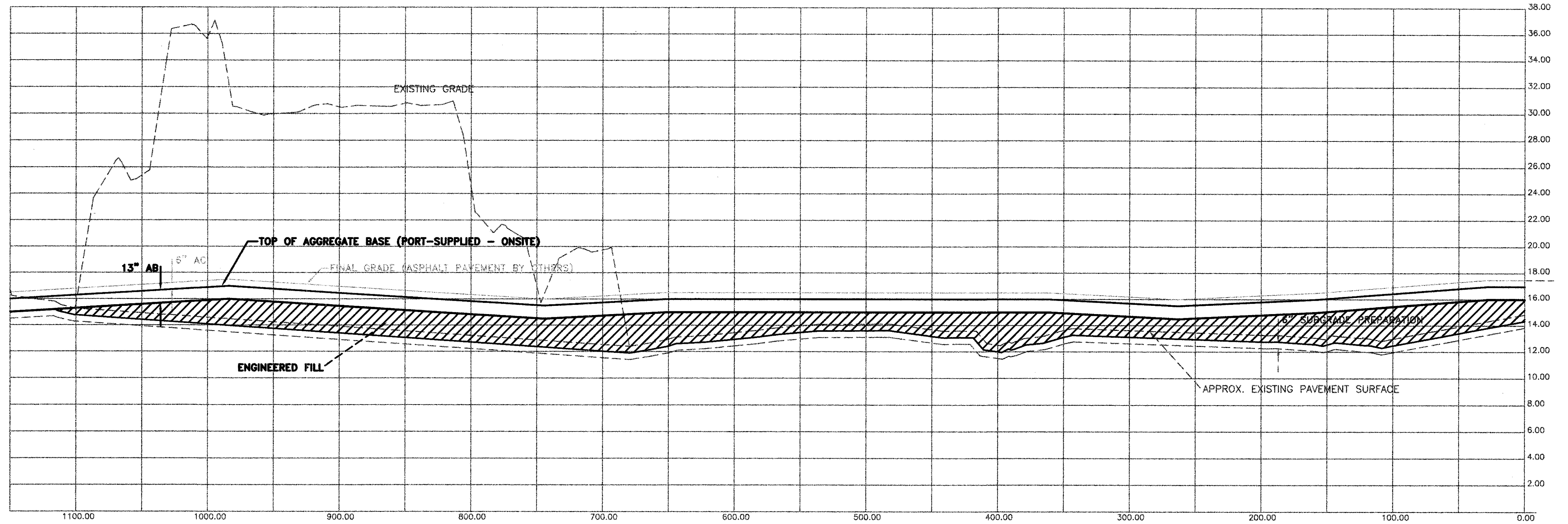


DATE: 3-24-06
 SCALE: 1" = 40'
 SHEET: 13 OF 56 SHEETS
 C2 AA-3956

PRINT DATE: 04-10-08 13:52:33 P:\Active Projects\DNM\SC-Port of Oakland MSC Development\CADD\project sheets\12-AK-3956-C1-C2.dwg Printed by yingyee

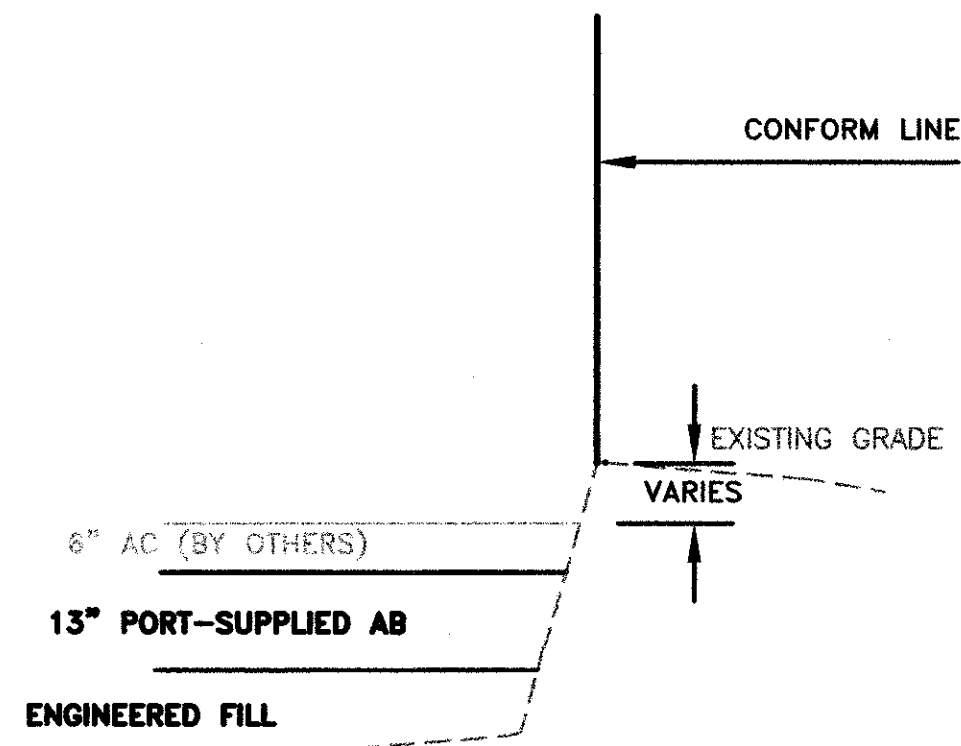
NOTES:

1. REMOVE SURFACE VEGETATION, DELETERIOUS MATERIALS AND ORGANIC-LADEN SOIL TO 6" MIN. BELOW EXISTING GRADE.
2. REMOVE EXISTING ASPHALT PAVEMENT AND PORTLAND CEMENT CONCRETE SLABS AND PAVEMENT. MOISTURE-CONDITION AND COMPACT TOP 6" OF SUBGRADE TO 95% RELATIVE COMPACTION PER ASTM D1557-78.
3. PLACE ENGINEERED FILL AS DESCRIBED IN THE SPECIFICATIONS.
4. PLACE 13" PORT-SUPPLIED AGGREGATE BASE FROM ON SITE STOCKPILE. COMPACT TO 98% RELATIVE COMPACTION PER ASTM D1557-78.
5. UTILIZE ON SITE SOIL FOR ENGINEERED FILL. APPROXIMATE LOCATION AS SHOWN ON SHEET D1.
6. ASPHALT PAVEMENT (BY OTHERS) TO BE PLACED UNDER SEPARATE CONTRACT (PHASE 3C) FOLLOWING GRADING WORK TO BE COMPLETED UNDER THIS CONTRACT.
7. CONTRACTOR TO COORDINATE WITH PHASE 3C PAVING CONTRACTOR.

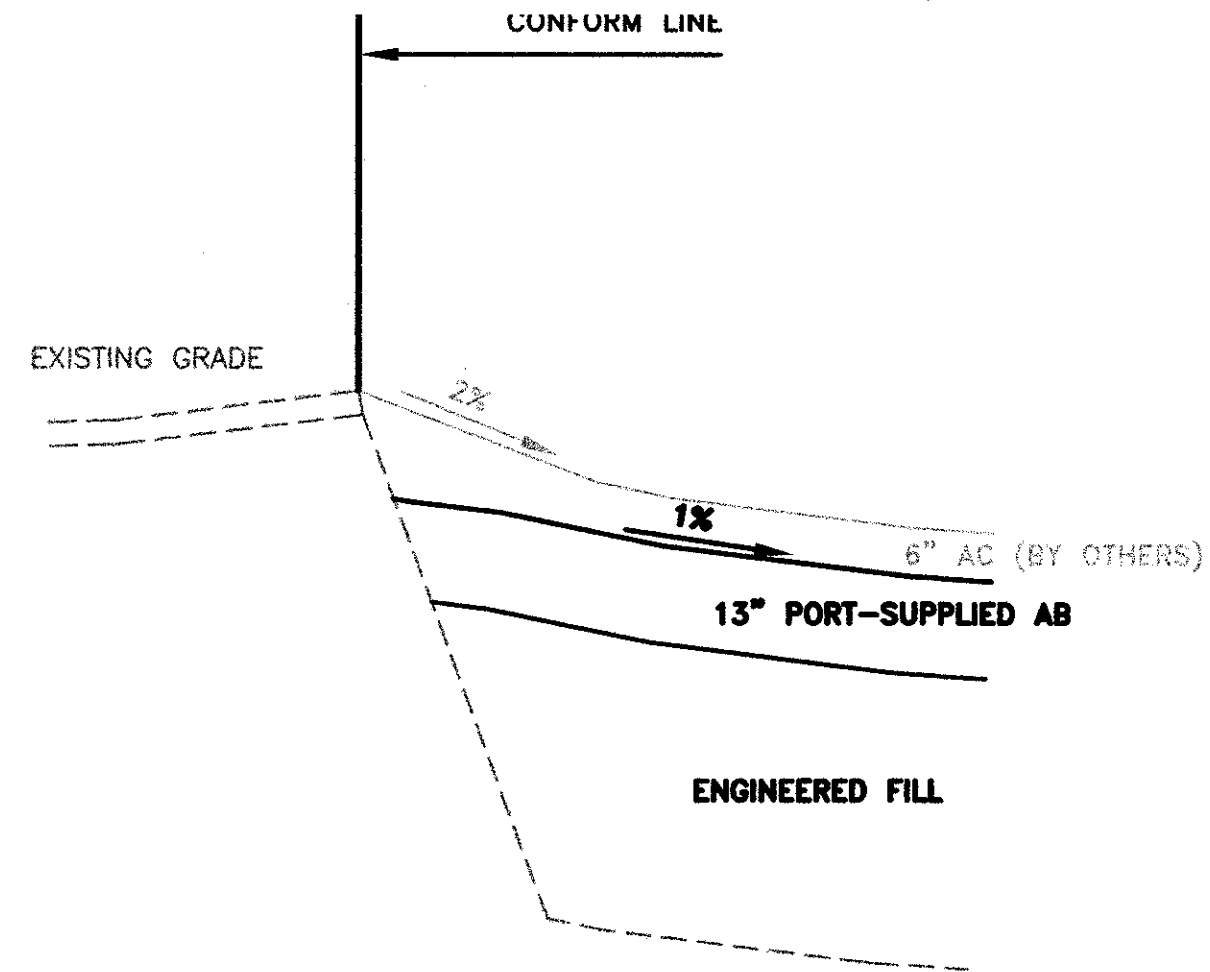


TYPICAL YARD GRADING SECTION

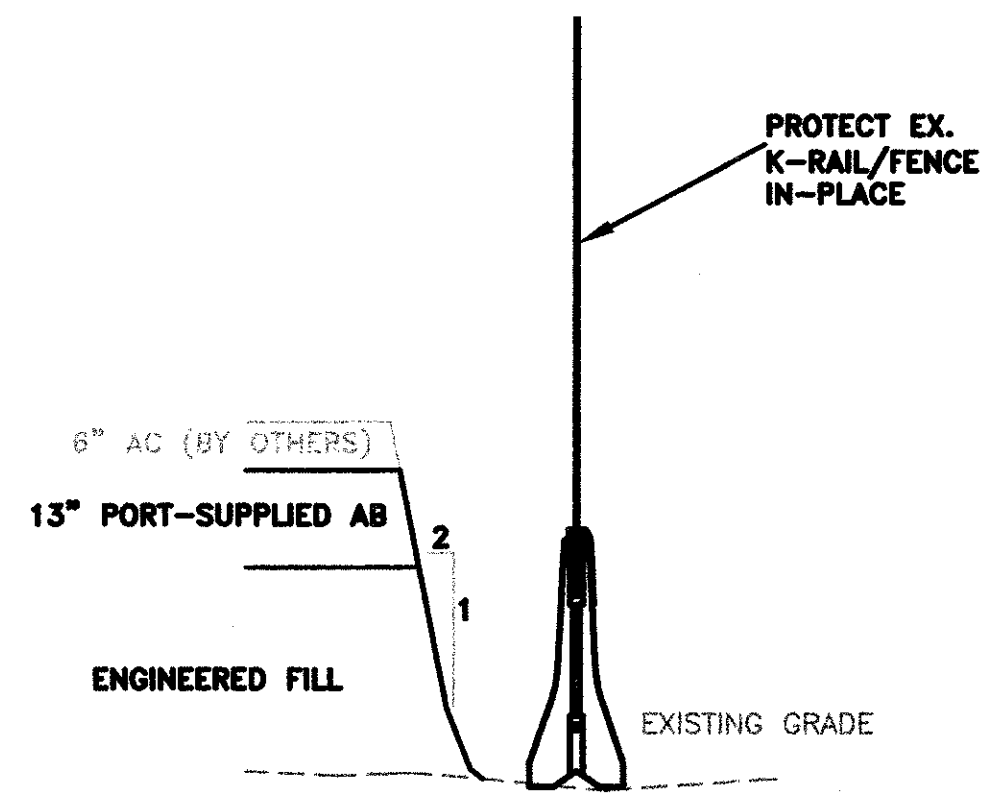
SCALE: 1"=50'H; 1"=5'V



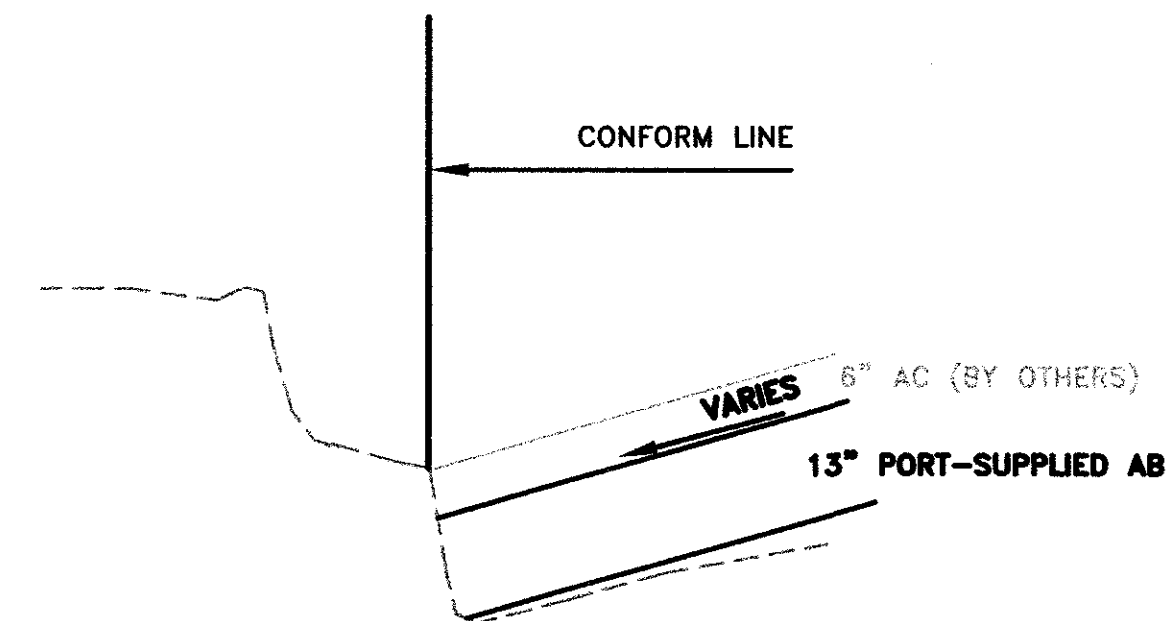
A
TYPICAL EDGE SECTION
NTS



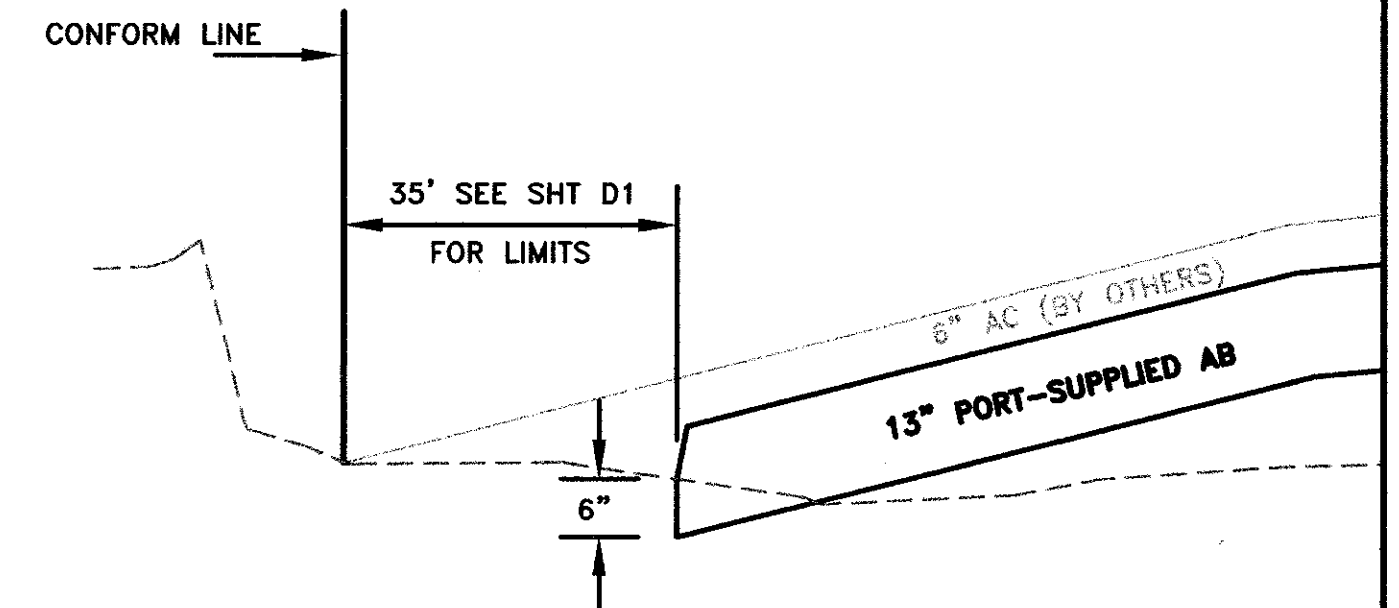
B
TYPICAL EDGE SECTION
NTS



C
TYPICAL EAST-SOUTH
EDGE SECTION
NTS



D
TYPICAL NORTHEAST
EDGE SECTION
NTS



E
TYPICAL NORTHWEST
EDGE SECTION
NTS

W.O.# 104879

REFERENCES:
PLANS
FIELD BOOKS
"PORT OF OAKLAND DATUM"
IS 3.20' BELOW N.G.V.D. '29
CAUTION:
CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

DRAWN _____ STAFF
DESIGNED _____
CHECKED _____
REG. ENGINEER NO. _____
REG. ENGINEER NO. _____

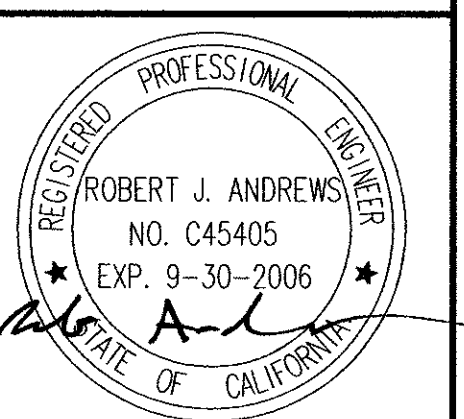
CAUTION: THIS PLAN MAY BE REDUCED

0 1 2 ORIGINAL SCALE

PORT OF OAKLAND



530 WATER ST. OAKLAND, CALIFORNIA



MARITIME SUPPORT CENTER

CONSTRUCTION OF PHASE 3B CONTAINER
TERMINAL YARD IMPROVMENTS

GRADING AND PAVING TYPICAL DETAILS

DATE: 3-24-06

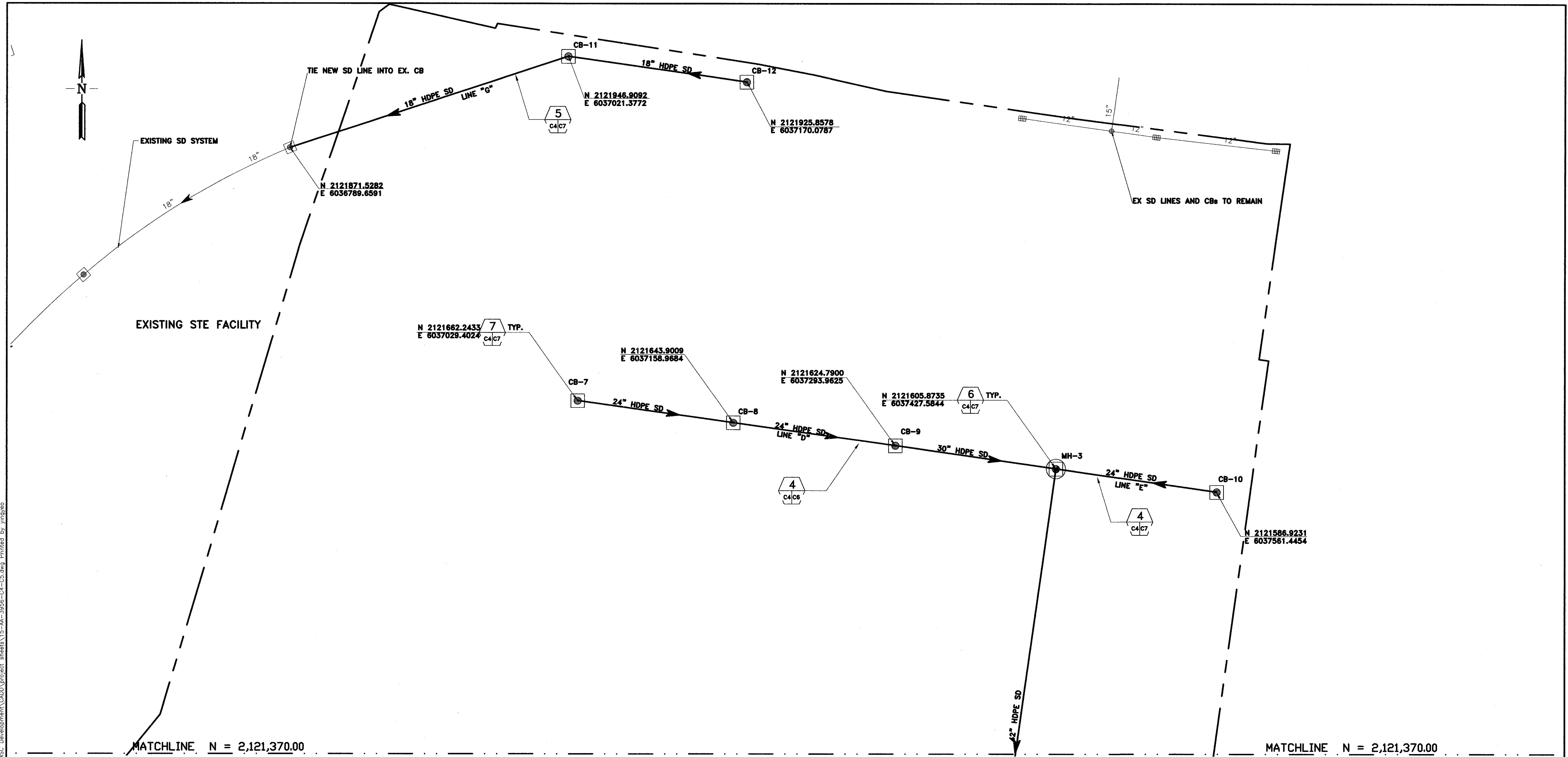
SCALE: AS SHOWN

SHEET: 14 OF 56 SHEETS

C3 AA-3956

PRINT DATE: 04-10-06 13:54:05 P:\Active Projects\DMSC-Port of Oakland MSC Development\CADD\project sheets\14-AA-3956-C3.dwg Printed by yinyao

PRINT DATE: 04-10-08 14:19:59 P:\Active Projects\DMQMSC-Port of Oakland MSC Development\CADD\project sheets\15-AA-3956-C4-C5.dwg Printed by jingye



NOTE:
 INCLUDE 3' LONG BENTONITE PLUGS IN TRENCH AT EVERY 300' AND WITHIN 50' OF WHERE A LATERAL PIPE ENTERS A MAIN PIPE.

W.O.# 104879

REFERENCES:
 PLANS
 FIELD BOOKS
 "PORT OF OAKLAND DATUM"
 IS 3.20' BELOW N.G.V.D. '29
 CAUTION:
 CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

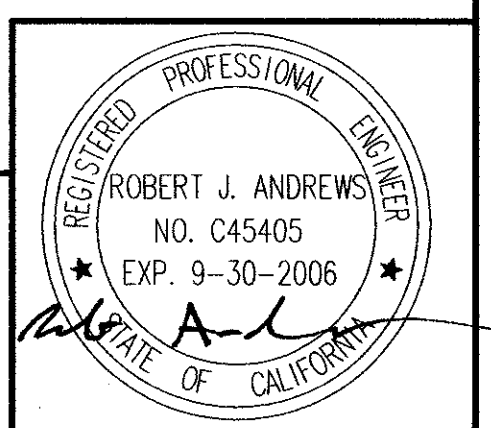
DRAWN _____ STAFF
 DESIGNED _____
 CHECKED _____
 REG. ENGINEER NO. _____
 REG. ENGINEER NO. _____

CAUTION: THIS PLAN MAY BE REDUCED

ORIGINAL SCALE

PORT OF OAKLAND
 530 WATER ST. OAKLAND, CALIFORNIA

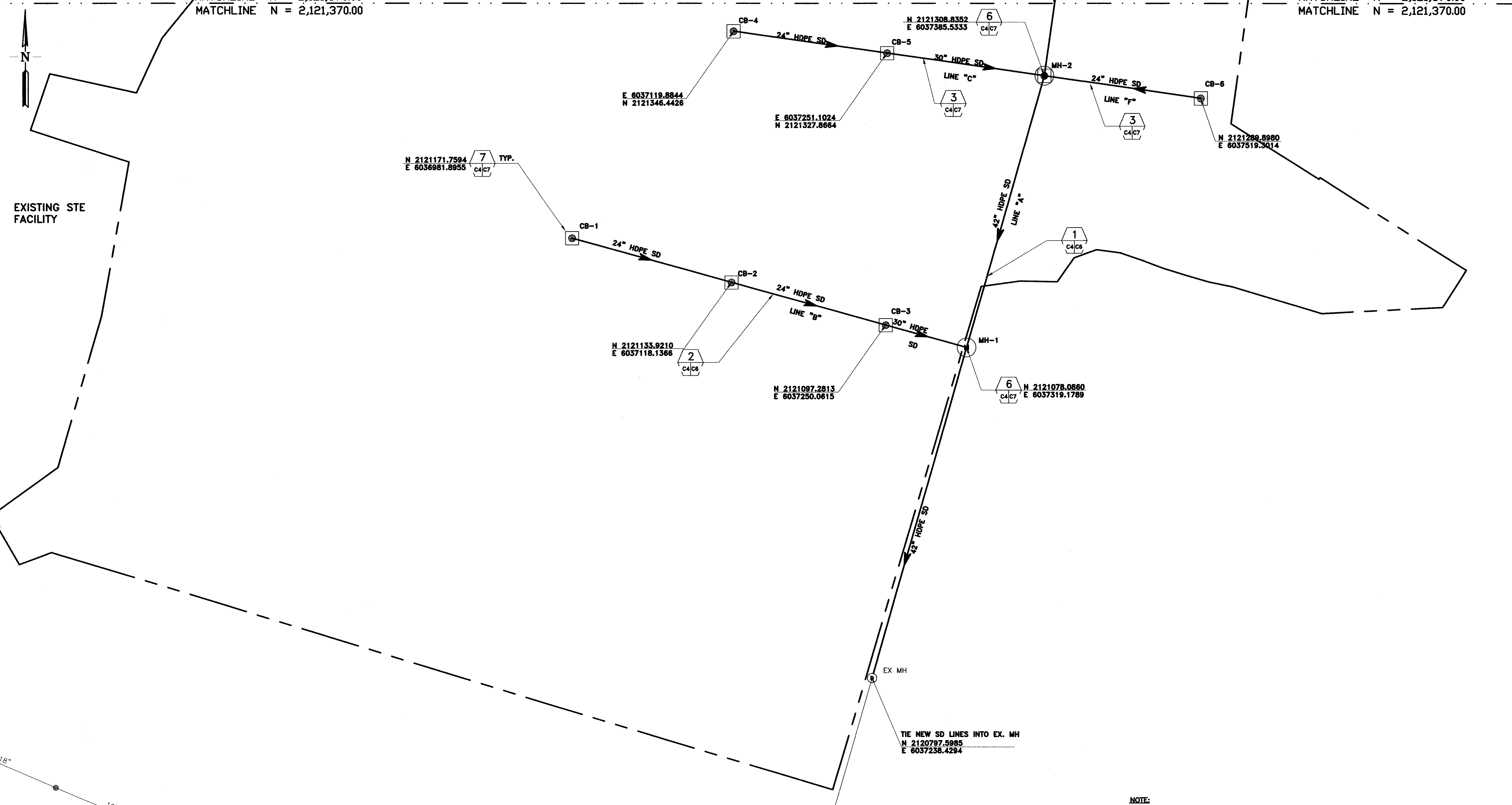
MARITIME SUPPORT CENTER
 CONSTRUCTION OF PHASE 3B CONTAINER TERMINAL YARD IMPROVMENTS
 STORM DRAINAGE PLAN SHEET 1 OF 2



DATE: 3-24-06
 SCALE: 1" = 40'
 SHEET 15 OF 56 SHEETS
C4 AA-3956

MATCHLINE N = 2,121,370.00

MATCHLINE N = 2,121,370.00



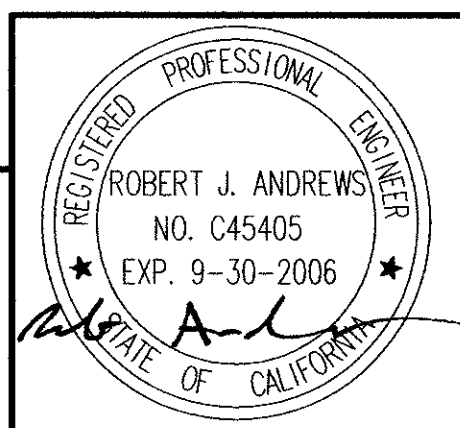
EXISTING STE FACILITY

NOTE:
 INCLUDE 3' LONG BENTONITE PLUGS IN TRENCH AT EVERY 300' AND WITHIN 50' OF WHERE A LATERAL PIPE ENTERS A MAIN PIPE.

TIE NEW SD LINES INTO EX. MH
 N 2120797.5985
 E 6037238.4294

CAUTION: THIS PLAN MAY BE REDUCED

ORIGINAL SCALE



W.O.# 104879

REFERENCES:
 PLANS
 FIELD BOOKS
 "PORT OF OAKLAND DATUM"
 IS 3.20' BELOW N.G.V.D. '29
CAUTION:
 CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

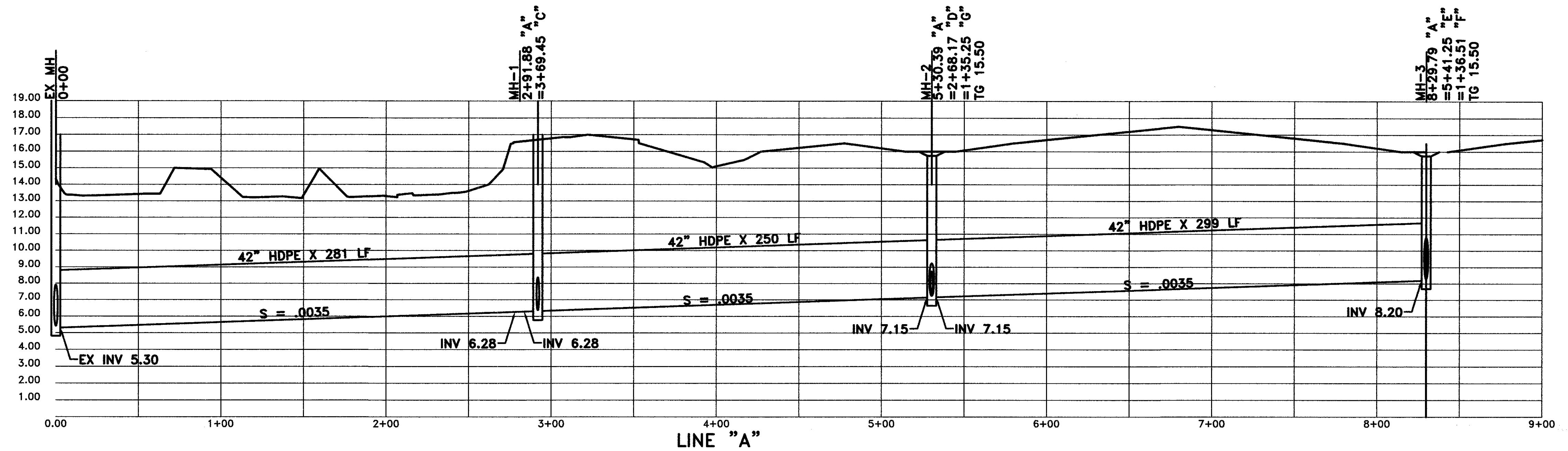
DRAWN _____ STAFF
 DESIGNED _____
 CHECKED _____
 REG. ENGINEER NO. _____
 REG. ENGINEER NO. _____

PORT OF OAKLAND
 530 WATER ST. OAKLAND, CALIFORNIA

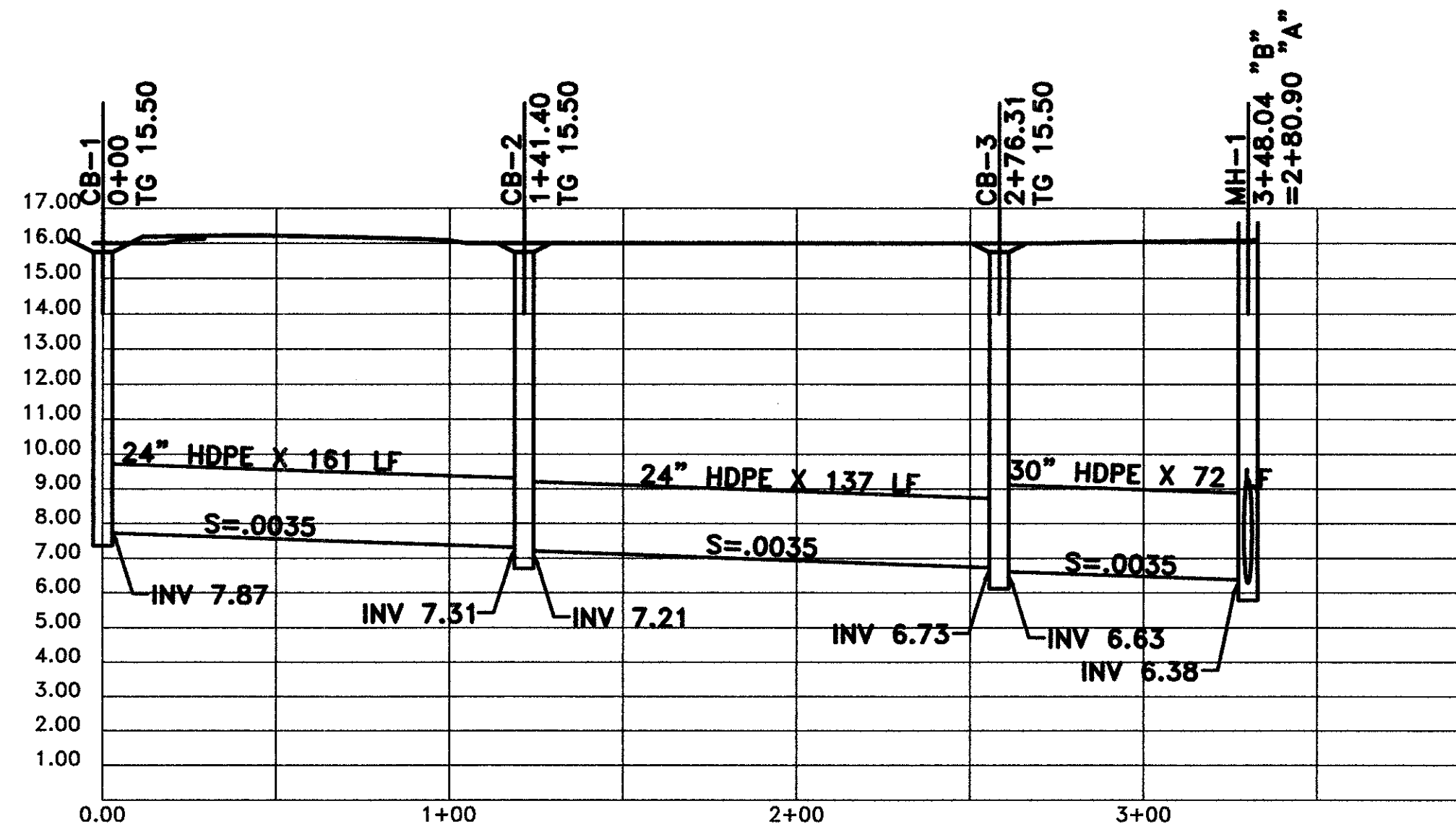
MARITIME SUPPORT CENTER
CONSTRUCTION OF PHASE 3B CONTAINER TERMINAL YARD IMPROVMENTS
STORM DRAINAGE PLAN SHEET 2 OF 2

DATE: 2-27-06
 SCALE: 1" = 40'
 SHEET 16 OF 56 SHEETS
C5 AA-3956

PRINT DATE 04-10-06 13:55:44 P:\Active Projects\DNQMSC-Port of Oakland MSC Development\CADD\project sheets\15-AA-3956-C4-C5.dwg Printed by jingyeo

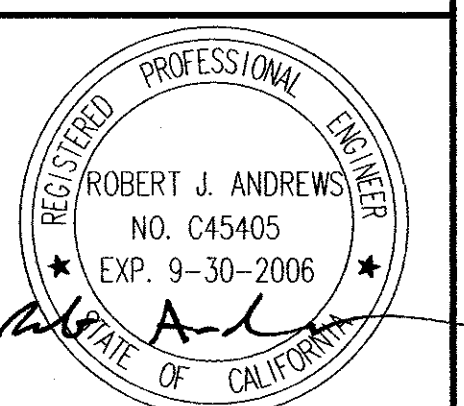


1 STORM DRAIN PROFILE
C4 C6



2 STORM DRAIN PROFILE
C4 C5 C6

CAUTION: THIS PLAN MAY BE REDUCED 0 1 2 ORIGINAL SCALE



W.O.# 104879

NO.	REVISIONS	DATE	REV'D	APP'D

REFERENCES:
PLANS
FIELD BOOKS

"PORT OF OAKLAND DATUM"
IS 3.20' BELOW N.G.V.D. '29

CAUTION:
CHECK TRACING FOR LATEST REVISIONS

DRAWN	STAFF
DESIGNED	REG. ENGINEER NO.
CHECKED	REG. ENGINEER NO.

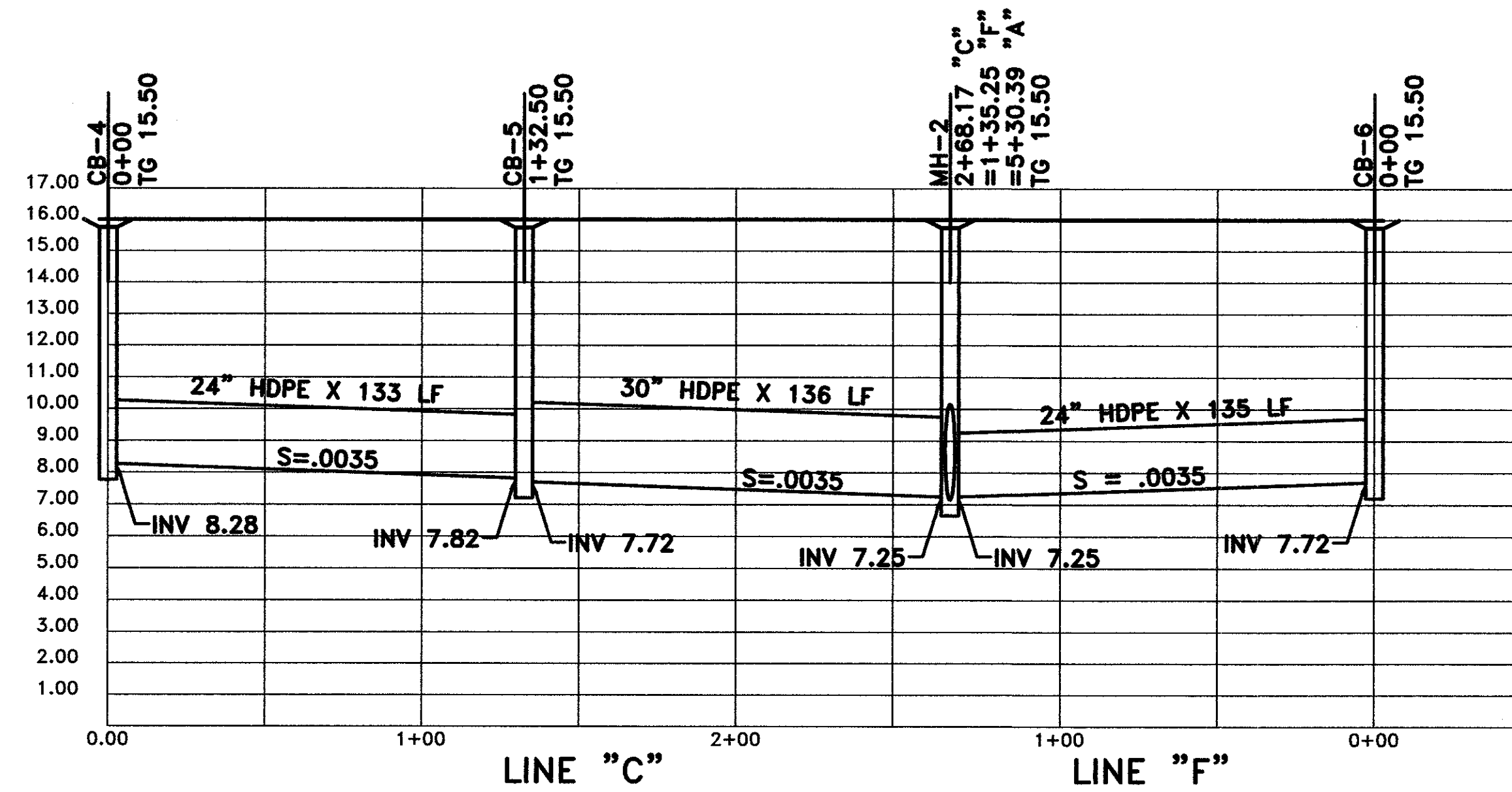
PORT OF OAKLAND



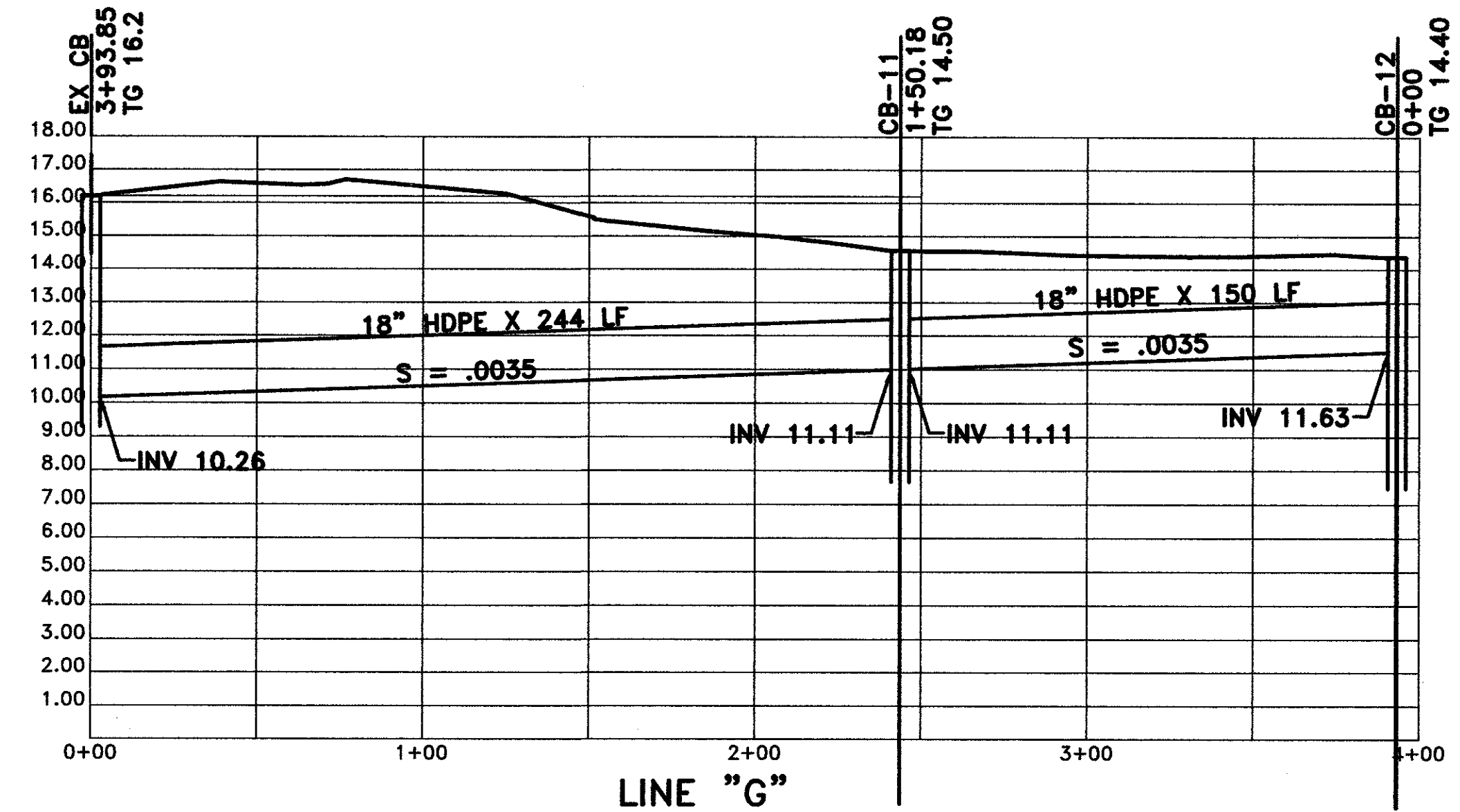
530 WATER ST. OAKLAND, CALIFORNIA

MARITIME SUPPORT CENTER	DATE: 3-24-06
CONSTRUCTION OF PHASE 3B CONTAINER TERMINAL YARD IMPROVMENTS	SCALE: 1"=40'H: 1"=4'V
STORM DRAINAGE PROFILES	SHEET: 17 OF 56 SHEETS
C6	AA-3956

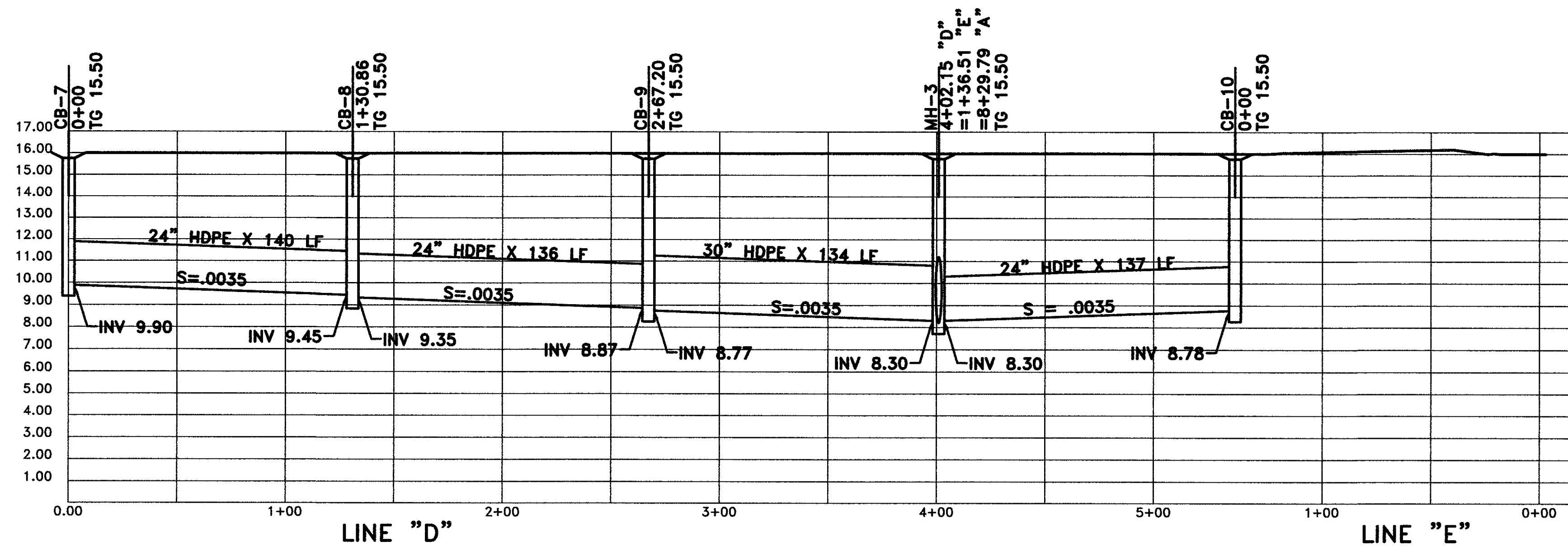
PRINT DATE 04-10-06 13:56:58 P:\Active Projects\DNOMSC-Port of Oakland MSC Development\CADD\project sheets\17-AA-3956-C6-C7.dwg Printed by yinyao



3 STORM DRAIN PROFILE
C4/C6

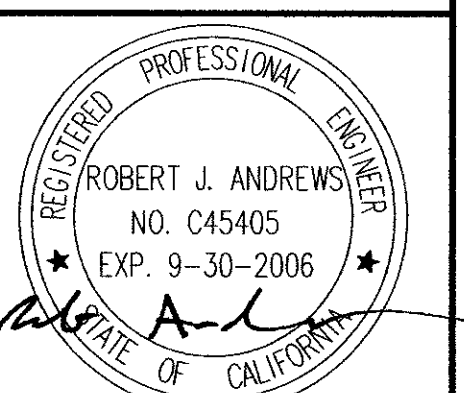


5 STORM DRAIN PROFILE
C4/C6



4 STORM DRAIN PROFILE
C4/C6

CAUTION: THIS PLAN MAY BE REDUCED 0 1 2 ORIGINAL SCALE



W.O.# 104879

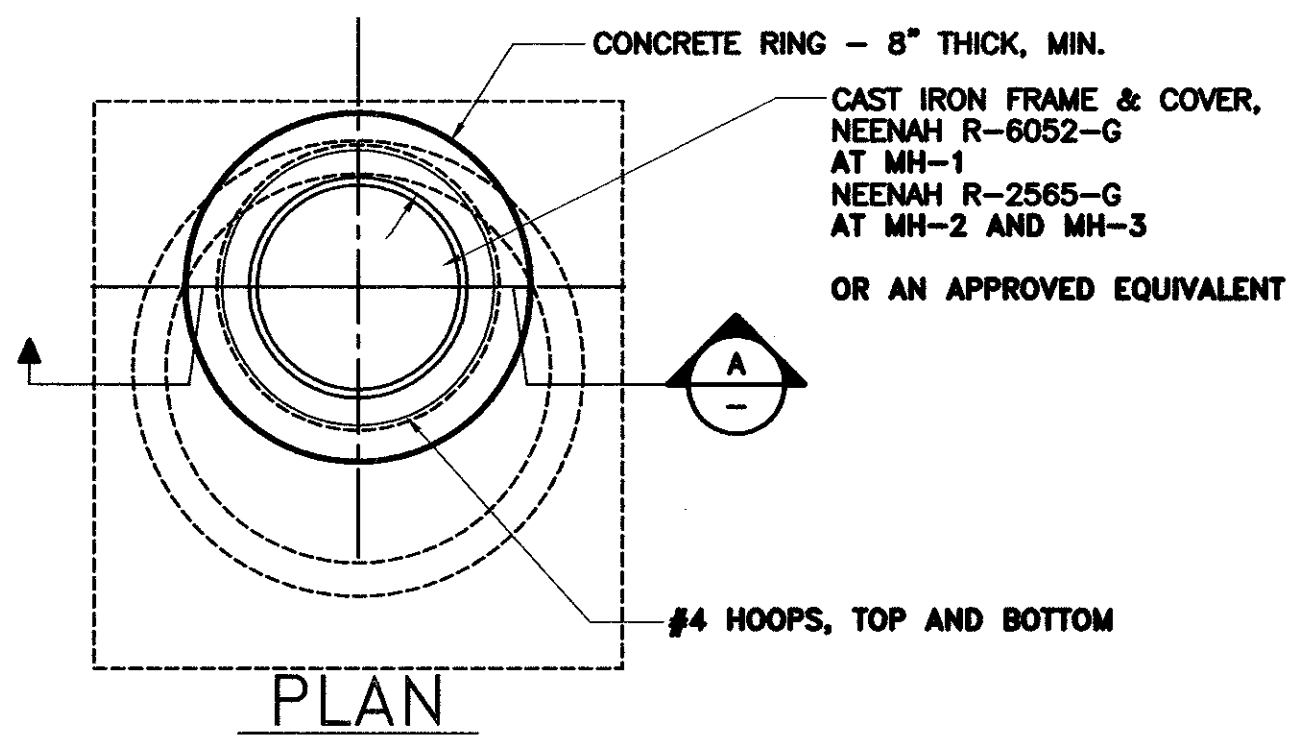
NO.	REVISIONS	DATE	REV'D	APP'D

DRAWN	STAFF
DESIGNED	REG. ENGINEER NO.
CHECKED	REG. ENGINEER NO.

PORT OF OAKLAND
530 WATER ST. OAKLAND, CALIFORNIA

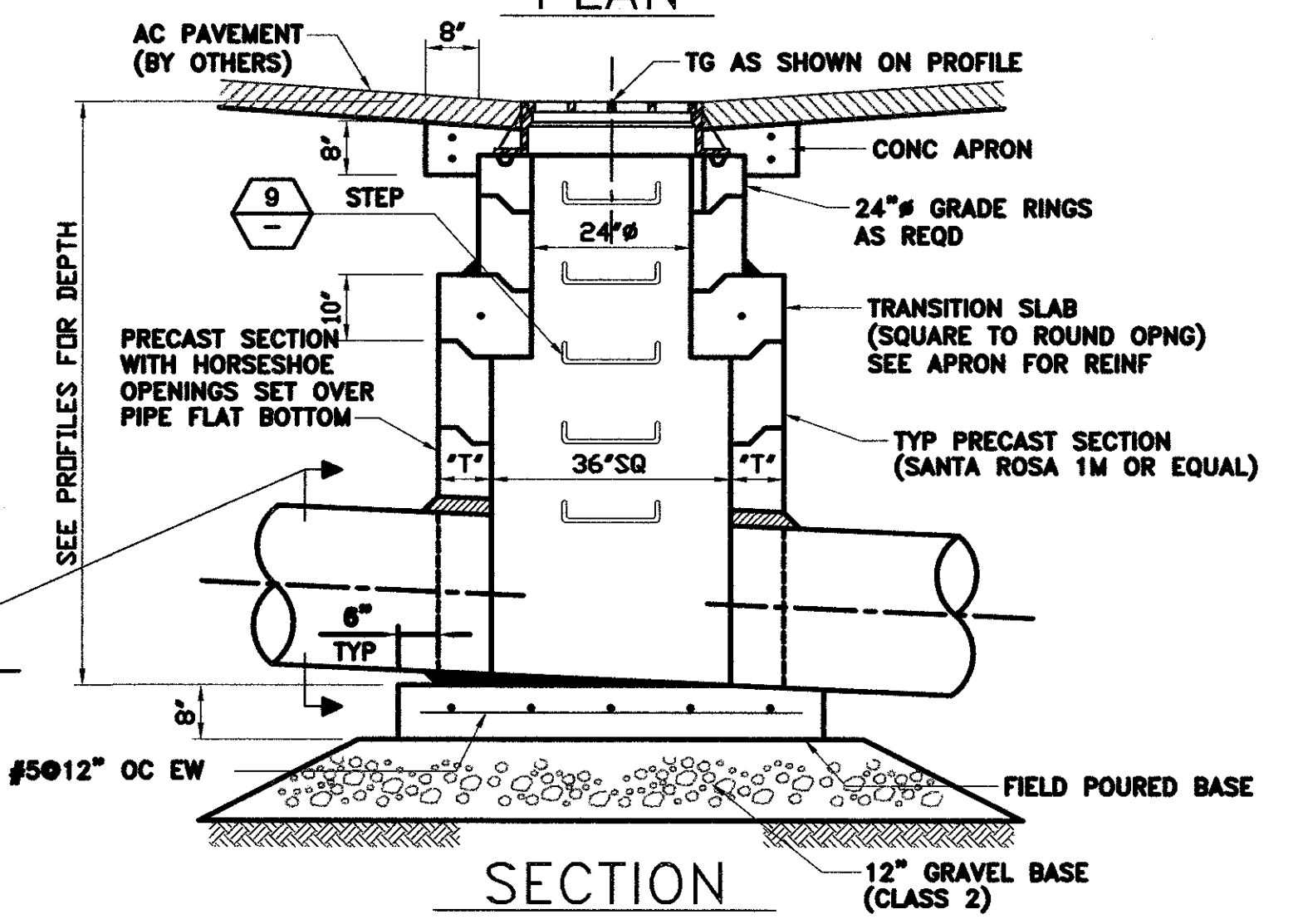
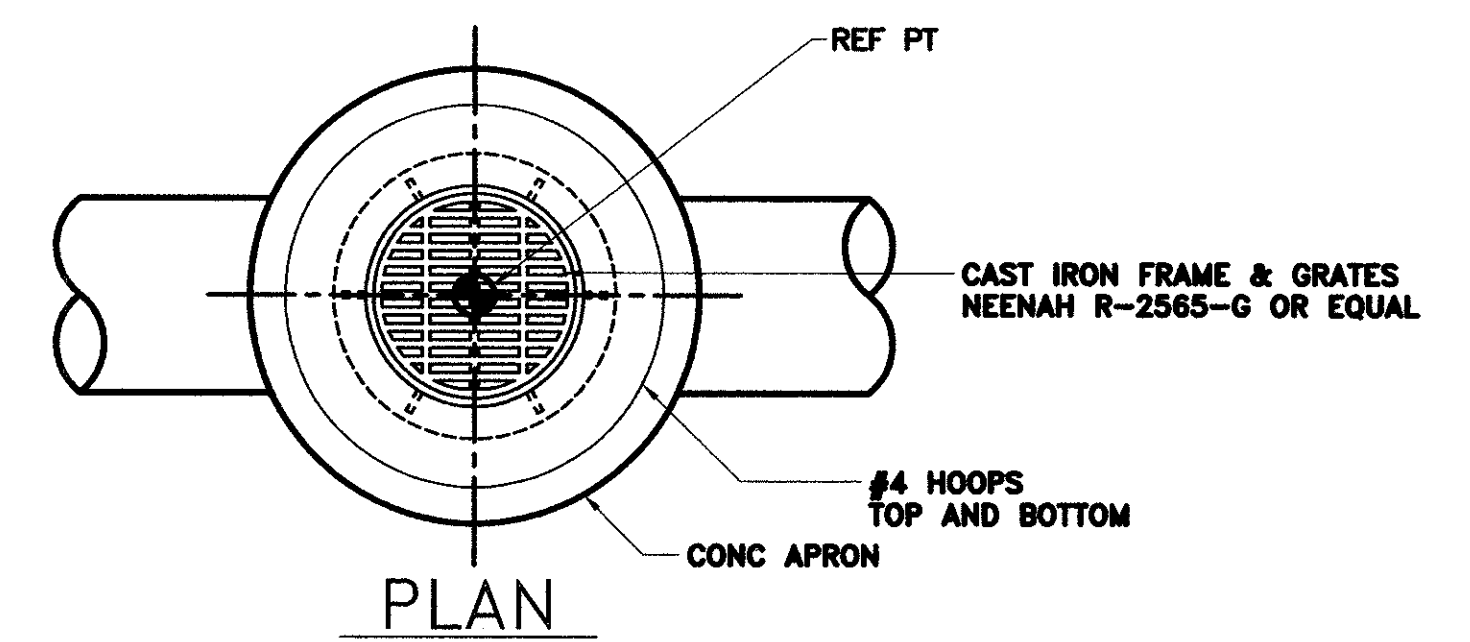
MARITIME SUPPORT CENTER	DATE: 3-24-06
CONSTRUCTION OF PHASE 3B CONTAINER TERMINAL YARD IMPROVMENTS	SCALE: 1"=40'H: 1"=4'V
STORM DRAINAGE PROFILES SHEET 2 OF 2	SHEET: 18 OF 56 SHEETS
C7	AA-3956

PRINT DATE: 04-10-06 13:57:08 P:\Active Projects\DM\MS-C-Port of Oakland MSC Development\CADD\project sheets\17-AA-3956-C6-C7.dwg Printed by yinyeo

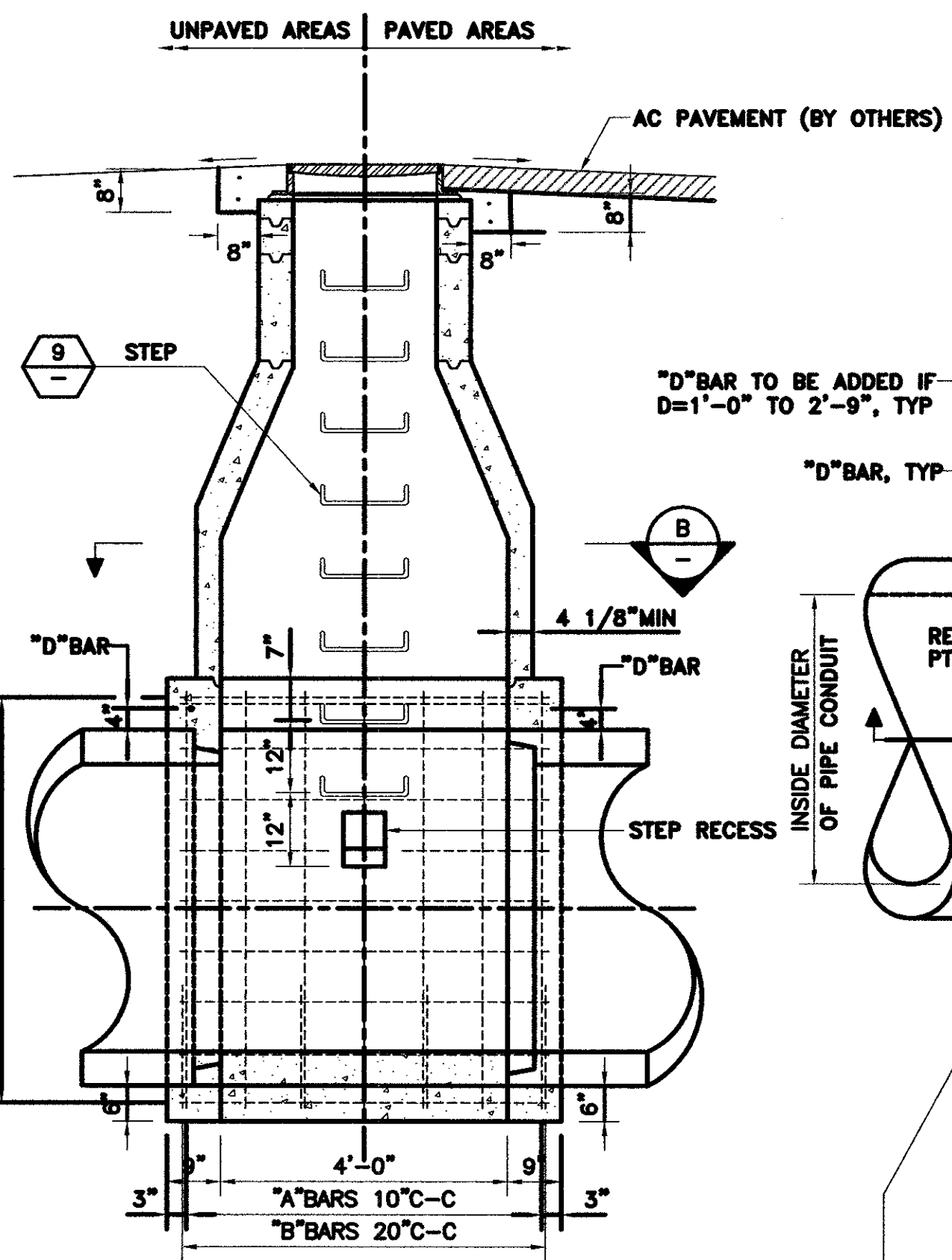


INSIDE DIAMETER OF PIPE CONDUIT	MANHOLE DIMENSIONS				CUBIC YARDS OF CONCRETE	REINFORCING STEEL								POUNDS OF REINFORCING STEEL			
	W	X	Y	Z		"A" BAR	"B" BAR	"C" BAR	"D" BAR	"E" BAR	"F" BAR	"G" BAR					
						NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH		NO.	LENGTH	NO.
36"	5'-6"	4'-9"	6"	2.88	7	14'-0"	4	7'-8"	17	5'-2"						153.8	
42"	5'-6"	5'-4"	3"	2.97	7	15'-2"	4	7'-0"	19	5'-2"			2	6'-10"		164.4	
48"	4"	5'-10"	6'-2"	2"	3.30	7	17'-2"	4	7'-0"	19	5'-2"	2	5'-6"	2	6'-10"	SEE "E" BAR	181.1

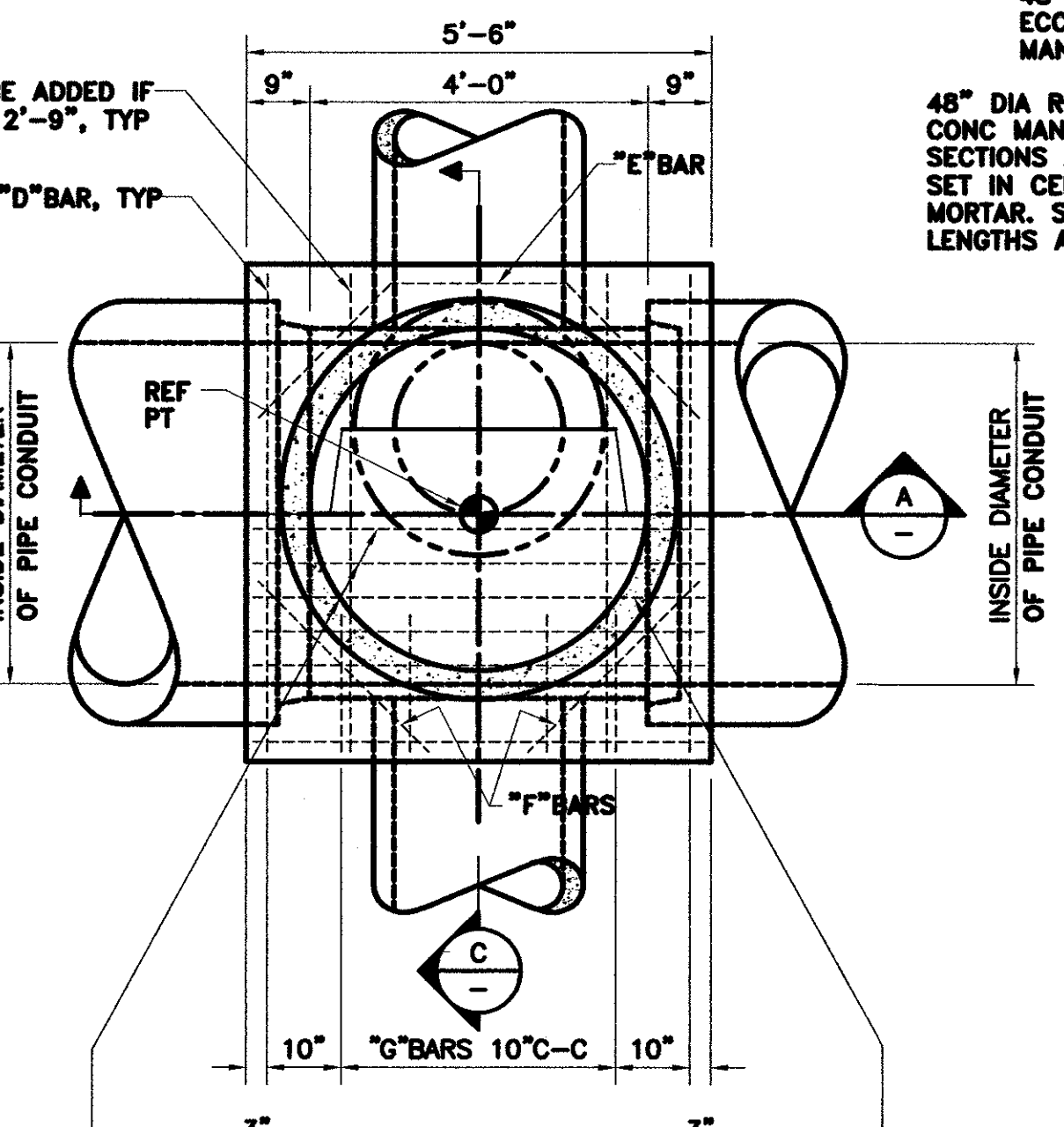
NOTES:
1. ALL REINFORCING STEEL SHALL BE NO. 4 BARS, ASTM A615. REINFORCING STEEL BENDING DIMENSIONS ARE OUT TO OUT.
2. REINFORCING STEEL MAY BE SPREAD TO ADMIT SMALL PIPES ENTERING MANHOLE SIDES.
3. WHERE TWO SIZES OF PIPE ENTER AND LEAVE A MANHOLE USE DIMENSIONS AND QUANTITIES FOR THE LARGER SIZE PIPE.



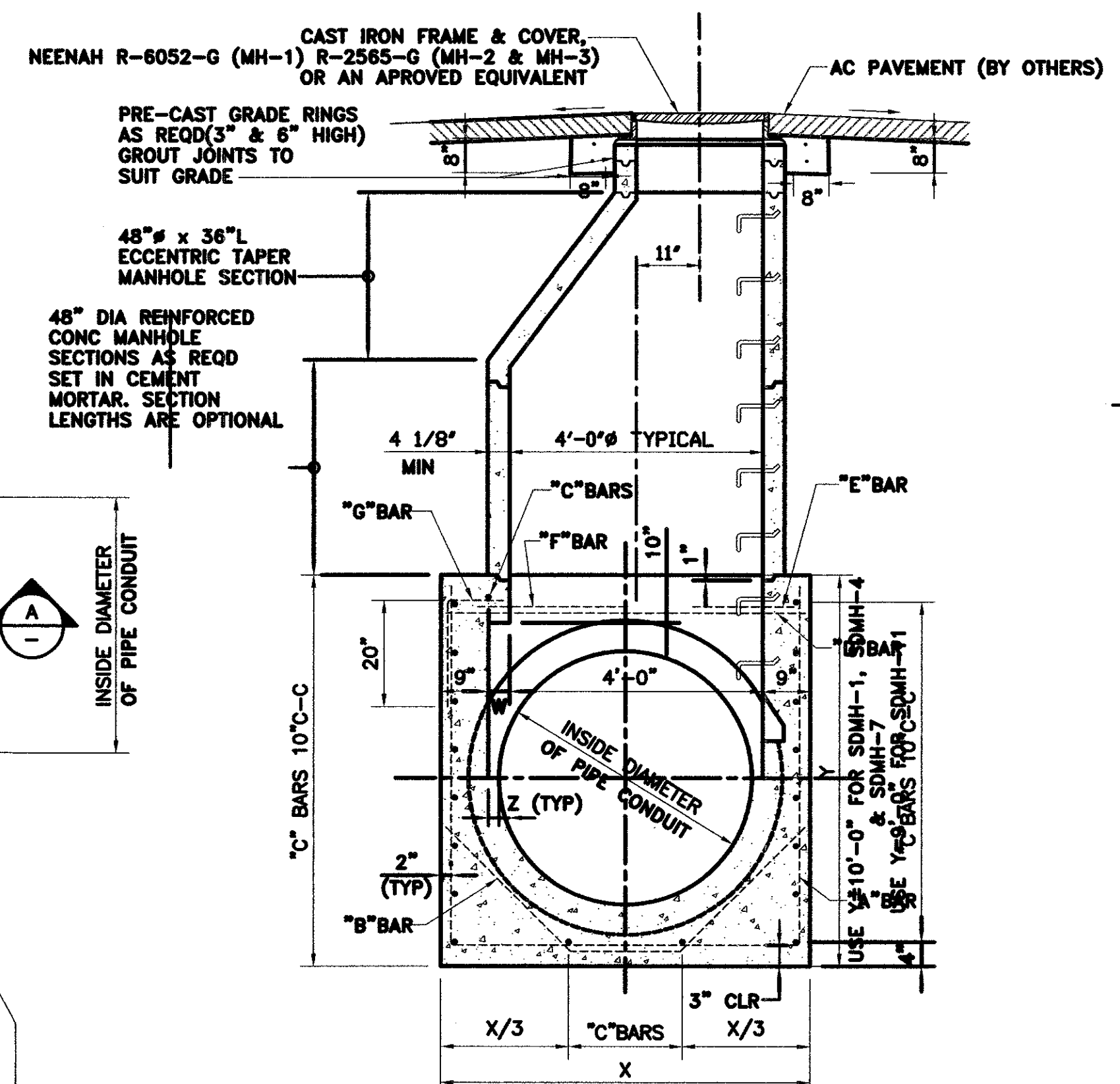
7 PRECAST CATCH BASIN DETAIL
NO SCALE



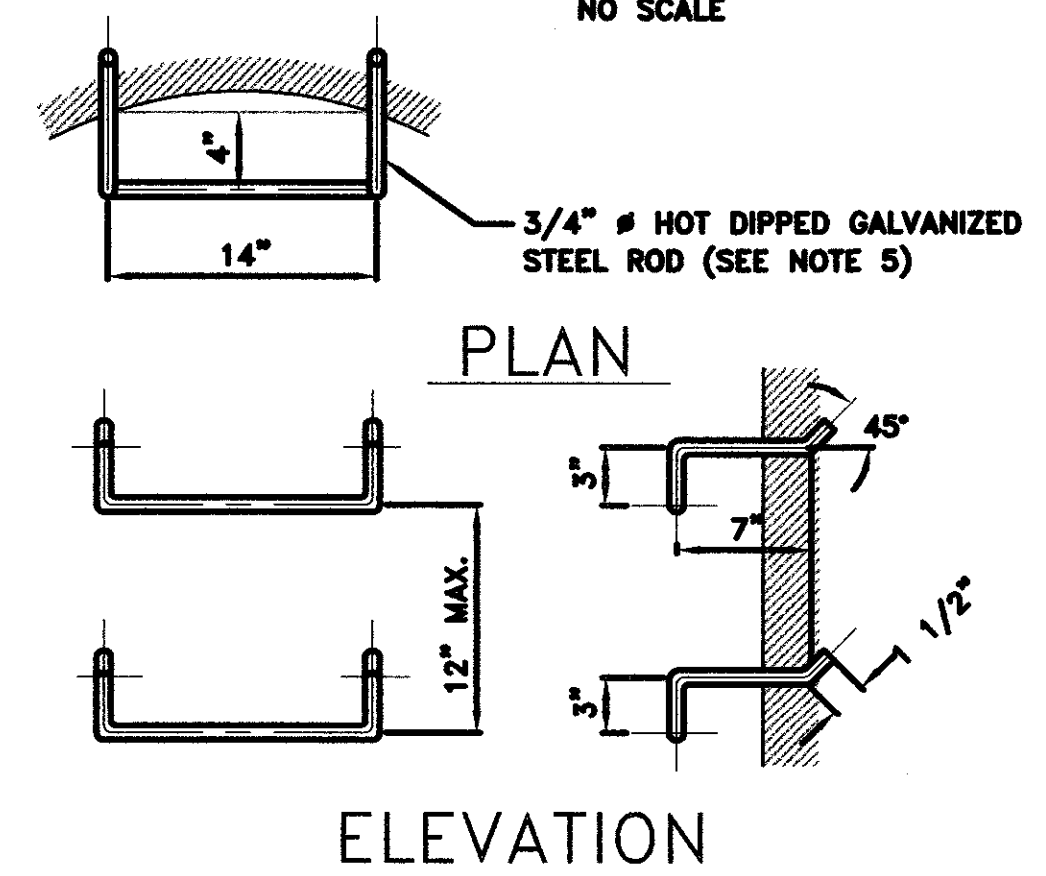
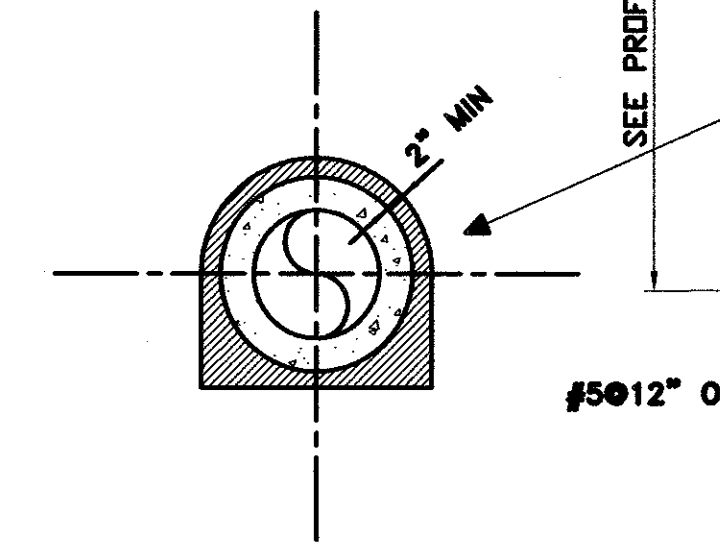
A SECTION



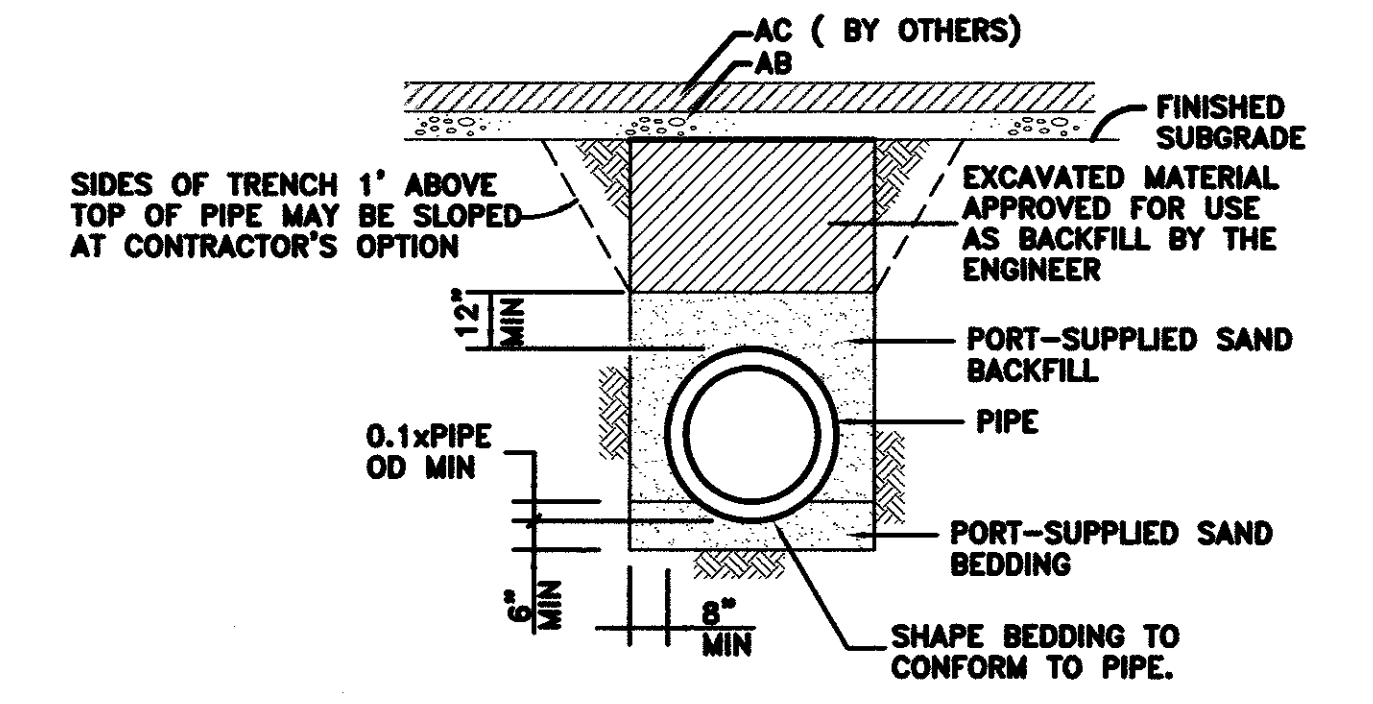
B SECTION



C SECTION



9 MANHOLE STEP DETAILS
NO SCALE



8 TYPICAL PIPE TRENCH, BEDDING AND BACKFILL DETAILS
NO SCALE

NOTES:
1. FOR "T" WALL THICKNESS OF CATCH BASINS, H = 2' TO 6' (T=6"); H = 6'-1" TO 20' (T=8")
2. WALL REINFORCING NOT REQUIRED WHEN "H" IS 6' OR LESS AND THE UNSUPPORTED WIDTH OR LENGTH IS 7' OR LESS. WALLS EXCEEDING THESE LIMITS SHALL BE REINFORCED WITH #4 BARS @ 12" ± CENTERS PLACED 1/2" CLEAR TO INSIDE OF BOX UNLESS OTHERWISE SHOWN.
3. STEPS - NONE REQUIRED WHERE "H" IS LESS THAN 30 INCHES. WHERE "H" IS 30 INCHES OR MORE, INSTALL STEPS WITH LOWEST RUNG 12 INCHES ABOVE THE FLOOR AND HIGHEST RUNG NOT MORE THAN 6 INCHES BELOW TOP OF INLET. THE DISTANCE BETWEEN STEPS SHALL NOT EXCEED 12 INCHES AND SHALL BE UNIFORM THROUGHOUT THE LENGTH OF THE WALL. PLACE STEPS IN THE WALL WITHOUT AN OPENING. STEP INSERTS MAY BE SUBSTITUTED FOR THE BAR STEPS. STEP INSERTS SHALL COMPLY WITH STATE INDUSTRIAL SAFETY REQUIREMENTS.
4. CAST-IN-PLACE OR PRECAST ALTERNATIVE IS OPTIONAL WITH CONTRACTOR.
5. CATCH BASIN AND MANHOLE FLOORS SHALL HAVE A WOOD TROWEL FINISH AND A SLOPE ALONG PIPE C AS SHOWN ON STORM DRAIN PROFILE.

6 TYPICAL STORM DRAIN MANHOLE DETAILS
NO SCALE

CAUTION: THIS PLAN MAY BE REDUCED ORIGINAL SCALE

REFERENCES:
PLANS
FIELD BOOKS
"PORT OF OAKLAND DATUM" IS 3.20' BELOW N.G.V.D. '29
CAUTION: CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

DRAWN: STAFF
DESIGNED: REG. ENGINEER NO.
CHECKED: REG. ENGINEER NO.

PORT OF OAKLAND
530 WATER ST. OAKLAND, CALIFORNIA

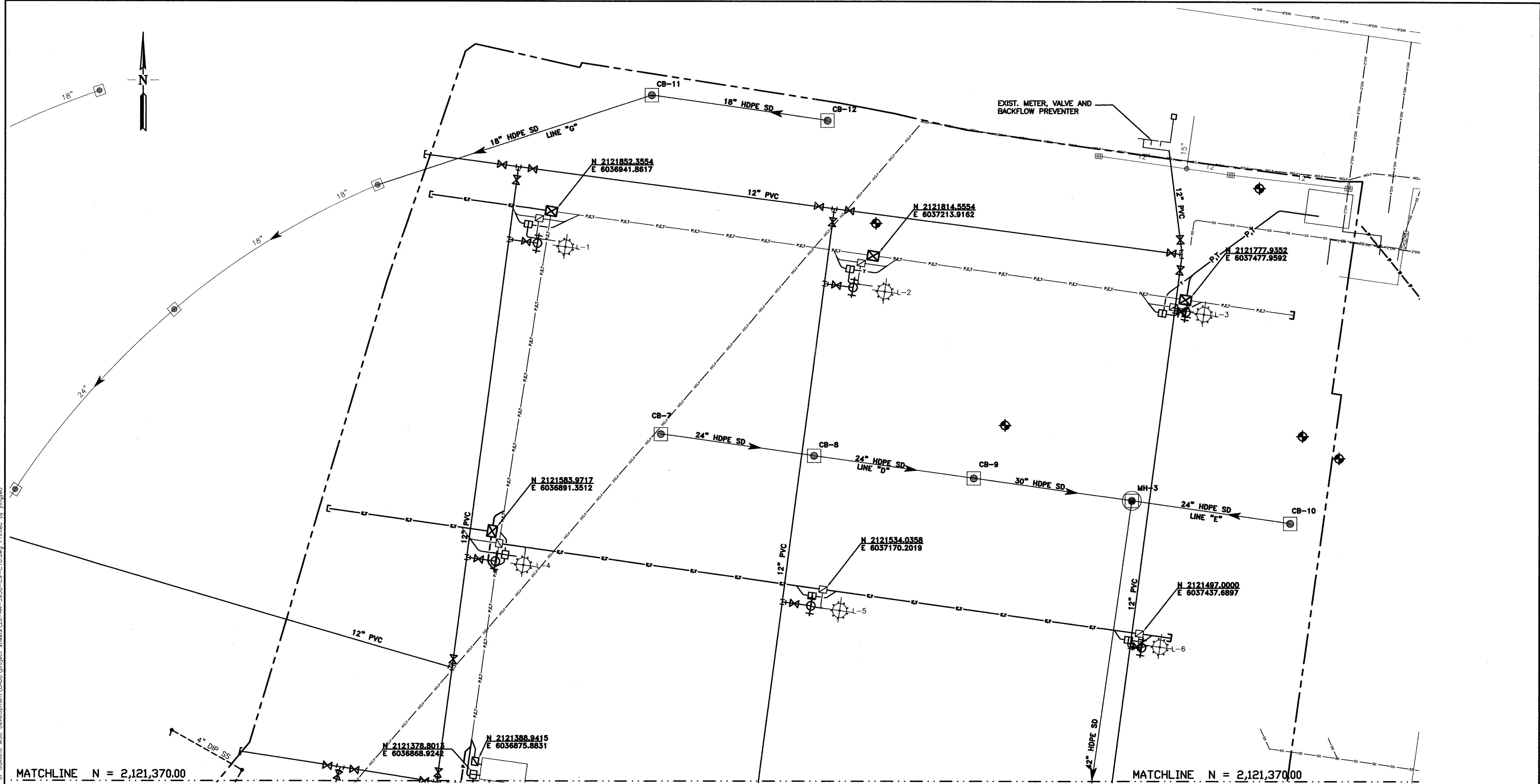
MARITIME SUPPORT CENTER
CONSTRUCTION OF PHASE 3B CONTAINER TERMINAL YARD IMPROVMENTS
STORM DRAINAGE SYSTEM DETAILS

DATE: 3-24-06
SCALE: AS SHOWN
SHEET: 19 OF 56 SHEETS
C8 AA-3956



PROFESSIONAL ENGINEER
REGISTERED
ROBERT J. ANDREWS
NO. C45405
EXP. 9-30-2006
STATE OF CALIFORNIA

PRINT DATE: 04-10-06 13:57:43 P:\Active Projects\JDM\JMC-Port of Oakland MSC Development\CADD\project sheets\19-AA-3956-C8.dwg Printed by yinyao

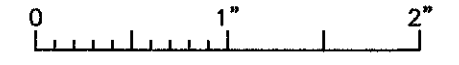


MATCHLINE N = 2,121,370.00

MATCHLINE N = 2,121,370.00

W.O.# 104879

CAUTION: THIS PLAN MAY BE REDUCED



REFERENCES:

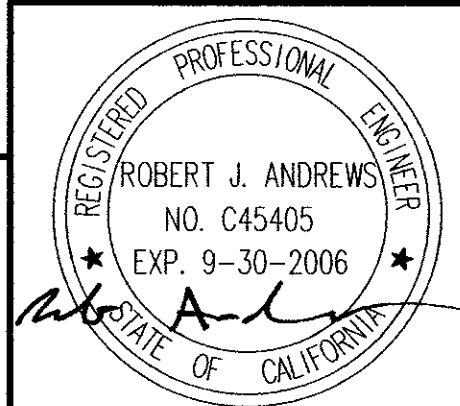
PLANS
FIELD BOOKS
"PORT OF OAKLAND DATUM" IS 3.20' BELOW N.G.V.D. '29
CAUTION: CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

DRAWN	STAFF
DESIGNED	REG. ENGINEER NO.
CHECKED	REG. ENGINEER NO.

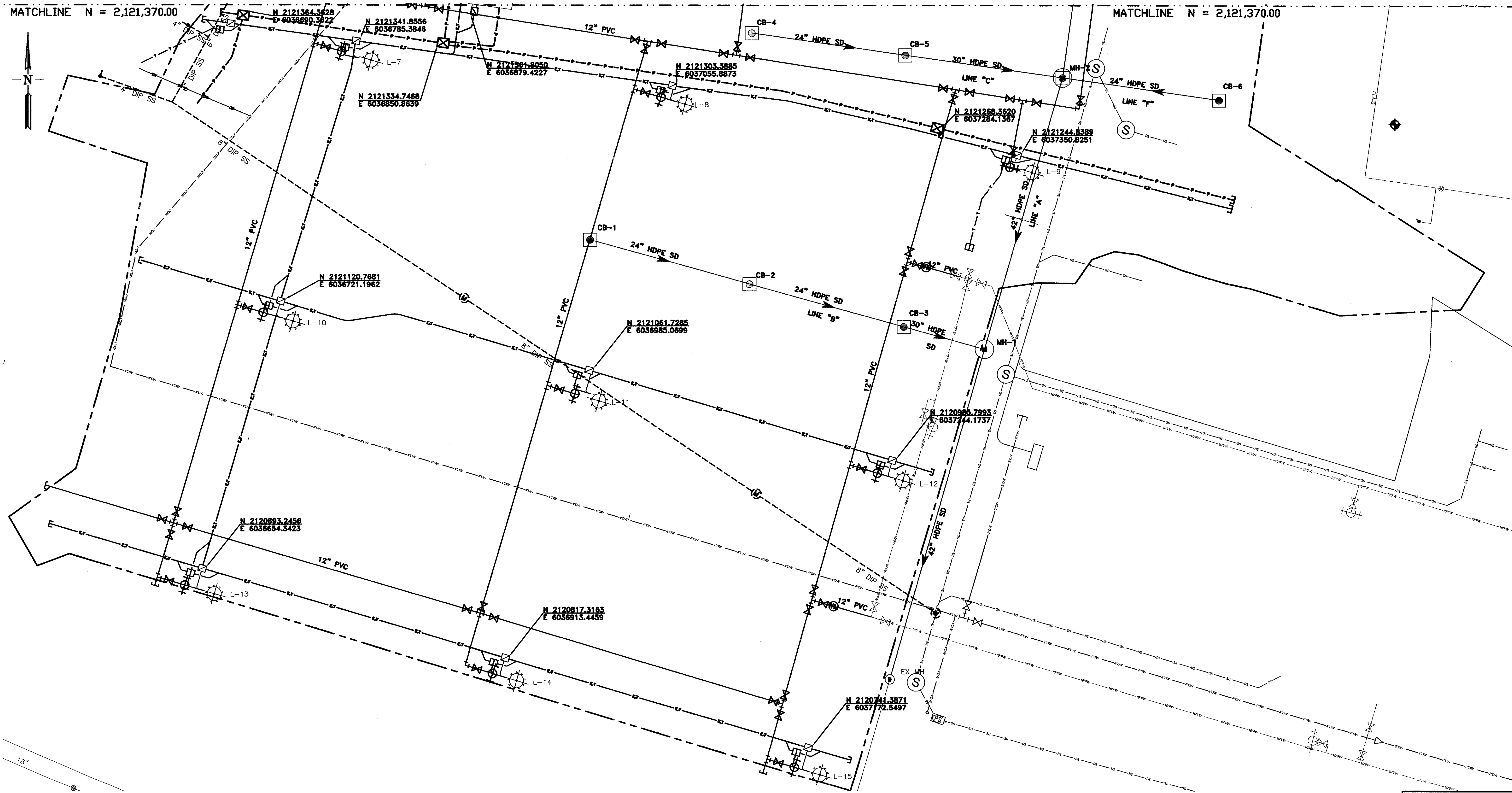
PORT OF OAKLAND
530 WATER ST. OAKLAND, CALIFORNIA

MARITIME SUPPORT CENTER
CONSTRUCTION OF PHASE 3B CONTAINER
TERMINAL YARD IMPROVMENTS
COMPOSITE UTILITY PLAN SHEET 1 OF 2



DATE: 3-24-06
SCALE: 1" = 40'
SHEET: 20 OF 56 SHEETS
C9 AA-3956

PRINT DATE: 04-10-06 13:58:28 P:\Active Projects\DNOMSC-Port of Oakland MSC Development\CADD\project sheets\20-AA-3956-C9-C10.dwg Printed by yinyao



MATCHLINE N = 2,121,370.00

MATCHLINE N = 2,121,370.00

PRINT DATE 04-10-06 13:58:38 P:\Active Projects\BIM\BIMSC-Port of Oakland MSC Development\CADD\project sheets\0-AA-3956-CB-C10.dwg Printed by yingqiao

W.O.# 104879

CAUTION: THIS PLAN MAY BE REDUCED ORIGINAL SCALE

REFERENCES:
 PLANS
 FIELD BOOKS
 "PORT OF OAKLAND DATUM"
 IS 3.20' BELOW N.G.V.D. '29
 CAUTION:
 CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

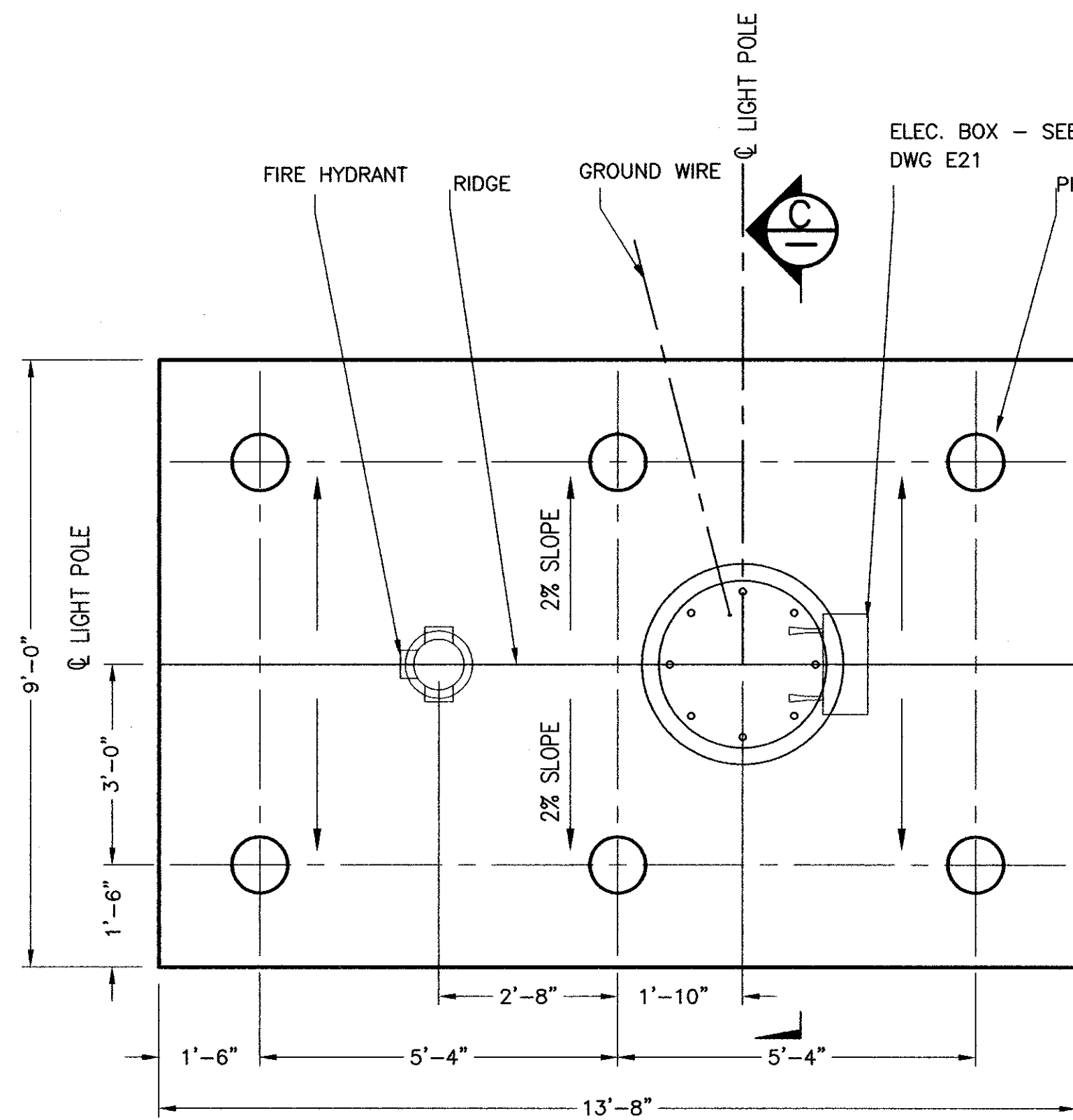
DRAWN _____ STAFF
 DESIGNED _____
 CHECKED _____
 REG. ENGINEER NO. _____
 REG. ENGINEER NO. _____

PORT OF OAKLAND

 530 WATER ST. OAKLAND, CALIFORNIA

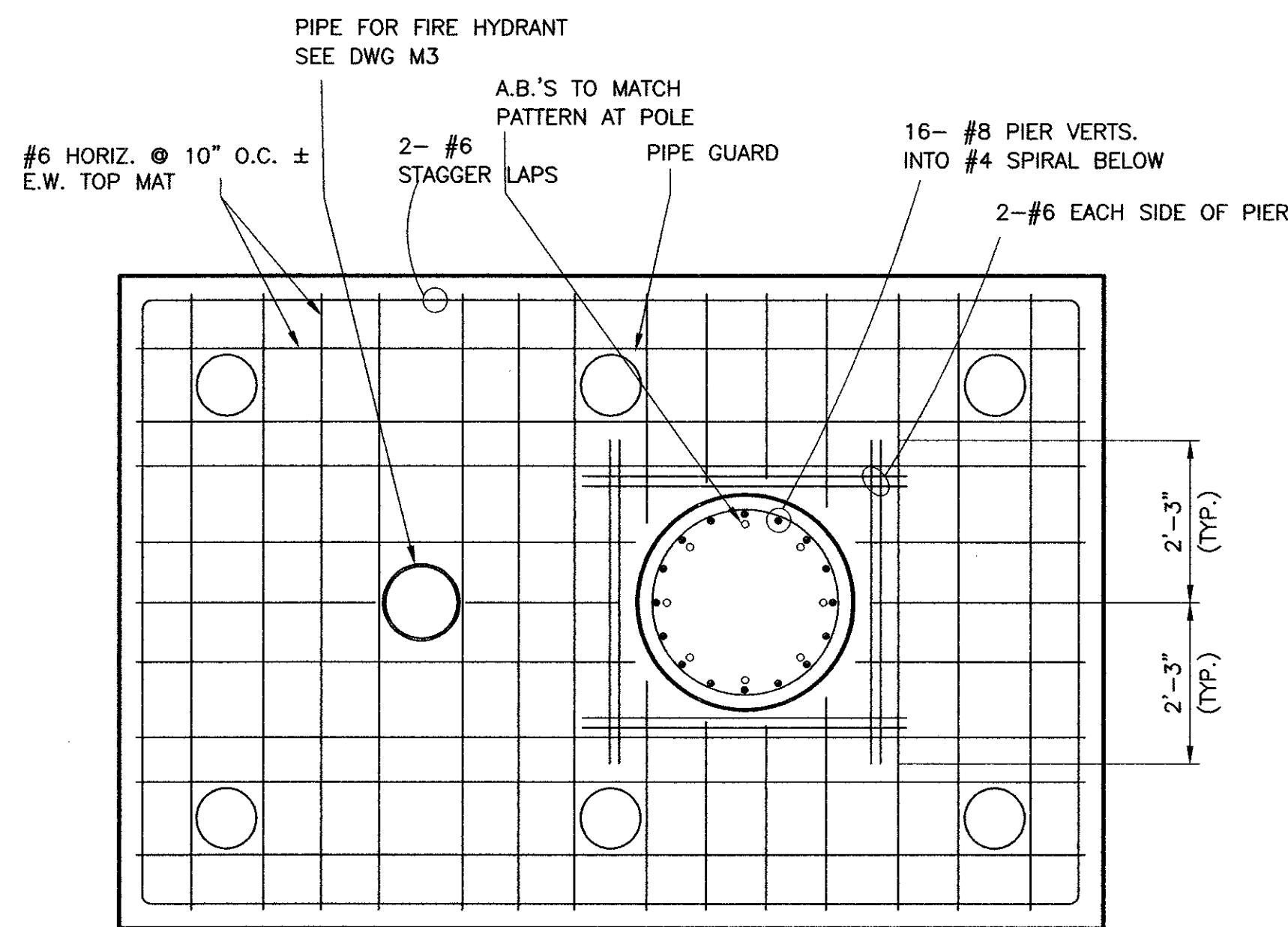
MARITIME SUPPORT CENTER
**CONSTRUCTION OF PHASE 3B CONTAINER
 TERMINAL YARD IMPROVMENTS**
 COMPOSITE UTILITY PLAN SHEET 2 OF 2

DATE: 3-24-06
 SCALE: 1" = 40'
 SHEET: 21 OF 56 SHEETS
C10 AA-3956

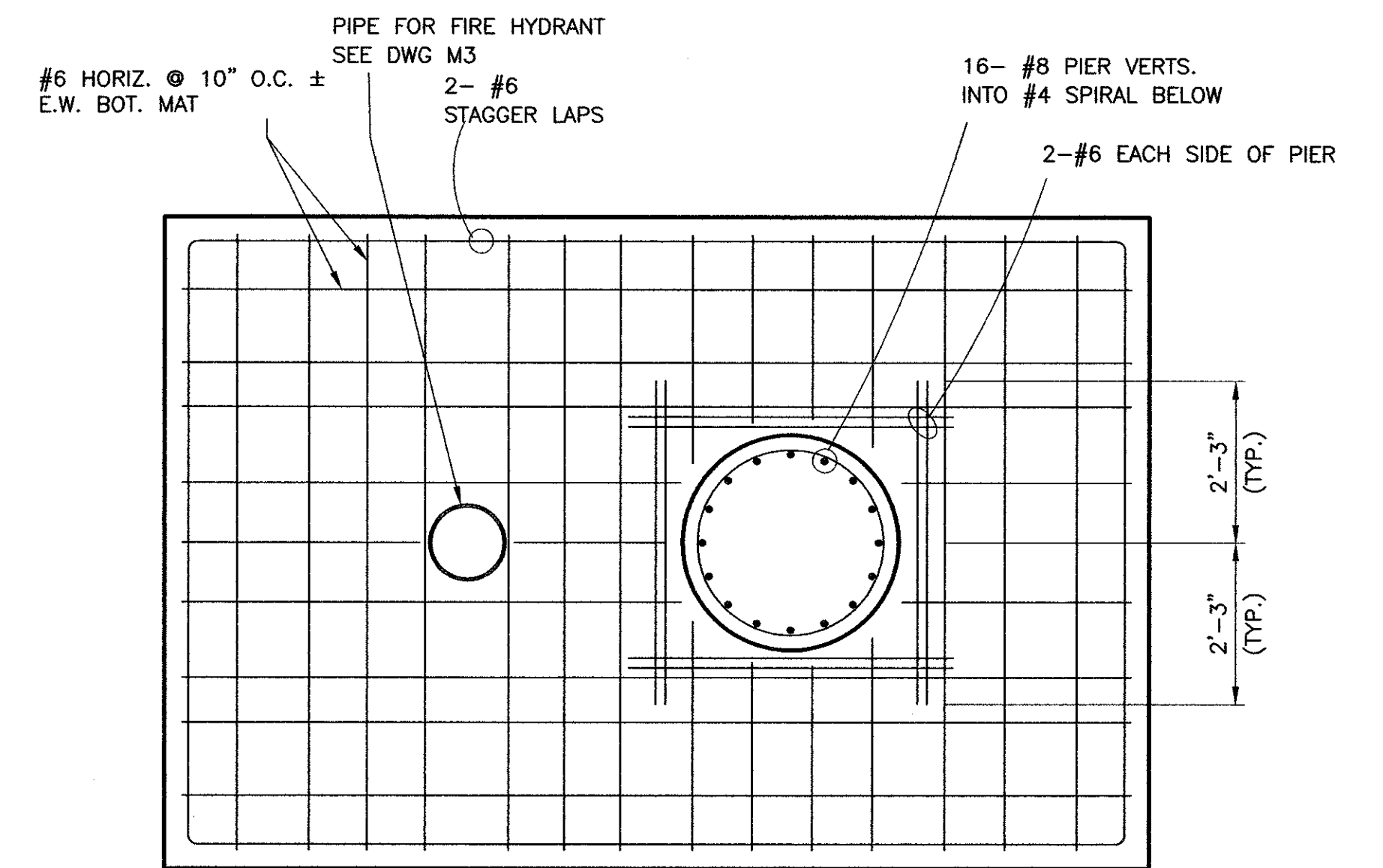


1 PLAN SECTION AT PEDESTAL
1/2" = 1'-0"

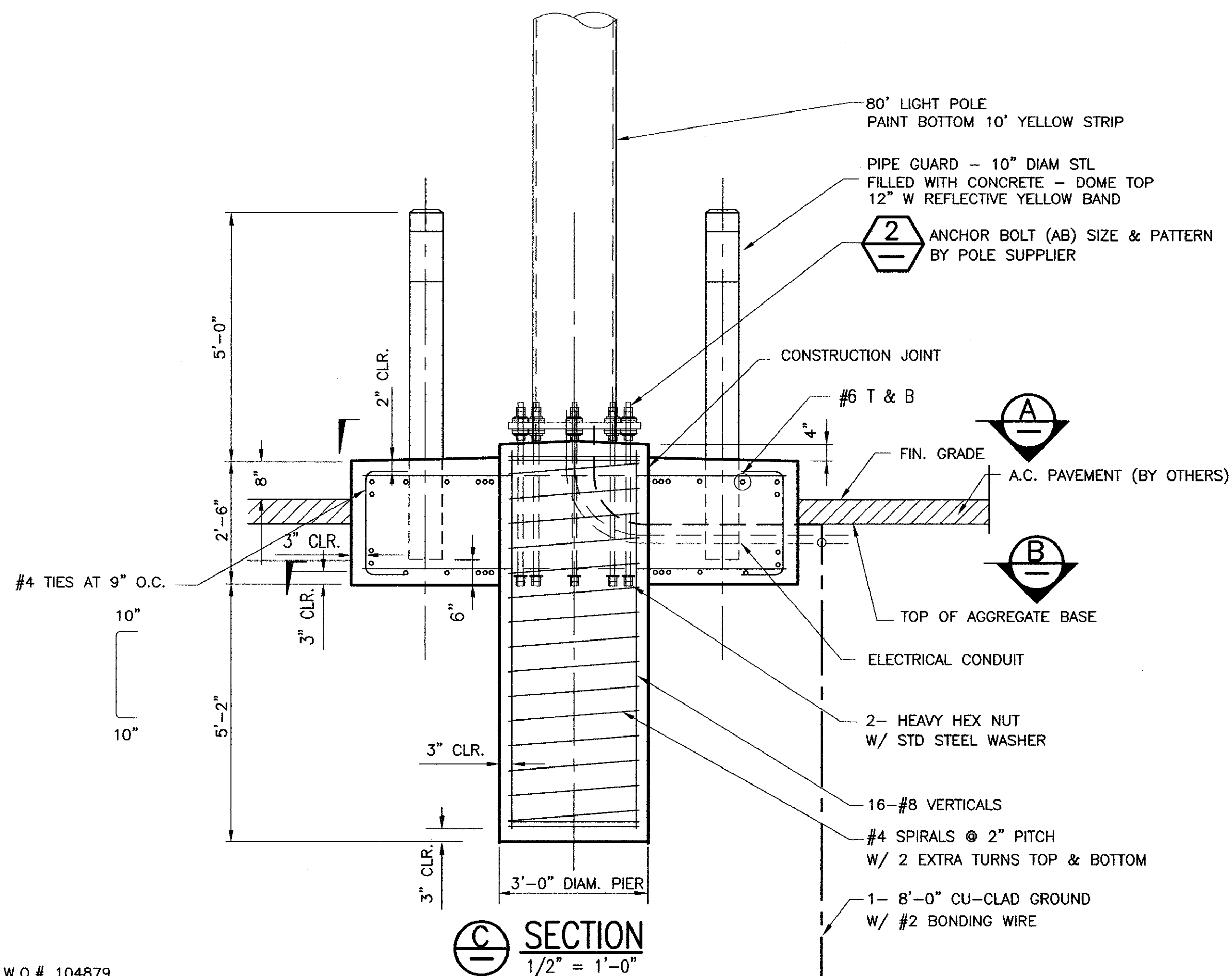
NOTE:
SEE SHEET G7 FOR LOCATION OF LIGHT POLES AND FIRE HYDRANTS. LIGHT POLE AND FIRE HYDRANT LOCATIONS DETERMINE LOCATION AND ORIENTATION OF FOUNDATIONS.



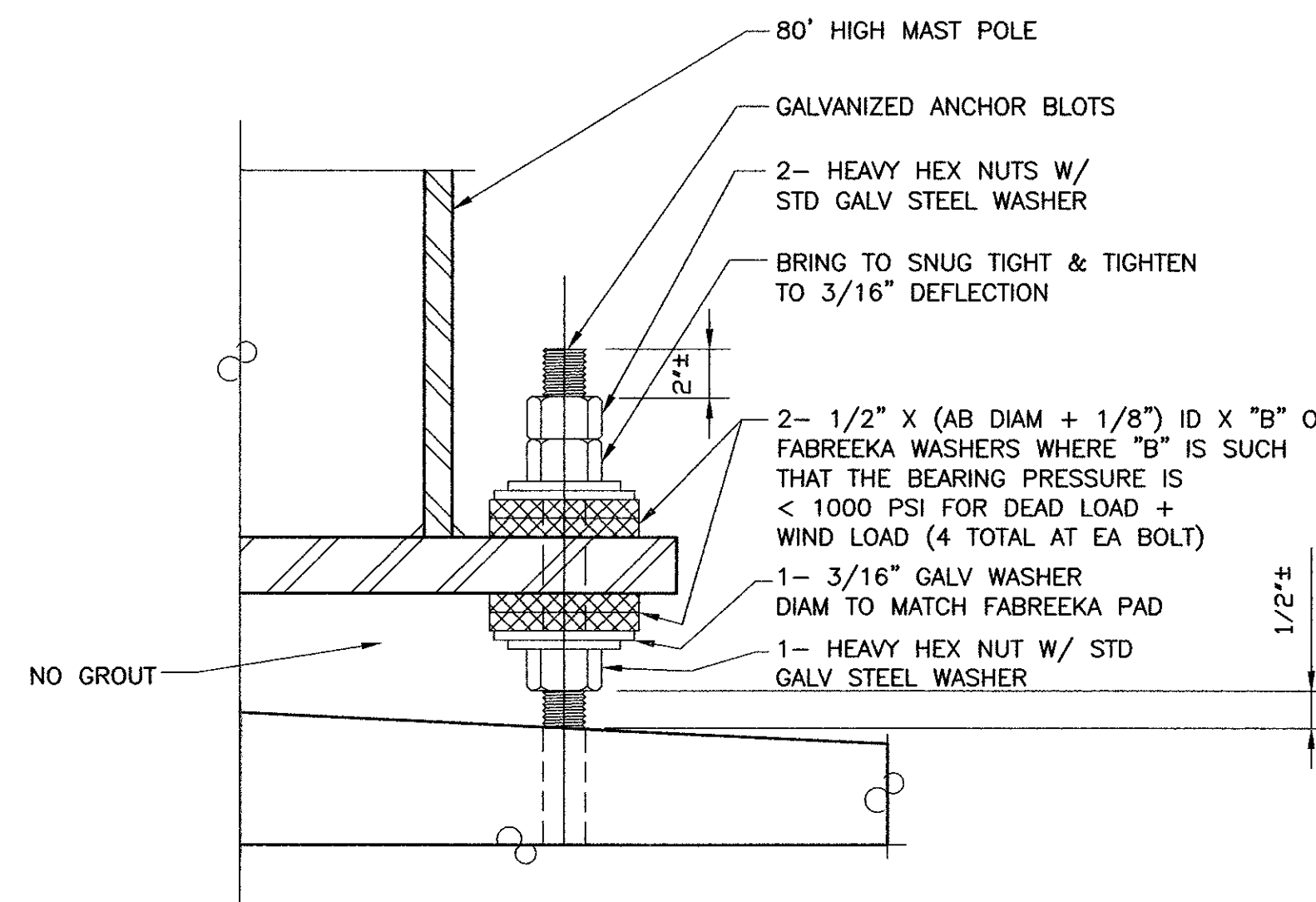
A PLAN SECTION AT TOP MAT
1/2" = 1'-0"



B PLAN SECTION AT BOTTOM MAT
1/2" = 1'-0"



C SECTION
1/2" = 1'-0"



2 DETAIL
3" = 1'-0"

NOTE:
1. ALL EXTERIOR CONCRETE CORNERS SHALL BE CHAMFERED TO A LEG DIMENSION OF 3/4 IN., UNLESS INDICATED OTHERWISE.

CAUTION: THIS PLAN MAY BE REDUCED

0 1" 2" ORIGINAL SCALE

W.O.# 104879

REFERENCES:
PLANS
FIELD BOOKS
"PORT OF OAKLAND DATUM"
IS 3.20' BELOW N.G.V.D. '29
CAUTION:
CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

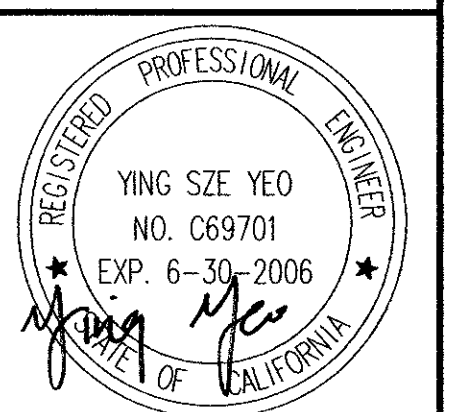
DRAWN _____ STAFF
DESIGNED _____
CHECKED _____
REG. ENGINEER NO. _____
REG. ENGINEER NO. _____

PORT OF OAKLAND
530 WATER ST. OAKLAND, CALIFORNIA

MARITIME SUPPORT CENTER

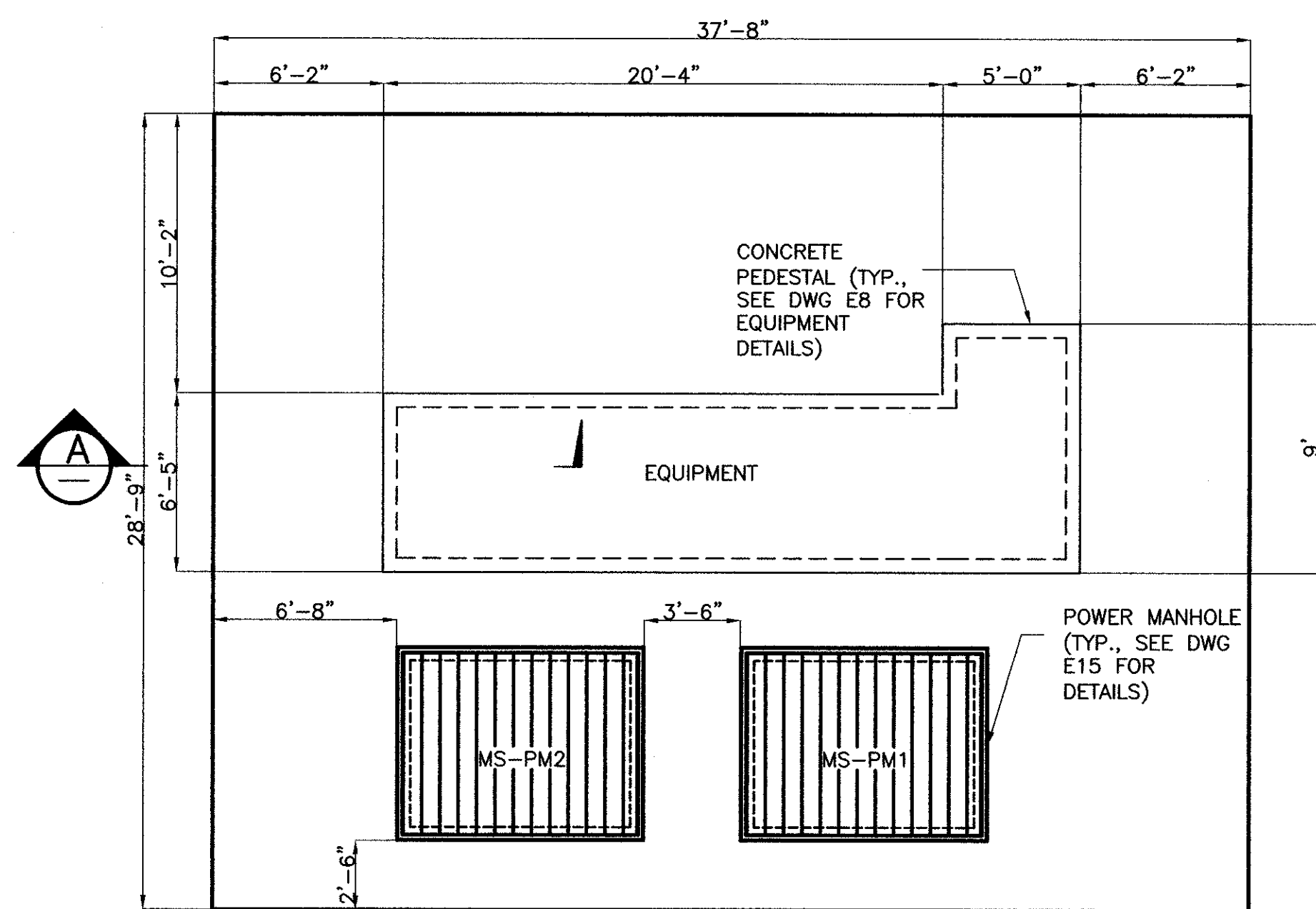
CONSTRUCTION OF PHASE 3B CONTAINER
TERMINAL YARD IMPROVEMENTS

LIGHT POLE FOUNDATION



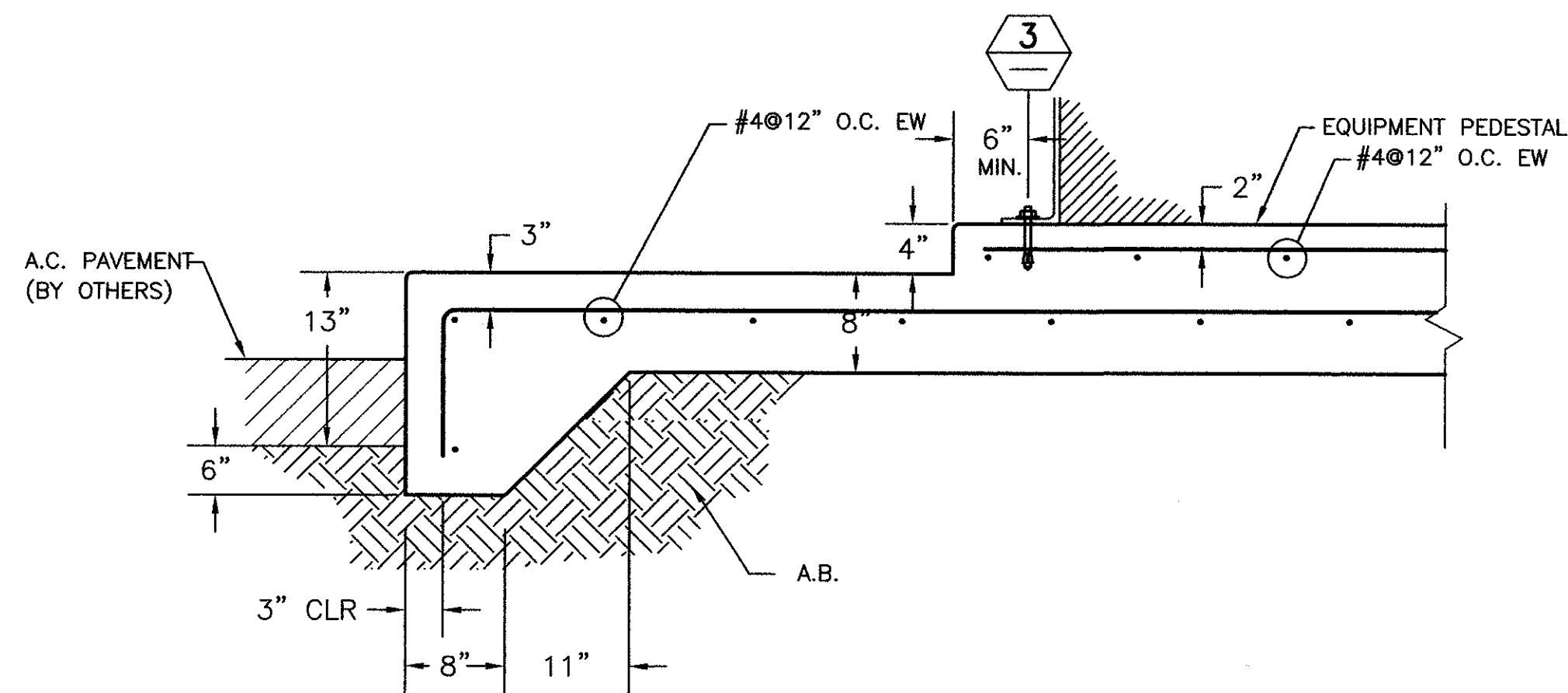
DATE: 3-24-06
SCALE: AS SHOWN
SHEET: 22 OF 57 SHEETS
S1 AA- 3956

NOTE:
 1. ALL EXTERIOR CONCRETE CORNERS SHALL BE CHAMFERED TO A LEG DIMENSION OF 3/4 IN., UNLESS INDICATED OTHERWISE.

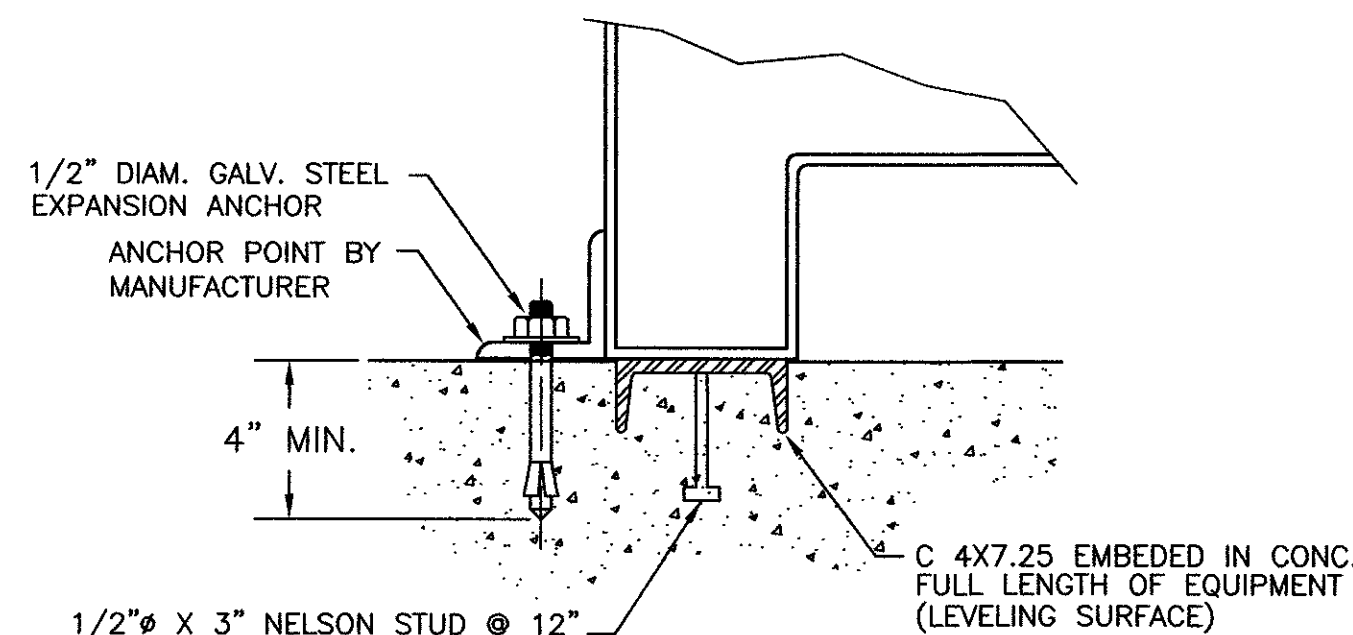


1 MAIN SUBSTATION SLAB LAYOUT (PLAN)
 SCALE: 1"=5'-0"

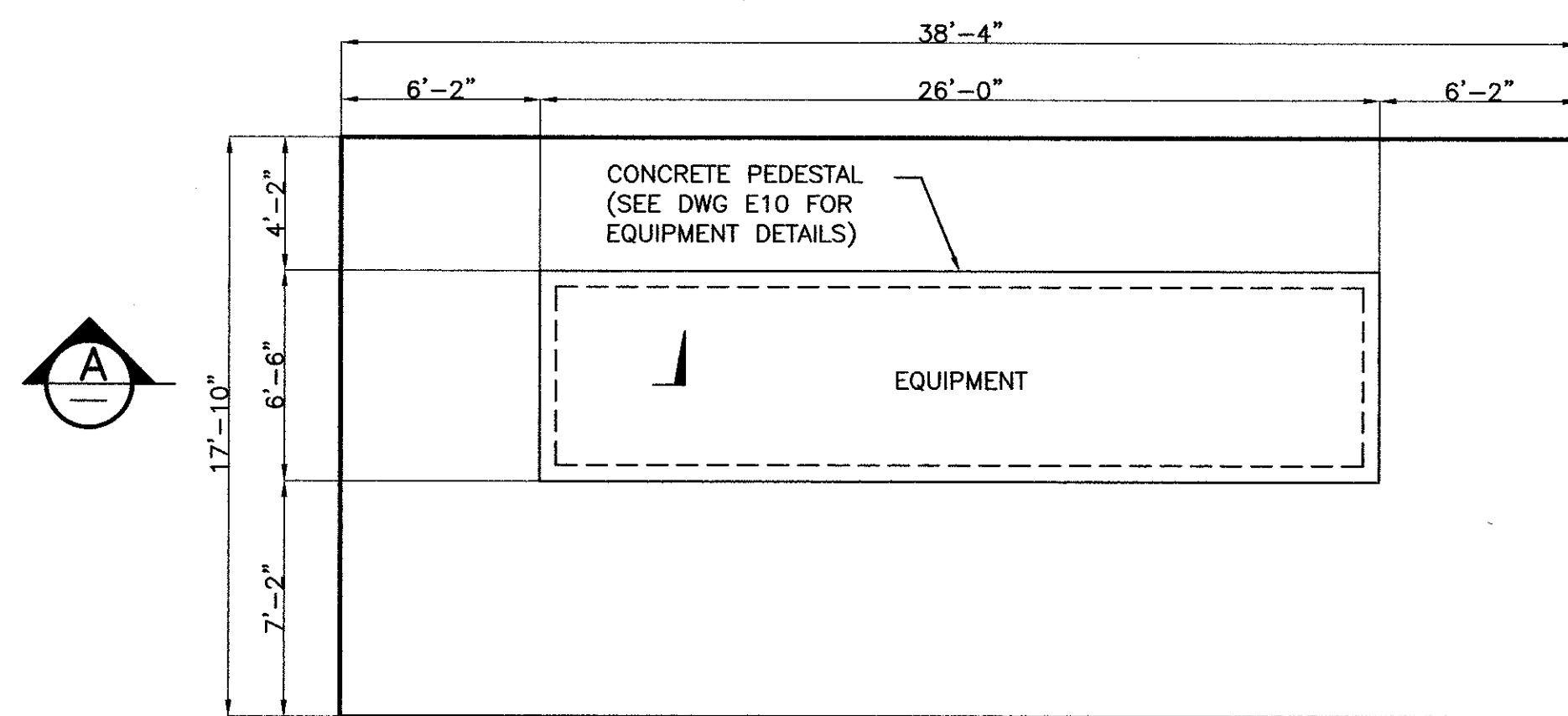
NOTE:
 SEE **4** FOR ADDITIONAL REINF DETAIL AT MANHOLES



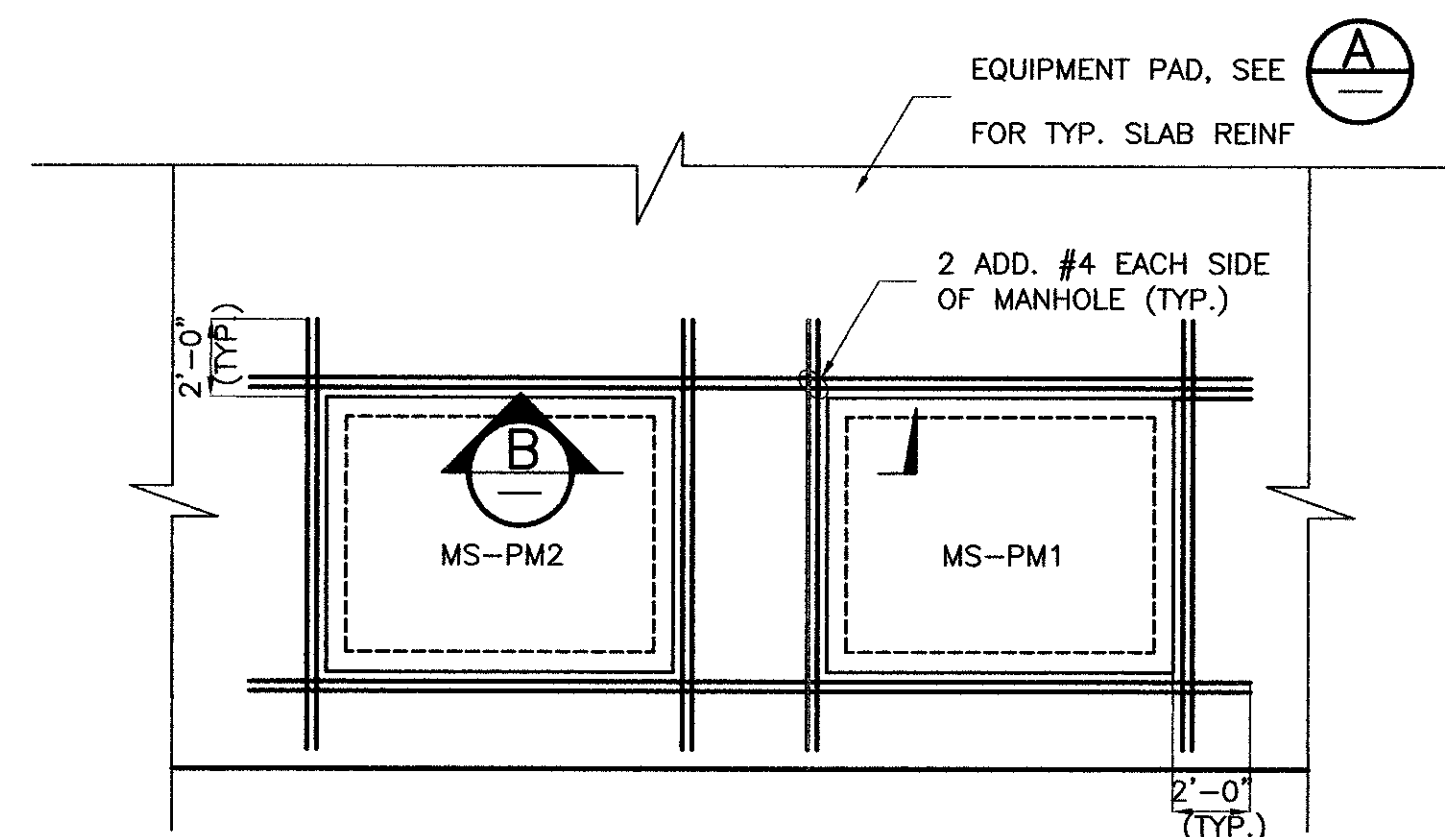
A SLAB SECTION
 SCALE: 1"=1'-0"



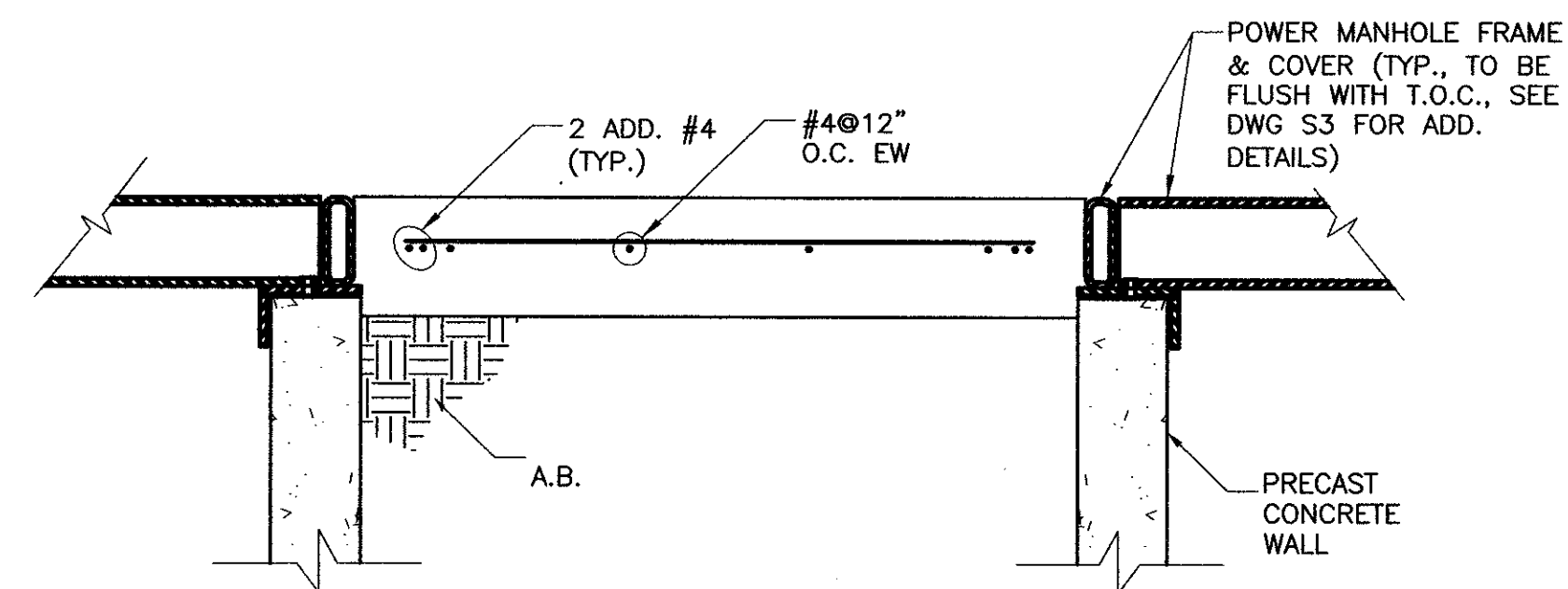
3 EQUIPMENT ANCHORAGE
 SCALE: 3/8"=1'-0"



2 UNIT SUBSTATION SLAB LAYOUT (PLAN)
 SCALE: 1"=5'-0"

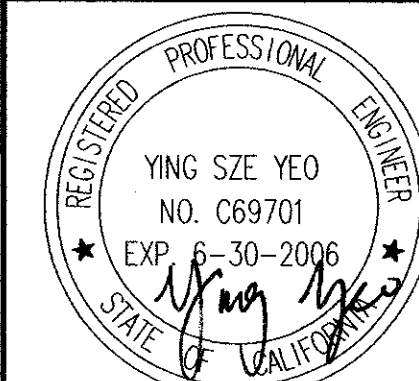


4 SLAB REINFORCEMENT AT MANHOLE
 SCALE: 1"=5'-0"



B SECTION
 SCALE: 1"=1'-0"

CAUTION: THIS PLAN MAY BE REDUCED



W.O.# 104879

REFERENCES:
 PLANS
 FIELD BOOKS
 "PORT OF OAKLAND DATUM"
 IS 3.20' BELOW N.G.V.D. '29
 CAUTION:
 CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

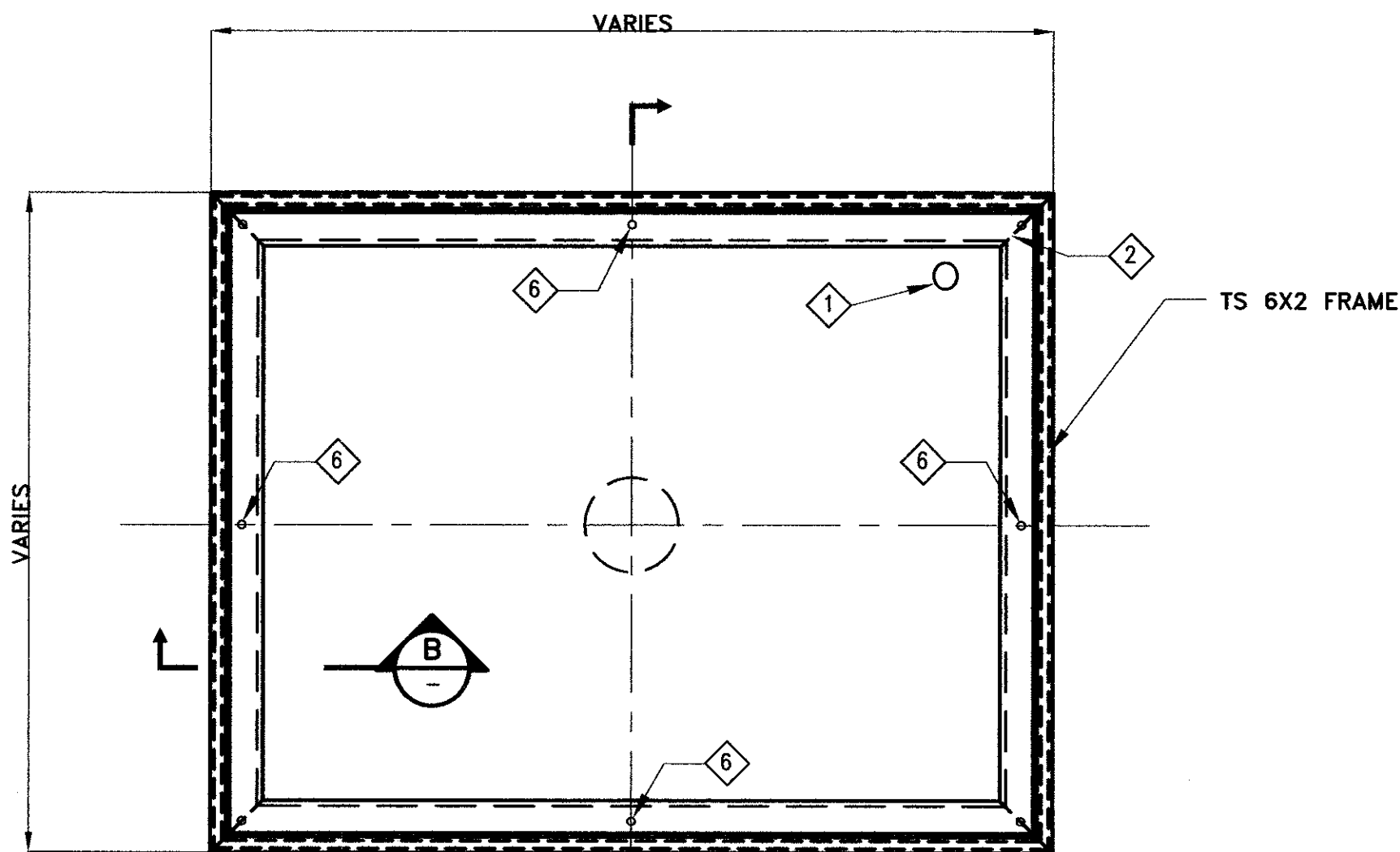
DRAWN _____ STAFF
 DESIGNED _____
 CHECKED _____
 REG. ENGINEER NO. _____
 REG. ENGINEER NO. _____

PORT OF OAKLAND
 530 WATER ST. OAKLAND, CALIFORNIA

MARITIME SUPPORT CENTER
 CONSTRUCTION OF PHASE 3B CONTAINER TERMINAL YARD IMPROVEMENTS
 EQUIPMENT PADS

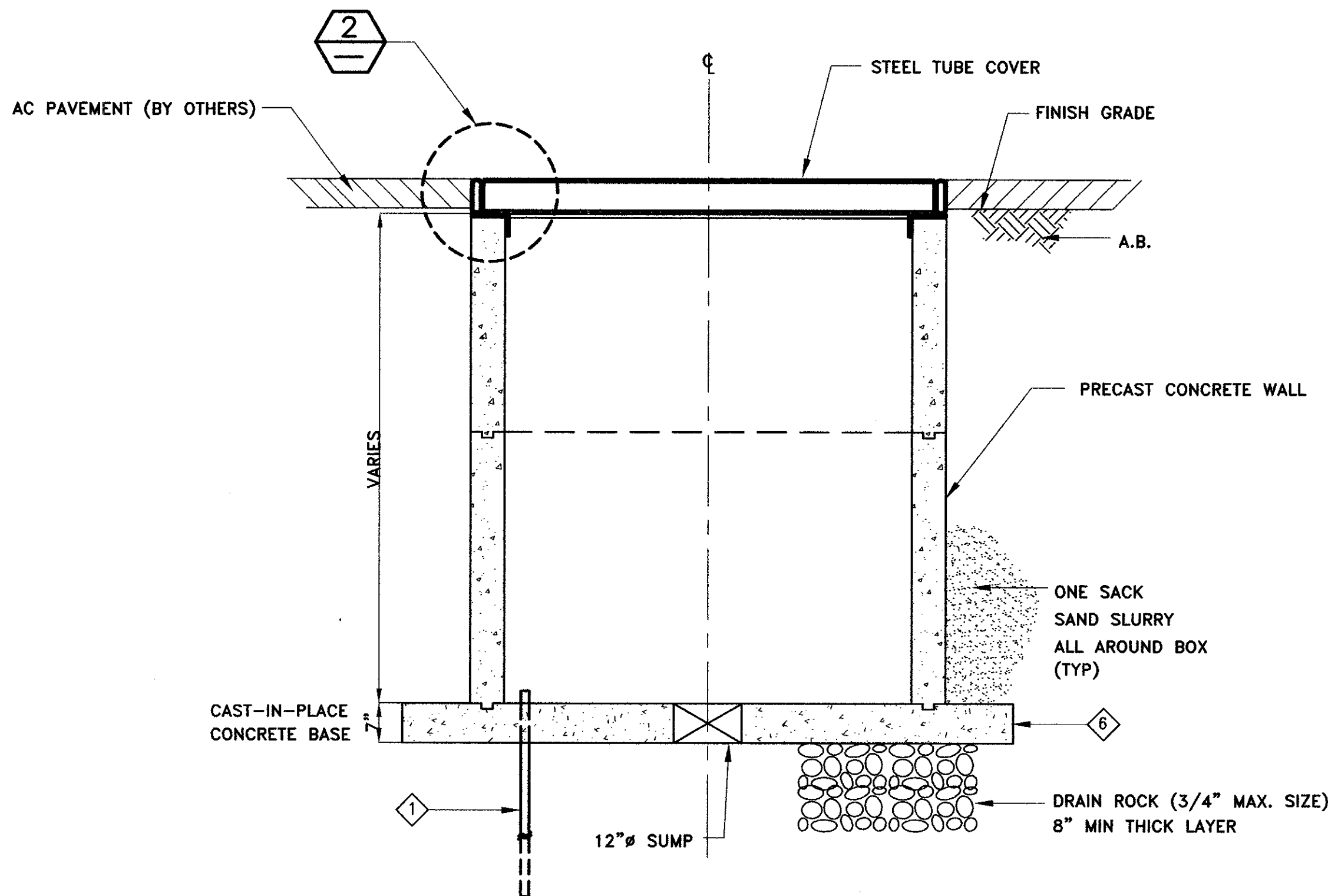
DATE: 3-24-06
 SCALE: AS SHOWN
 SHEET: 23 OF 56 SHEETS
S2 AA-3956

PRINT DATE: 04-10-06 14:06:56 P:\Active Projects\DNVMS-C-Port of Oakland MSC Development\CADD\project sheets\23-AA-3956-S2.dwg Printed by ying

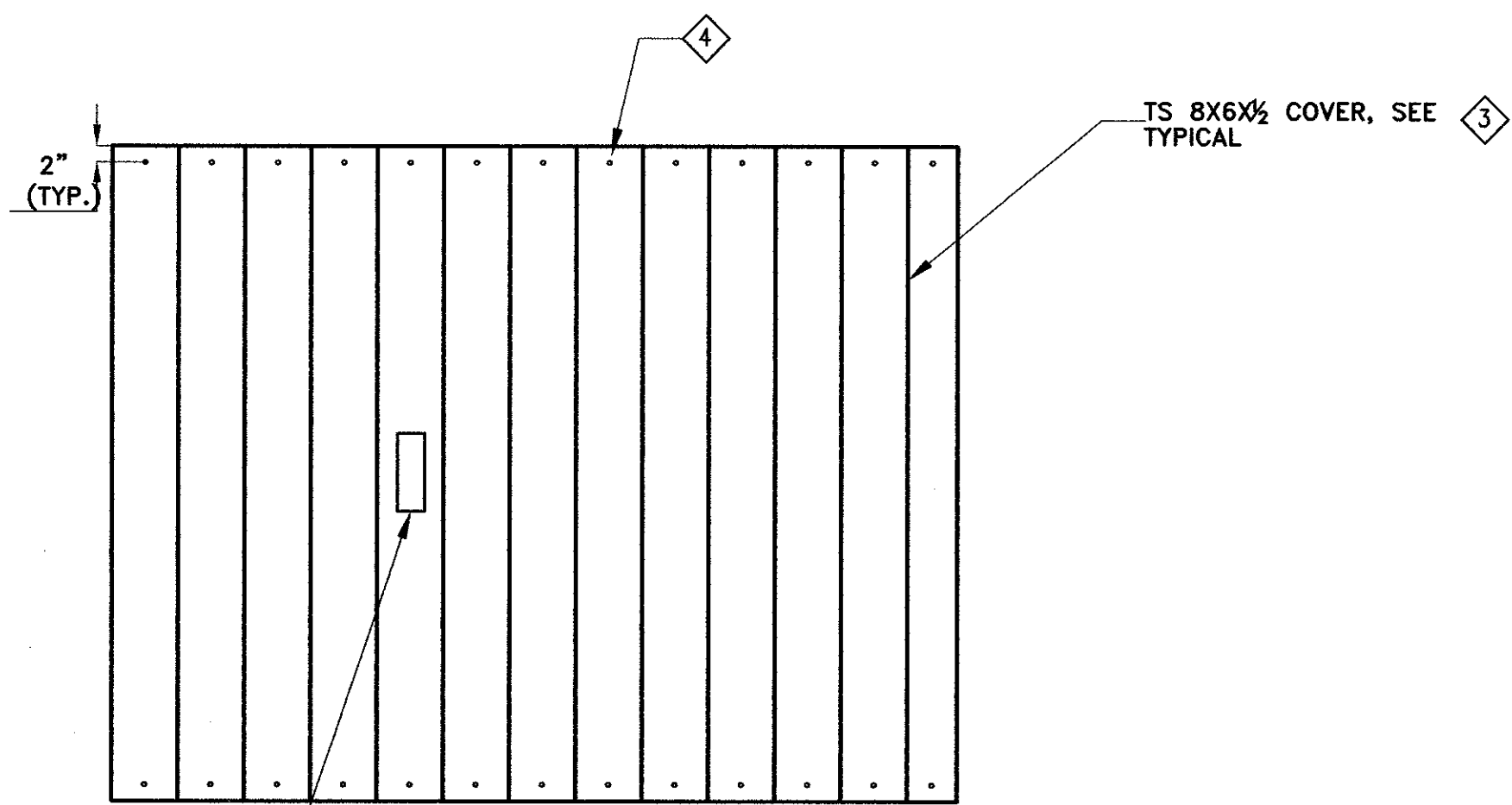


NOTE
VAULT COVER NOT
SHOWN FOR CLARITY

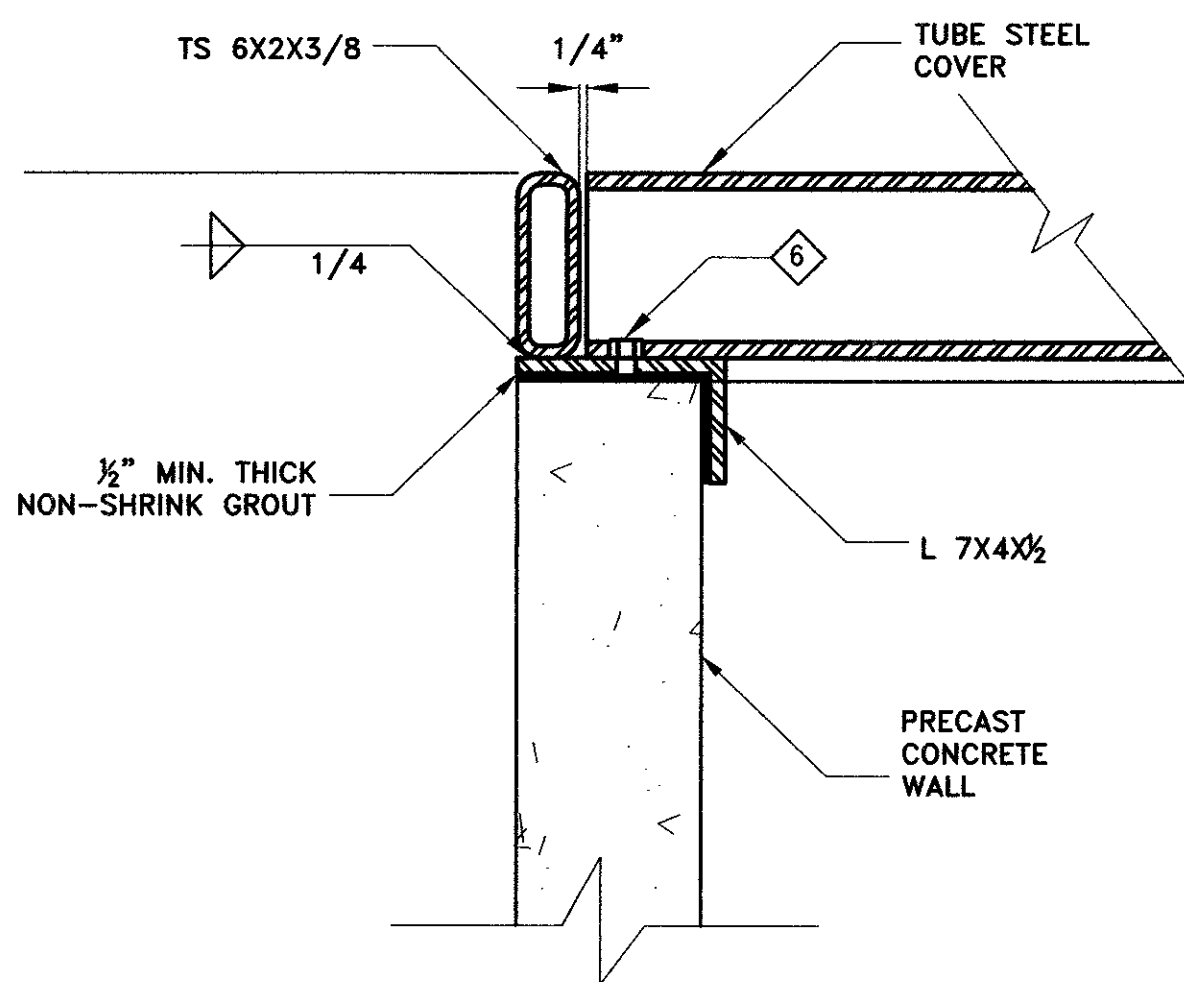
PLAN - VAULT
N.T.S.



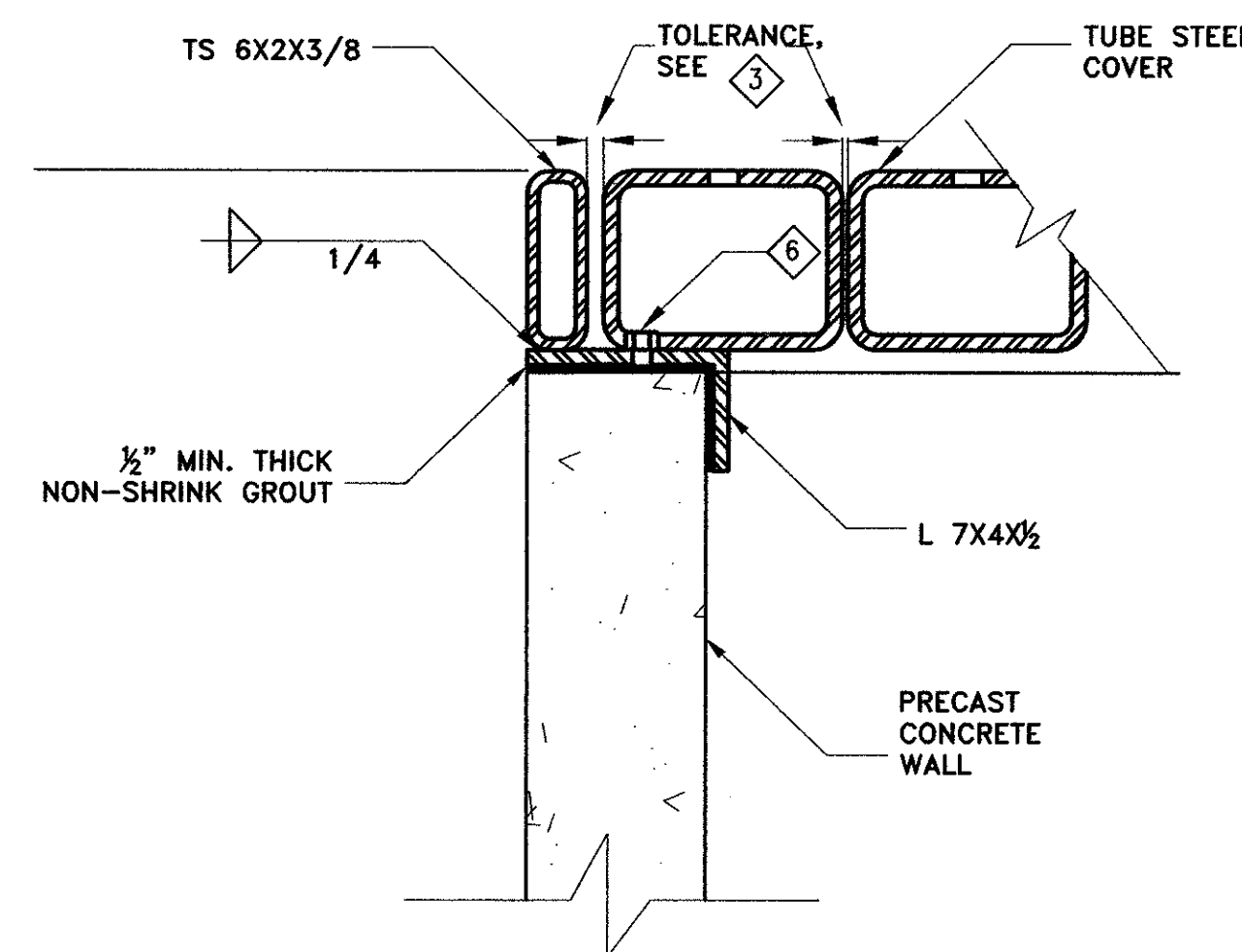
A SECTION
N.T.S.



PLAN - VAULT COVER
N.T.S.



A VAULT WALL AND FRAME DETAIL
N.T.S.



B VAULT WALL AND FRAME DETAIL
N.T.S.

KEY NOTES

- 1 1"Ø GROUND ROD KNOCKOUT. PROVIDE 3/4" X 10" GROUND ROD IN ALL PB'S. GROUT IN PLACE.
- 2 MITRE STEEL TUBE FRAME AND ANGLE AT CORNERS. CONNECT WITH FULL PENETRATION BUTT WELD
- 3 SUM OF TOLERANCES IN THE LONGITUDINAL DIRECTION SHALL BE MIN 1" AND MAX 3". CONTRACTOR MAY PROVIDE A TS6X6X1/2 OR TS6X4X1/2 SECTION AT ONE END OF VAULT COVER TO FIT WITHIN FRAME.
- 4 PICK HOLES, 1" DIAMETER TYPICAL.
- 5 VAULT COVER AND FRAME SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION.
- 6 LEVELING NUTS, REMOVE LEVELING NUTS AFTER GROUT HAS SET AND BACKFILL WITH GROUT
- 7 SEE DRAWING E15 FOR MANHOLE AND PULLBOX DIMENSIONS
- 8 PRECAST CONCRETE VAULT SHALL BE CAPABLE OF SUPPORTING 135K LOAD OVER AN AREA OF 30"X30".
- 9 ALL CONCRETE SHALL BE NOMINAL WEIGHT CONCRETE WITH COMPRESSIVE STRENGTH (f'c) AT 28 DAYS AT 4,000 PSI.
- 10 CONTRACTOR SHALL COORDINATE WITH VAULT MANUFACTURER AND FRAME MANUFACTURER TO ENSURE FRAME CAN BE PROPERLY INSTALLED.

PRINT DATE 04-10-06 14:07:08 P:\Active Projects\DNMISC-Port of Oakland MSC Development\CADD\project sheets\24-AA-3956-S3.dwg Printed by yingyao

W.O.# 104879

REFERENCES:
PLANS
FIELD BOOKS

"PORT OF OAKLAND DATUM"
IS 3.20' BELOW N.G.V.D. '29

CAUTION:
CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

DRAWN	STAFF
DESIGNED	
CHECKED	

CAUTION: THIS PLAN MAY BE REDUCED

0 1 2 ORIGINAL SCALE

PORT OF OAKLAND

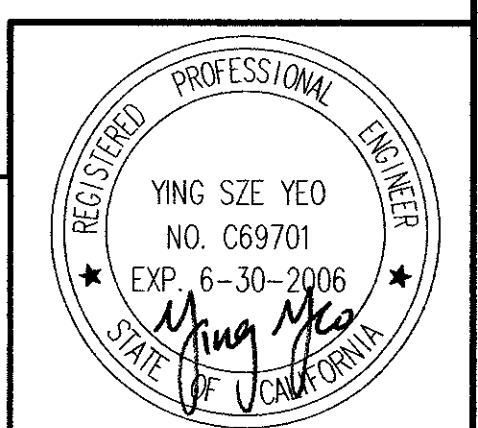
530 WATER ST. OAKLAND, CALIFORNIA

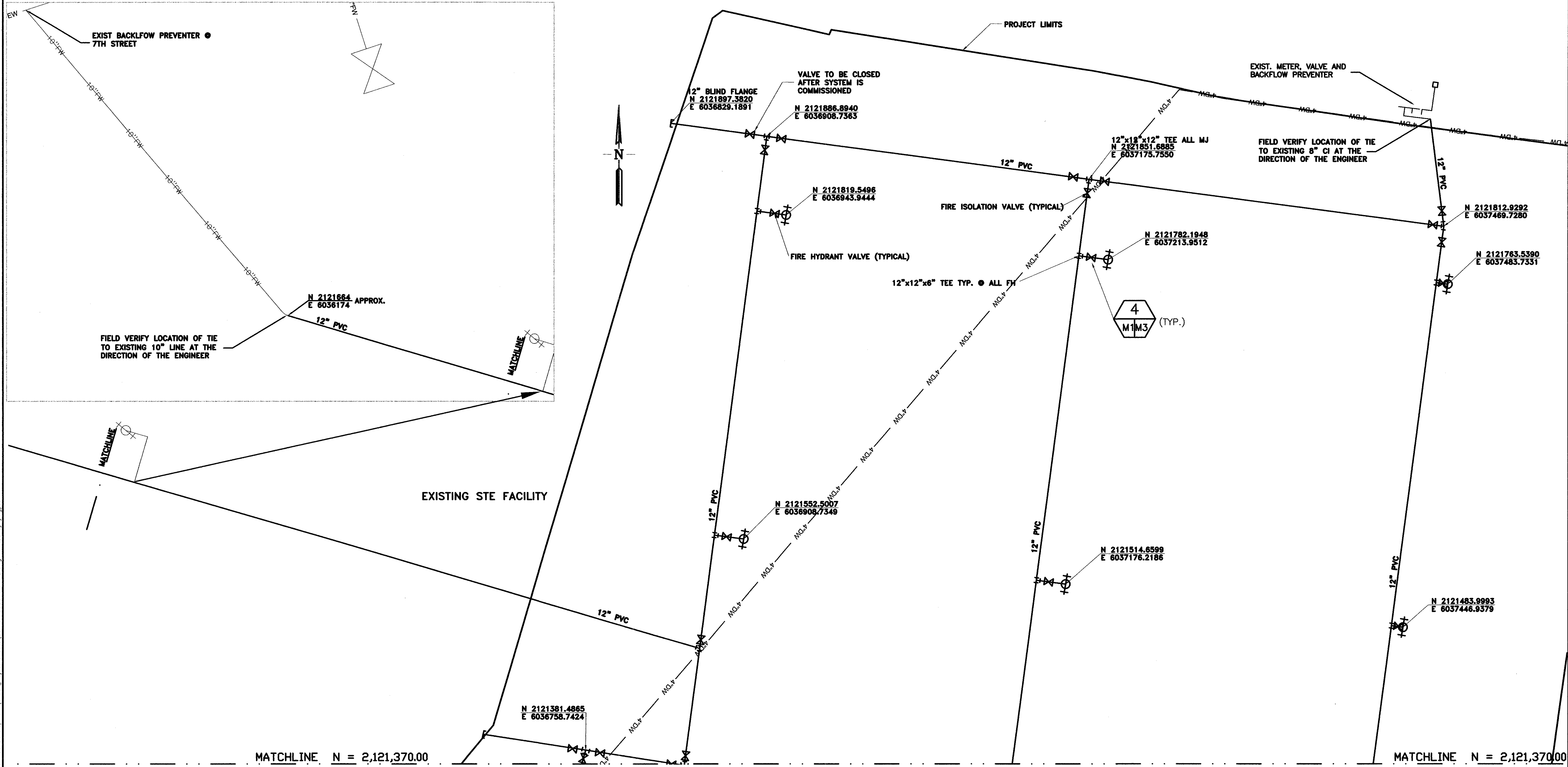
MARITIME SUPPORT CENTER

**CONSTRUCTION OF PHASE 3B CONTAINER
TERMINAL YARD IMPROVEMENTS**

MISCELLANEOUS STRUCTURAL DETAILS

DATE:	3-24-06
SCALE:	AS SHOWN
SHEET:	24 OF 56 SHEETS
S3	AA-3956





- NOTE:**
1. INCLUDE 3' LONG BENTONITE PLUGS IN TRENCH AT EVERY 300' AND WITHIN 50' OF WHERE A LATERAL PIPE ENTERS A MAIN PIPE.
 2. CONTRACTOR SHALL SUBMIT A PIPELINE REPLACEMENT PLAN FOR WORK WITHIN THE EXISTING STE FACILITY TO THE ENGINEER FOR REVIEW AND APPROVAL. WORK WITHIN THE EXISTING STE FACILITY WILL BE STAGED TO MINIMIZE DISRUPTION TO THEIR OPERATIONS AND COORDINATED WITH THE TERMINAL OPERATOR. TEMPORARY TRENCH COVERS MEETING THE LOAD CRITERIA IDENTIFIED IN THESE PLANS MAY BE NECESSARY FOR THIS WORK.

W.O.# 104879

REFERENCES:
PLANS
FIELD BOOKS

"PORT OF OAKLAND DATUM" IS 3.20' BELOW N.G.V.D. '29

CAUTION: CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

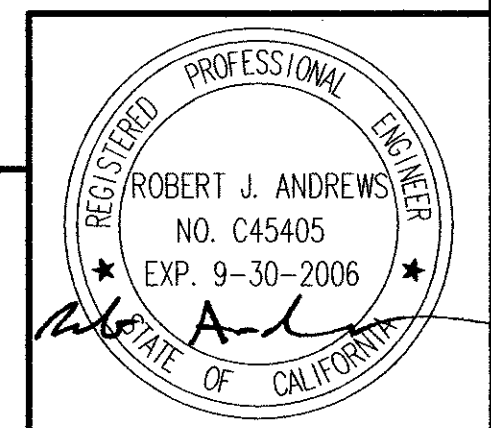
DRAWN	STAFF
DESIGNED	REG. ENGINEER NO.
CHECKED	REG. ENGINEER NO.

CAUTION: THIS PLAN MAY BE REDUCED

0 1" 2" ORIGINAL SCALE

PORT OF OAKLAND

530 WATER ST. OAKLAND, CALIFORNIA

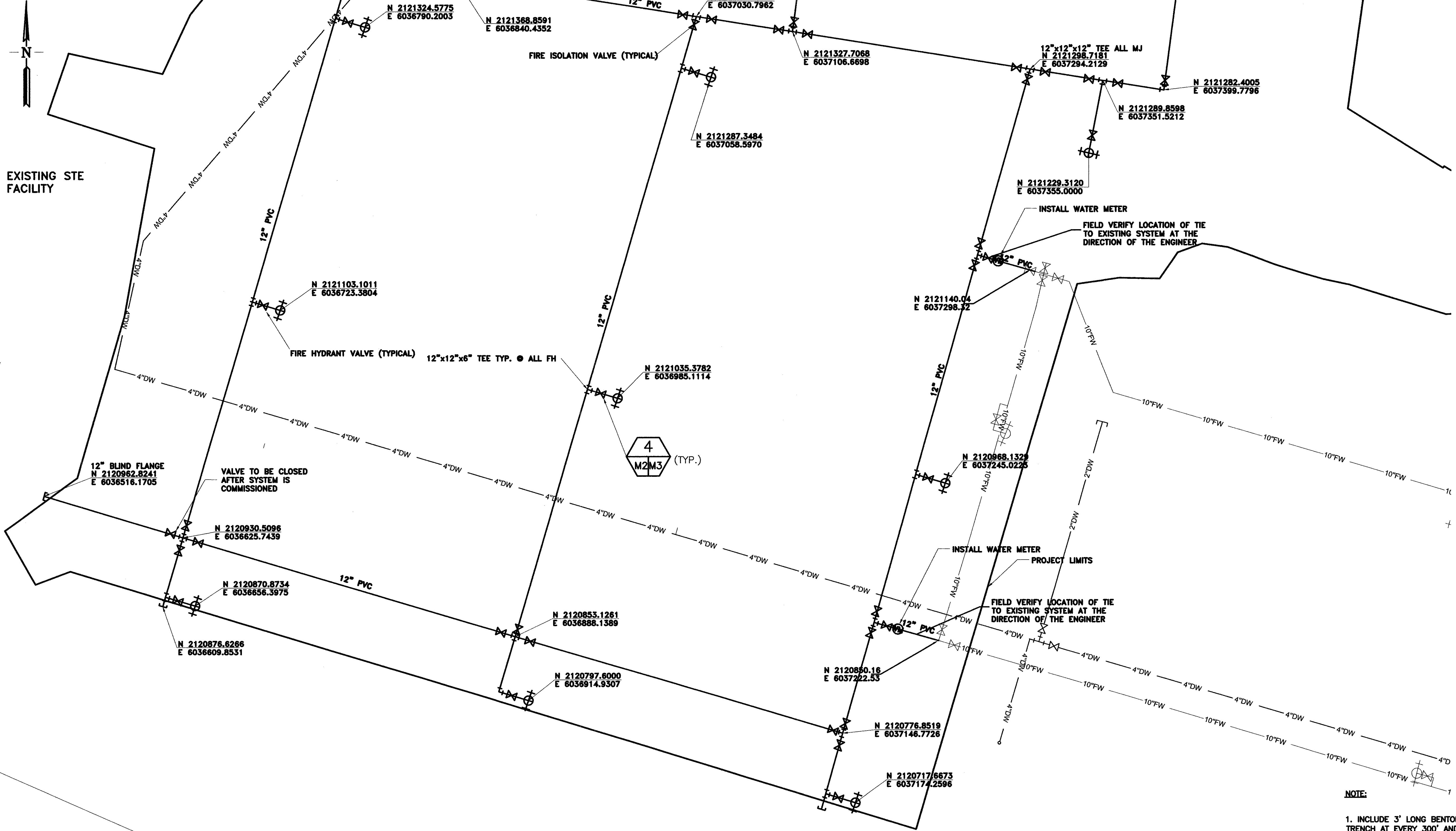


MARITIME SUPPORT CENTER	DATE: 3-24-06
CONSTRUCTION OF PHASE 3B CONTAINER TERMINAL YARD IMPROVEMENTS	SCALE: 1" = 50'
WATER SYSTEM PLAN SHEET 1 OF 2	SHEET: 25 OF 56 SHEETS
M1 AA-3956	

PRINT DATE 04-10-06 14:08:12 P:\Active Projects\JONMSC--Port of Oakland MSC Development\CADD\project sheets\25-AA-3956-M1-M2.dwg Printed by yingyeo

MATCHLINE N = 2,121,370.00

MATCHLINE N = 2,121,370.00



NOTE:
 1. INCLUDE 3' LONG BENTONITE PLUGS IN TRENCH AT EVERY 300' AND WITHIN 50' OF WHERE A LATERAL PIPE ENTERS A MAIN PIPE.

PRINT DATE: 04-10-06 14:08:22 P:\Active Projects\DNOMISC-Port of Oakland MSC Development\CADD\project sheets\AS-AA-3956-M1-M2.dwg Printed by jingyao

W.O.# 104879

CAUTION: THIS PLAN MAY BE REDUCED ORIGINAL SCALE

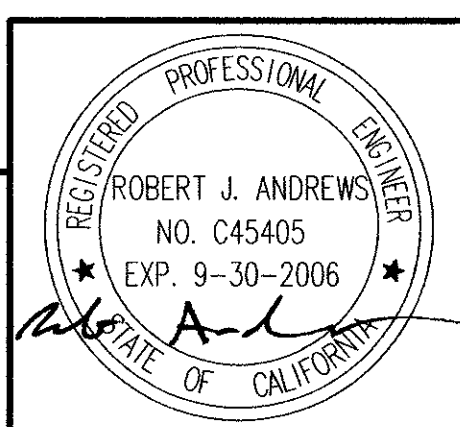
REFERENCES:
 PLANS
 FIELD BOOKS
 "PORT OF OAKLAND DATUM"
 IS 3.20' BELOW N.G.V.D. '29
 CAUTION:
 CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

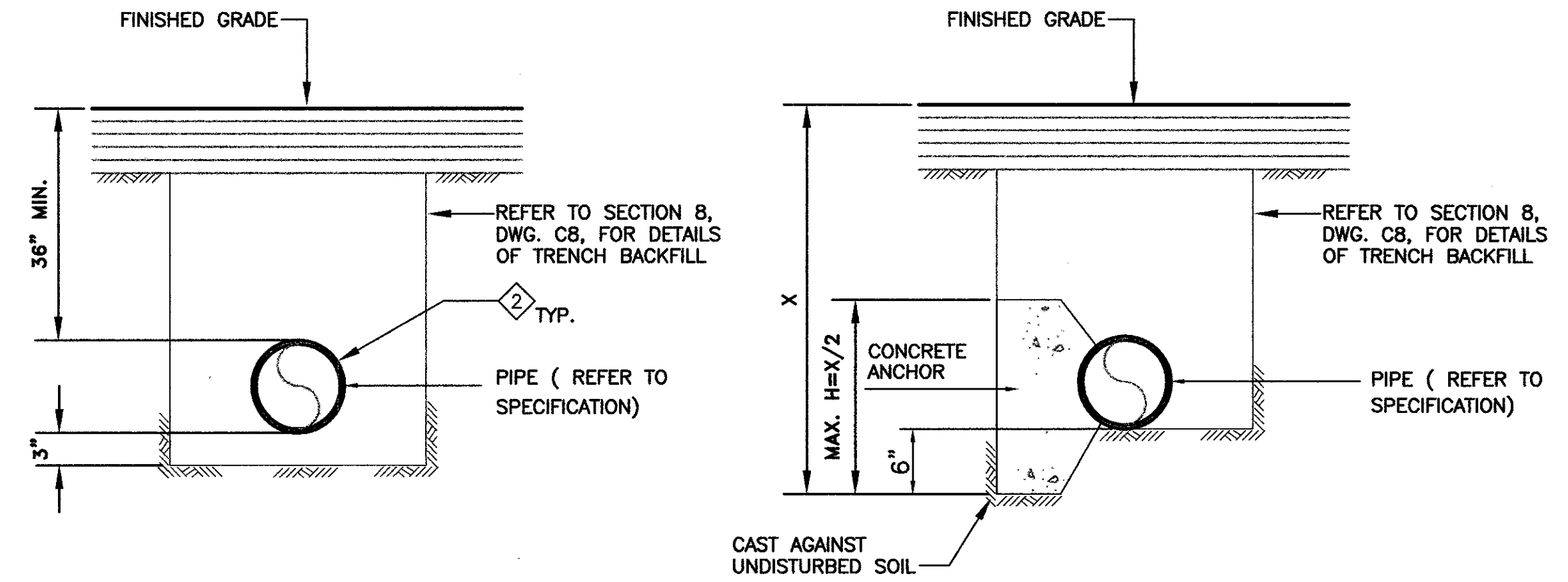
DRAWN _____ STAFF
 DESIGNED _____
 CHECKED _____
 REG. ENGINEER NO. _____
 REG. ENGINEER NO. _____

PORT OF OAKLAND
 530 WATER ST. OAKLAND, CALIFORNIA

MARITIME SUPPORT CENTER
**CONSTRUCTION OF PHASE 3B CONTAINER
 TERMINAL YARD IMPROVEMENTS**
 WATER SYSTEM PLAN SHEET 2 OF 2

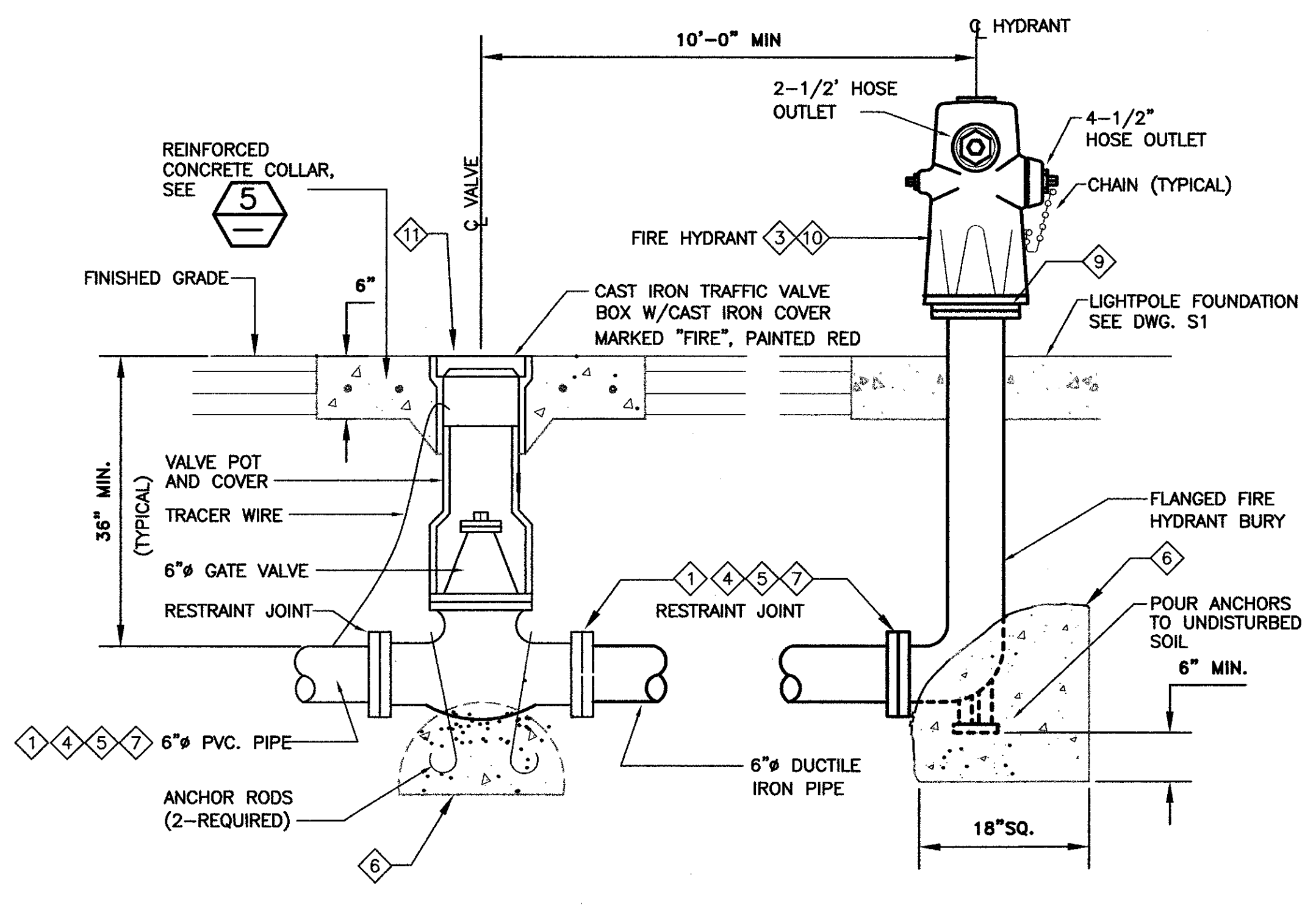


DATE: 3-24-06
 SCALE: 1" = 40'
 SHEET: 26 OF 56 SHEETS
M2 AA-3956



1 TYPICAL FIREWATER TRENCH DETAIL
1"=1'-0"

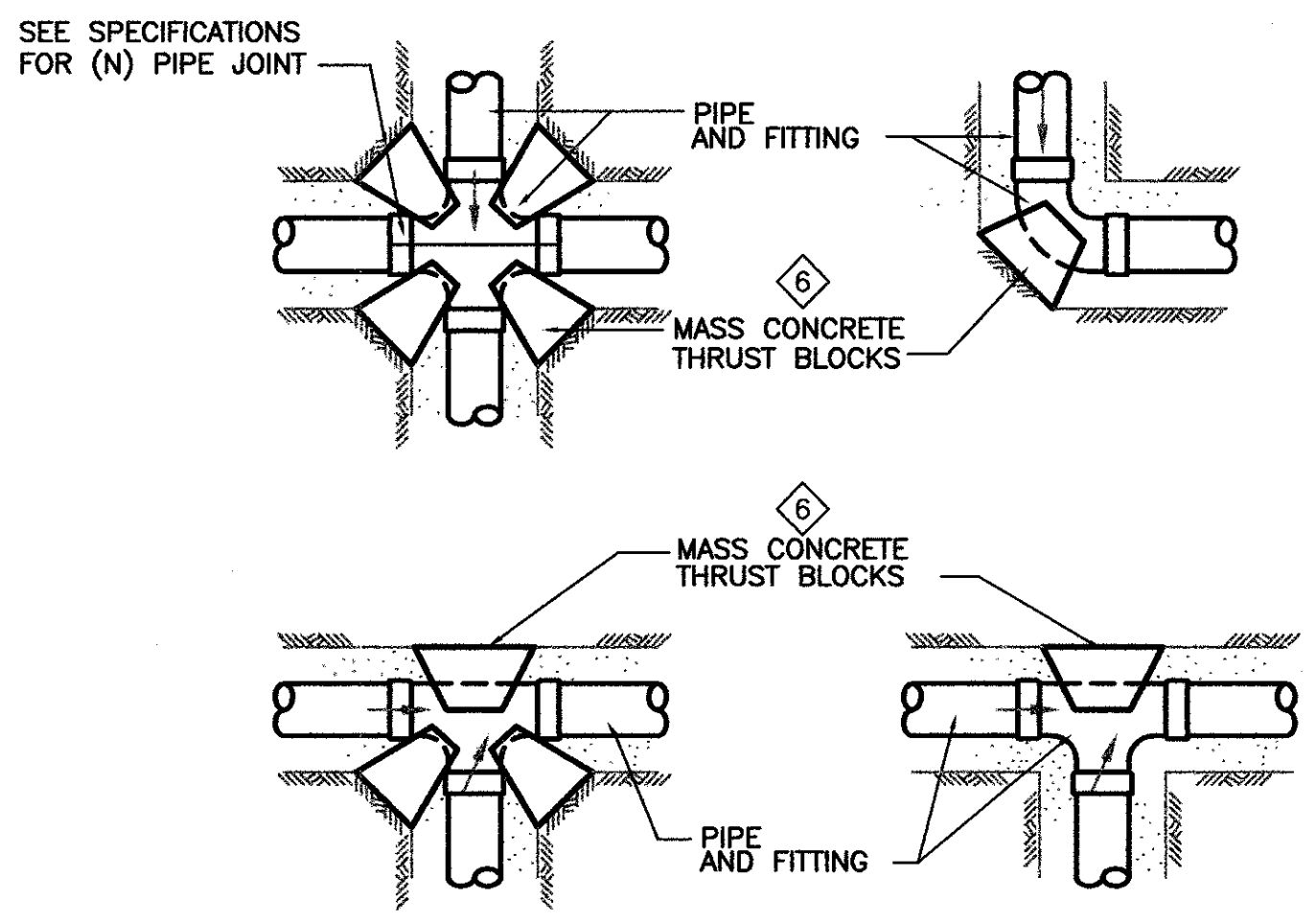
3 TYPICAL ANCHOR BLOCK FOR PIPE
1"=1'-0"



4 FIRE HYDRANT INSTALLATION DETAIL
NTS

SHEET NOTES

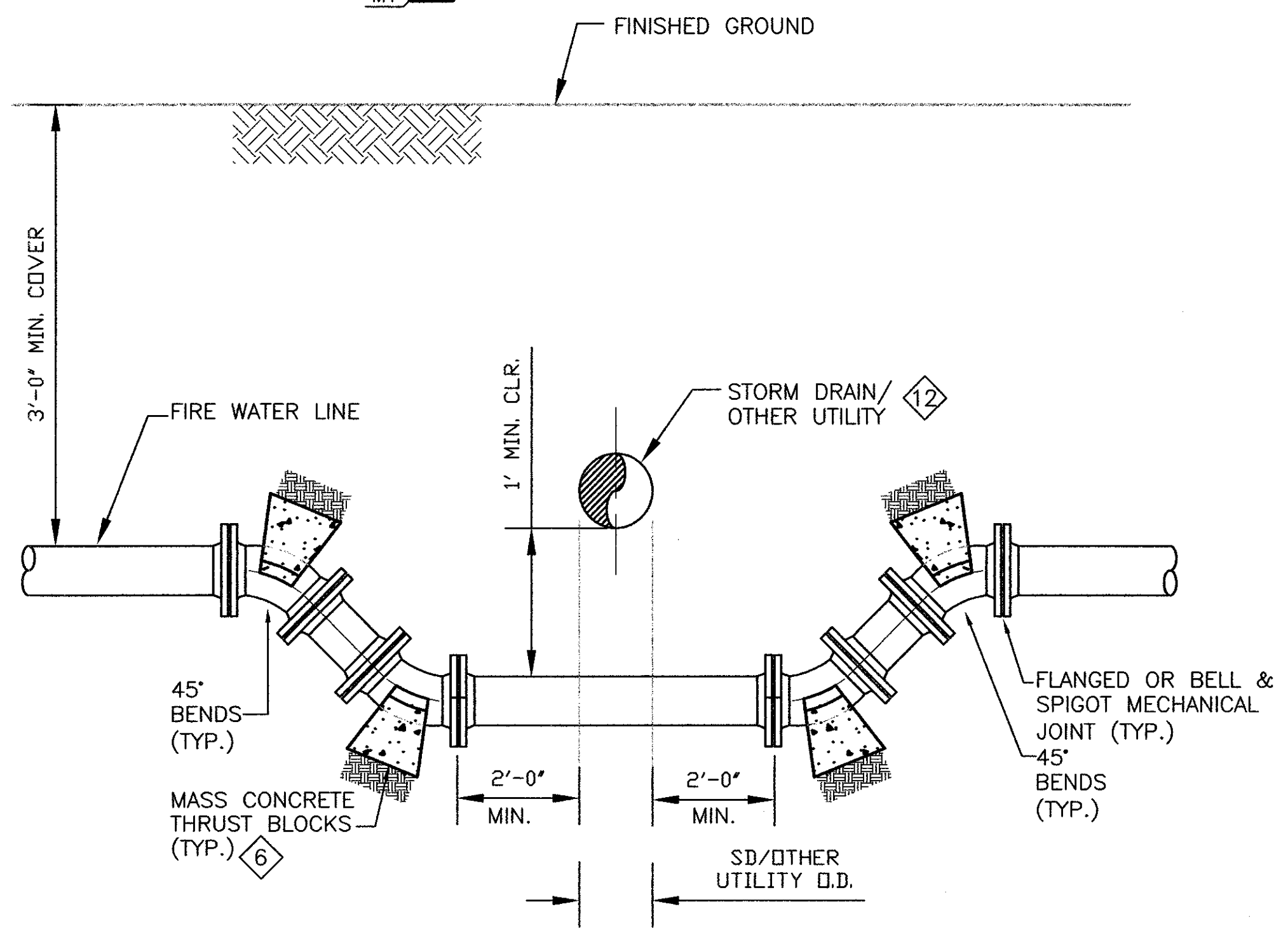
- 1 ALL NUTS AND BOLTS SHALL HAVE TWO COATS OF BITUMASTIC PAINT BEFORE BACKFILLING.
- 2 PIPES SHALL BE MECHANICAL JOINTS WITH RESTRAINT AT EVERY 2 STRAIGHT PIPE JOINTS. RESTRAIN WORKING AND TEST PRESSURES AS STATED BY THE MANUFACTURER AND PER SPECIFICATION. ALL JOINTS SHALL BE CLEAN PRIOR TO ASSEMBLY.
- 3 UNLESS OTHERWISE SPECIFIED, INSTALLATION OF PIPING SHALL CONFORM TO NFPA 24 CHAPTERS 8 AND 9.
- 4 RESTRAINING JOINTS SHALL BE USED WHERE MECHANICAL JOINTS, VALVES OR FITTINGS ARE INSTALLED.
- 5 ALL NUTS, SCREWS AND WASHERS SHALL BE TYPE 316 STAINLESS STEEL.
- 6 CONCRETE THRUST BLOCKS SHALL BE POURED AT ALL ELBOW, TEES, AND AT CAPPED OR PLUGGED ENDS OF LINE. CAST AGAINST UNDISTURBED SOIL OR FILL COMPACTED TO AT LEAST 90% STANDARD PROCTER DENSITY.
- 7 JOINTS AND BOLTING SHALL BE KEPT FREE OF CONCRETE. REMOVE FORMS BEFORE BACKFILLING.
- 8 ALL SIZES AND DIMENSIONS SHOWN ARE NOMINAL. VERIFY ALL DIMENSIONS IN THE FIELD. MAKE ALLOWANCE FOR GASKETS.
- 9 PROVIDE FIRE HYDRANT BREAK AWAY BOLTS AND BREAK AWAY SPOOL PER EBMUD STANDARDS. TYPICAL FOR ALL FIRE HYDRANTS.
- 10 HYDRANTS SHALL BE PAINTED SAFETY RED WITH RUSTOLEUM #7660.
- 11 VALVE BOX WITH REINFORCED CONCRETE DETAIL AND INSTALLATION SHALL ALSO APPLY TO FIREWATER ISOLATION VALVES.
- 12 SUPPORT AND PROTECT EXISTING UTILITY DURING CROSSING INSTALLATION.
- 13 INSTALL TRACER WIRE UNDER NON-METALLIC PIPES. DAYLIGHT TRACER WIRE IN VALVE POT.
- 14 PVC PIPE CAN BE INSTALLED UNDER UTILITIES FOLLOWING MANUFACTURERS ALLOWABLE BENDING RECOMMENDATIONS



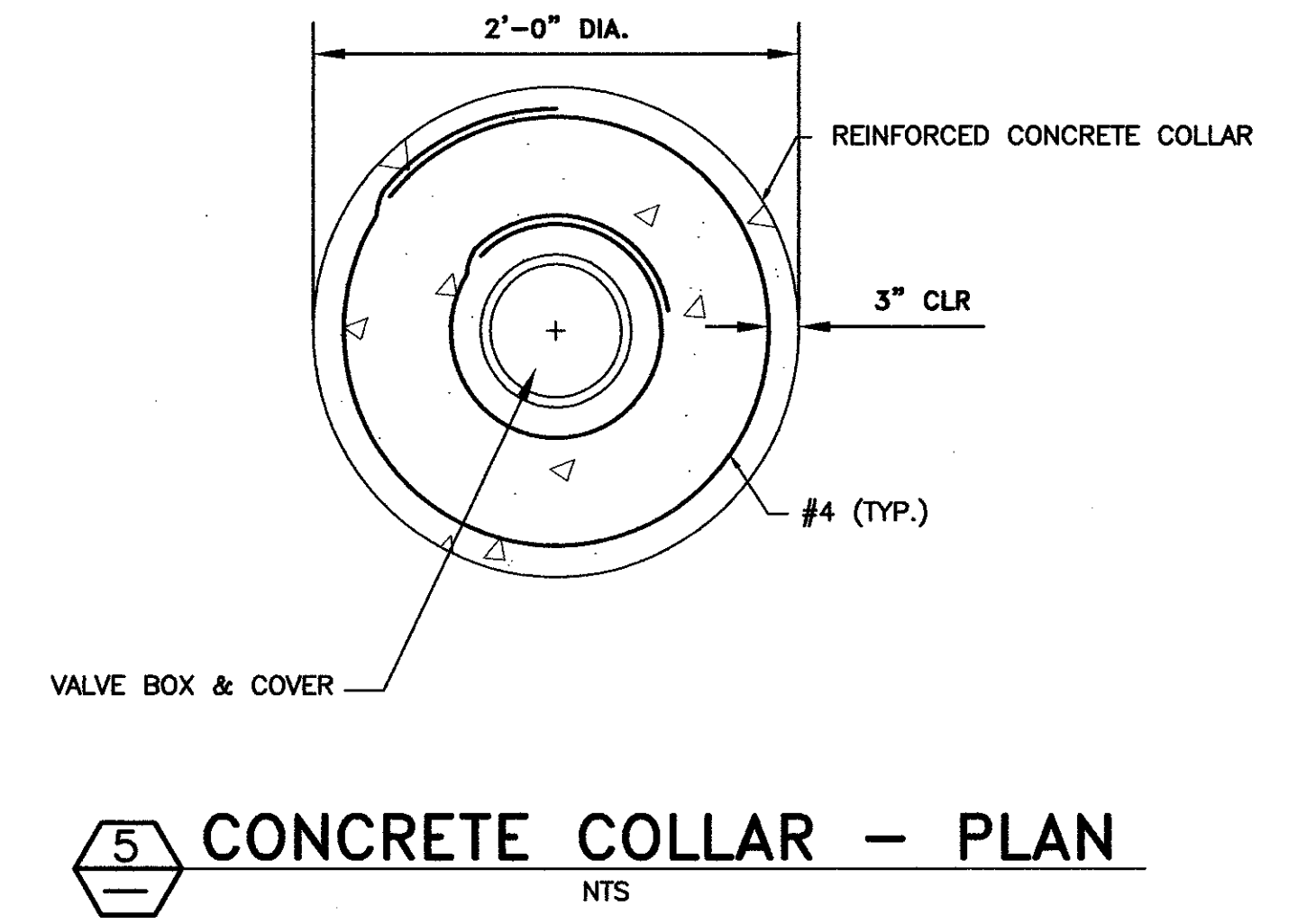
PIPE SIZE	BEARING AREA* OF THRUST BLKS.				
	90° ELL-SF	45° ELL-SF	TEES-SF	PLUG/CAP-SF	HYDRANTS-SF
6	6	3	4	4	6
8	8	5	7	7	-
10	13	8	8	8	9
12	18	12	13	13	-

* FOR PIPE LINE PRESSURES OF 150 PSI IN 1500 PSF BEARING CAPACITY

2 THRUST BLOCK LOCATION DETAIL
NTS

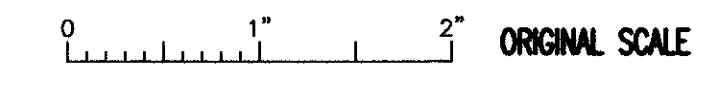


6 TYPICAL FIRE WATER LINE CROSSING STORM DRAIN/OTHER UTILITIES DETAIL
NTS



5 CONCRETE COLLAR - PLAN
NTS

CAUTION: THIS PLAN MAY BE REDUCED



W.O.# 104879

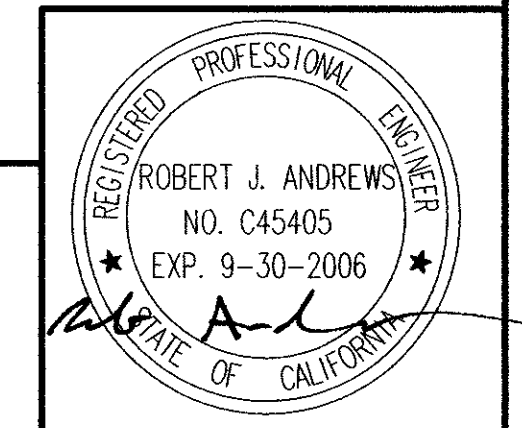
REFERENCES:
PLANS
FIELD BOOKS
"PORT OF OAKLAND DATUM"
IS 3.20' BELOW N.G.V.D. '29
CAUTION:
CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

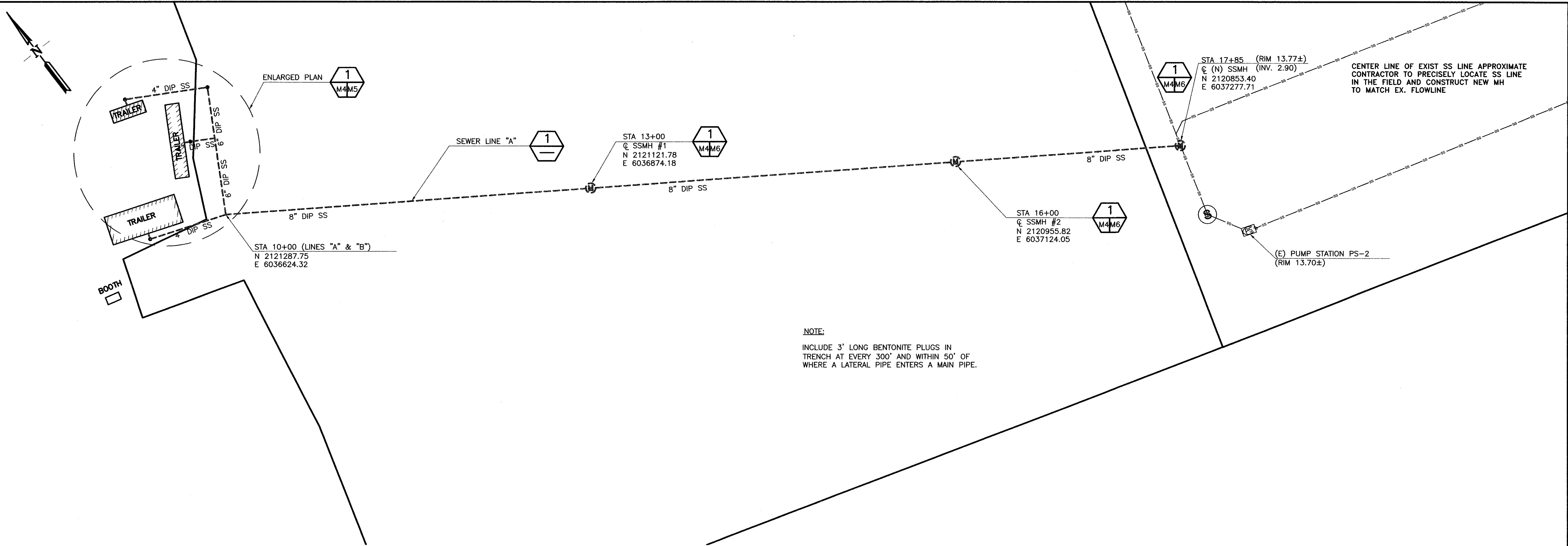
DRAWN: STAFF
DESIGNED: _____
CHECKED: _____
REG. ENGINEER NO. _____

PORT OF OAKLAND
530 WATER ST. OAKLAND, CALIFORNIA

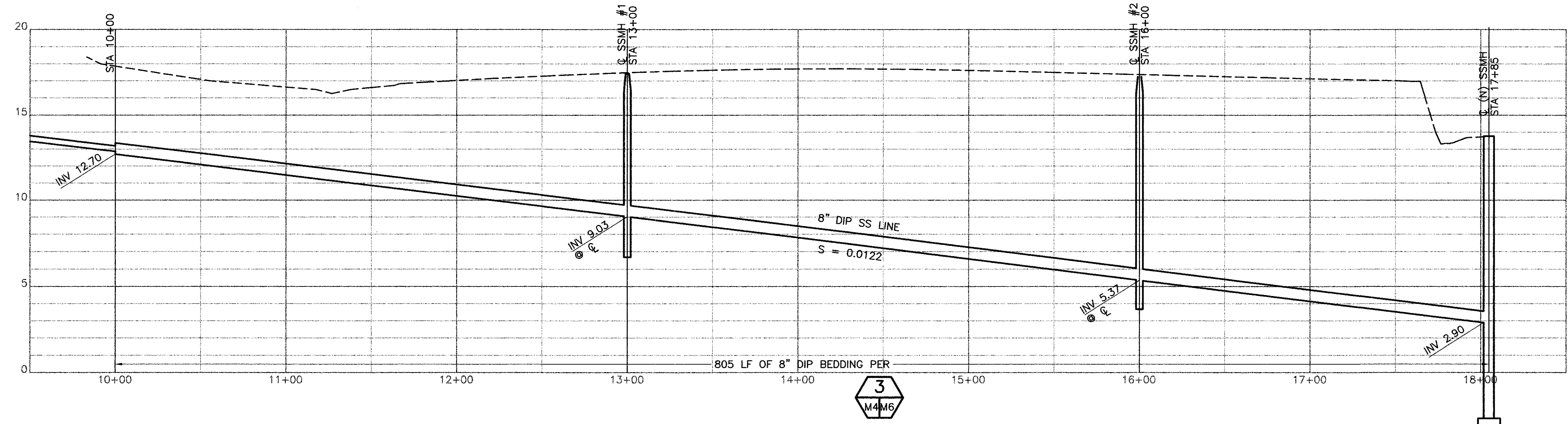
MARITIME SUPPORT CENTER	DATE: 3-24-06
CONSTRUCTION OF PHASE 3B CONTAINER TERMINAL YARD IMPROVEMENTS	SCALE: AS SHOWN
WATER SYSTEM DETAILS	SHEET: 27 OF 56 SHEETS
M3	AA-3956



PRINT DATE: 04-10-06 14:09:57 P:\Active Projects\OAK\MSC-Development\CADD\Project sheets\27-AA-3956-M3.dwg Printed by yinyao



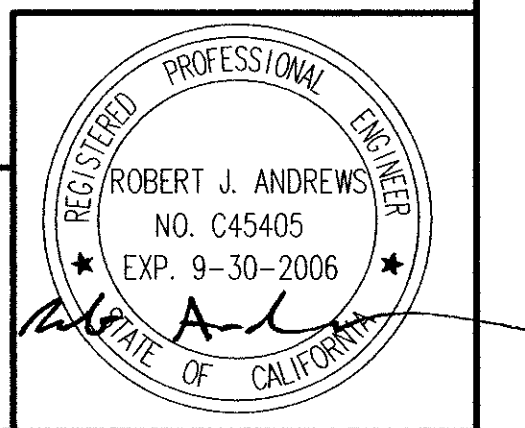
PLAN
SCALE 1" = 40'



1 SEWAGE LINE "A" PROFILE
SCALE 1" = 40' H, 1" = 4' V

CAUTION: THIS PLAN MAY BE REDUCED

0 1" 2" ORIGINAL SCALE



W.O.# 104879

REFERENCES:

PLANS
FIELD BOOKS
"PORT OF OAKLAND DATUM" IS 3.20' BELOW N.G.V.D. '29
CAUTION: CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

DRAWN	STAFF
DESIGNED	
CHECKED	

PORT OF OAKLAND
530 WATER ST. OAKLAND, CALIFORNIA

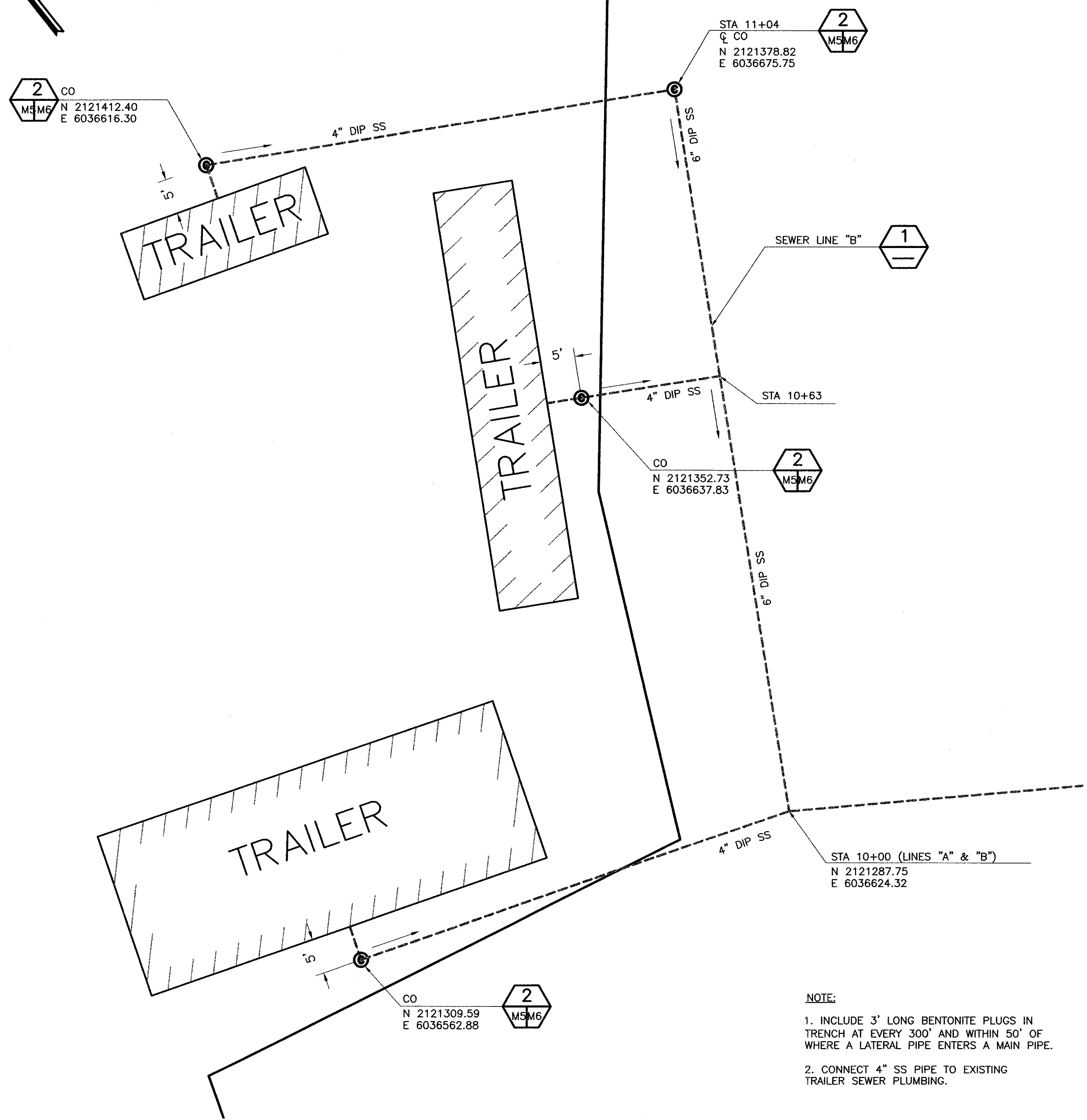
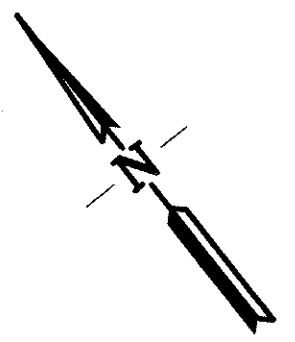
MARITIME SUPPORT CENTER

CONSTRUCTION OF PHASE 3B CONTAINER TERMINAL YARD IMPROVEMENTS

SANITARY SEWER SYSTEM SHEET 1 OF 2

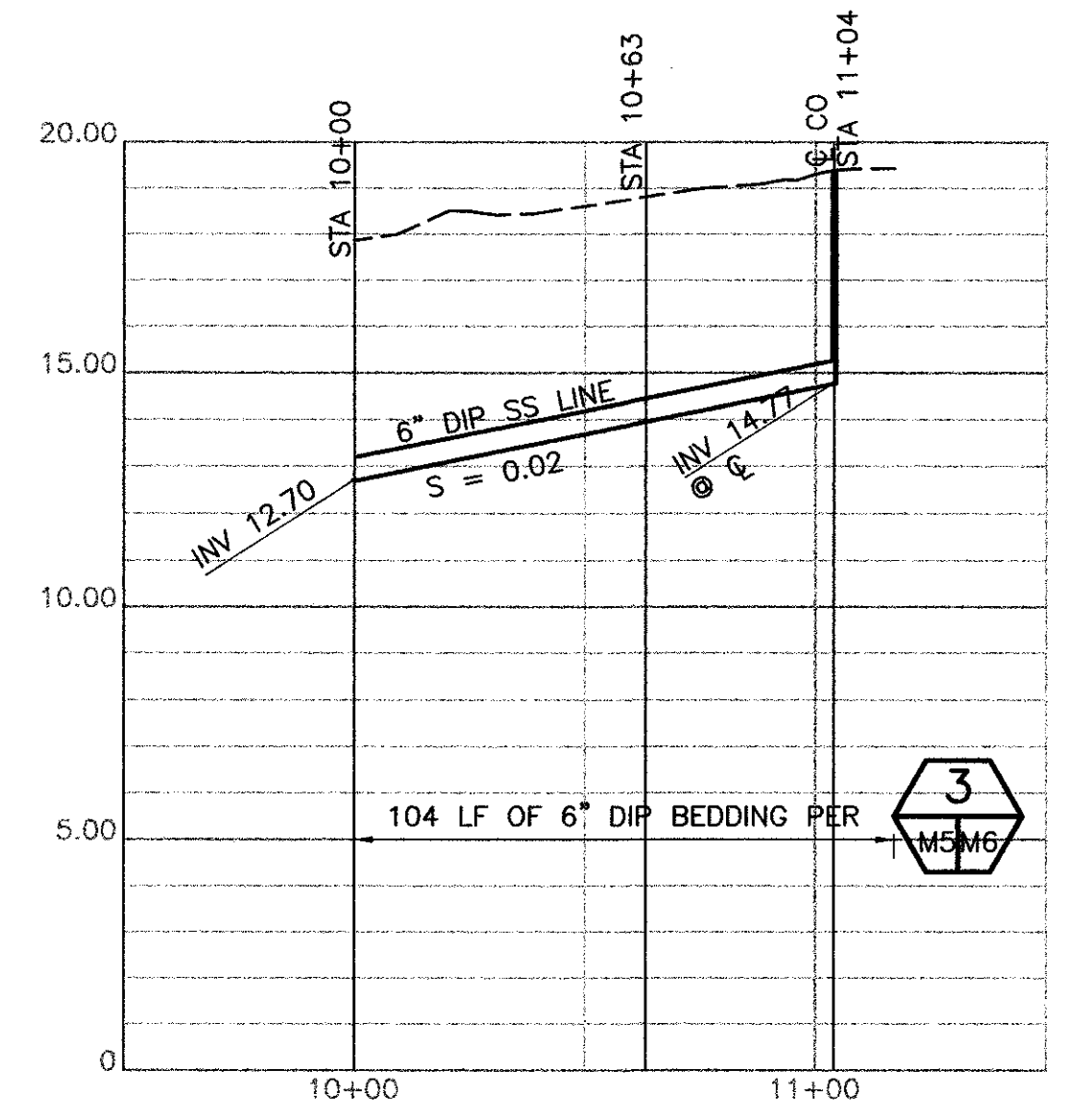
DATE: 3-24-06
SCALE: AS SHOWN
SHEET: 28 OF 56 SHEETS
M4 AA-3956

PRINT DATE: 04-10-06 14:11:12 P:\Active Projects\DNOMISC--Port of Oakland MSC Development\CADD\project sheets\28-AA-3956-M4-M5.dwg Printed by zhygo



ENLARGED PLAN
SCALE 1" = 10'

- NOTE:**
1. INCLUDE 3' LONG BENTONITE PLUGS IN TRENCH AT EVERY 300' AND WITHIN 50' OF WHERE A LATERAL PIPE ENTERS A MAIN PIPE.
 2. CONNECT 4" SS PIPE TO EXISTING TRAILER SEWER PLUMBING.



SEWAGE LINE "B" PROFILE
SCALE 1" = 40' H, 1" = 4' V

W.O.# 104879

REFERENCES:
PLANS
FIELD BOOKS
"PORT OF OAKLAND DATUM"
IS 3.20' BELOW N.G.V.D. '29
CAUTION:
CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

DRAWN _____ STAFF
DESIGNED _____
CHECKED _____

CAUTION: THIS PLAN MAY BE REDUCED

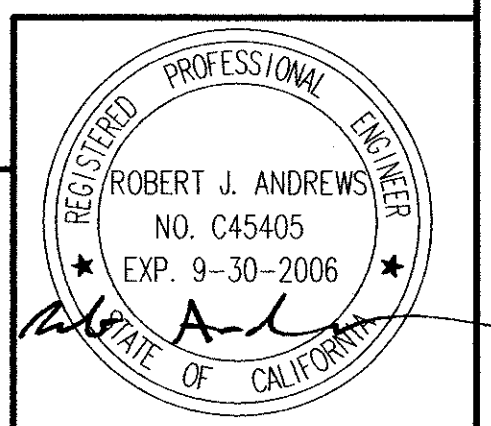
0 1 2 ORIGINAL SCALE

PORT OF OAKLAND
530 WATER ST. OAKLAND, CALIFORNIA

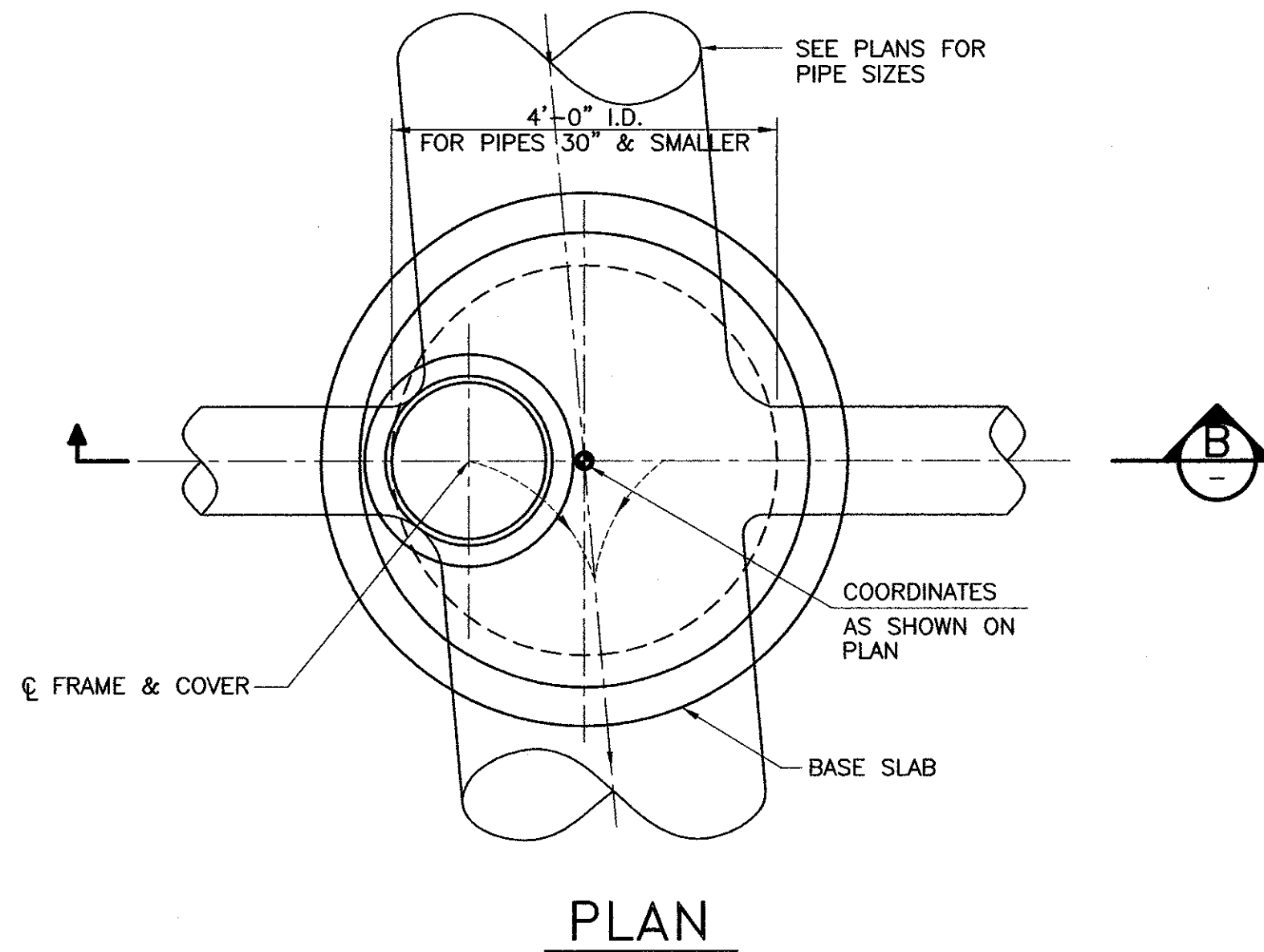
MARITIME SUPPORT CENTER

CONSTRUCTION OF PHASE 3B CONTAINER
TERMINAL YARD IMPROVEMENTS

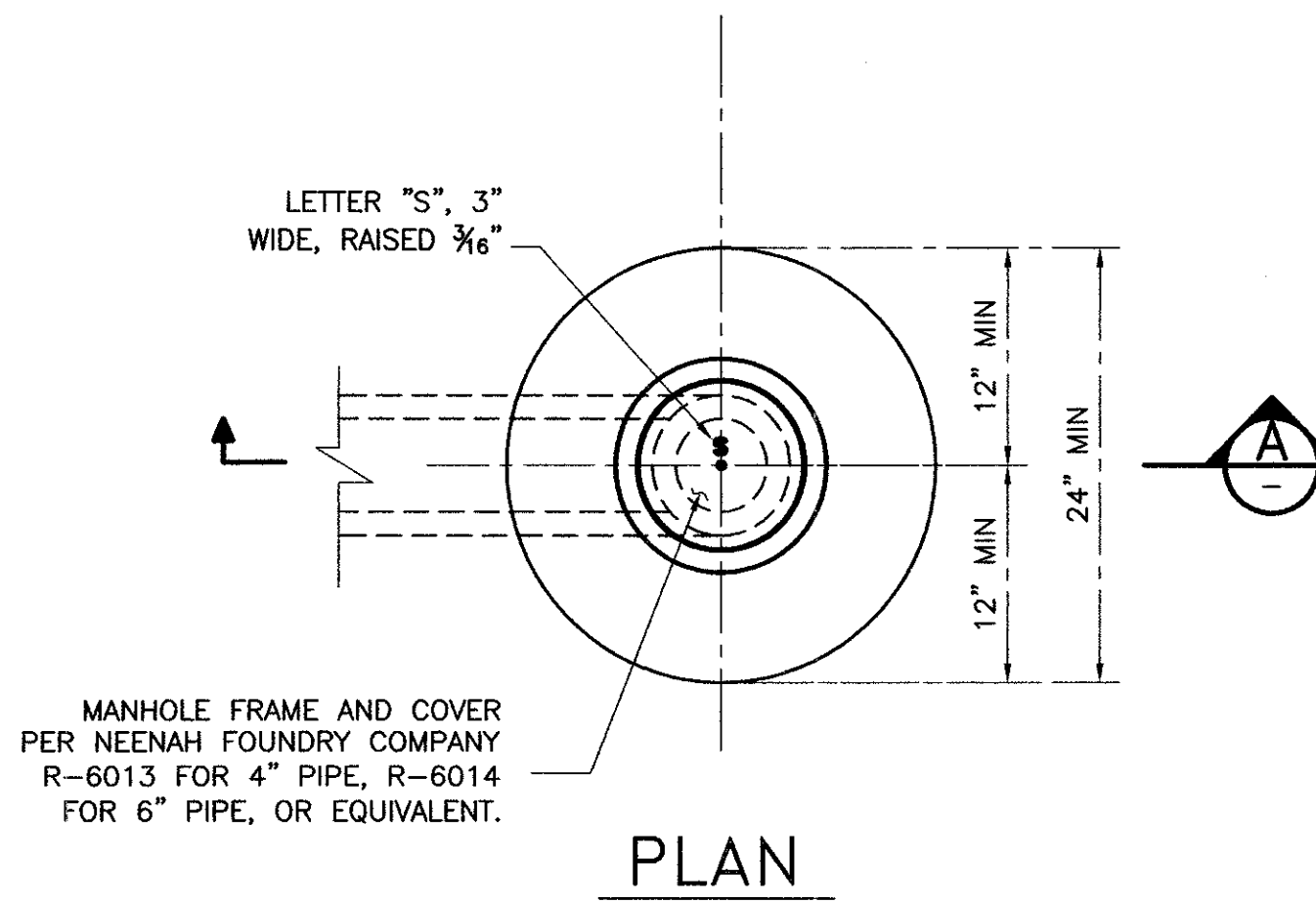
SANITARY SEWER SYSTEM SHEET 2 OF 2



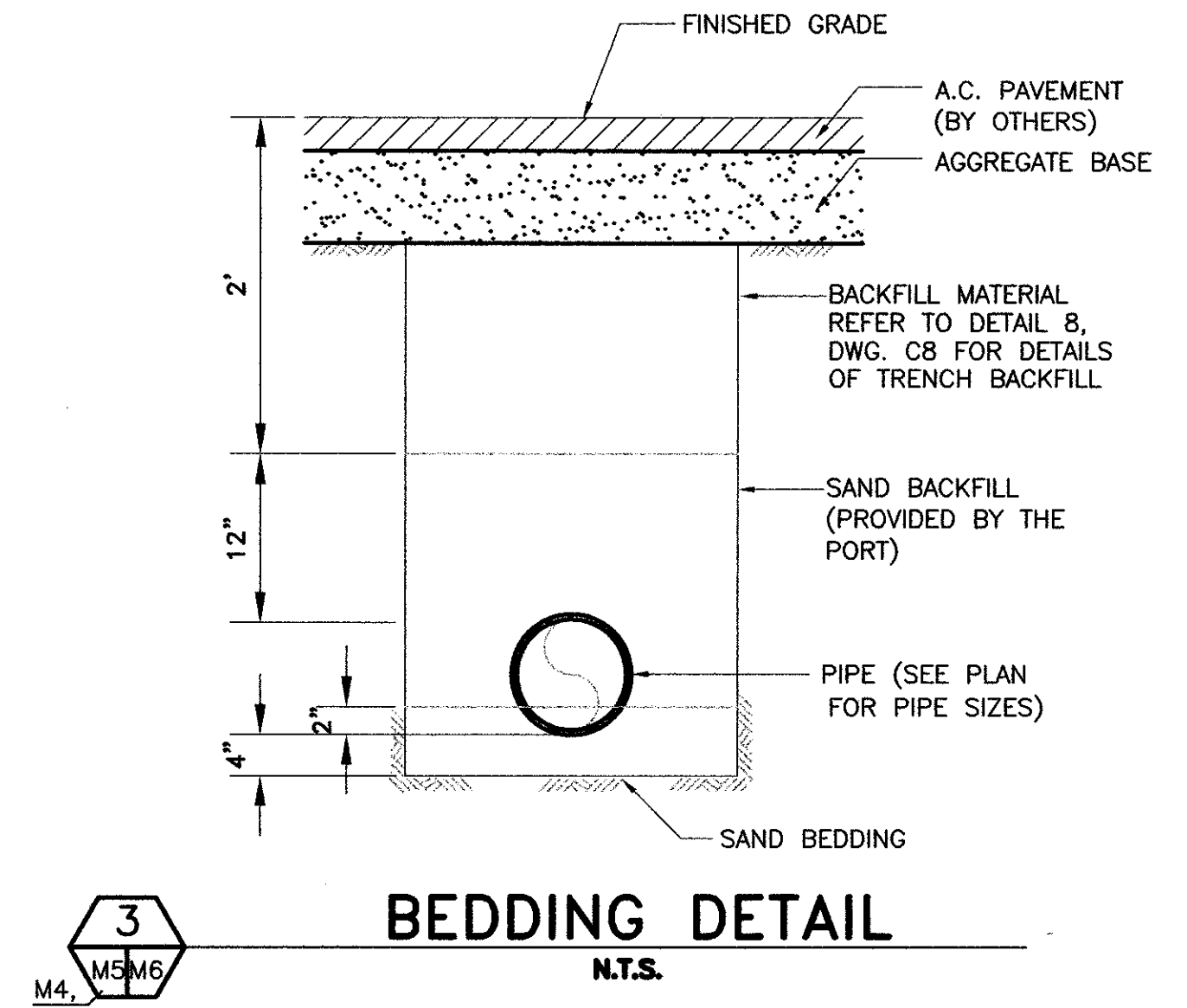
DATE: 3-24-06
SCALE: AS SHOWN
SHEET: 29 OF 56 SHEETS
M5 AA-3956



PLAN

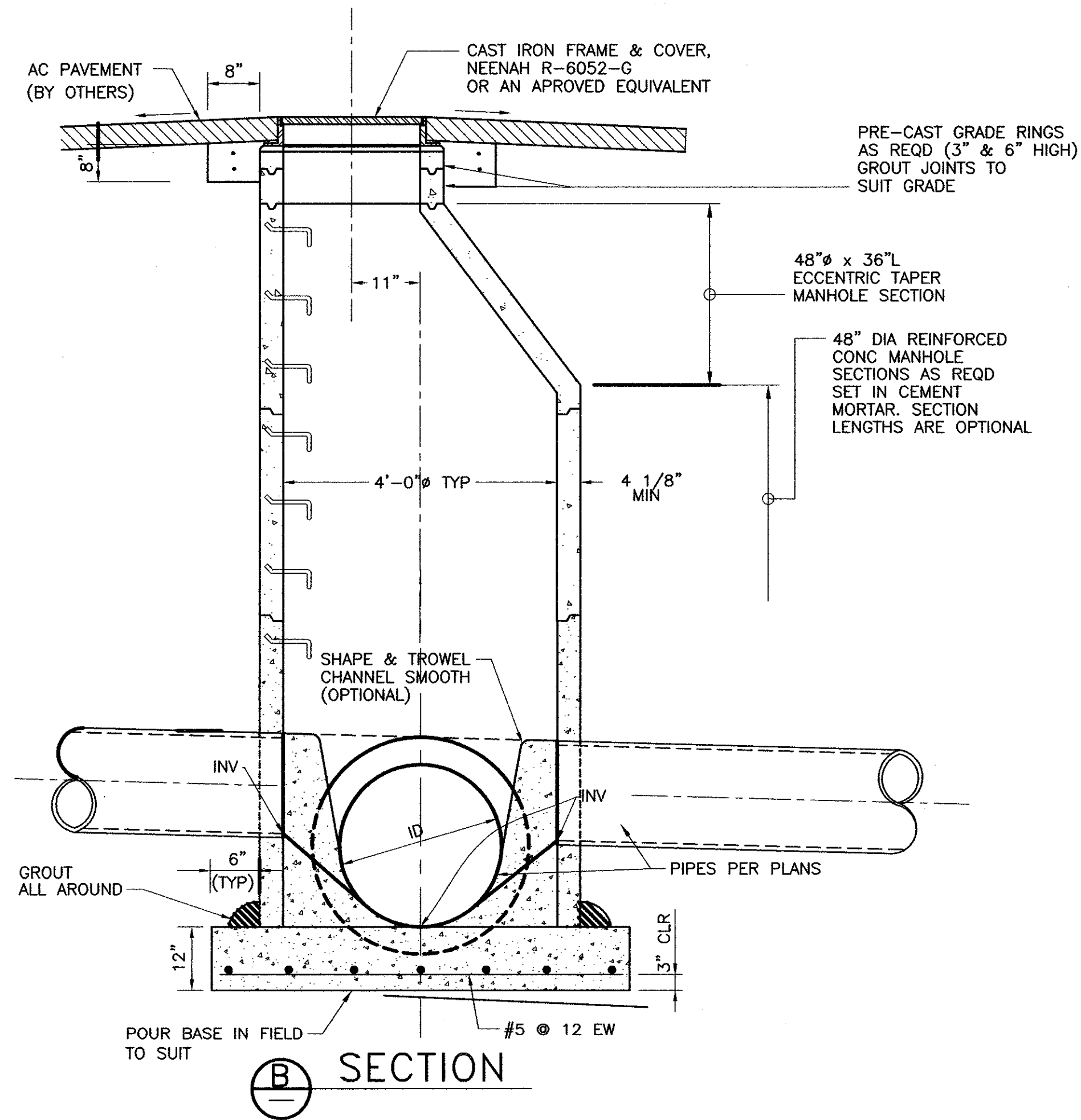


PLAN



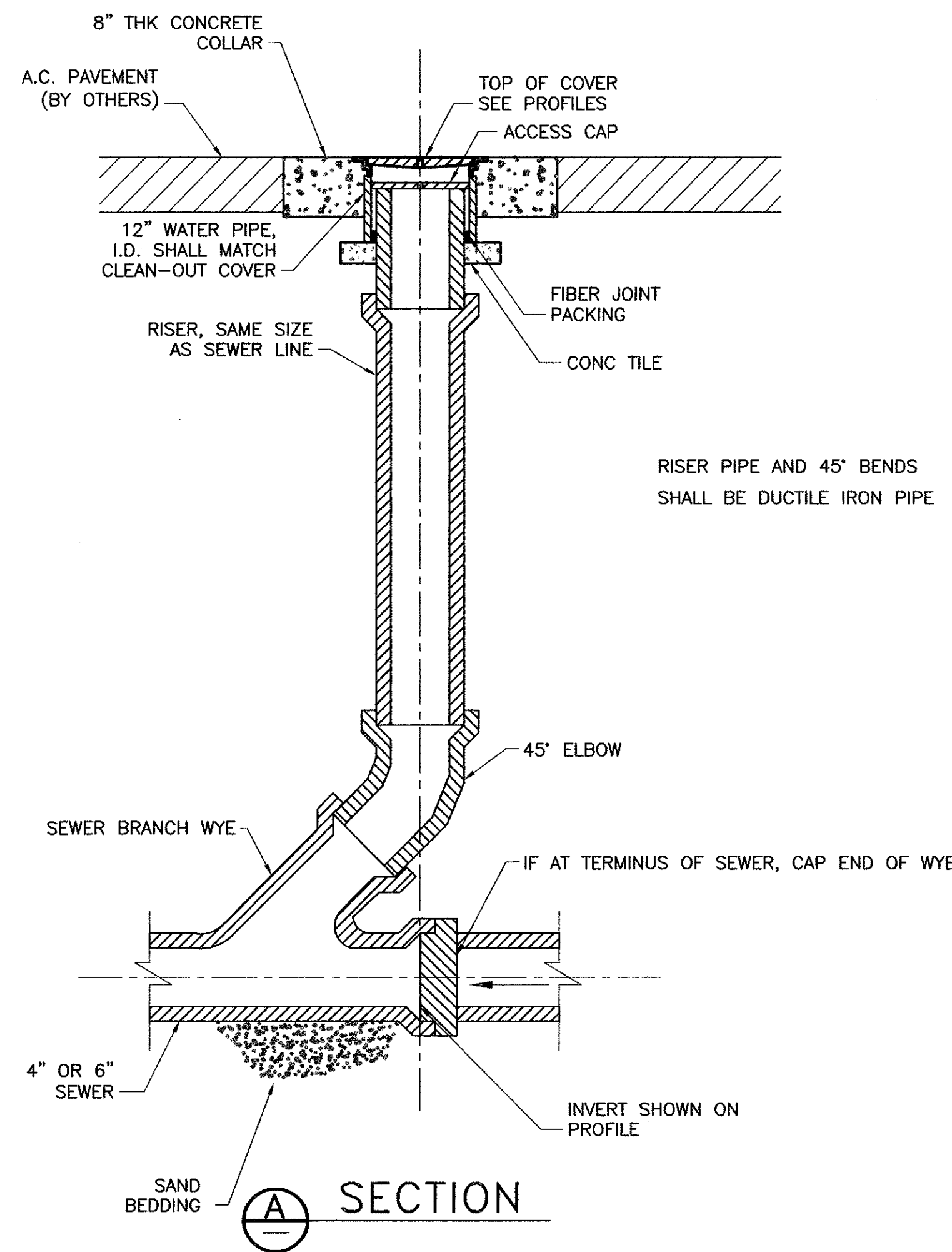
BEDDING DETAIL

N.T.S.



SECTION

1 TYPICAL MANHOLE DETAILS
NO SCALE

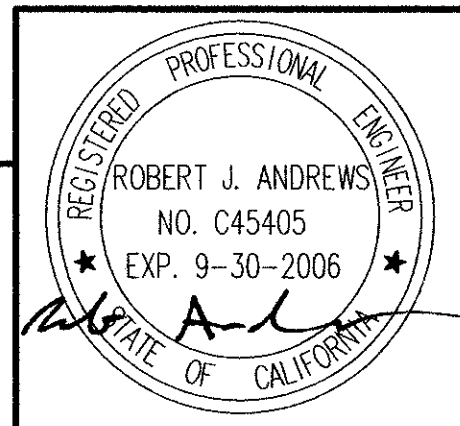


SECTION

2 SANITARY SEWER CLEANOUT DETAIL
NO SCALE

CAUTION: THIS PLAN MAY BE REDUCED

0 1 2 ORIGINAL SCALE



W.O.# 104879

REFERENCES:
PLANS
FIELD BOOKS
"PORT OF OAKLAND DATUM" IS 3.20' BELOW N.G.V.D. '29
CAUTION: CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

DRAWN	STAFF
DESIGNED	
CHECKED	

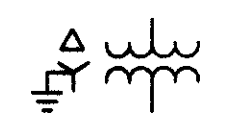


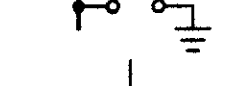
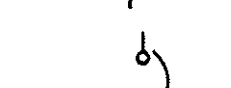

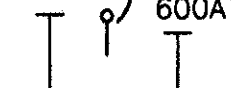

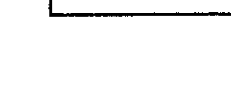
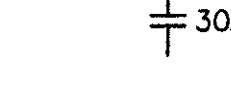


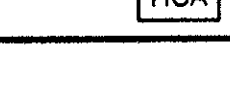


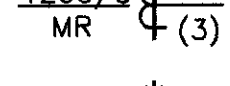
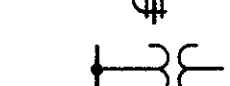

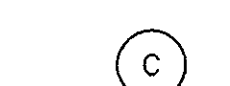

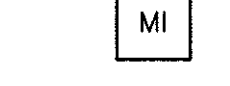

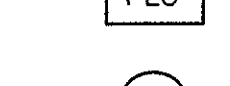
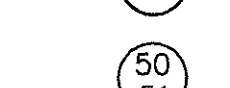
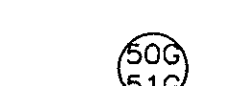

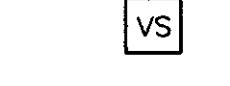

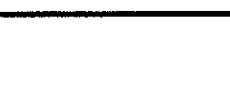


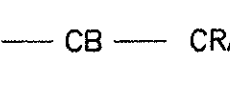
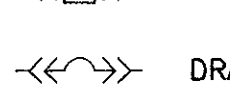
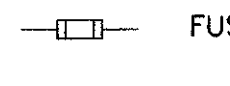

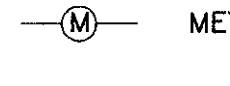
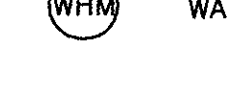


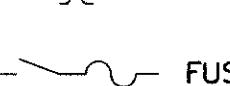


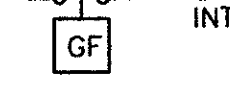


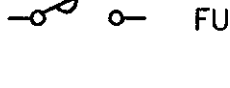



PORT OF OAKLAND
 530 WATER ST. OAKLAND, CALIFORNIA

MARITIME SUPPORT CENTER	DATE: 3-24-06
CONSTRUCTION OF PHASE 3B CONTAINER TERMINAL YARD IMPROVEMENTS	SCALE: AS SHOWN
SANITARY SEWER SYSTEM DETAILS	SHEET: 30 OF 56 SHEETS

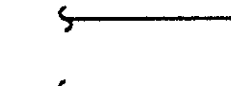






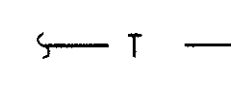
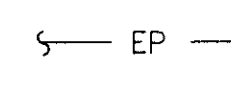
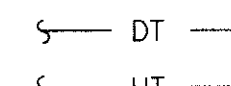

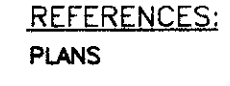
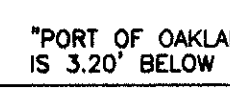
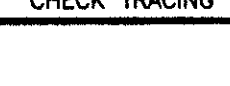





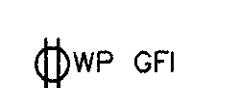



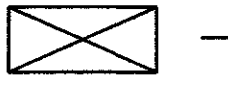



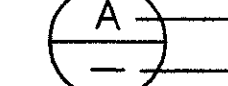
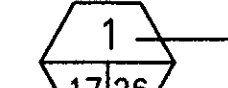
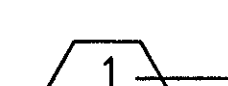

M6	AA-3956
----	---------

PRINT DATE: 04-10-08 14:12:07 P:\Active Projects\OAKMISC--Port of Oakland MSC Development\CADD\project sheets\30-aa-3956-16.dwg Printed by jingyao

SYMBOLS & LEGENDS SINGLE-LINE DIAGRAMS AND SCHEMATICS

 TWO-WINDING POWER OR DISTRIBUTION TRANSFORMER (DELTA-WYE SOLIDLY-GROUNDED CONNECTION SHOWN)  CURRENT LIMITING FUSE  LOAD-INTERRUPTER SWITCH, RATING AS SHOWN  SURGE ARRESTOR  MEDIUM-VOLTAGE CABLE TERMINATION  LOW-VOLTAGE, FIXED MOUNTED CIRCUIT BREAKER  LOW-VOLTAGE BREAKER RATING SOLID STATE TRIP UNIT FUNCTION (IF SHOWN) • L = LONG TIME • S = SHORT TIME • I = INSTANTANEOUS • G = GROUND  800A FRAME (SENSOR RATING FOR SOLID-STATE TRIP UNITS) 600A TRIP (LONG-TIME PICKUP SETTING FOR SOLID-STATE TRIP UNITS)  NUMBER OF POLES (ALL BREAKERS AND SWITCHES ARE 3-POLE U.O.N.)  30A CONTACTOR, AMPERE RATING AS SHOWN  PHOTOCELL  DIGITAL ELECTRONIC TRIP UNIT WITH POWER MONITORING  HAND-OFF-AUTOMATIC SELECTOR SWITCH	 FLEXIBLE CONNECTOR  LIGHTNING OR SURGE ARRESTOR  CURRENT TRANSFORMER, MULTI-RATIO TYPE, BASE RATIO=1200:5, THREE REQUIRED (ONE PER PHASE)  ZERO SEQUENCE CURRENT TRANSFORMER  POTENTIAL TRANSFORMER  RELAY OR INSTRUMENT SIGNAL PATH  GROUND  COIL  KEY INTERLOCK  MECHANICAL INTERLOCK  POWER MONITORING (NON-REVENUE)  PROGRAMABLE LOGIC CONTROL  UNDERVOLTAGE RELAY  INST/TIME PHASE OVERCURRENT RELAY  INST/TIME GROUND OVERCURRENT RELAY  LOCKOUT RELAY  VOLTMETER SWITCH  VOLTMETER	 CRANE BUS  DRAW OUT AIR CIRCUIT BREAKER  DRAW OUT CIRCUIT BREAKER  FUSE, MEDIUM VOLTAGE  12KV TERMINATION PER REQUIREMENTS, POTHEADS  12KV STRESS CONE  METER (PG&E)  WATT HOUR AND DEMAND METER  POTENTIAL TRANSFORMER  CURRENT TRANSFORMER, CURRENT RATIO AS NOTED  CONTROL POWER TRANSFORMER  FUSIBLE SWITCH UNDER 600V  OVERCURRENT RELAY, 50/51  AMMETER  CIRCUIT BREAKER W/ INTEGRAL GROUND FAULT  DISTRIBUTION PANELBOARD  CABLE IDENTIFICATION SEE SCHEDULE  FUSE CUTOUT
---	--	---

PLANS

 CONDUIT TURNING UP  CONDUIT TURNING DOWN  CAPPED CONDUIT  NEW UNDERGROUND MEDIUM-VOLTAGE CONDUIT(S) OR DUCT BANK  NEW UNDERGROUND 600V OR BELOW CONDUIT(S) OR DUCT BANK  NEW UNDERGROUND TELECOMMUNICATIONS/DATA CONDUIT(S) OR DUCT BANK  UNDERGROUND OR CONCRETE EMBEDDED #4/0 AWG BARE STRANDED COPPER GROUND WIRE  EXISTING POWER CONDUIT(S) OR DUCT BANK  EXISTING CONDUITS OR DUCT BANK  EXISTING (BELOW 600V) CONDUITS OR DUCT BANK  EXISTING TELECOMMUNICATION CONDUITS OR DUCT BANK  EXISTING ALARM CONDUIT OR DUCT BANK  EXISTING POWER CONDUITS OR DUCT BANK  OVERHEAD POWERLINES  OVERHEAD TELECOMMUNICATION UNDERGROUND TELECOMMUNICATION	 (N) HML HIGHMAST LIGHTPOLE  POWER (12.47KV) MANHOLE  ELECTRICAL (<600V) PULLBOX  TELECOMMUNICATION PULLBOX  GROUND ROD  GROUND WELL  EXOTHERMIC (CADWELD) CONNECTION  DUPLEX RECEPTACLE, (WP=WEATHERPROOF, GFI=GROUND FAULT CIRCUIT INTERRUPTER)	 (N) ELECTRICAL EQUIPMENT  SHEET NOTE  DEMOLITION NOTE  SECTION IDENTIFICATION LETTER SHEET NUMBER ON WHICH SECTION IS DRAWN SHEET NUMBER(S) FROM WHICH SECTION IS TAKEN  SECTION IDENTIFICATION LETTER SECTION IS TAKEN AND DRAWN ON SAME SHEET  DETAIL IDENTIFICATION NUMBER SHEET NUMBER ON WHICH DETAIL IS DRAWN SHEET NUMBER(S) FROM WHICH DETAIL IS TAKEN  SHEET NUMBER FROM WHICH DETAIL IS TAKEN DETAIL IDENTIFICATION NUMBER DETAIL IS TAKEN AND DRAWN ON SAME SHEET  SECTION REFERENCE SYMBOL
--	--	---

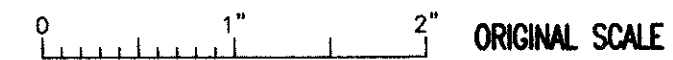
ABBREVIATIONS

A AMPERE AA AIR-COOLED, DRY TYPE TRANSFORMER AC ALTERNATING CURRENT AF AMPERE FRAME AIC AMPERE IN RUSH CURRENT, MIN. VALUE REQ'D AM AMMETER AS AMMETER SWITCH AT AMPERE TRIP ATS AUTOMATIC TRANSFER SWITCH AWG AMERICAN WIRE GAUGE BKR BREAKER C CONDUCTOR OR CONDUIT CB CIRCUIT BREAKER CF CONTACTOR FLOOD LIGHT CKT CIRCUIT CLR CLEAR CO CONDUIT ONLY COMM COMMUNICATION CP CONTROL PANEL CPT CONTROL POWER TRANSFORMER CS CONTACTOR SECURITY LIGHT CT CURRENT TRANSFORMER CU COPPER CY CONTACTOR YARD LIGHT DC DIRECT CURRENT DET DETAIL DISC DISCONNECT DWG(S) DRAWING(S) E ELECTRICAL (E) EXISTING EA EACH ELEC ELECTRICAL EM ELECTRICAL MANHOLE EMER EMERGENCY ENCL ENCLOSURE EO ELECTRICALLY OPERATED F1 FEEDER DESIGNATION FOR REFERENCING LOCATION ON PLANS FA FIRE ALARM OR FORCED AIR XFMR RATING FDN FOUNDATION FDR FEEDER FLA FULL LOAD AMPERES FLIS FUSED LOAD INTERRUPTER SWITCH FT FEET (F) FUTURE GA GAUGE GALV GALVANIZED GEN GENERATOR GFI GROUND FAULT CIRCUIT INTERRUPTER GFR GROUND FAULT RELAY GND GROUND HH HANDHOLE HID HIGH INTENSITY DISCHARGE HML HIGH MAST LIGHTING HOA HAND-OFF-AUTOMATIC HPS HIGH PRESSURE SODIUM HTR HEATER HV HIGH-VOLTAGE HZ HERTZ (CYCLES PER SECOND) INST INSTANTANEOUS IDF INTERNAL DISTRIBUTION FACILITY JB JUNCTION BOX KA KILOAMP KMIL THOUSAND CIRCULAR MILS KV KILOVOLT KVA KILOVOLT AMPERE KVAR KILOVOLT AMPERE REACTIVE KW KILOWATT LAN LOCAL AREA NETWORK LC LIGHTING CONTROL LCE LIGHTING CONTACTOR ENCLOSURE LCP LIGHTING CONTROL PANEL LP LIGHTPOLE LTFMC LIQUID TIGHT FLEXIBLE METAL CONDUIT LTG LIGHTING LV LOW-VOLTAGE MAX MAXIMUM MCP MOTOR CIRCUIT PROTECTOR MECH MECHANICAL MFR MANUFACTURER MH MANHOLE	MIN MINIMUM ML MECHANICAL LATCH MPC MINI-POWER CENTER MPOE MAIN POINT OF ENTRY MS MAIN SWITCHGEAR MTD MOUNTED MTG MOUNTING MV MEDIUM VOLTAGE (N) NEW NC NORMALLY-CLOSED NEC NATIONAL ELECTRICAL CODE NEUT NEUTRAL NIC NOT IN CONTRACT NO NORMALLY-OPEN NTS NOT TO SCALE OC OVERCURRENT O.D. OUTSIDE DIAMETER OH OVERHEAD OL OVERLOAD ELEMENT P POLE, POWER PB PULL BOX OR PANELBOARD PFE PORT FURNISHED EQUIPMENT PG&E PACIFIC GAS AND ELECTRIC PLC PROGRAMMABLE LOGIC CONTROLLER PH PHASE OR PULLHOLE PM POWER MONITOR, POWER MANHOLE PNL PANEL PR PAIR PRI PRIMARY PT POTENTIAL TRANSFORMER PVC POLYVINYL CHLORIDE PWR POWER PLC PROGRAMMABLE LOGIC CONTROLLER PVS PADMOUNTED VACUUM SWITCHGEAR (R) RELOCATED REC RECEPTACLE REQD REQUIRED RGS RIGID GALVANIZED STEEL (CONDUIT) SA SURGE ARRESTOR SCH SCHEDULE SEC SECURITY SHT SHEET SP SPARE SS SELECTOR SWITCH STA STATION STL STEEL SUB SUBSTATION SW SWITCH SWGR SWITCHGEAR T, TEL TELECOMMUNICATION TB TERMINAL BOX OR TERMINAL BLOCK TERM TERMINAL TM TELECOM MANHOLE TOC TOP OF CONCRETE TOS TOP OF STEEL TS TRANSFER SWITCH TYP TYPICAL UG UNDERGROUND U.O.N. UNLESS OTHERWISE NOTED UGPS UNDERGROUND PULL SECTION UPS UNINTERRUPTIBLE POWER SUPPLY US UNIT SUB UV UNDERVOLTAGE V VOLT VA VOLT AMPERE VAC VACUUM VAR VOLT AMPERE REACTIVE VC SINGLE/CONDUCTOR CABLE VM VOLTMETER VS VOLTMETER SWITCH W WATT/WIRE WM WATTMETER WP WEATHERPROOF XFMR TRANSFORMER 3/C THREE-CONDUCTOR CABLE 3-1/C THREE SINGLE-CONDUCTOR CABLES
--	--

ELECTRICAL GENERAL NOTES

- GENERAL NOTES APPLY TO ALL ELECTRICAL DRAWINGS.
- EXISTING ELECTRICAL SYSTEM ARE SHOWN SCHEMATICALLY AND DIAGRAMMATICALLY FOR REFERENCE ONLY.
 - ELECTRICAL CONTRACTOR SHALL COORDINATE WITH OTHER TRADES.
 - CAUTION: EXISTING UNDERGROUND UTILITIES SHOWN ARE FROM PORT FURNISHED RECORD DRAWING AND LIMITED FIELD OBSERVATION, HENCE NOT ALL UTILITIES ARE SHOWN. FIELD VERIFY EXACT LOCATION OF UTILITIES.
 - DIMENSIONS AND COORDINATES FOR LIGHT POLES, MANHOLES, PULLBOXES AND ELECTRICAL EQUIPMENT PADS ARE SHOWN ON PHASE 3B GRADING AND PAVING CONTRACTOR DRAWINGS.
 - TELECOMMUNICATION CONSISTS OF TELEPHONE, DATA OR COMMUNICATION SYSTEM.
 - SALVAGE: EXISTING EQUIPMENT INDICATED TO BE SALVAGED SHALL BE DELIVERED TO PORT MAINTENANCE BY CONTRACTOR.
A. ONE 15KV PADMOUNTED VACUUM SWITCHGEAR.
 - PHASE 3B ELECTRICAL CONTRACTOR-IN GENERAL IS RESPONSIBLE FOR PROCUREMENT OF LONG LEAD TIME ELECTRICAL ITEMS SUCH AS SWITCHGEAR EQUIPMENT AND LIGHT POLES AND WILL ACT AS THE ELECTRICAL SUB CONTRACTOR FOR ALL WORK SHOWN ON THESE PLANS AND AS SPECIFIED.
 - PHASE 3B GRADING AND PAVING CONTRACTOR-CONTRACTOR FOR THIS PROJECT. CONSTRUCTION OF PHASE 3B CONTAINER TERMINAL YARD IMPROVEMENTS PROJECT. IN GENERAL IS RESPONSIBLE FOR FILL OF THE 21 ACRES, LIGHT POLE FOUNDATIONS, ELECTRICAL EQUIPMENT PADS, AND MANAGING THE PHASE 3B ELECTRICAL CONTRACTOR FOR ELECTRICAL WORK SHOWN ON THESE PLANS AND AS SPECIFIED.
 - PHASE 3C CONTRACTOR-CONTRACTOR FOR PAVING THE 21-ACRE CONTAINER YARD PROJECT. IN GENERAL IS RESPONSIBLE FOR PAVING THE 21-ACRES, OF FILL, GUARDPOSTS (BOLLARDS) FENCING AND COORDINATING WITH THE PHASE 3B CONTRACTORS FOR INSTALLATION OF LONG LEAD TIME ITEMS.


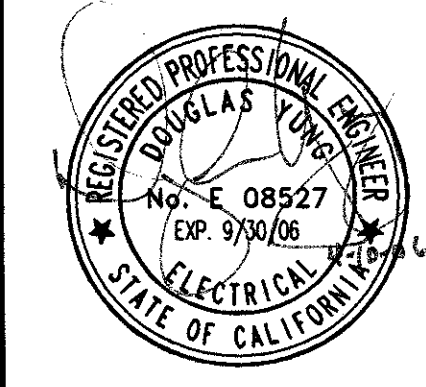
CAUTION: THIS PLAN MAY BE REDUCED



NO.	REVISIONS	DATE	REV'D	APP'D

DRAWN S. AO
 DESIGNED R. DONG
 CHECKED G. WONG
REG. ENGINEER NO. E8982

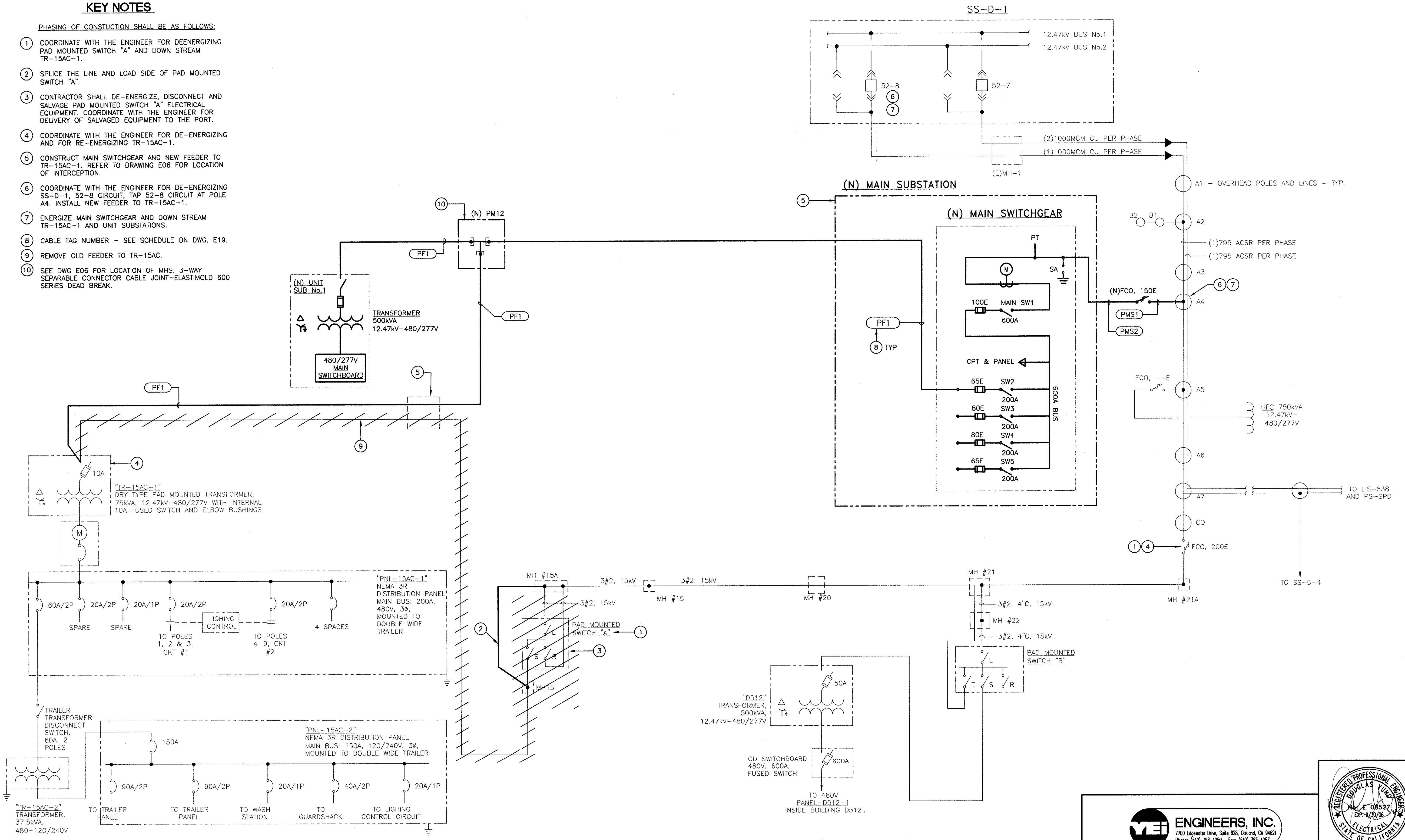
PORT OF OAKLAND
 530 WATER ST. OAKLAND, CALIFORNIA

 7700 Edgewater Drive, Suite 828, Oakland, CA 94621 Phone: (510) 383-1050 Fax: (510) 383-1057	 REGISTERED PROFESSIONAL ENGINEER No. E 08527 Exp. 9/30/06 STATE OF CALIFORNIA
MARITIME SUPPORT CENTER	DATE: 04-10-06
CONSTRUCTION OF PHASE 3B CONTAINER TERMINAL YARD IMPROVEMENTS	SCALE: NONE
ABBREVIATIONS, SYMBOLS, LEGEND & GENERAL NOTES	SHEET: 31 OF 56 SHEETS
E01	AA-3956

KEY NOTES

PHASING OF CONSTRUCTION SHALL BE AS FOLLOWS:

- 1 COORDINATE WITH THE ENGINEER FOR DEENERGIZING PAD MOUNTED SWITCH "A" AND DOWN STREAM TR-15AC-1.
- 2 SPLICE THE LINE AND LOAD SIDE OF PAD MOUNTED SWITCH "A".
- 3 CONTRACTOR SHALL DE-ENERGIZE, DISCONNECT AND SALVAGE PAD MOUNTED SWITCH "A" ELECTRICAL EQUIPMENT. COORDINATE WITH THE ENGINEER FOR DELIVERY OF SALVAGED EQUIPMENT TO THE PORT.
- 4 COORDINATE WITH THE ENGINEER FOR DE-ENERGIZING AND FOR RE-ENERGIZING TR-15AC-1.
- 5 CONSTRUCT MAIN SWITCHGEAR AND NEW FEEDER TO TR-15AC-1. REFER TO DRAWING E06 FOR LOCATION OF INTERCEPTION.
- 6 COORDINATE WITH THE ENGINEER FOR DE-ENERGIZING SS-D-1, 52-8 CIRCUIT, TAP 52-8 CIRCUIT AT POLE A4. INSTALL NEW FEEDER TO TR-15AC-1.
- 7 ENERGIZE MAIN SWITCHGEAR AND DOWN STREAM TR-15AC-1 AND UNIT SUBSTATIONS.
- 8 CABLE TAG NUMBER - SEE SCHEDULE ON DWG. E19.
- 9 REMOVE OLD FEEDER TO TR-15AC.
- 10 SEE DWG E06 FOR LOCATION OF MHS. 3-WAY SEPARABLE CONNECTOR CABLE JOINT-ELASTIMOLD 600 SERIES DEAD BREAK.



CAUTION: THIS PLAN MAY BE REDUCED 0 1" 2" ORIGINAL SCALE

PRINT DATE 04-10-06 11:48:01 F:\Drawings\2006\0603\A3956\E02.dwg Printed by Shew

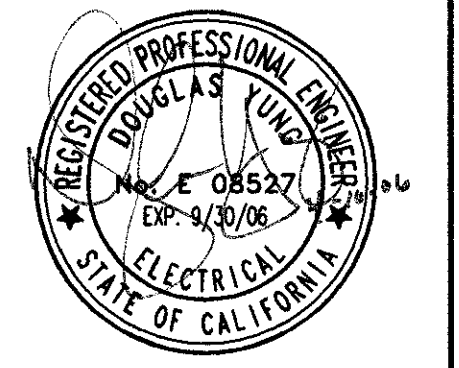
REFERENCES:
 PLANS
 FIELD BOOKS
 "PORT OF OAKLAND DATUM"
 IS 3.20' BELOW N.G.V.D. '29
 CAUTION:
 CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

DRAWN R. DONG
 DESIGNED D. YUNG EBS27
 CHECKED G. WONG E9982
 REG. ENGINEER NO. E9982
 REG. ENGINEER NO.

PORT OF OAKLAND
 530 WATER ST. OAKLAND, CALIFORNIA

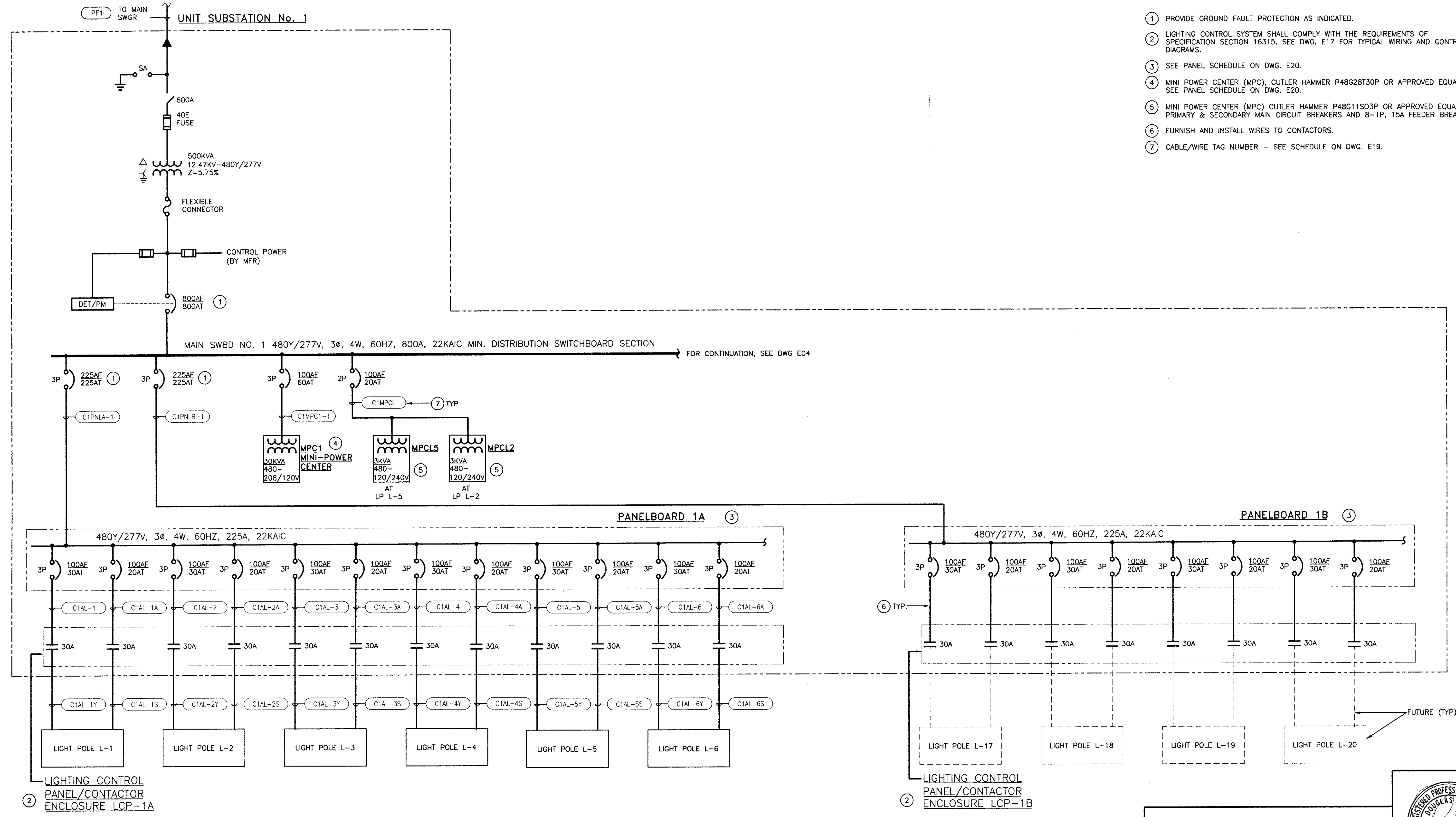
ENGINEERS, INC.
 7700 Edgewater Drive, Suite 828, Oakland, CA 94621
 Phone: (510) 383-1050 Fax: (510) 383-1057



MARITIME SUPPORT CENTER	DATE: 04-10-06
CONSTRUCTION OF PHASE 3B CONTAINER TERMINAL YARD IMPROVEMENTS	SCALE: NONE
SINGLE LINE DIAGRAM	SHEET: 32 OF 56 SHEETS
E02	AA-3956

KEY NOTES

- ① PROVIDE GROUND FAULT PROTECTION AS INDICATED.
- ② LIGHTING CONTROL SYSTEM SHALL COMPLY WITH THE REQUIREMENTS OF SPECIFICATION SECTION 16315. SEE DWG. E17 FOR TYPICAL WIRING AND CONTROL DIAGRAMS.
- ③ SEE PANEL SCHEDULE ON DWG. E20.
- ④ MINI POWER CENTER (MPC), CUTLER HAMMER P48G28T30P OR APPROVED EQUAL. SEE PANEL SCHEDULE ON DWG. E20.
- ⑤ MINI POWER CENTER (MPC) CUTLER HAMMER P48G11S03P OR APPROVED EQUAL. PRIMARY & SECONDARY MAIN CIRCUIT BREAKERS AND 8-1P, 15A FEEDER BREAKERS.
- ⑥ FURNISH AND INSTALL WIRES TO CONTACTORS.
- ⑦ CABLE/WIRE TAG NUMBER - SEE SCHEDULE ON DWG. E19.



SINGLE LINE DIAGRAM

CAUTION: THIS PLAN MAY BE REDUCED ORIGINAL SCALE

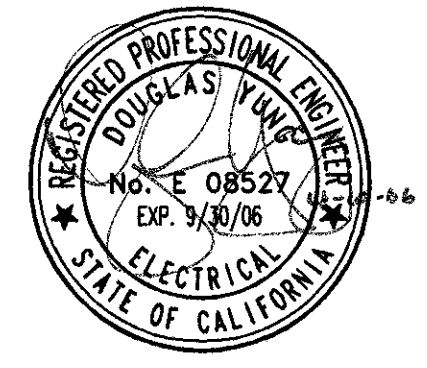
PRINT DATE: 04-10-06 11:47:47 F:\Drawings\2006\0603\A43956\E03.dwg Printed by: Shew

REFERENCES:	NO.	REVISIONS	DATE	REV'D	APP'D
PLANS					
FIELD BOOKS					
"PORT OF OAKLAND DATUM" IS 3.20' BELOW N.G.V.D. '29					
CAUTION: CHECK TRACING FOR LATEST REVISIONS					

DRAWN	U. TRUONG
DESIGNED	K. SCHWARTZ
CHECKED	G. WONG
	REG. ENGINEER NO. E8982
	REG. ENGINEER NO.

PORT OF OAKLAND
530 WATER ST. OAKLAND, CALIFORNIA

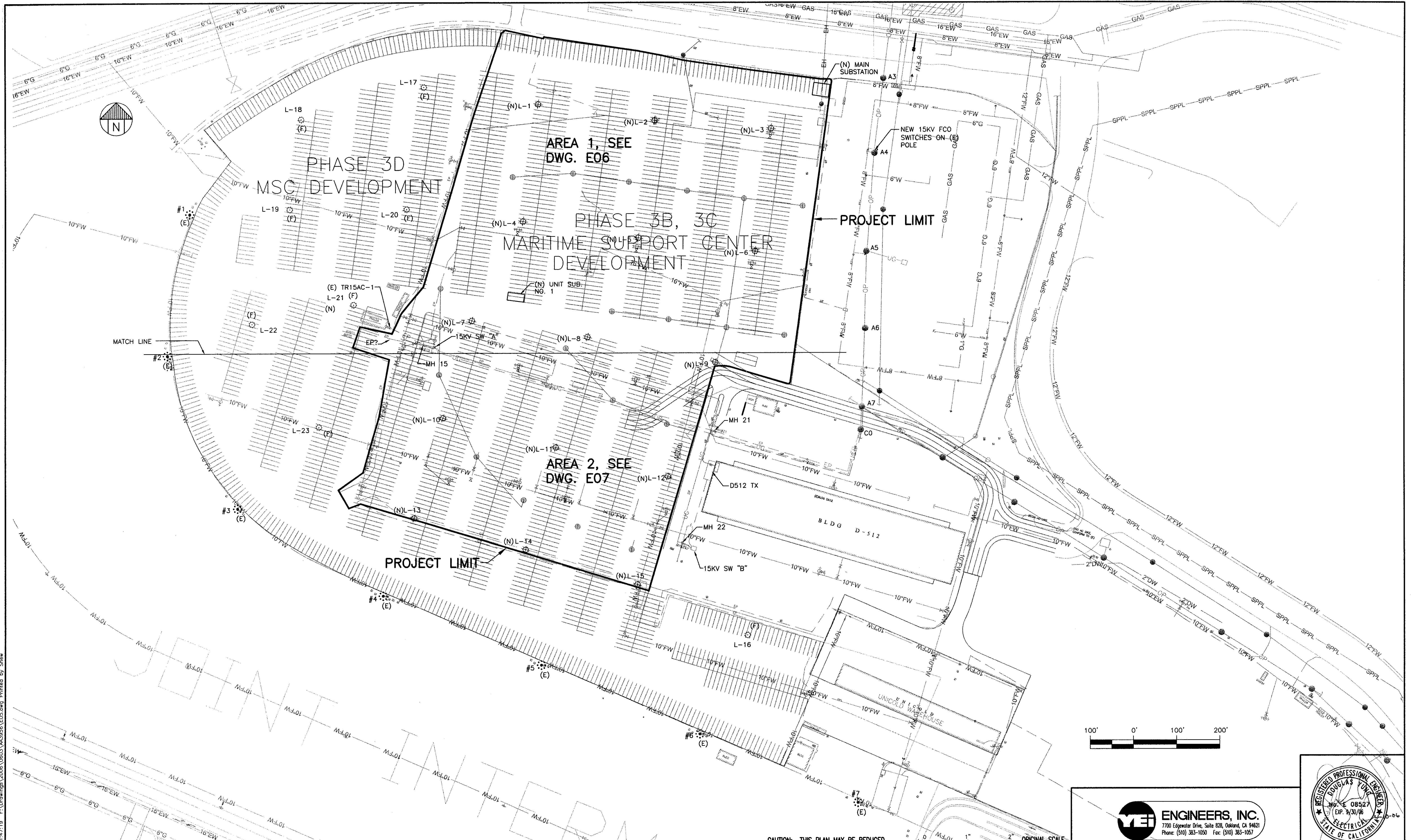
ENGINEERS, INC.
7700 Edgewater Drive, Suite 828, Oakland, CA 94621
Phone: (510) 383-1050 Fax: (510) 383-1057



MARITIME SUPPORT CENTER	DATE: 04-10-06
CONSTRUCTION OF PHASE 3B CONTAINER TERMINAL YARD IMPROVEMENTS	SCALE: NONE
UNIT SUBSTATION No 1 - SINGLE LINE DIAGRAM	SHEET: 33 of 56 SHEETS
E03	AA-3956

NOT USE

Pg. 34



CAUTION: THIS PLAN MAY BE REDUCED ORIGINAL SCALE

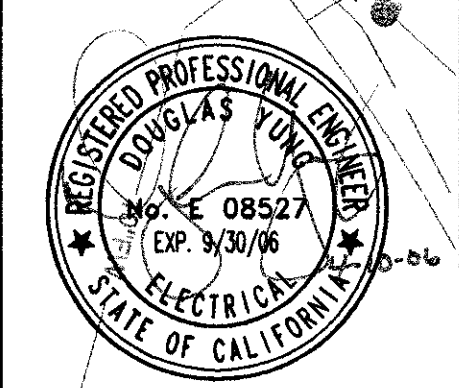
REFERENCES:
 PLANS
 FIELD BOOKS
 "PORT OF OAKLAND DATUM"
 IS 3.20' BELOW N.G.V.D. '29
 CAUTION:
 CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

DRAWN	S. HO
DESIGNED	D. YUNG E8527 REG. ENGINEER NO. E8982
CHECKED	G. WONG REG. ENGINEER NO.

PORT OF OAKLAND
 530 WATER ST. OAKLAND, CALIFORNIA

YEI ENGINEERS, INC.
 7700 Edgewater Drive, Suite 828, Oakland, CA 94621
 Phone: (510) 383-1050 Fax: (510) 383-1057



MARITIME SUPPORT CENTER	DATE: 04-10-06
CONSTRUCTION OF PHASE 3B CONTAINER TERMINAL YARD IMPROVEMENTS	SCALE: 1"=100'-0"
ELECTRICAL GENERAL PLAN	SHEET: 35 OF 56 SHEETS
E05	AA-3956

PRINT DATE: 04-10-06 11:47:19 F:\Drawings\2006\0603\AA3956\E05.dwg Printed by: Shew

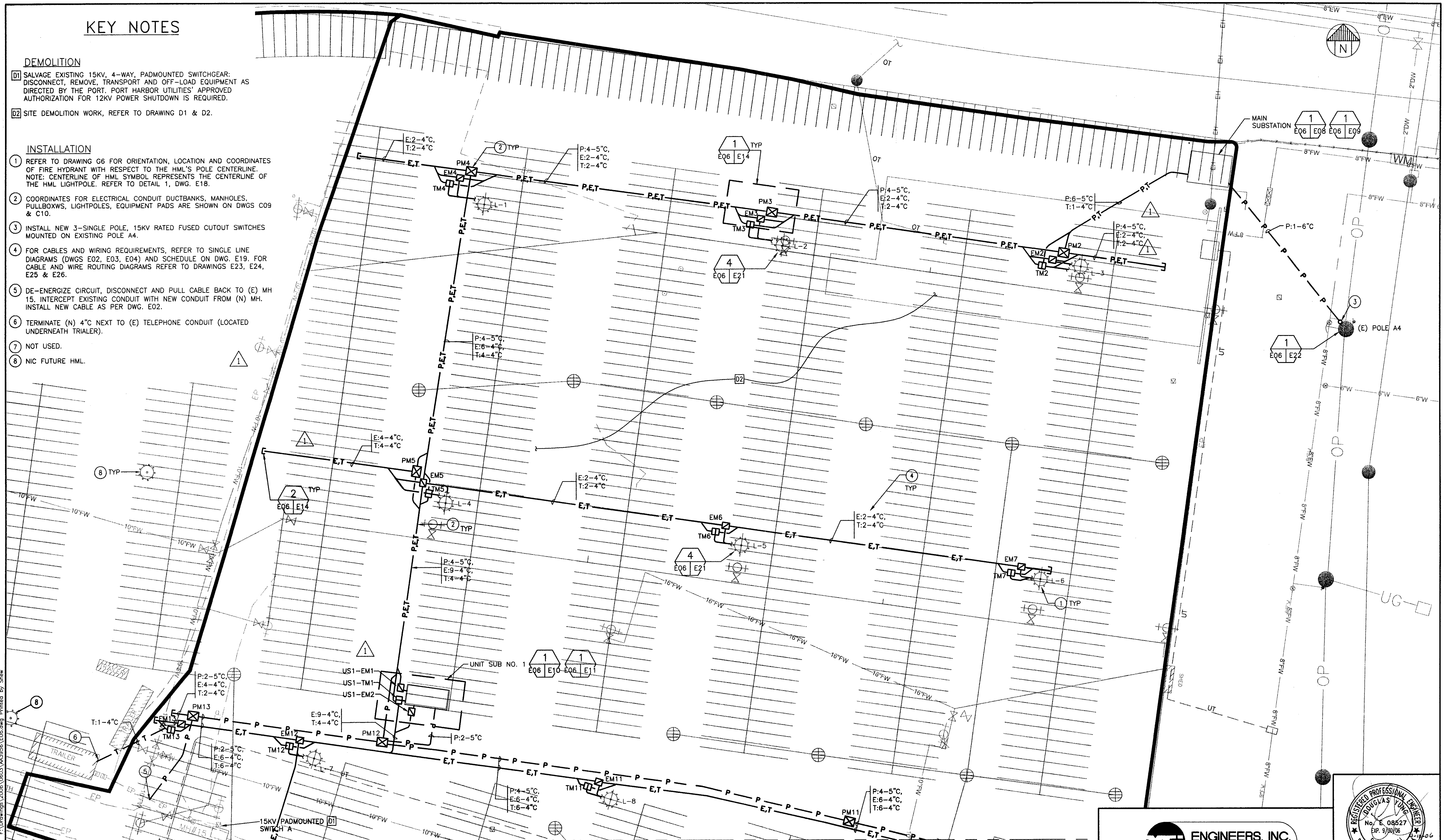
KEY NOTES

DEMOLITION

- D1 SALVAGE EXISTING 15KV, 4-WAY, PADMOUNTED SWITCHGEAR; DISCONNECT, REMOVE, TRANSPORT AND OFF-LOAD EQUIPMENT AS DIRECTED BY THE PORT. PORT HARBOR UTILITIES' APPROVED AUTHORIZATION FOR 12KV POWER SHUTDOWN IS REQUIRED.
- D2 SITE DEMOLITION WORK, REFER TO DRAWING D1 & D2.

INSTALLATION

- 1 REFER TO DRAWING G6 FOR ORIENTATION, LOCATION AND COORDINATES OF FIRE HYDRANT WITH RESPECT TO THE HML'S POLE CENTERLINE. NOTE: CENTERLINE OF HML SYMBOL REPRESENTS THE CENTERLINE OF THE HML LIGHTPOLE. REFER TO DETAIL 1, DWG. E18.
- 2 COORDINATES FOR ELECTRICAL CONDUIT DUCTBANKS, MANHOLES, PULLBOXES, LIGHTPOLES, EQUIPMENT PADS ARE SHOWN ON DWGS C09 & C10.
- 3 INSTALL NEW 3-SINGLE POLE, 15KV RATED FUSED CUTOUT SWITCHES MOUNTED ON EXISTING POLE A4.
- 4 FOR CABLES AND WIRING REQUIREMENTS, REFER TO SINGLE LINE DIAGRAMS (DWGS E02, E03, E04) AND SCHEDULE ON DWG. E19. FOR CABLE AND WIRE ROUTING DIAGRAMS REFER TO DRAWINGS E23, E24, E25 & E26.
- 5 DE-ENERGIZE CIRCUIT, DISCONNECT AND PULL CABLE BACK TO (E) MH 15. INTERCEPT EXISTING CONDUIT WITH NEW CONDUIT FROM (N) MH. INSTALL NEW CABLE AS PER DWG. E02.
- 6 TERMINATE (N) 4" C NEXT TO (E) TELEPHONE CONDUIT (LOCATED UNDERNEATH TRIALER).
- 7 NOT USED.
- 8 NIC FUTURE HML.



MATCH LINE, SEE DWG. E07

CAUTION: THIS PLAN MAY BE REDUCED 0 1" 2" ORIGINAL SCALE

NO.	REVISIONS	DATE	REV'D	APP'D

REFERENCES:
PLANS
FIELD BOOKS
"PORT OF OAKLAND DATUM" IS 3.20' BELOW N.G.V.D. '29
CAUTION: CHECK TRACING FOR LATEST REVISIONS

DRAWN S. HO
DESIGNED D. YUNG E8527
CHECKED G. WONG E8982
REG. ENGINEER NO. E8982
REG. ENGINEER NO.

PORT OF OAKLAND
530 WATER ST. OAKLAND, CALIFORNIA

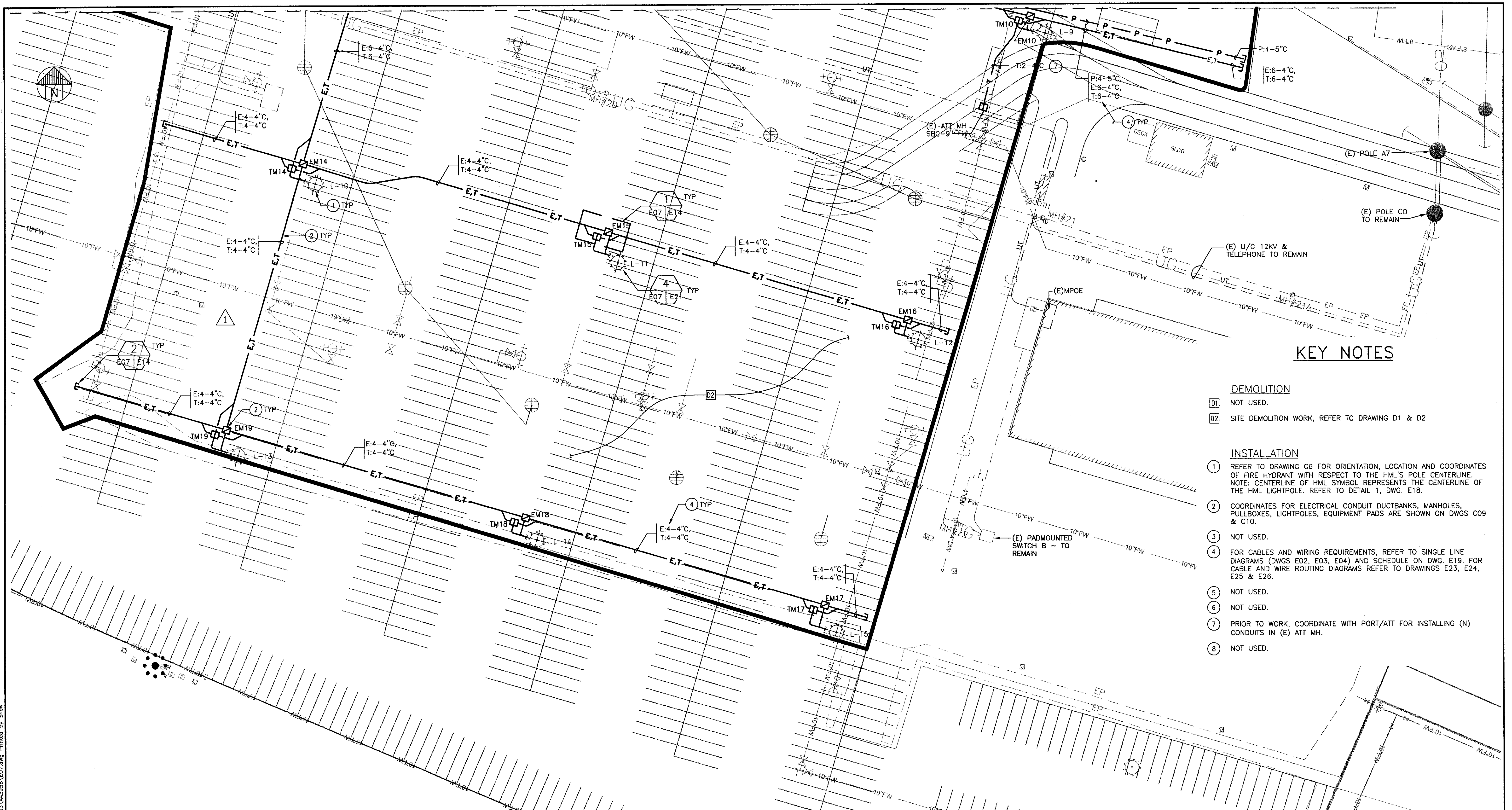
Y&E ENGINEERS, INC.
7700 Edgewater Drive, Suite 828, Oakland, CA 94621
Phone: (510) 383-1050 Fax: (510) 383-1057

MARITIME SUPPORT CENTER
CONSTRUCTION OF PHASE 3B CONTAINER TERMINAL YARD IMPROVEMENTS
SITE ELECTRICAL PLAN - AREA 1

REGISTERED PROFESSIONAL ENGINEER
DOUGLAS YUNG
No. E 08527
Exp. 9/30/06
ELECTRICAL
STATE OF CALIFORNIA

DATE: 04-10-06
SCALE: 1"=40'-0"
SHEET: 36 OF 56 SHEETS
E06 AA-3956

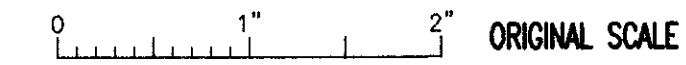
PRINT DATE: 04-10-06 11:47:03 E:\Drawings\2006\0603\AA3956\E06.dwg Printed by Show



KEY NOTES

- DEMOLITION**
- D1 NOT USED.
 - D2 SITE DEMOLITION WORK, REFER TO DRAWING D1 & D2.
- INSTALLATION**
- 1 REFER TO DRAWING G6 FOR ORIENTATION, LOCATION AND COORDINATES OF FIRE HYDRANT WITH RESPECT TO THE HML'S POLE CENTERLINE. NOTE: CENTERLINE OF HML SYMBOL REPRESENTS THE CENTERLINE OF THE HML LIGHTPOLE. REFER TO DETAIL 1, DWG. E18.
 - 2 COORDINATES FOR ELECTRICAL CONDUIT DUCTBANKS, MANHOLES, PULLBOXES, LIGHTPOLES, EQUIPMENT PADS ARE SHOWN ON DWGS C09 & C10.
 - 3 NOT USED.
 - 4 FOR CABLES AND WIRING REQUIREMENTS, REFER TO SINGLE LINE DIAGRAMS (DWGS E02, E03, E04) AND SCHEDULE ON DWG. E19. FOR CABLE AND WIRE ROUTING DIAGRAMS REFER TO DRAWINGS E23, E24, E25 & E26.
 - 5 NOT USED.
 - 6 NOT USED.
 - 7 PRIOR TO WORK, COORDINATE WITH PORT/ATT FOR INSTALLING (N) CONDUITS IN (E) ATT MH.
 - 8 NOT USED.

CAUTION: THIS PLAN MAY BE REDUCED



REFERENCES:
PLANS
FIELD BOOKS
"PORT OF OAKLAND DATUM"
IS 3.20' BELOW N.G.V.D. '29
CAUTION:
CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

DRAWN	S. HO
DESIGNED	D. YUNG E8527
CHECKED	G. WONG E8982
	REG. ENGINEER NO. E8982
	REG. ENGINEER NO.

PORT OF OAKLAND
530 WATER ST. OAKLAND, CALIFORNIA

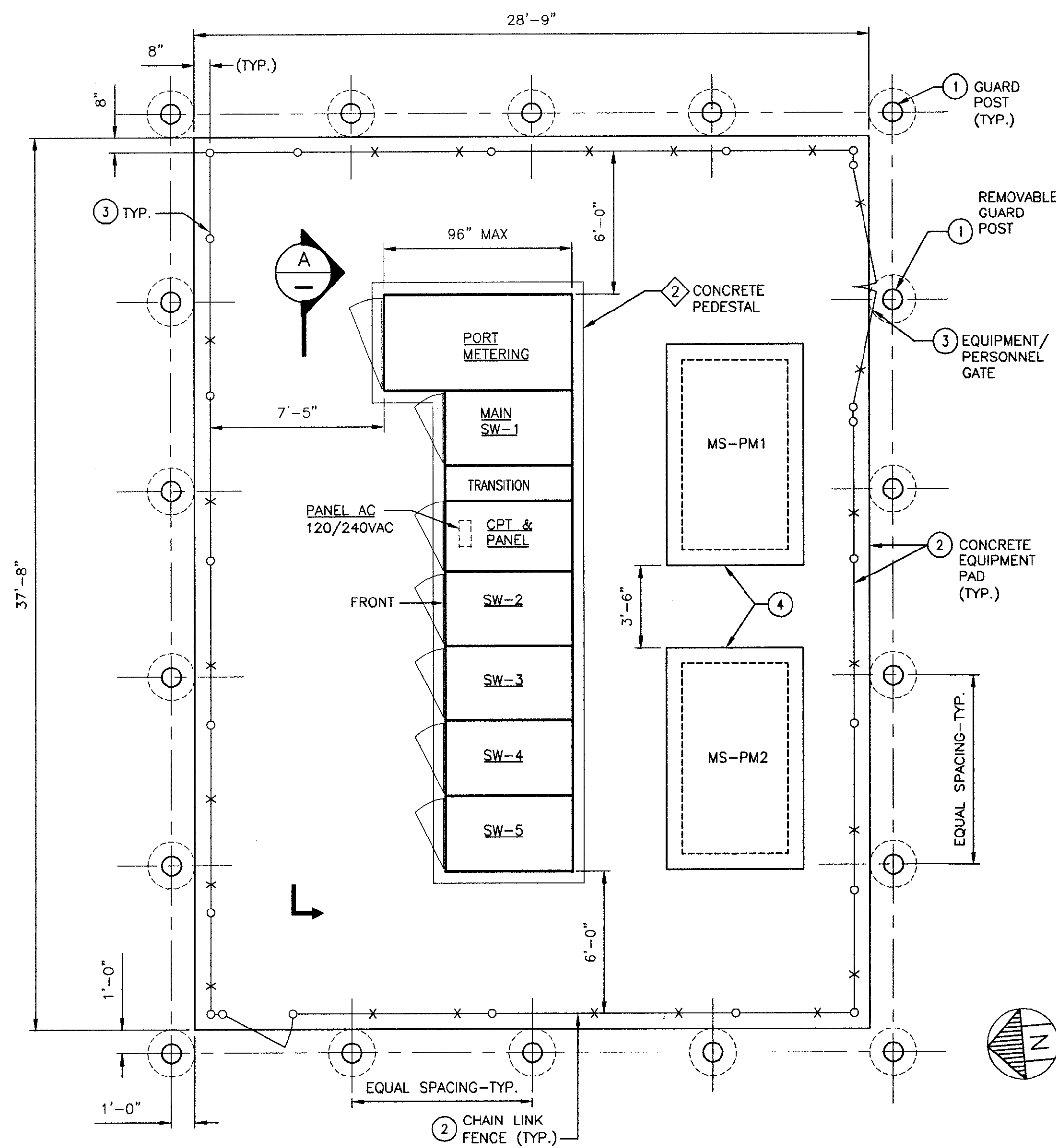


MARITIME SUPPORT CENTER	DATE: 04-10-06
CONSTRUCTION OF PHASE 3B CONTAINER TERMINAL YARD IMPROVEMENTS	SCALE: 1"=40'-0"
SITE ELECTRICAL PLAN - AREA 2	SHEET: 37 OF 56 SHEETS
E07	AA-3956

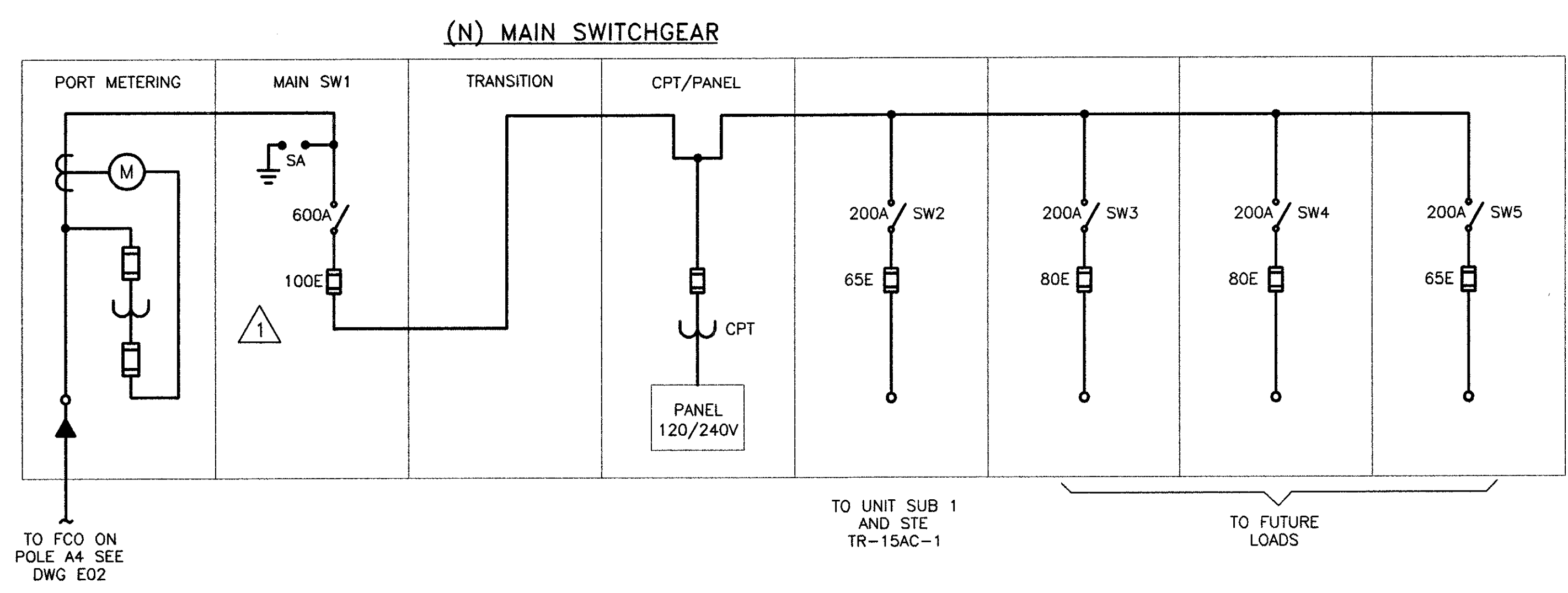
PRINT DATE: 04-10-06 11:46:47 F:\Drawings\2006\0603\AA3956\E07.dwg Printed by: Show

KEY NOTES

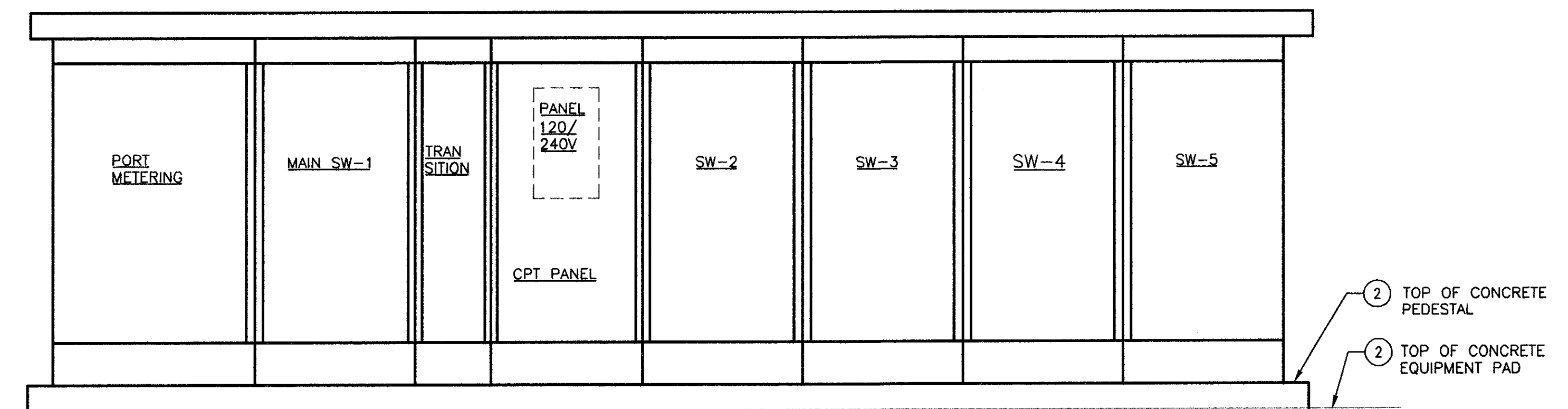
- ① GUARD POSTS AND REMOVABLE GUARD POSTS, BY PHASE 3C CONTRACTOR.
- ② CONCRETE EQUIPMENT PAD AND FENCE BY PHASE 3B GRADING AND PAVING CONTRACTOR. REFER TO DWG. S2.
- ③ FOR FENCING AND GATE DETAILS, SEE DWG. C6.
- ④ MH MS-PM1, MH MS-PM2 SHALL BE 4.5'X8.5'X6.0'D WITH FULL TRAFFIC RATED COVERS. UTILITY VAULT PG&E CODE 04-1440 OR APPROVED EQUAL.



1 MAIN SUBSTATION - EQUIPMENT LAYOUT
SCALE: 1/4"=1'-0"

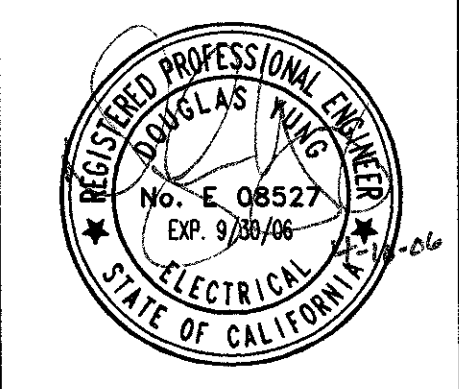
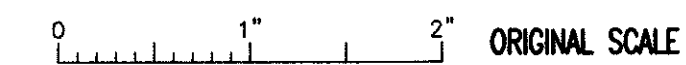


MAIN SWITCHGEAR - SINGLE LINE DIAGRAM
SCALE: NONE



(A) MAIN SUBSTATION SWITCHGEAR - ELEVATION
SCALE: 1/2"=1'-0"

CAUTION: THIS PLAN MAY BE REDUCED



MARITIME SUPPORT CENTER	DATE: 04-10-06
CONSTRUCTION OF PHASE 3B CONTAINER TERMINAL YARD IMPROVEMENTS	SCALE: AS NOTED
MAIN SUBSTATION EQUIPMENT LAYOUT AND ELEVATION	SHEET: 38 OF 56 SHEETS
E08	AA-3956

NO.	REVISIONS	DATE	REV'D	APP'D

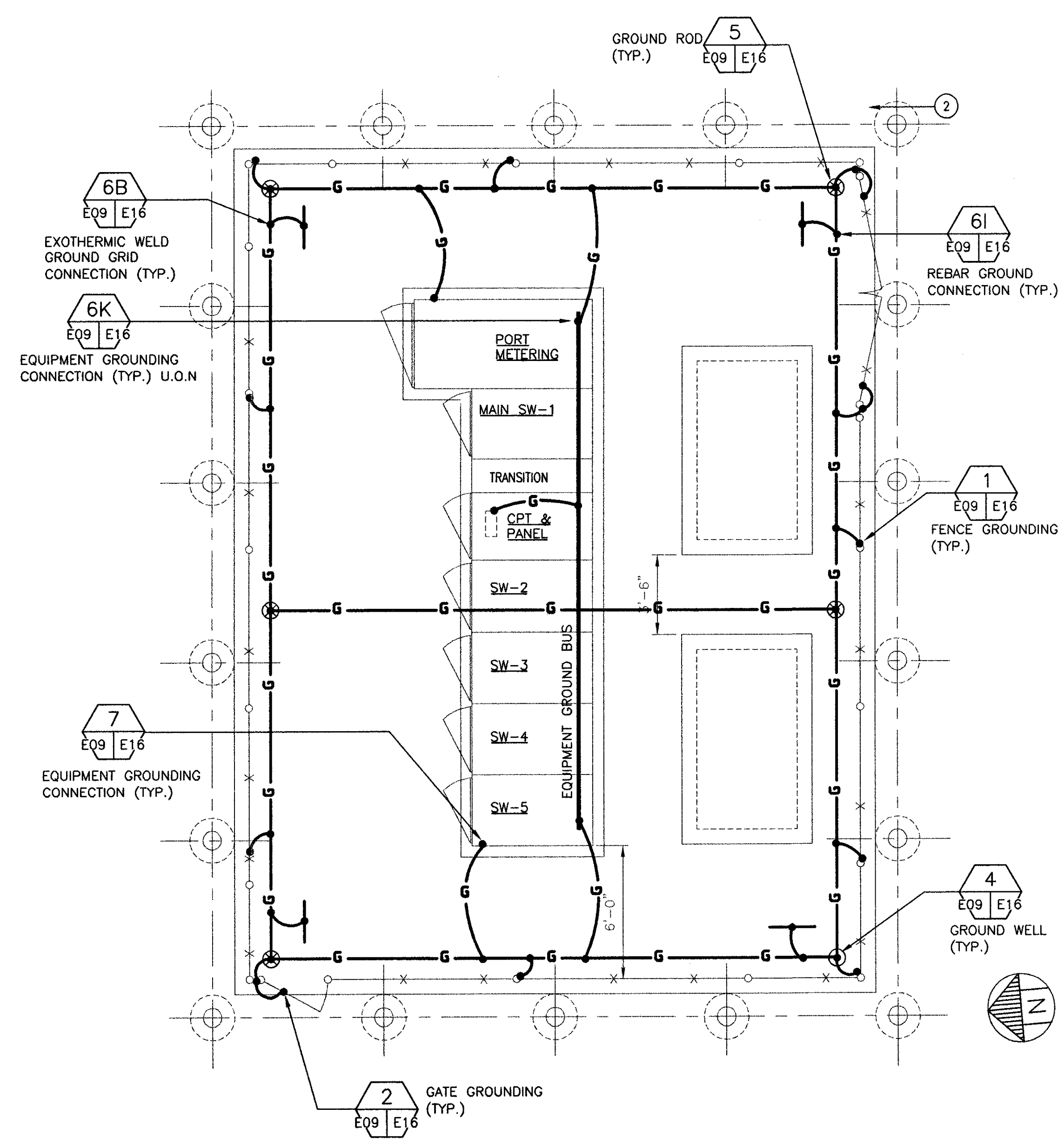
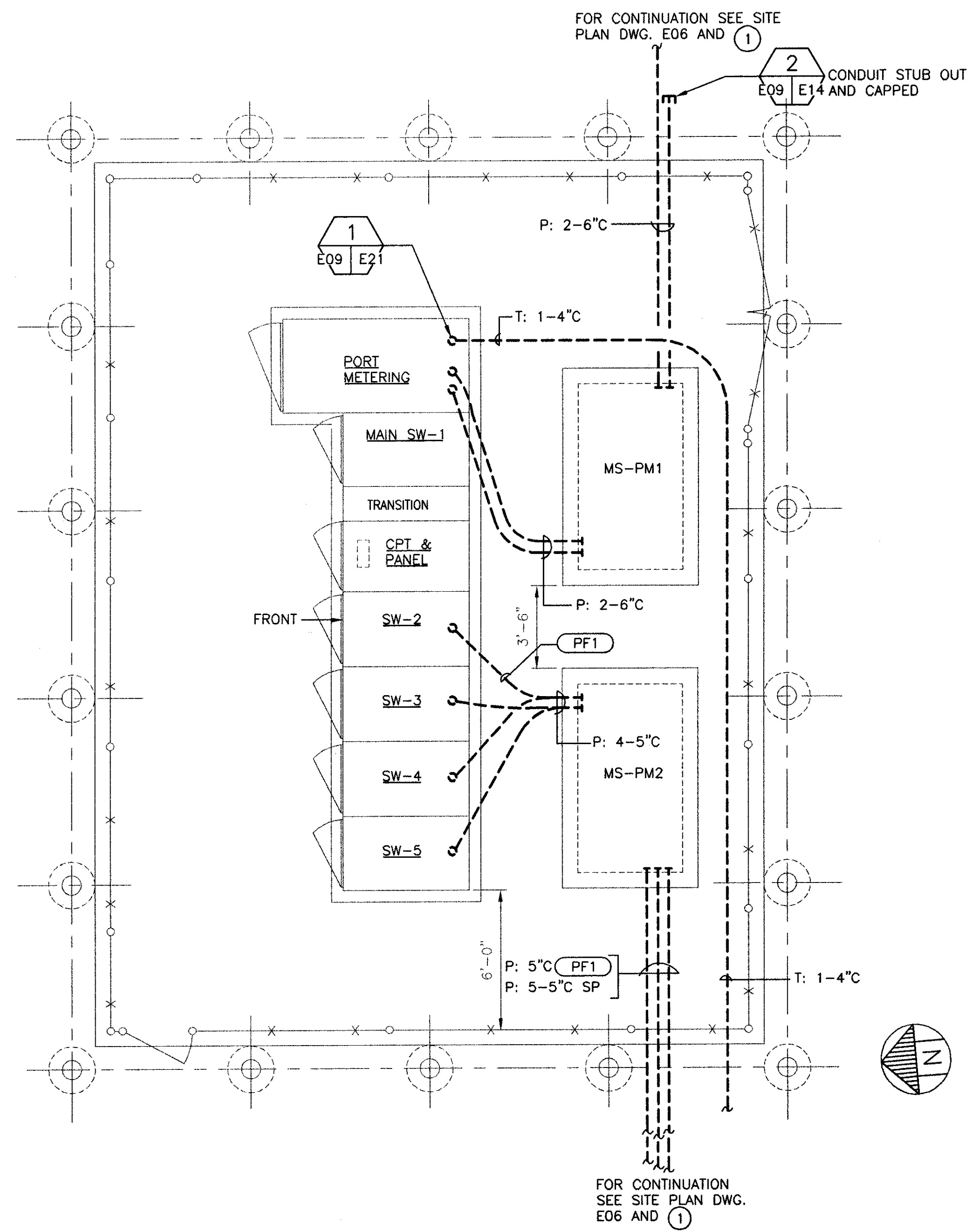
DRAWN R.DONG
DESIGNED R. DONG
CHECKED G. WONG
REG. ENGINEER NO. E8982

PORT OF OAKLAND
530 WATER ST. OAKLAND, CALIFORNIA

PRINT DATE: 04-10-06 11:46:27 F:\Drawings\2006\0603\AA3956\E08.dwg Printed by Shew

KEY NOTES

- ① PRIOR TO CONDUIT WORK COORDINATE WITH PORT TO STAKE-OUT LOCATION OF GUARD POSTS (BOLLARDS) TO INSURE THEIR SPACING AND NO INTERFERENCE BETWEEN BOLLARDS AND CONDUITS.



CONDUIT LAYOUT

GROUNDING PLAN

1
E06 E09 **DETAIL - MAIN SUBSTATION**
SCALE: 1/4" = 1'-0"

CAUTION: THIS PLAN MAY BE REDUCED ORIGINAL SCALE

PRINT DATE: 04-10-06 11:46:13 F:\Drawings\2006\0603\AA3956\E09.dwg Printed by: Shew

REFERENCES:
PLANS
FIELD BOOKS
"PORT OF OAKLAND DATUM"
IS 3.20' BELOW N.G.V.D., '29
CAUTION:
CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

DRAWN R. DONG
DESIGNED R. DONG
CHECKED G. WONG
REG. ENGINEER NO. E8982

PORT OF OAKLAND
530 WATER ST. OAKLAND, CALIFORNIA

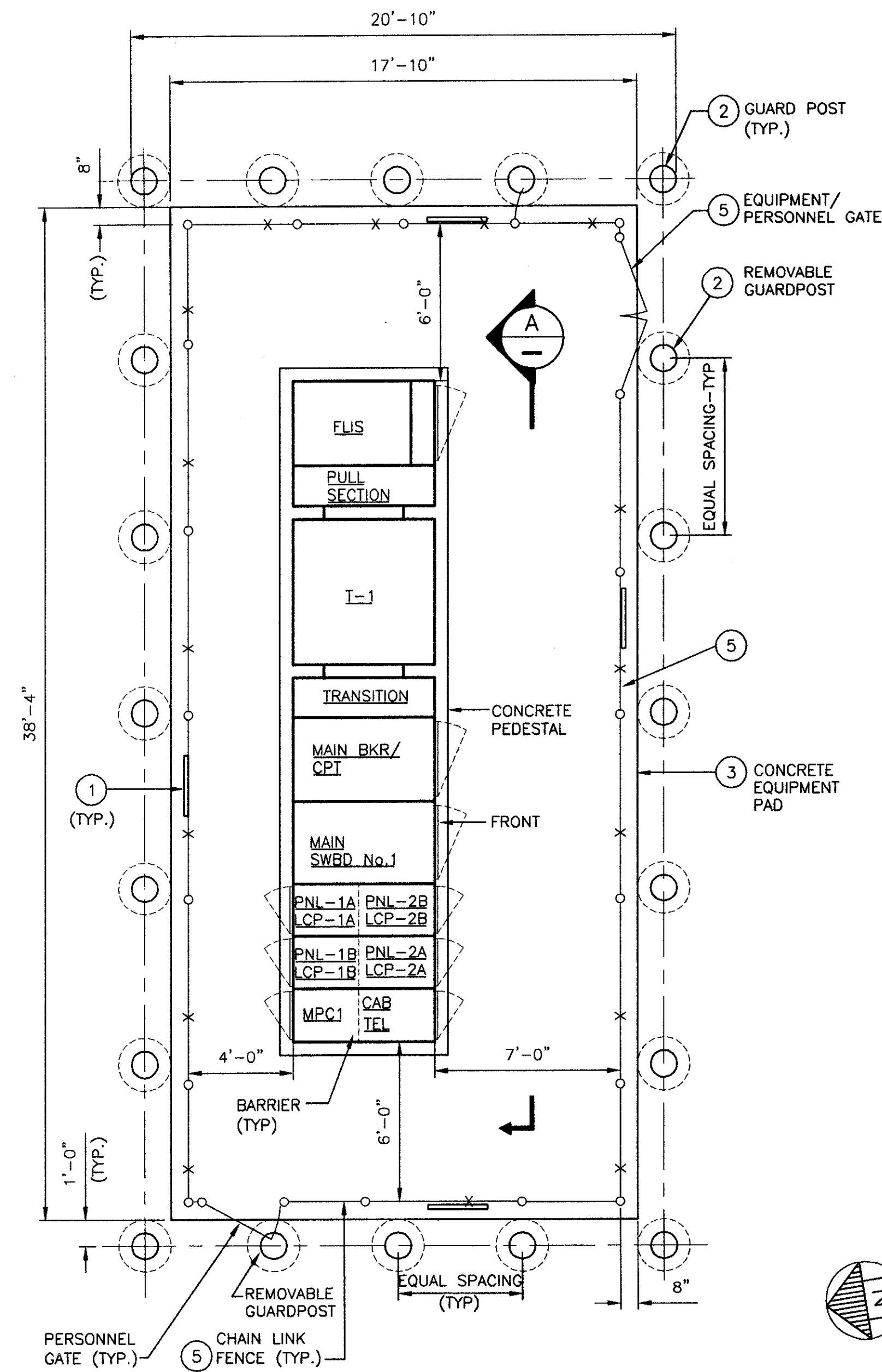
ENGINEERS, INC.
7700 Edgewater Drive, Suite 808, Oakland, CA 94621
Phone: (510) 383-1050 Fax: (510) 383-1057

REGISTERED PROFESSIONAL ENGINEER
DOUGLAS YONG
No. E 08527
Exp. 9/30/06
ELECTRICAL
STATE OF CALIFORNIA

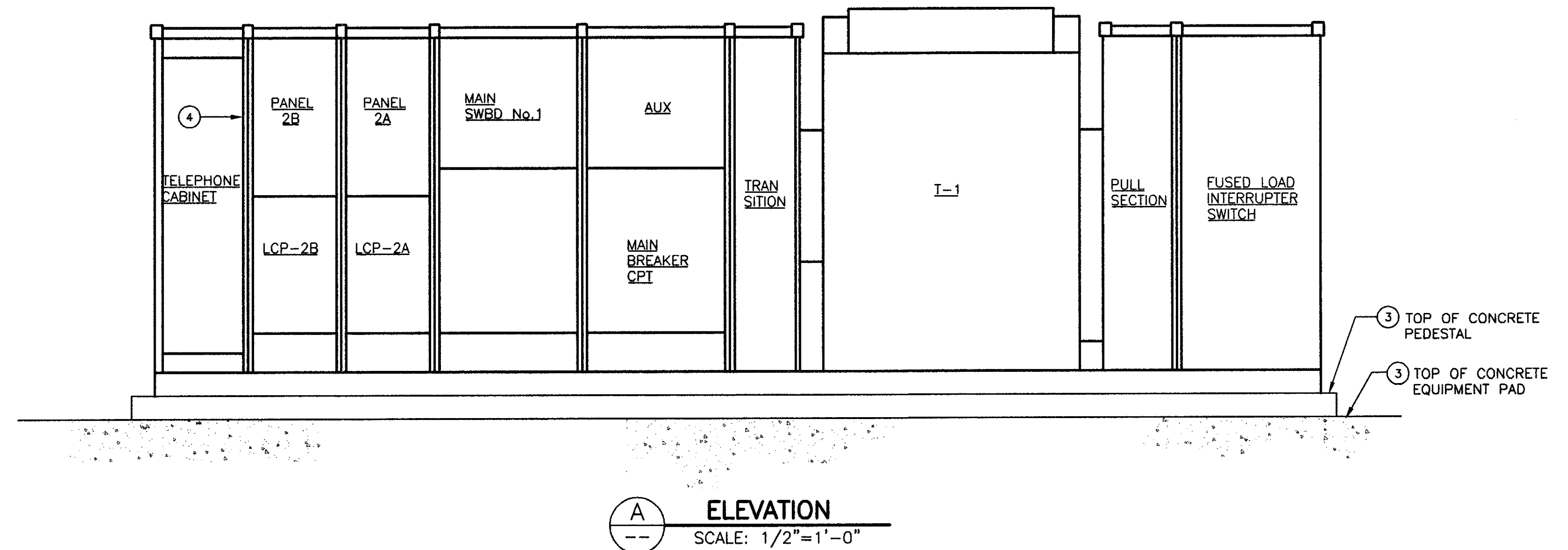
MARITIME SUPPORT CENTER	DATE: 04-10-06
CONSTRUCTION OF PHASE 3B CONTAINER TERMINAL YARD IMPROVEMENTS	SCALE: AS NOTED
MAIN SUBSTATION CONDUIT AND GROUNDING PLANS	SHEET: 39 OF 56 SHEETS
E09	AA-3956

KEY NOTES

- ① PROVIDE "DANGER HIGH VOLTAGE" SIGN ON ALL 4 SIDES PER OSHA AND SUBSTATION ID SIGN.
- ② GUARD POSTS AND REMOVABLE GUARD POSTS BY PHASE 3C CONTRACTOR, SEE DWG. S2.
- ③ REFER TO DWG. S2 FOR CONCRETE EQUIPMENT PAD.
- ④ PROVIDE 3/4" THICK (3'x6") MARINE TYPE PLYWOOD BOARD ON RIGHT SIDE OF COMPARTMENT.
- ⑤ FOR FENCING & GATE DETAILS, SEE CIVIL DWG. C6.



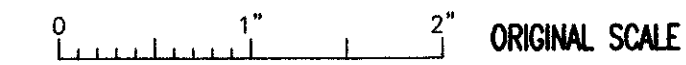
EQUIPMENT LAYOUT
SCALE: 1/4"=1'-0"



A ELEVATION
SCALE: 1/2"=1'-0"

1 DETAIL - UNIT SUBSTATION NO. 1
SCALE: AS SHOWN

CAUTION: THIS PLAN MAY BE REDUCED



PRINT DATE: 04-10-06 11:45:59 F:\Drawings\2006\0603\A3956\E10.dwg Printed by: Sher

REFERENCES:
PLANS
FIELD BOOKS
"PORT OF OAKLAND DATUM"
IS 3.20' BELOW N.G.V.D. '29
CAUTION:
CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

DRAWN R. DONG
DESIGNED R. DONG
CHECKED G. WONG
REG. ENGINEER NO. E8982
REG. ENGINEER NO.

PORT OF OAKLAND
530 WATER ST. OAKLAND, CALIFORNIA



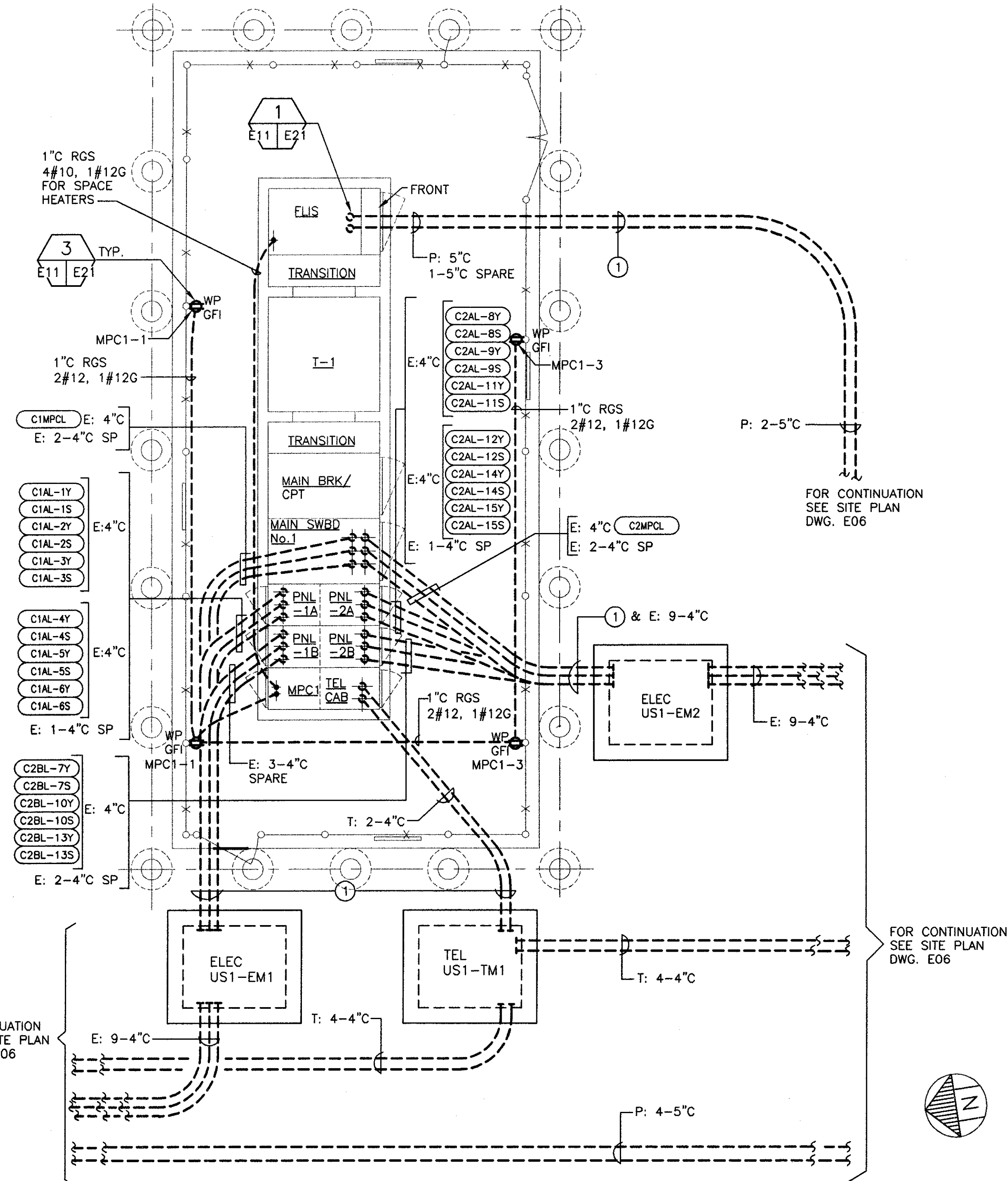
MARITIME SUPPORT CENTER
CONSTRUCTION OF PHASE 3B CONTAINER
TERMINAL YARD IMPROVEMENTS
UNIT SUBSTATION NO. 1
EQUIPMENT LAYOUT AND ELEVATION



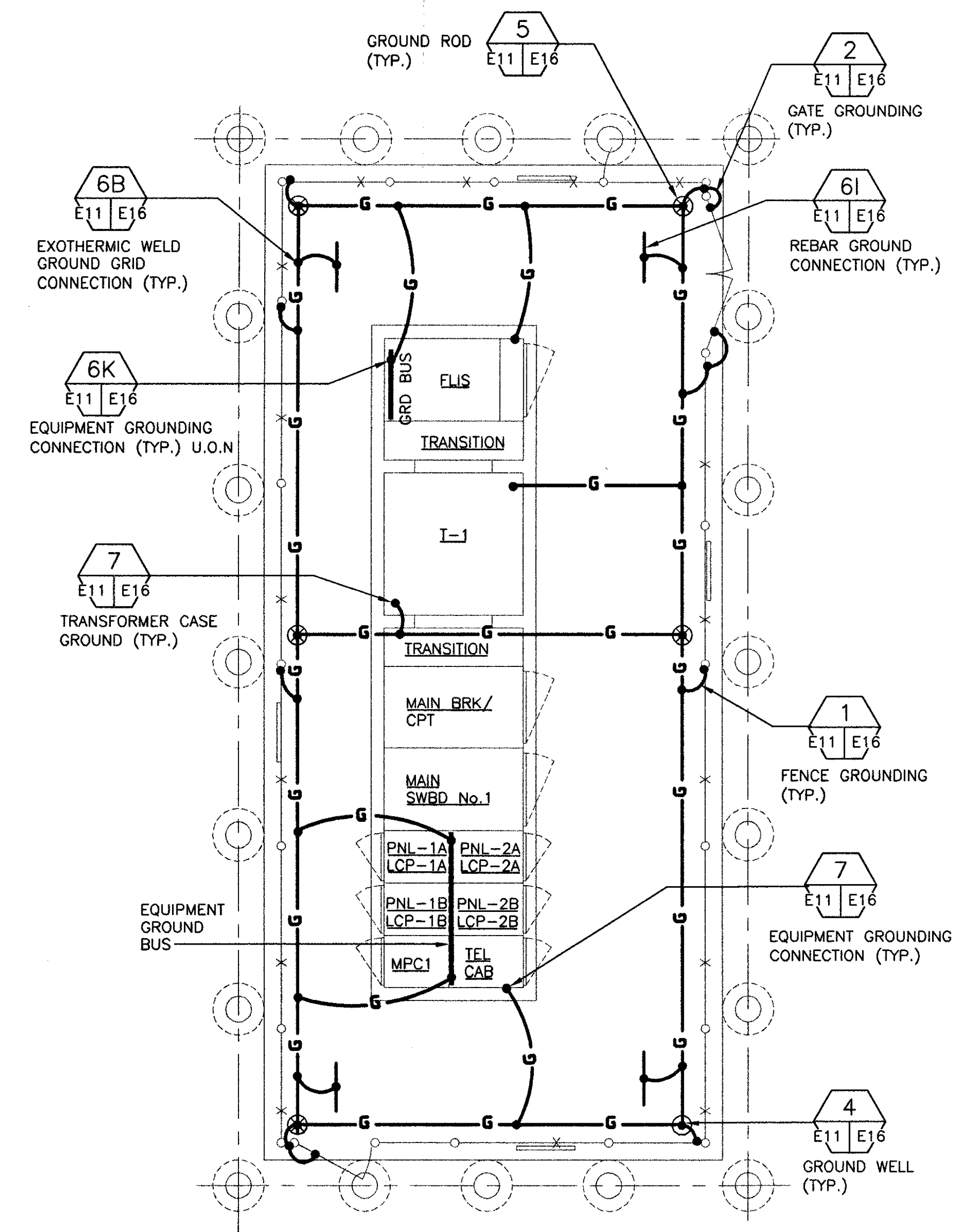
DATE: 04-10-06
SCALE: AS NOTED
SHEET: 40 OF 56 SHEETS
E10 AA-3956

KEY NOTES

- 1 PRIOR TO CONDUIT WORK COORDINATE WITH PORT TO STAKE-OUT LOCATION OF GUARD POSTS (BOLLARDS) TO INSURE THEIR SPACING AND NO INTERFERENCE BETWEEN BOLLARDS AND CONDUITS.



CONDUIT LAYOUT



GROUNDING PLAN

1 **DETAIL - UNIT SUBSTATION NO. 1**
 E06 E11 SCALE: 1/4"=1'-0"

CAUTION: THIS PLAN MAY BE REDUCED

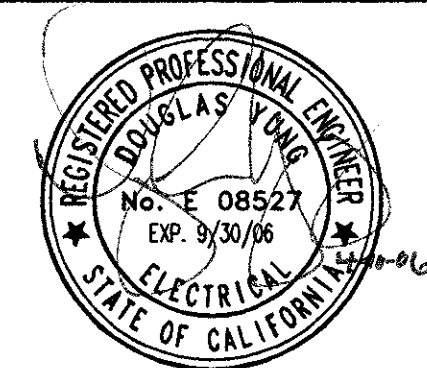
0 1" 2" ORIGINAL SCALE

NO.	REVISIONS	DATE	REV'D	APP'D

DRAWN R. DONG
 DESIGNED R. DONG
 CHECKED G. WONG
 REG. ENGINEER NO. E8982

PORT OF OAKLAND
 530 WATER ST. OAKLAND, CALIFORNIA

Y&E ENGINEERS, INC.
 7700 Edgewater Drive, Suite 828, Oakland, CA 94621
 Phone: (510) 383-1050 Fax: (510) 383-1057



MARITIME SUPPORT CENTER	DATE: 04-10-06
CONSTRUCTION OF PHASE 3B CONTAINER TERMINAL YARD IMPROVEMENTS	SCALE: AS NOTED
UNIT SUBSTATION NO. 1 CONDUIT AND GROUNDING PLAN	SHEET: 41 OF 56 SHEETS
E11	AA-3956

PRINT DATE: 04-10-06 11:45:45 F:\Drawings\2006\0603\VA3956\E11.dwg Printed by: Shew

Not Use

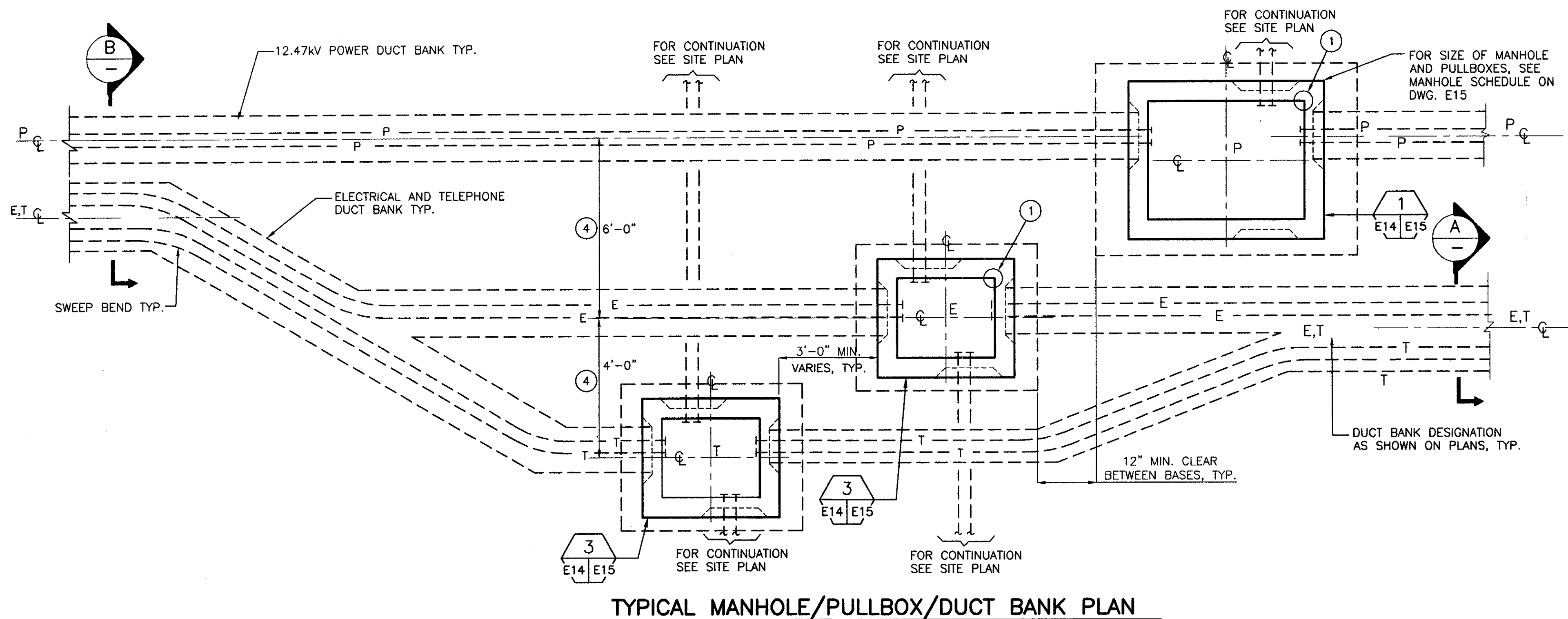
Pg. 42

NOT USE

Pg. 43

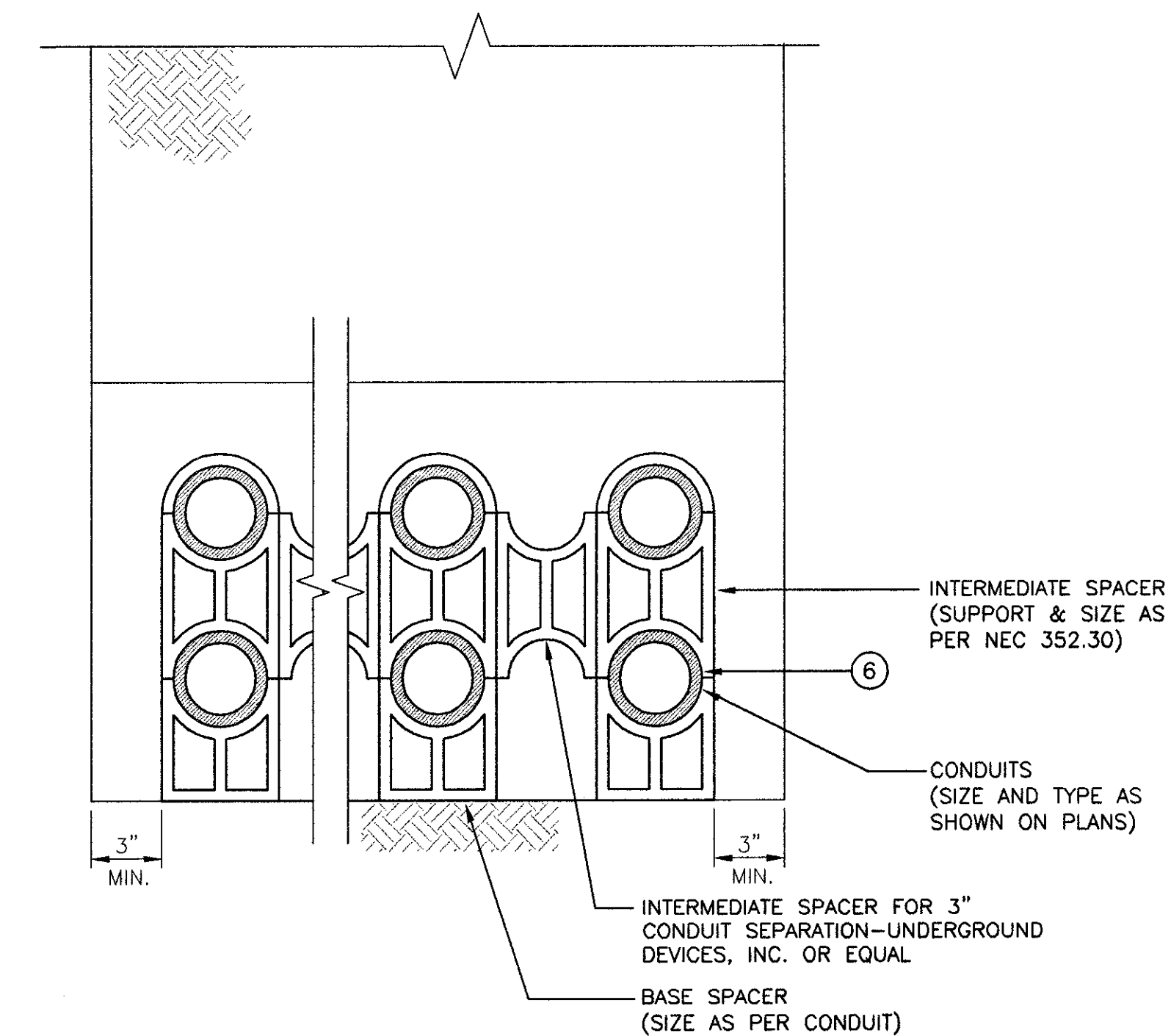
KEY NOTES

- 1 REFER TO CIVIL DWGS. C09 & C10 FOR MH & PB COORDINATES AT THIS CORNER LOCATION.
- 2 "P", "E", "T" DUCT BANKS MAY BE TOGETHER IN A SINGLE TRENCH. 12" MIN. CLEARANCE SHALL BE MAINTAINED BETWEEN EACH TYPE OF SERVICE.
- 3 REFER TO PHASE 3B GRADING AND PAVING CIVIL DWGS. FOR INSTALLATION REQUIREMENT OF CONDUIT DUCTBANK.
- 4 CENTER TO CENTER SPACING OF BOXES MAY VARY DEPENDING ON BOX SIZE AND LOCATION.
- 5 REFER TO PHASE 3B GRADING AND PAVING CIVIL DRAWING AND SPECIFICATION FOR TYPICAL REQUIREMENTS.
- 6 INSTALL CABLES, WIRE AT THE BOTTOM OF ROW OF CONDUITS BEFORE MOVING TO NEXT HIGHER LEVEL ROW.

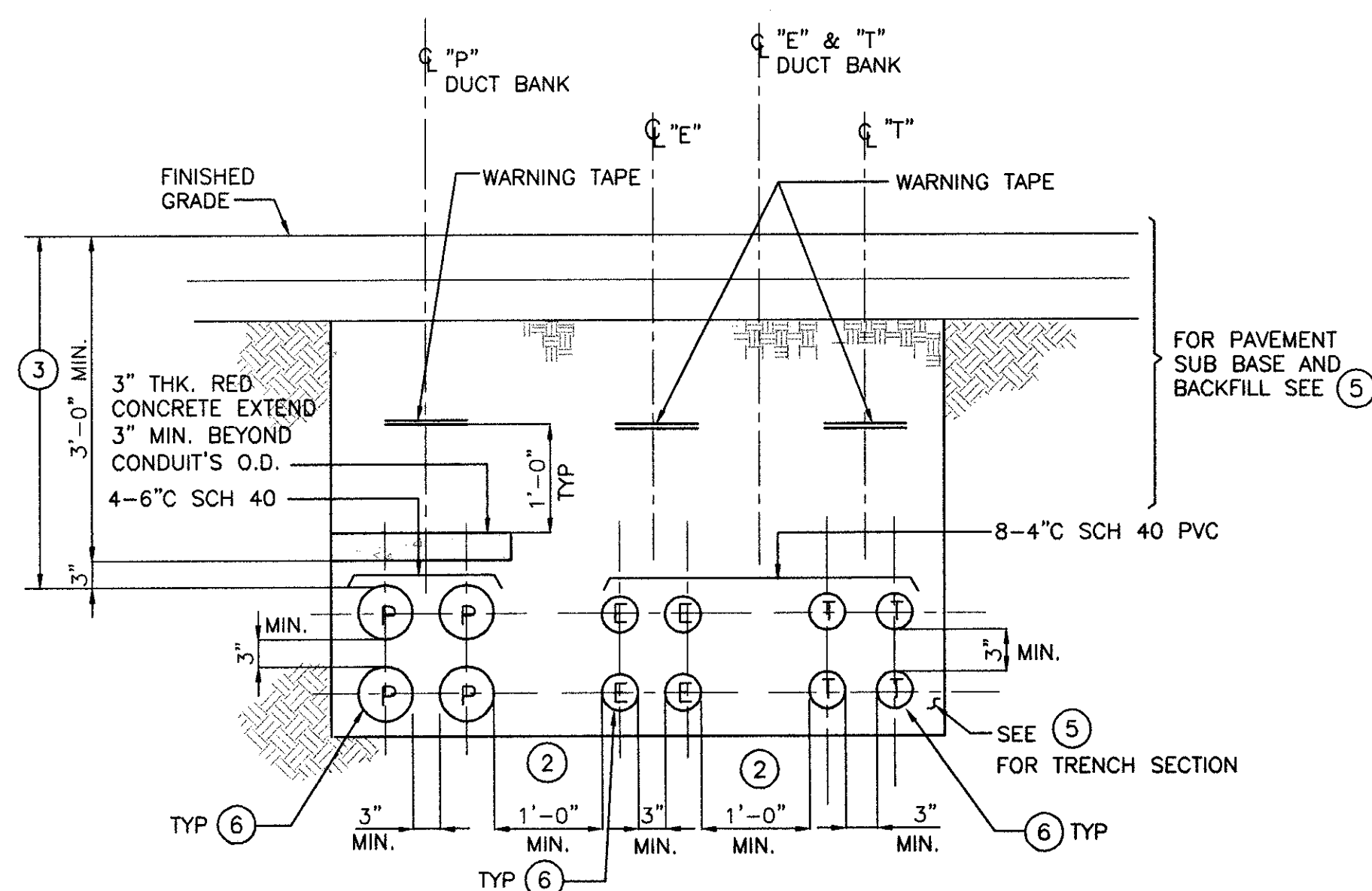


TYPICAL MANHOLE/PULLBOX/DUCT BANK PLAN

1 **DETAIL**
E06,E07 | E14 SCALE: NTS

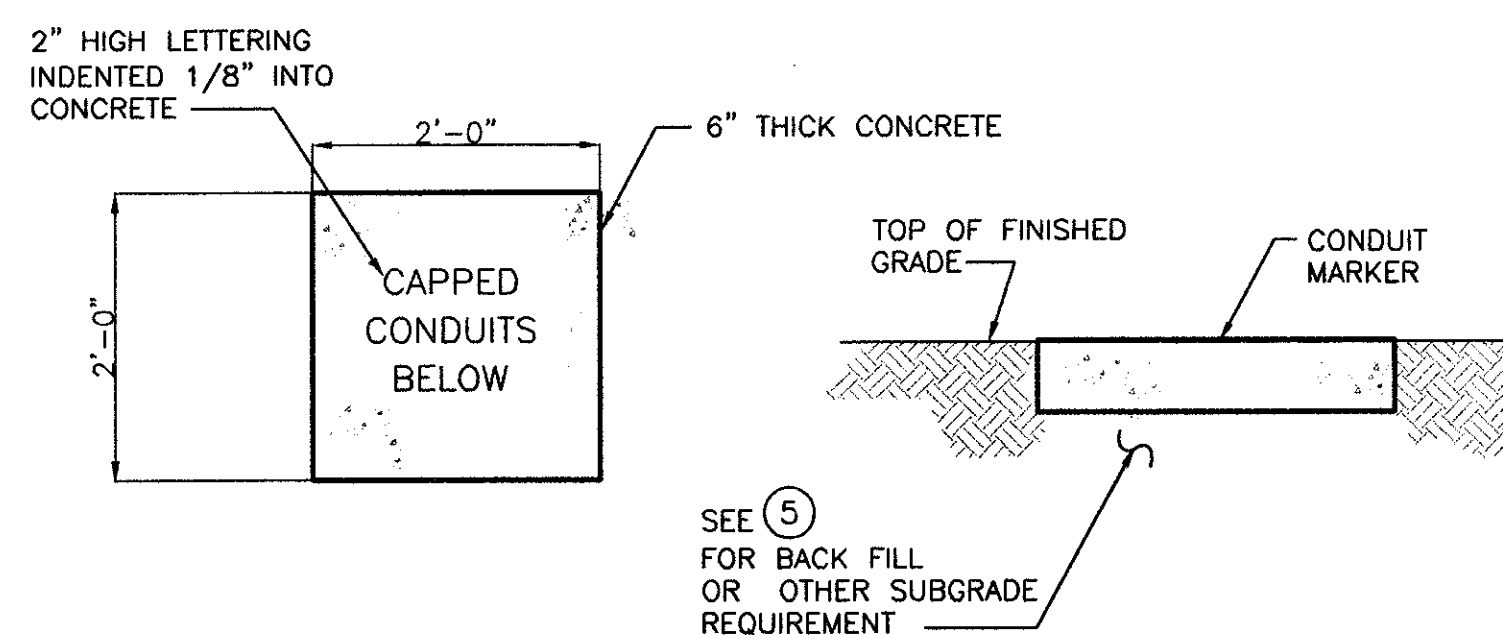


A **DUCT BANK SPACERS TYPICAL**
SCALE: NTS



NOTE: NUMBER/SIZE WILL VARY. SEE DWG. E06 & E07.

B **DUCT BANK SECTION**
SCALE: 3/4"=1'-0"



- NOTES: 1. UN STUB-OUT & CAP CONDUITS A MINIMUM OF 10'-0" BEYOND BOXES BEFORE INSTALLING MARKERS.
2. SURVEY LOCATION OF CAPPED CONDUIT AND NOTE COORDINATES ON AS-BUILT DWGS.

2 **DETAIL - CONDUIT MARKER**
E06,E07 | E14 SCALE: NTS

CAUTION: THIS PLAN MAY BE REDUCED

0 1" 2" ORIGINAL SCALE

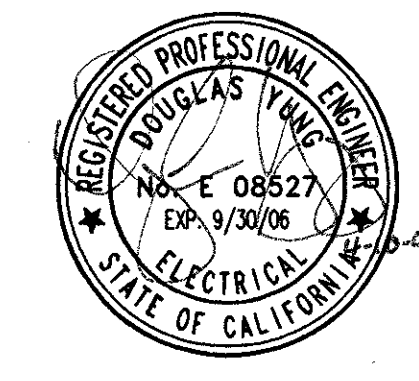
REFERENCES:
PLANS
FIELD BOOKS
"PORT OF OAKLAND DATUM"
IS 3.20' BELOW N.G.V.D. '29
CAUTION:
CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REVD	APP'D

DRAWN S. HO
DESIGNED R. DONG
CHECKED G. WONG
REG. ENGINEER NO. E8982
REG. ENGINEER NO.

PORT OF OAKLAND
530 WATER ST. OAKLAND, CALIFORNIA

VEI ENGINEERS, INC.
7700 Edgewater Drive, Suite 828, Oakland, CA 94621
Phone: (510) 383-1050 Fax: (510) 383-1057



MARITIME SUPPORT CENTER	DATE: 04-10-06
CONSTRUCTION OF PHASE 3B CONTAINER TERMINAL YARD IMPROVEMENTS	SCALE: AS NOTED
TYPICAL UNDERGROUND ELECTRICAL PLAN, SECTION & DETAILS	SHEET: 44 OF 56 SHEETS
E14	AA-3956

PRINT DATE: 04-10-06 11:45:17 F:\Drawings\2006\0603\AA3956\E14.dwg Printed by: Shew

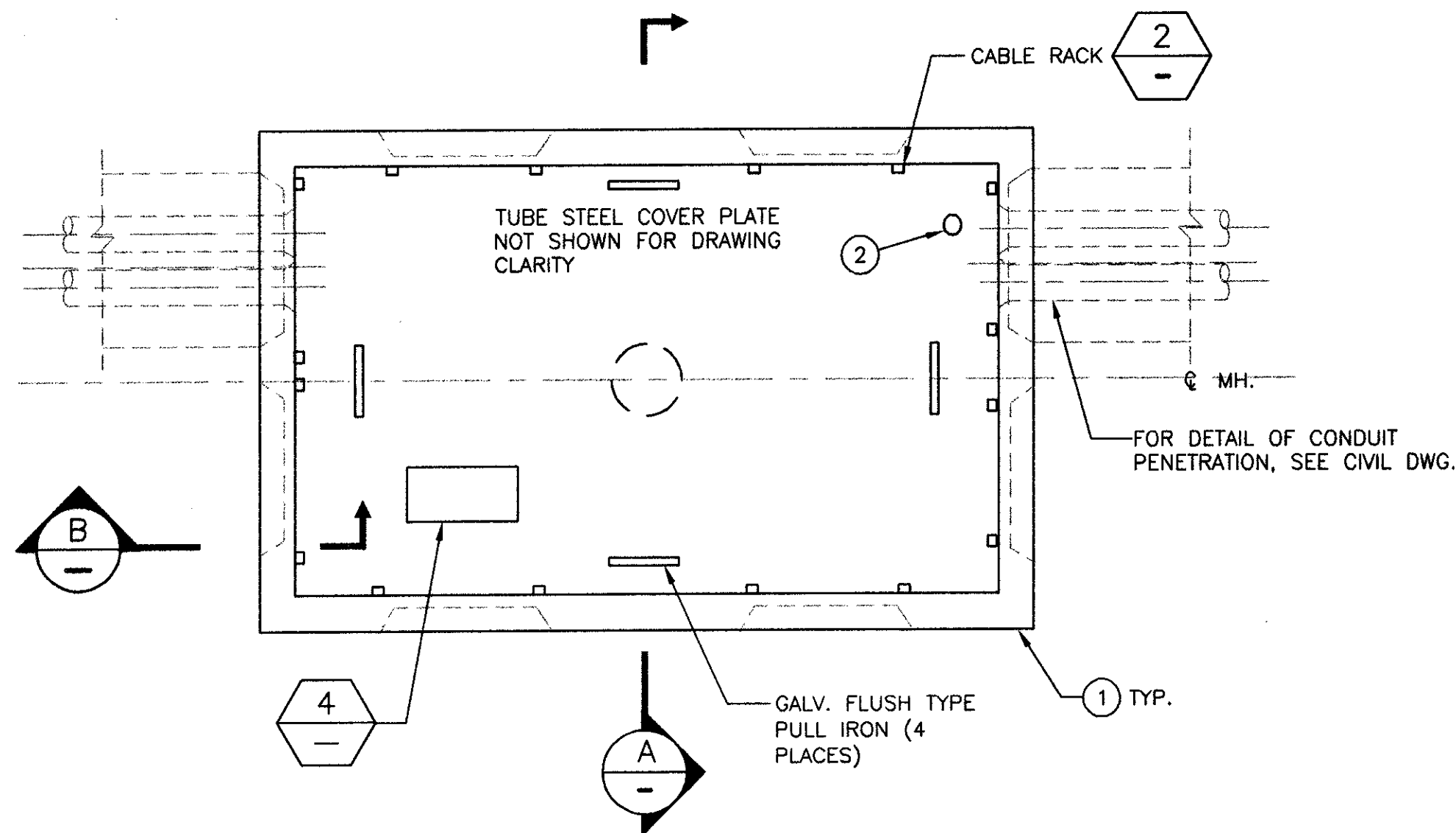
KEY NOTES

- ① REFER TO PHASE 3B GRADING AND PAVING CONTRACT SECTION 02580 FOR FABRICATION REQUIREMENT OF ELECTRICAL MANHOLES, PULLBOXES AND COVER AND SEE DWG. S3 FOR DIMENSIONS AND DETAIL REQUIREMENTS.
- ② FURNISH AND INSTALL 3/4" X 10' LENGTH GROUND ROD IN ALL MH'S & PB'S, GROUT IN PLACE.
- ③ MH MS-PM1, MH MS-PM2 SHALL BE 4.5'X8.5'X6.0'D WITH FULL TRAFFIC RATED COVERS. UTILITY VAULT PG&E CODE 04-1440 OR APPROVED EQUAL.

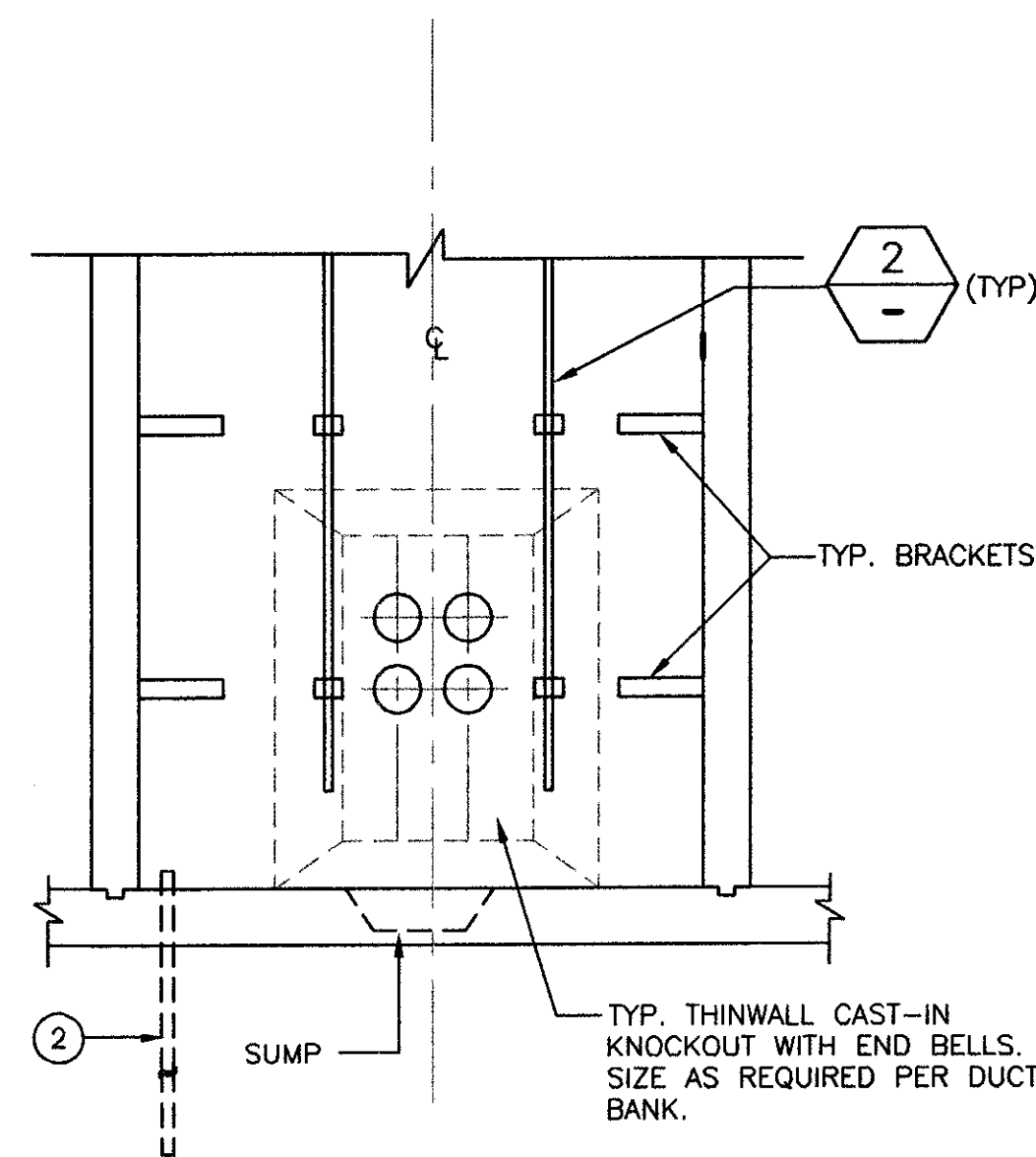
MANHOLE AND PULLBOX SCHEDULE - ③

TYPE	LETTER DESCRIPTION	SIZE *	DEPTH (D) *
⊗	HIGH VOLTAGE	6'-0"X8'-0"	6'-0"
⊠	ELECTRICAL	4'-0"X5'-0"	4'-0"
□	TELECOMMUNICATION	4'-0"X5'-0"	4'-0"

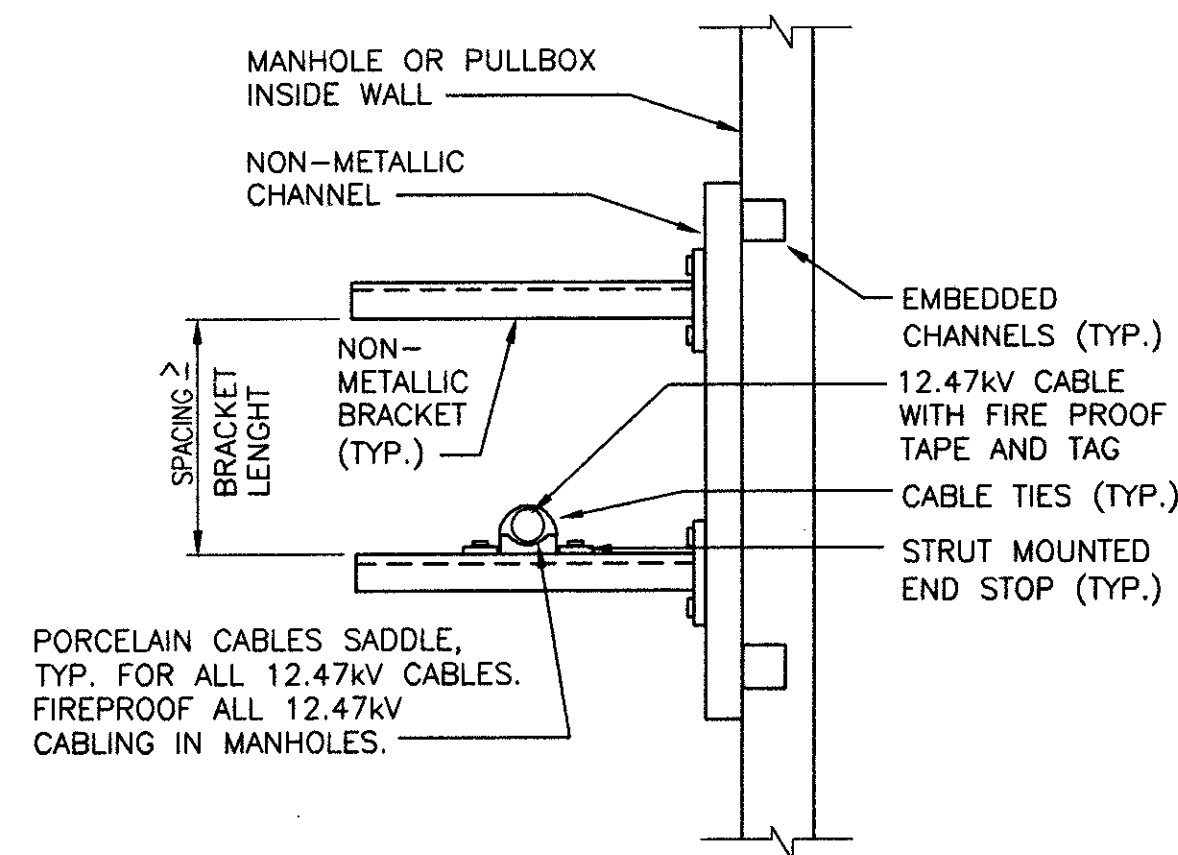
* INSIDE DIMENSIONS INDICATED



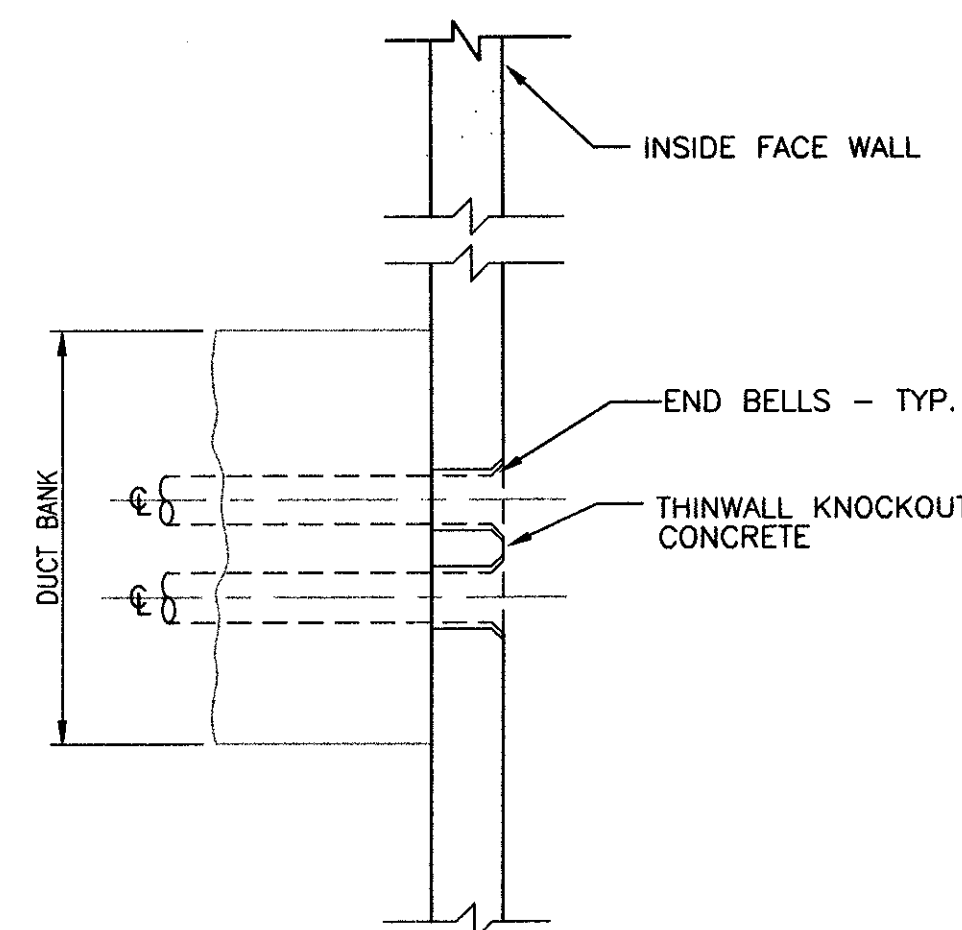
① PLAN - POWER MANHOLE
E14 E15 SCALE: NTS



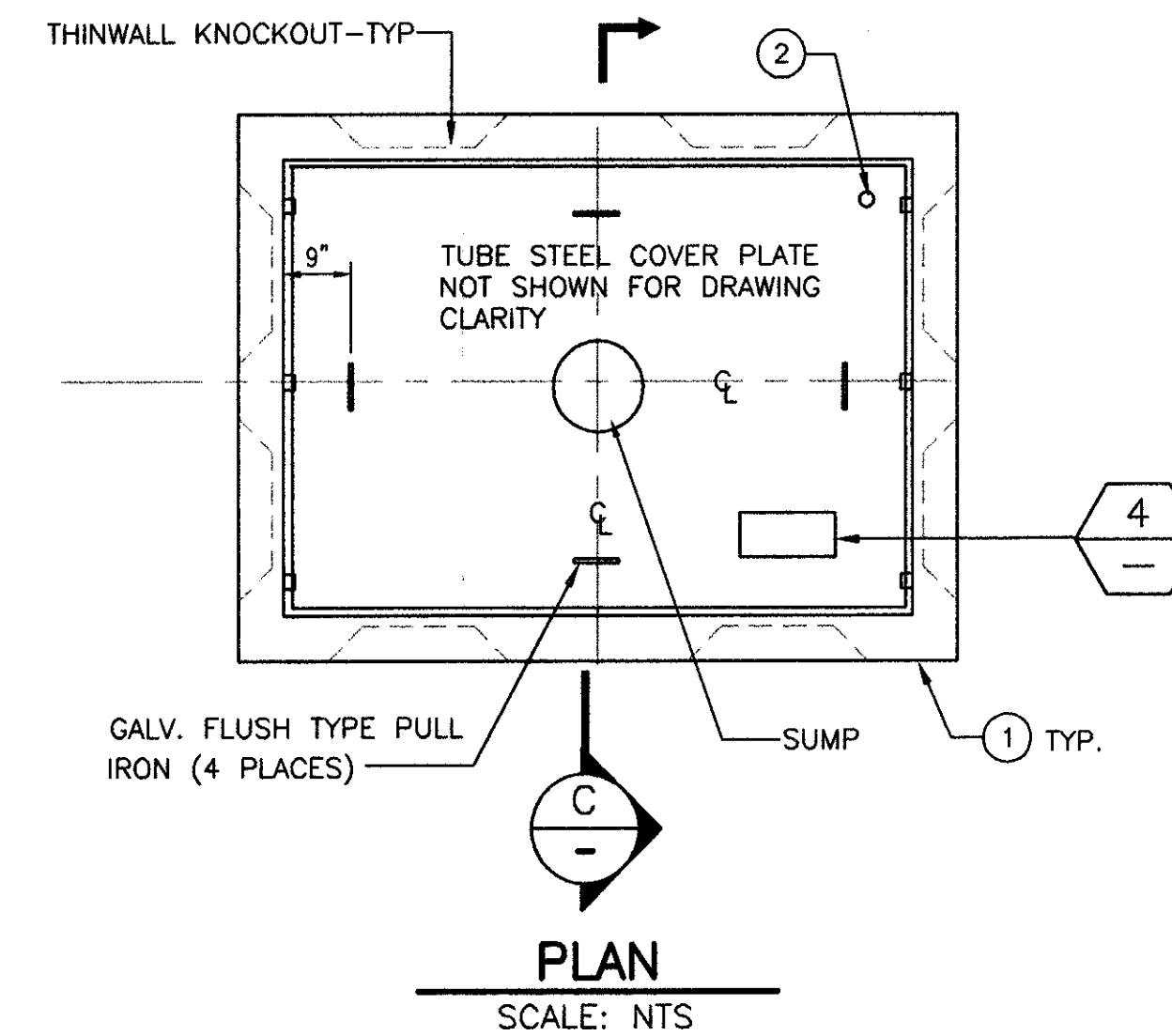
② SECTION A
SCALE: NTS



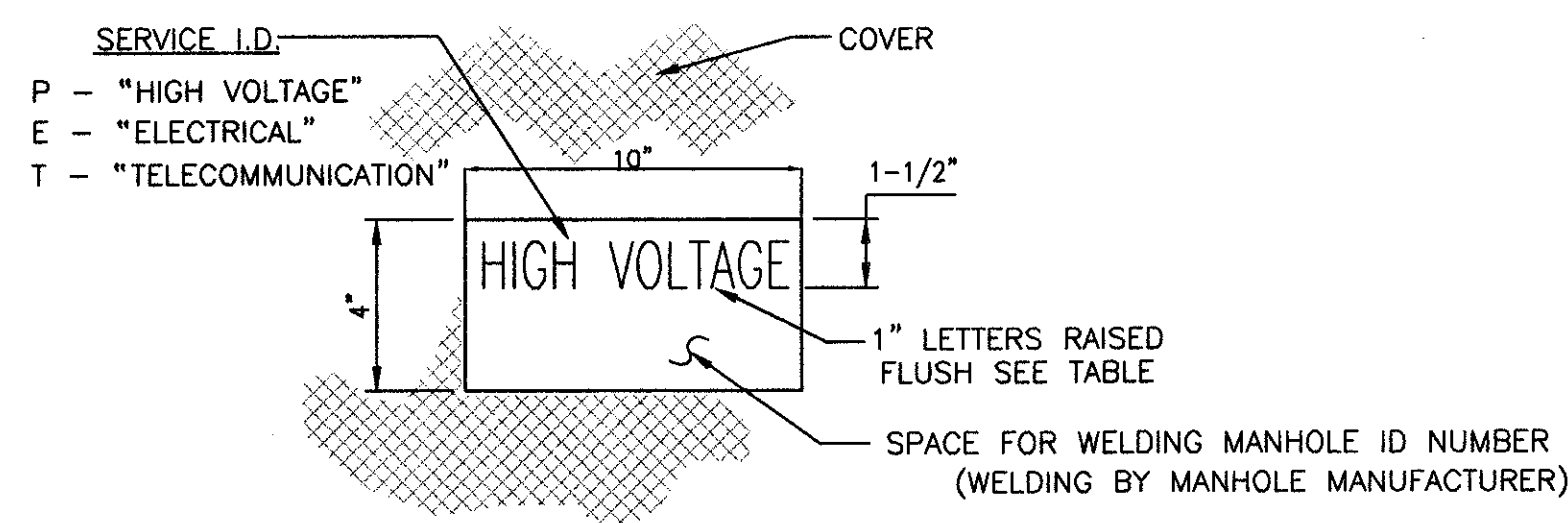
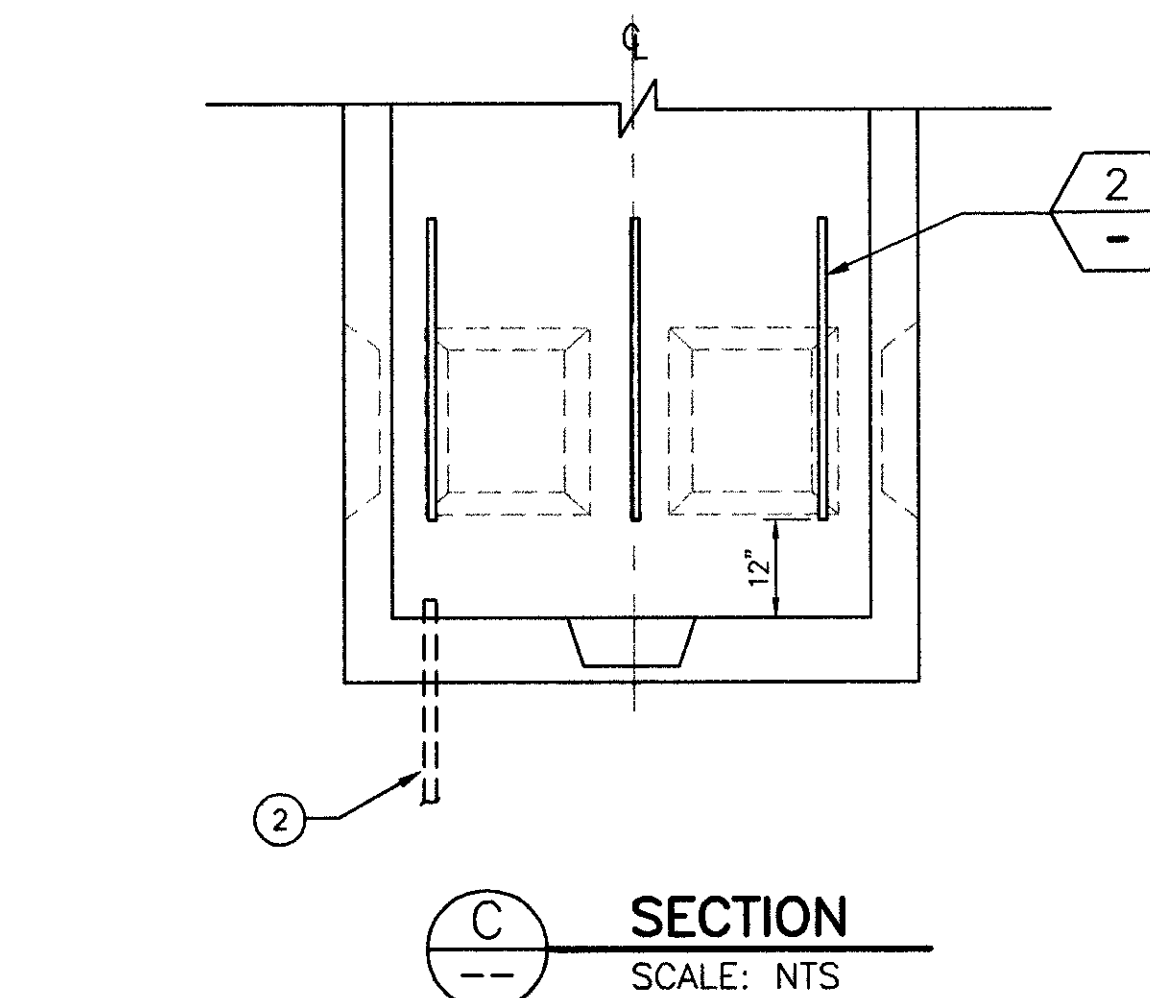
② TYPICAL CABLE RACK DETAIL
SCALE: NTS



③ SECTION B
SCALE: NTS

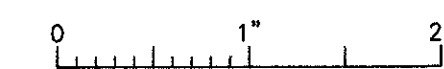


③ ELECTRICAL & TELECOM PULLBOXES - TYP.
E14 E15 SCALE: NTS



④ COVER PLATE ENGRAVING
SCALE: NTS

CAUTION: THIS PLAN MAY BE REDUCED



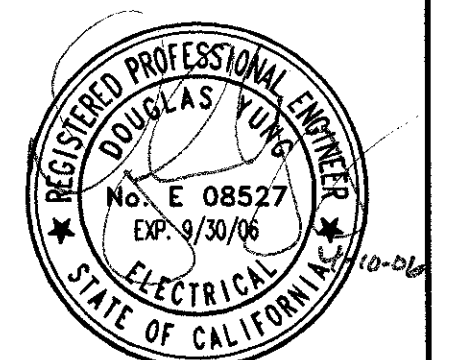
PRINT DATE: 04-10-06 11:45:02 F:\Drawings\2006\0603\AA3956\E15.dwg Printed by: Shew

NO.	REVISIONS	DATE	REV'D	APP'D

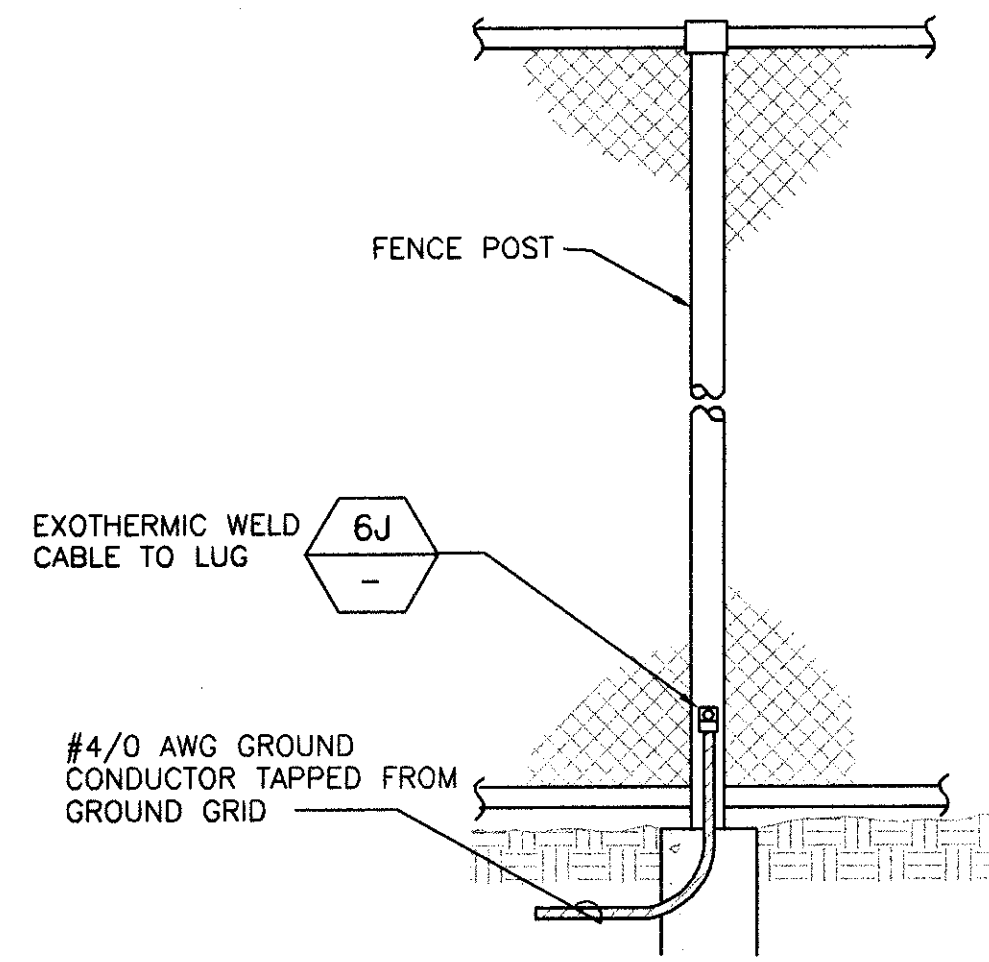
DRAWN S. HO
DESIGNED R. DONG
CHECKED G. WONG
REG. ENGINEER NO. E8982

PORT OF OAKLAND
530 WATER ST. OAKLAND, CALIFORNIA

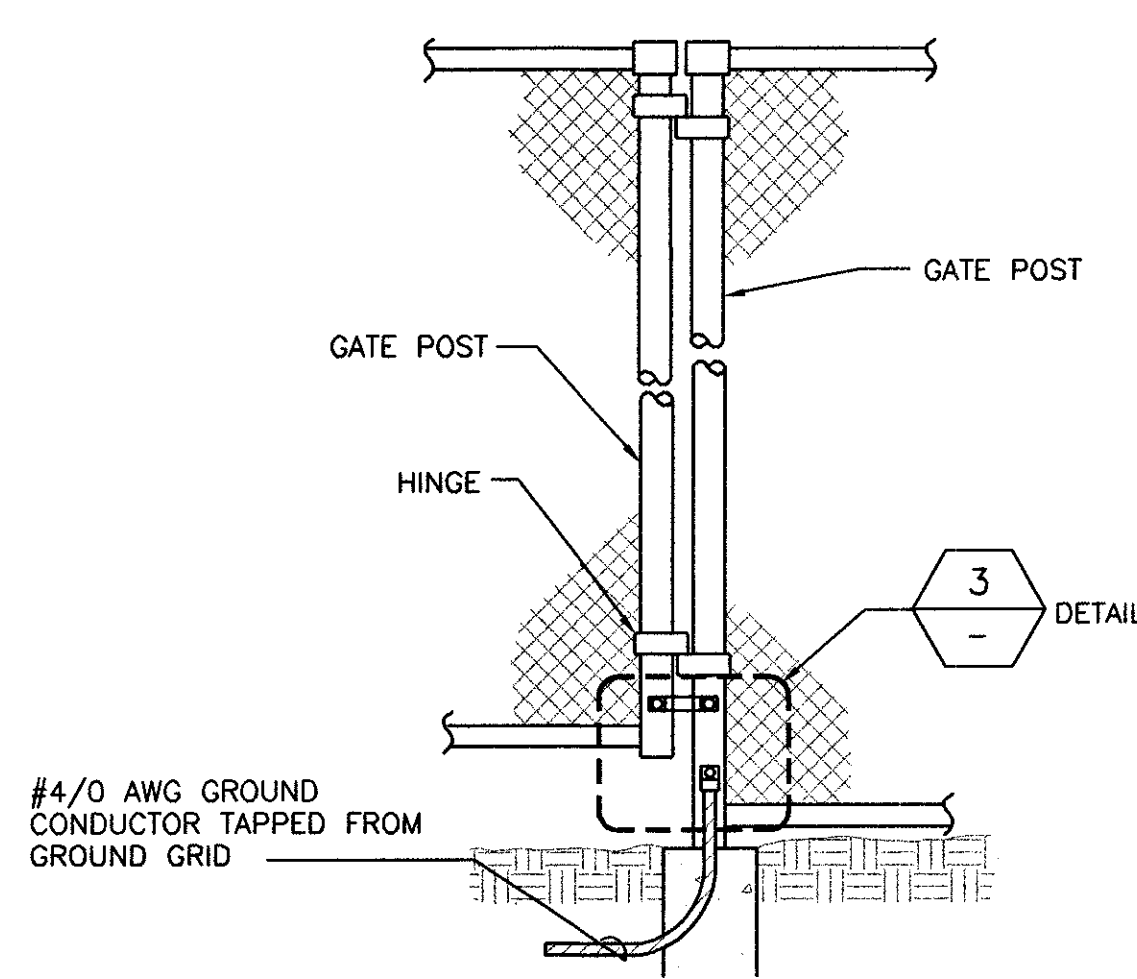
ENGINEERS, INC.
7700 Edgewater Drive, Suite 828, Oakland, CA 94621
Phone: (510) 383-1050 Fax: (510) 383-1051



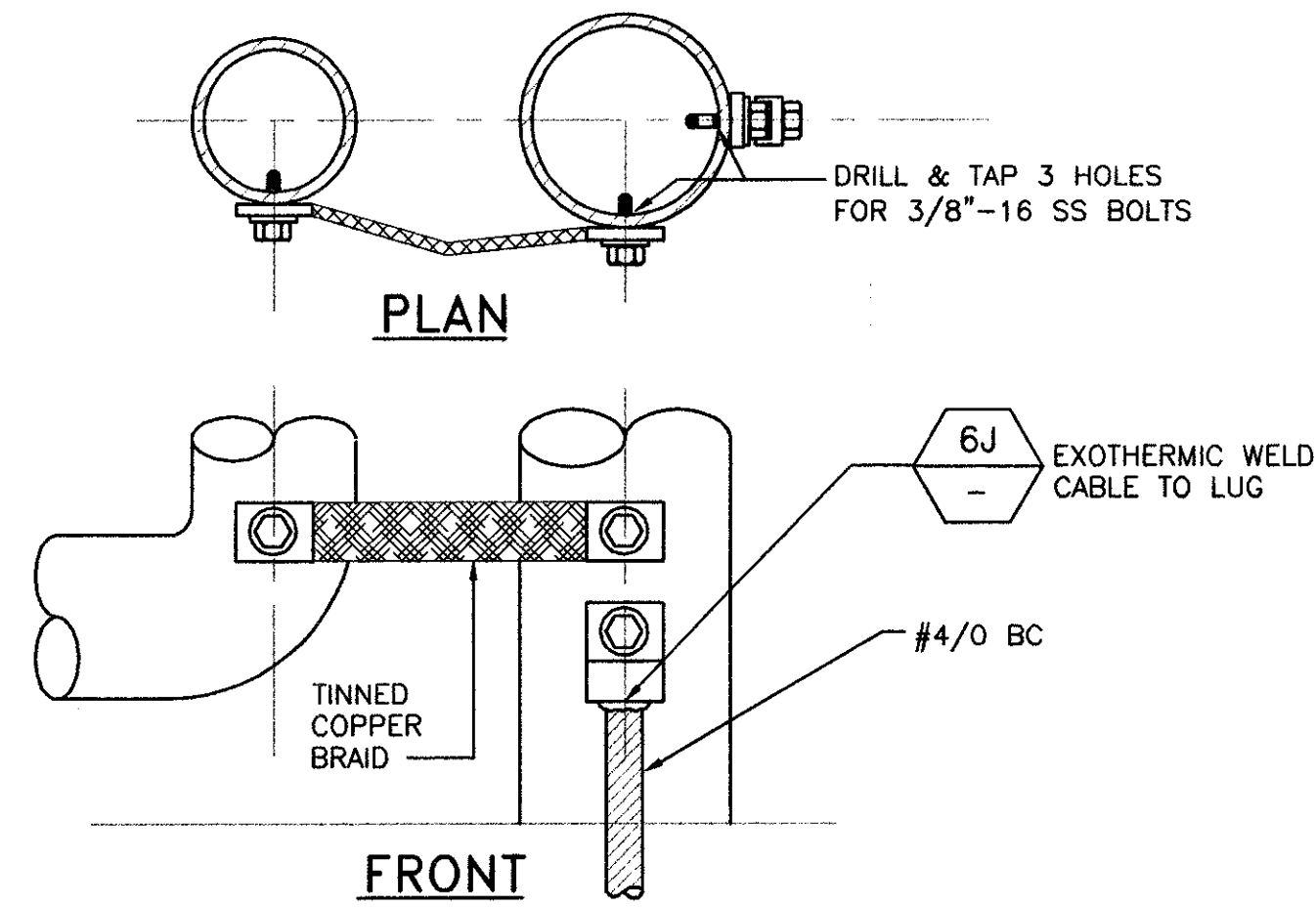
MARITIME SUPPORT CENTER	DATE: 04-10-06
CONSTRUCTION OF PHASE 3B CONTAINER TERMINAL YARD IMPROVEMENTS	SCALE: NTS
MANHOLE AND PULLBOX TYPICAL DETAILS	SHEET: 45 OF 56 SHEETS
E15	AA-3956



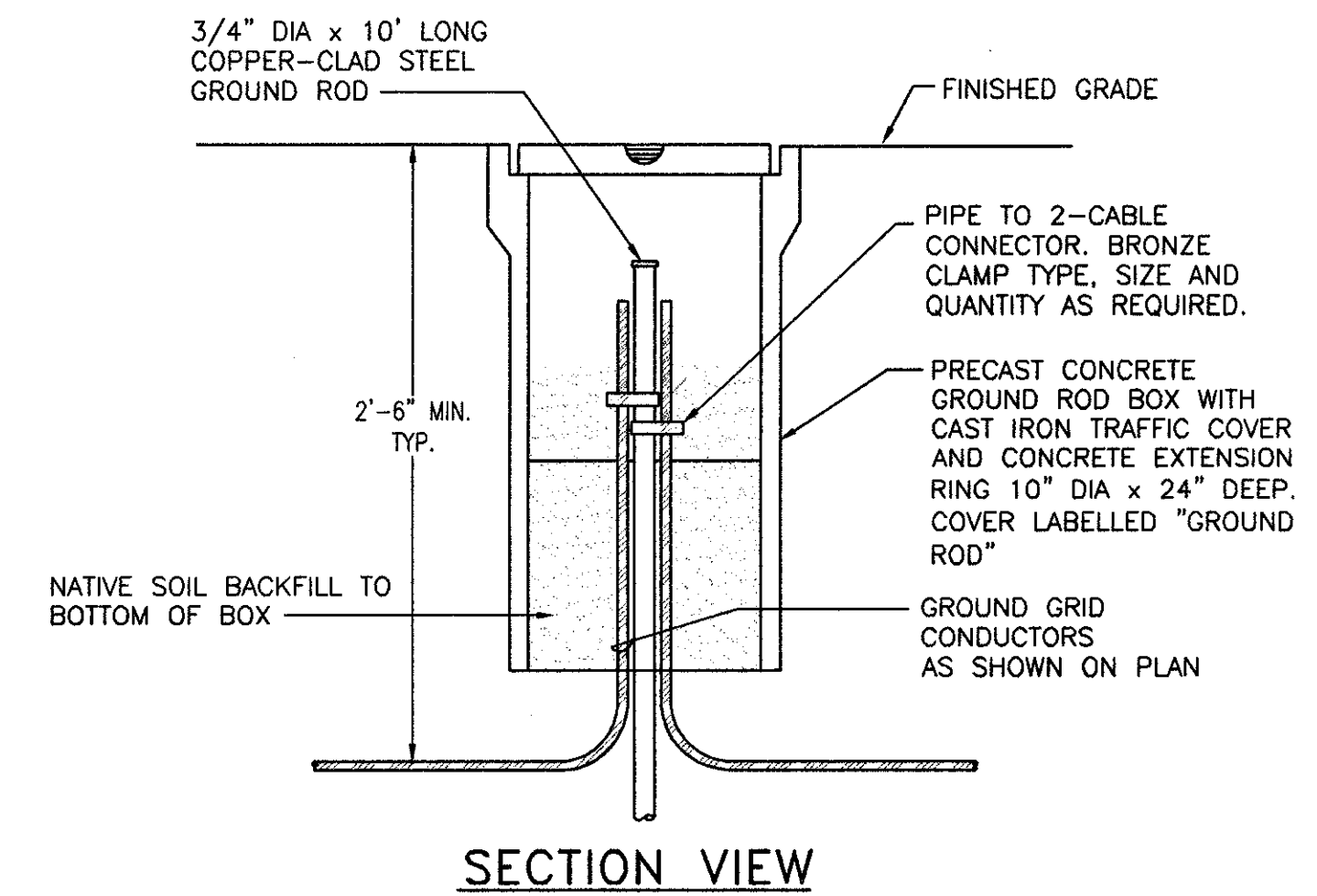
1 DETAIL - FENCE GROUNDING
E09,E11,E13,E16 SCALE: NTS



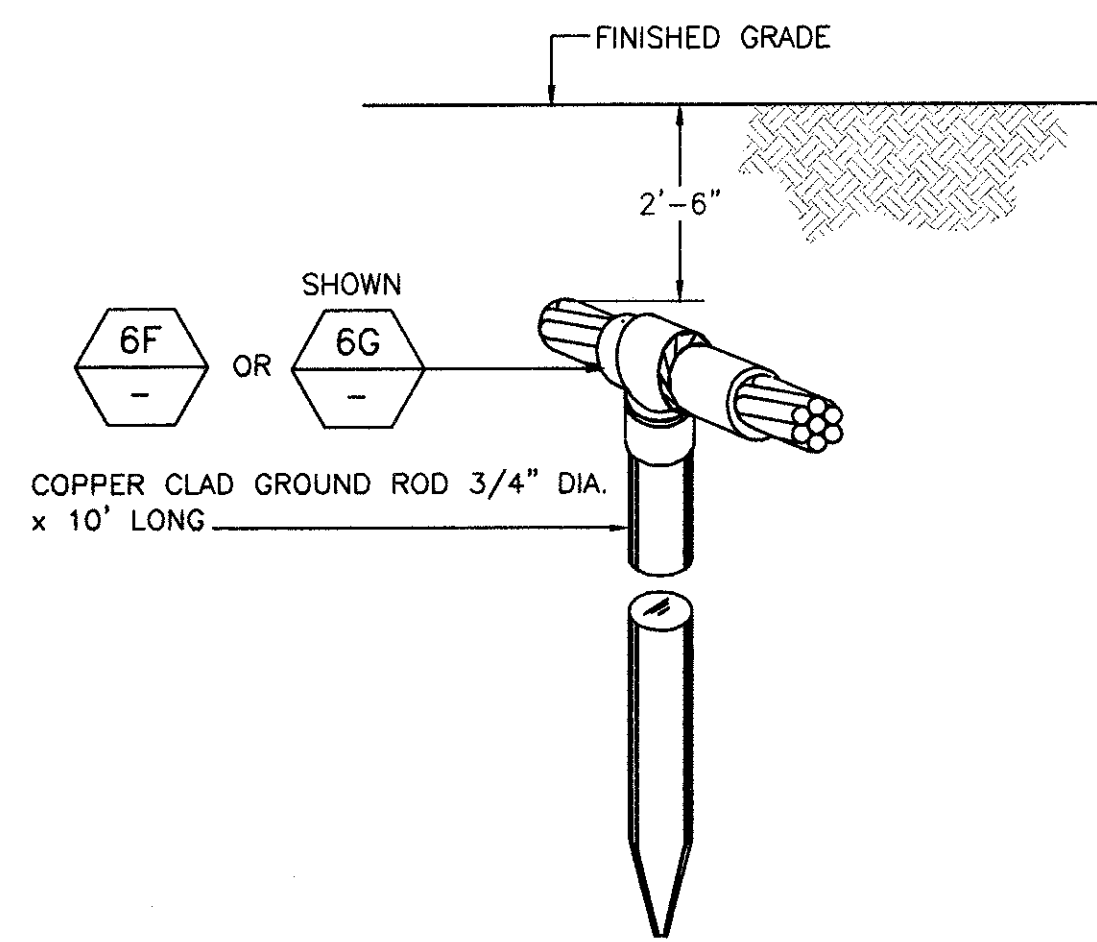
2 DETAIL - GATE GROUNDING
E09,E11,E13,E16 SCALE: NTS



3 DETAIL - GATE HINGE
SCALE: NTS



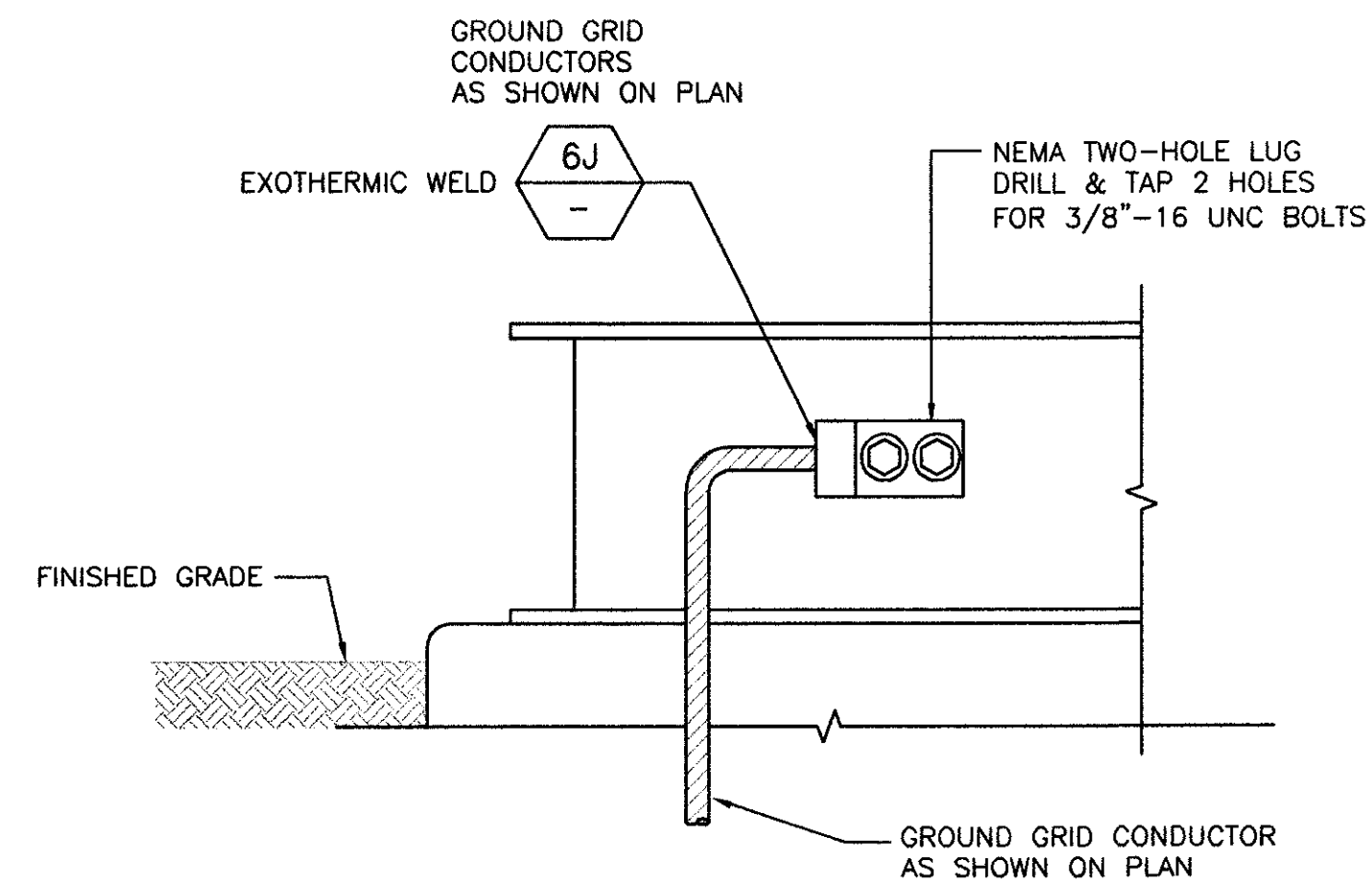
4 DETAIL - GROUNDING WELL
E09,E11,E13, E18,E16 SCALE: NTS



5 DETAIL BURIED - GROUND ROD
E09,E11,E13,E16 SCALE: NTS

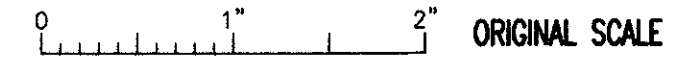
TYPE SS CABLE SPLICE	TYPE TA TEE CONNECTION CABLE TO CABLE	TYPE XA CROSS OF HORIZ. CABLE	TYPE XB
NOT USED			
	TYPE GR CABLE TO GROUND ROD	TYPE GT	TYPE GY
			NOT USED
CABLE TO REBAR	TYPE GL CABLE TO LUG	TYPE HA CABLE TO SURFACE	NOT USED

6 DETAIL - EXOTHERMIC CONNECTIONS
E09,E11,E13,E16 SCALE: NTS



7 DETAIL - EQUIPMENT GROUNDING CONNECTIONS
E09,E11,E13,E16 SCALE: NTS

CAUTION: THIS PLAN MAY BE REDUCED



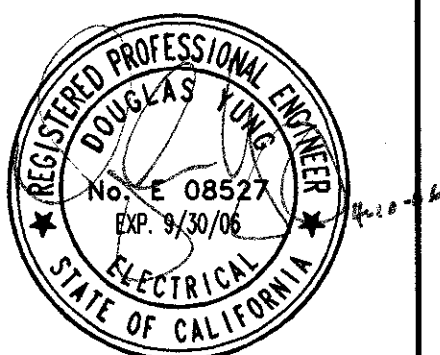
REFERENCES:
PLANS
FIELD BOOKS
"PORT OF OAKLAND DATUM"
IS 3.20' BELOW N.G.V.D. '29
CAUTION:
CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

DRAWN	S. HO
DESIGNED	R. DONG
CHECKED	G. WONG
	REG. ENGINEER NO. E8982
	REG. ENGINEER NO.

PORT OF OAKLAND
530 WATER ST. OAKLAND, CALIFORNIA

YEI ENGINEERS, INC.
7700 Edgewater Drive, Suite 828, Oakland, CA 94621
Phone: (510) 363-1050 Fax: (510) 363-1057



MARITIME SUPPORT CENTER
CONSTRUCTION OF PHASE 3B CONTAINER
TERMINAL YARD IMPROVEMENTS

DATE: 04-10-06
SCALE: NTS
SHEET: 46 OF 56 SHEETS

GROUNDING - TYPICAL DETAILS

E16 AA-3956

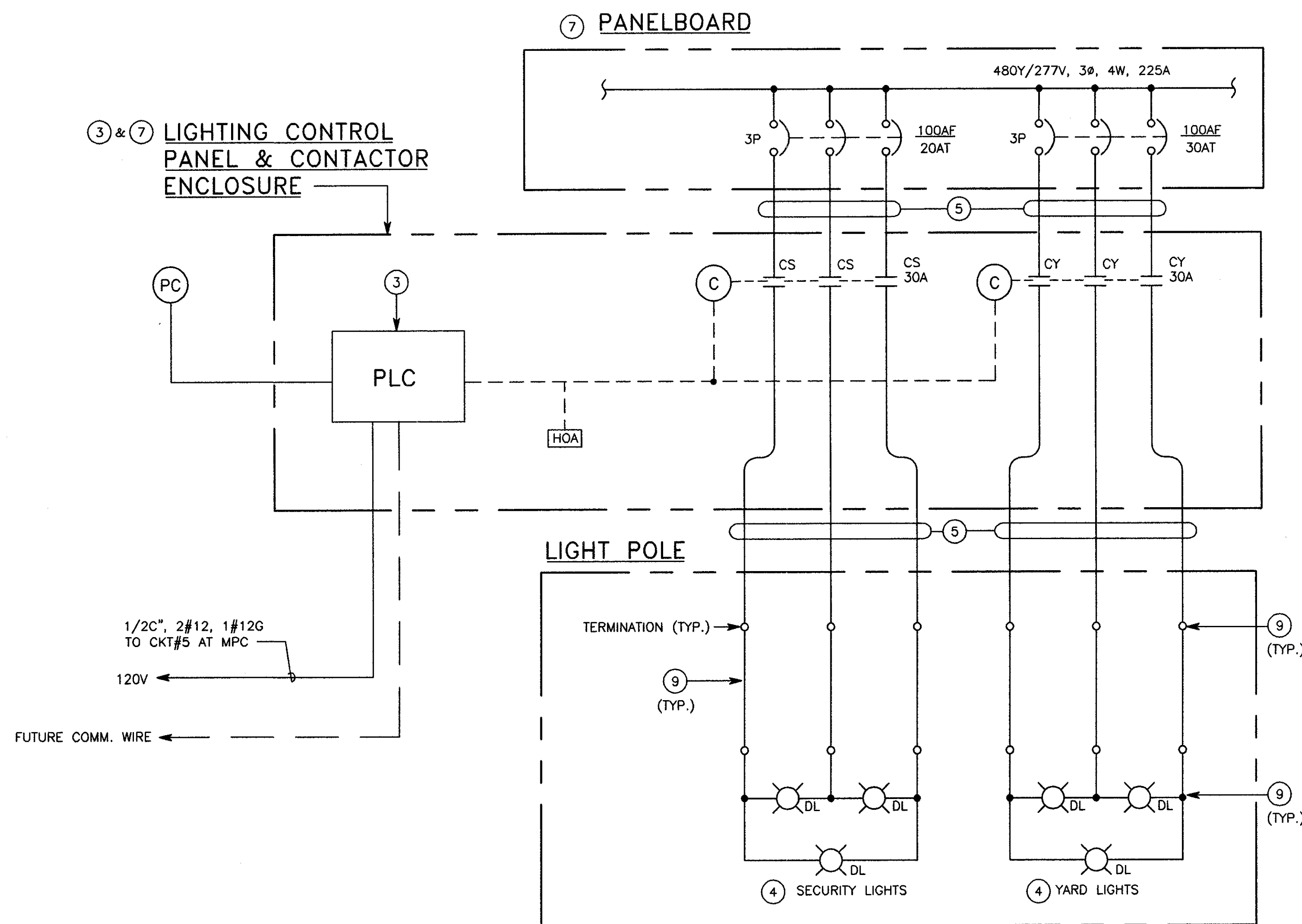
PRINT DATE: 04-10-06 11:44:45 F:\Drawings\2006\0603\M3956\E16.dwg Printed by: Shew

①②⑥ HIGH MAST LIGHT POLE SCHEDULE					
POLE NO.	SHOWN ON DWG. NO.	FIXTURE TYPE AND QUANTITY			FEED FROM PANELBOARD
		DL YARD	DL SECURITY	DL TOTAL	
L-1	E06				UNIT SUB. NO 1 PANEL 1A
L-2	E06				UNIT SUB. NO 1 PANEL 1A
L-3	E06				UNIT SUB. NO 1 PANEL 1A
L-4	E06				UNIT SUB. NO 1 PANEL 1A
L-5	E06				UNIT SUB. NO 1 PANEL 1A
L-6	E06				UNIT SUB. NO 1 PANEL 1A
L-7	E06				UNIT SUB. NO 1 PANEL 2B
L-8	E06				UNIT SUB. NO 1 PANEL 2A
L-9	E07				UNIT SUB. NO 1 PANEL 2A
L-10	E07				UNIT SUB. NO 1 PANEL 2B
L-11	E07				UNIT SUB. NO 1 PANEL 2A
L-12	E07				UNIT SUB. NO 1 PANEL 2A
L-13	E07				UNIT SUB. NO 1 PANEL 2B
L-14	E07				UNIT SUB. NO 1 PANEL 2A
L-15	E07				UNIT SUB. NO 1 PANEL 2A

LIGHT FIXTURE SCHEDULE		
TYPE	DESCRIPTION	MANUFACTURER
DL	HIGH MAST DOWNLIGHT LUMINAIRE, 1000W HIGH PRESSURE SODIUM LAMP, CUT-OFF OPTICS, ENCLOSED AND GASKETED OPTICAL ASSEMBLY, DIE-CAST ALUMINUM HOUSING, 480V QUICK DISCONNECT BALLAST, ASSEMBLY, 2" NOMINAL PIPE MOUNTING CLAMP.	HOLOPHANE HMSPSCP1HP48S9 OR GENERAL ELECTRIC HMAA01SSA1GSC5 OR APPROVED EQUAL

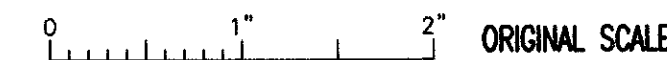
KEY NOTES

- ① CONTRACTOR SHALL FURNISH, INSTALL AND TEST IN ACCORDANCE WITH SPECIFICATION AND MANUFACTURER'S INSTRUCTIONS. CONTRACTOR SHALL FURNISH AND INSTALL ALL OTHER REQUIRED MATERIALS TO PROVIDE A COMPLETE AND FULLY OPERABLE OUTDOOR LIGHTING SYSTEM.
- ② FOR FIXTURE AIMING, REFER TO LIGHTING MANUFACTURER'S AIMING SCHEDULE.
- ③ LIGHTING CONTROL SYSTEM SHALL COMPLY WITH THE REQUIREMENTS OF SPECIFICATION SECTION 16315.
- ④ REFER TO HIGH MAST LIGHT POLE SCHEDULE FOR QUANTITY AND FIXTURE TYPE AT EACH POLE.
- ⑤ REFER TO CABLE AND WIRE SCHEDULE DWG. E19 FOR QUANTITY AND SIZE OF CABLES TO EACH POLE.
- ⑥ FIXTURE COUNT AND WIRING SHOWN BASED ON HOLOPHANE LIGHTING EQUIPMENT. REFER TO SPECIFICATION FOR ADDITIONAL REQUIREMENTS. PROVIDE ADDITIONAL LIGHT FIXTURES AS REQUIRED TO COMPLY WITH LIGHTING LEVEL CRITERIA.
- ⑦ REFER TO SINGLE LINE DIAGRAMS FOR LIGHTING CIRCUITS.
- ⑧ FURNISH AND STORE ONLY PER PORT'S DIRECTION. INSTALLATION OF POLES L-16 TO L-23 NOT IN CONTRACT.
- ⑨ FOLLOW LIGHTING FIXTURE SUPPLIER'S INSTRUCTION FOR PROPER TERMINATIONS AND WIRING. PROVIDE PROPER ELECTRICAL MATERIALS AS REQUIRED FOR INSTALLATION OF WIRES INSIDE POLE PER SUPPLIER'S INSTRUCTIONS.
- ⑩ CONTRACTOR TO COMPLETE TABLE FOR RECORD.



TYPICAL HIGH MAST LIGHT POLE - WIRING AND CONTROL

CAUTION: THIS PLAN MAY BE REDUCED



PRINT DATE: 04-10-06 11:44:23 F:\Drawings\2006\0603\A3956\ET17.dwg, Printed by: Sheer

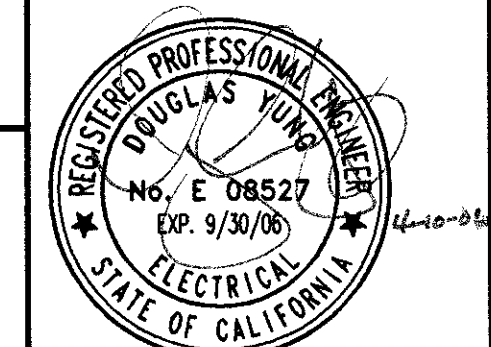
REFERENCES:
PLANS
FIELD BOOKS
"PORT OF OAKLAND DATUM"
IS 3.20' BELOW N.G.V.D. '29
CAUTION:
CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

DRAWN U. TRUONG
DESIGNED K. SCHWARTZ
CHECKED G. WONG
REG. ENGINEER NO. E8982
REG. ENGINEER NO.

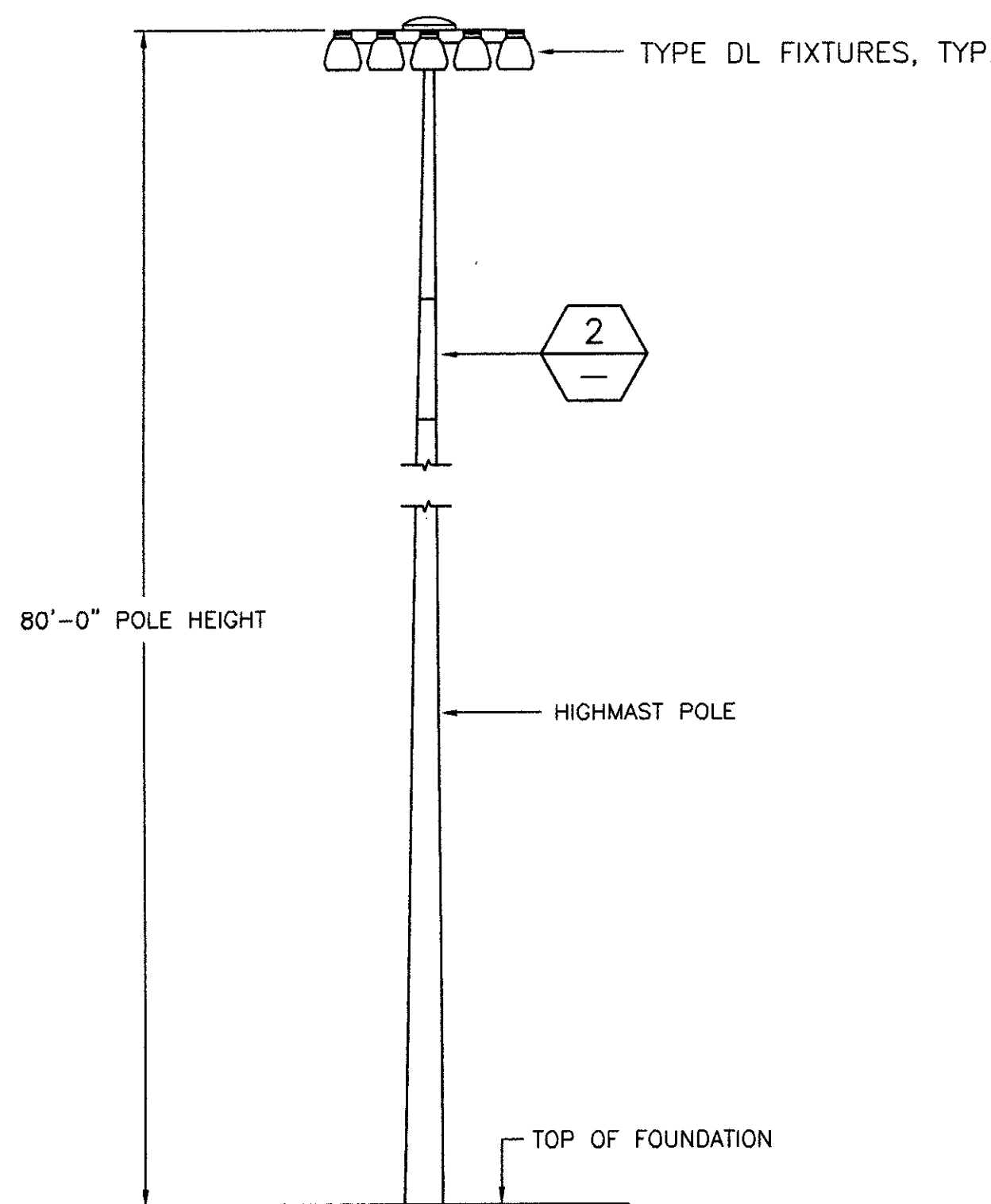
PORT OF OAKLAND
530 WATER ST. OAKLAND, CALIFORNIA

YED ENGINEERS, INC.
7700 Edgewater Drive, Suite 828, Oakland, CA 94621
Phone: (510) 383-1050 Fax: (510) 383-1057

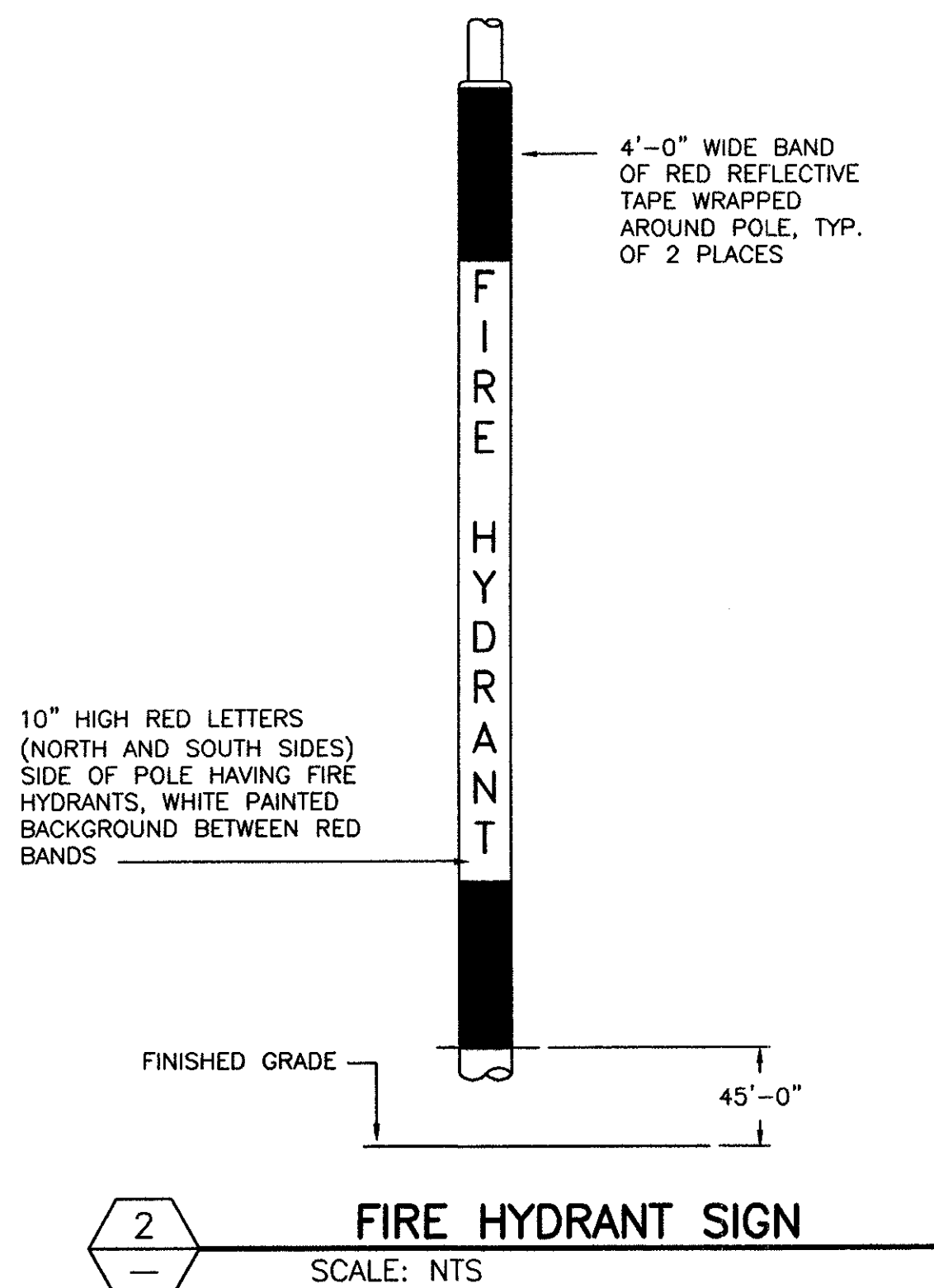


MARITIME SUPPORT CENTER
CONSTRUCTION OF PHASE 3B CONTAINER
TERMINAL YARD IMPROVEMENTS
HIGHMAST LIGHTING SCHEDULE & TYPICAL DIAGRAM

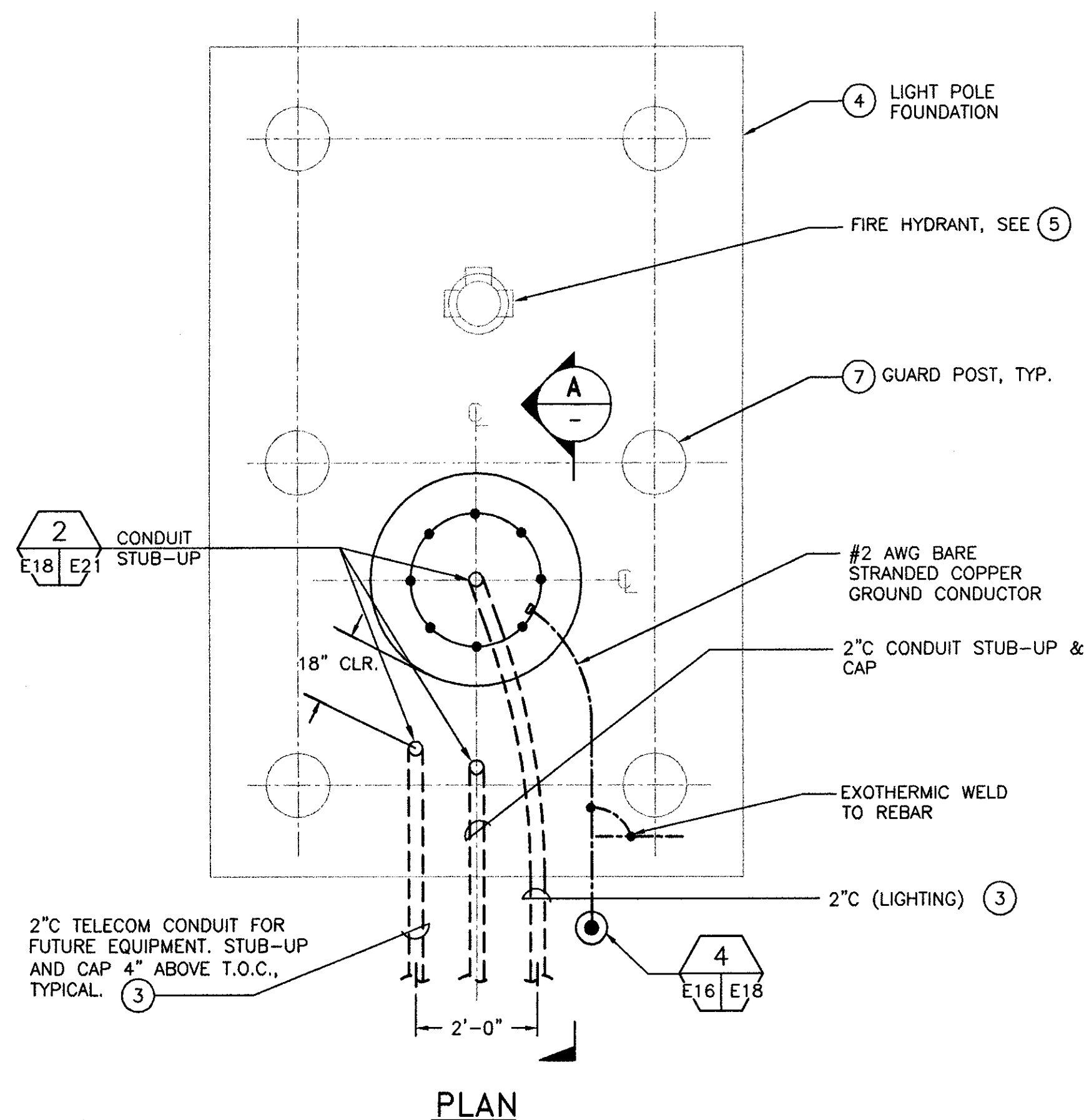
DATE: 04-10-06
SCALE: NONE
SHEET: 47 of 56 SHEETS
E17 AA-3956



ELEVATION
SCALE: NTS



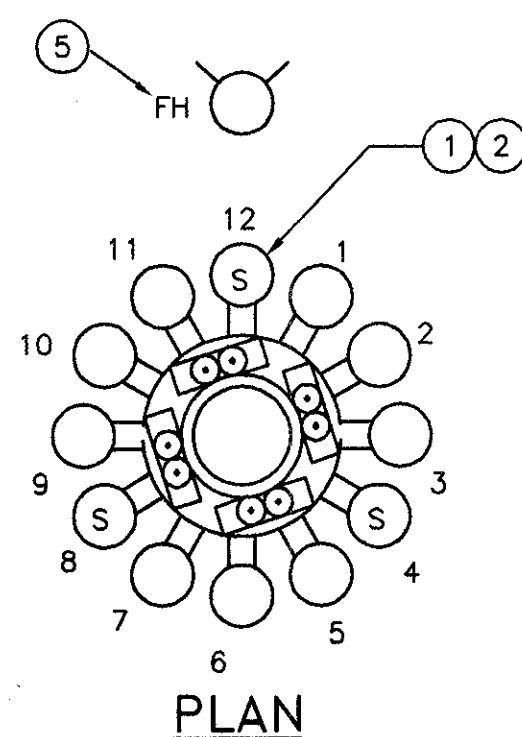
FIRE HYDRANT SIGN
SCALE: NTS



CONDUIT STUB UPS
SCALE: NTS

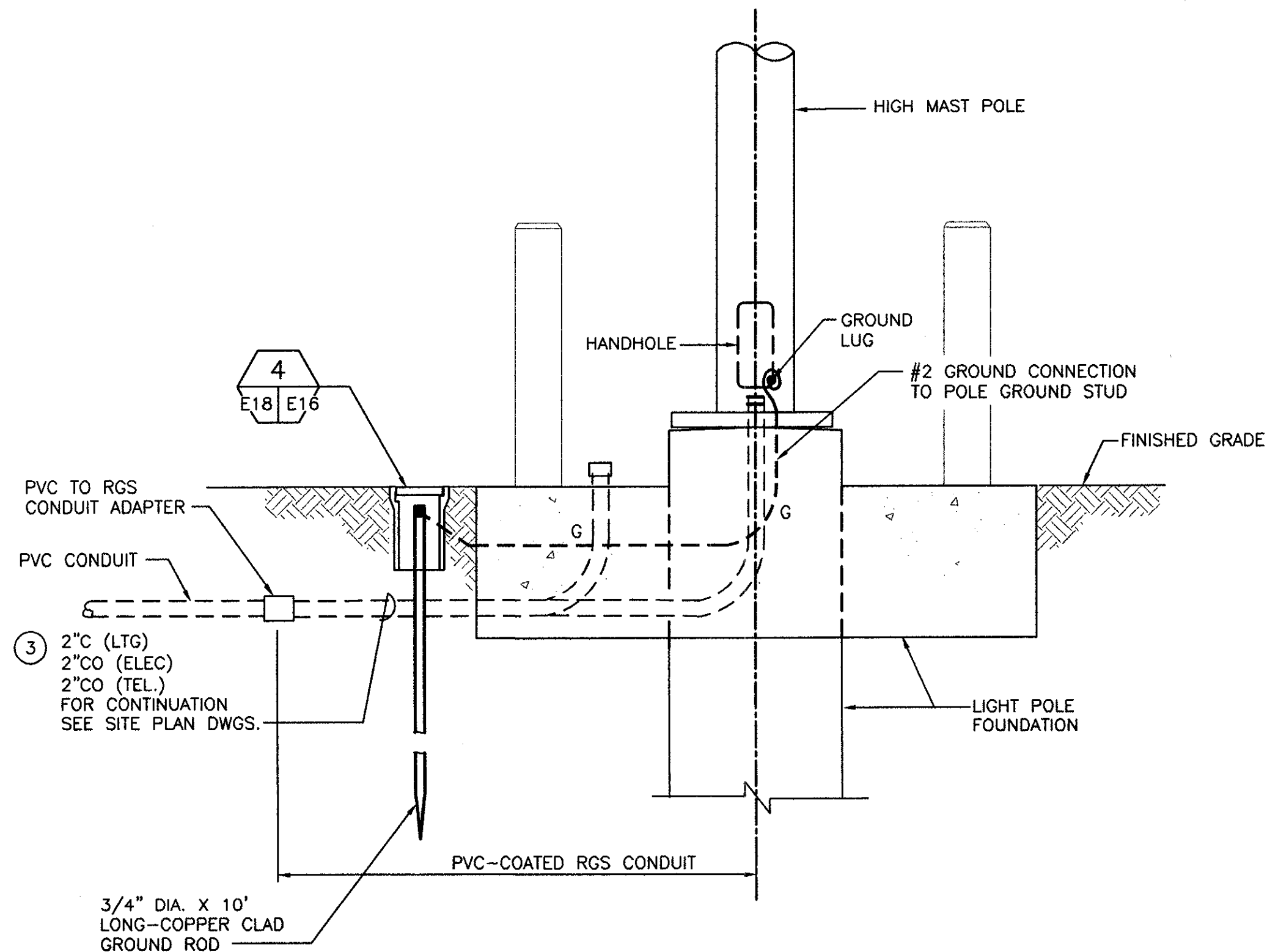
KEY NOTES

- ① FIXTURES DENOTED WITH AN "S" SHALL BE CONNECTED TO SECURITY CIRCUITS.
- ② REFER TO DWG. E17 FOR HIGH MAST LIGHTING WIRING DIAGRAMS AND LIGHT FIXTURE SCHEDULE FOR FIXTURE DESCRIPTION AND QUANTITIES.
- ③ REFER TO DWGS E06 AND E07 FOR CONDUIT ROUTING.
- ④ REFER TO DWG S1 FOR FOUNDATION DETAILS.
- ⑤ REFER TO DWG. M3 FOR FIRE HYDRANT DETAILS.
- ⑥ REFER TO DWG. S1 FOR ANCHOR BOLT & WASHER DETAILS.
- ⑦ REFER TO DWG. S1 FOR PIPE BOLLARD DETAILS.



FIXTURE ARRANGEMENT
SCALE: NTS

NOTE: REFER TO MPR SHOP DRAWING FOR CONFIGURATION.



A
SECTION
SCALE: NTS

1
DETAIL - HIGHMAST LIGHT POLE (TYPICAL)
SCALE: NTS

CAUTION: THIS PLAN MAY BE REDUCED

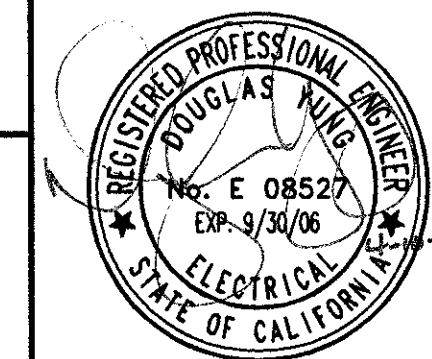


NO.	REVISIONS	DATE	REV'D	APP'D

DRAWN U. TRUONG
DESIGNED R. DONG
CHECKED G. WONG
REG. ENGINEER NO. E8982
REG. ENGINEER NO.

PORT OF OAKLAND
530 WATER ST. OAKLAND, CALIFORNIA

Y&E ENGINEERS, INC.
7700 Edgewater Drive, Suite 828, Oakland, CA 94621
Phone: (510) 383-1050 Fax: (510) 383-1057



MARITIME SUPPORT CENTER	DATE: 04-10-06
CONSTRUCTION OF PHASE 3B CONTAINER TERMINAL YARD IMPROVEMENTS	SCALE: NONE
HIGHMAST LIGHTING POLE TYPICAL DETAILS	SHEET: 48 OF 56 SHEETS
E18	AA-3956

PRINT DATE: 04-10-06 11:44:07 F:\Drawings\2006\0603\A3956\E18.dwg Printed by Shew

CABLE AND WIRE SCHEDULE

CABLE TAG	SERVICE	FROM	TO	QTY/SIZE	TYPE	GND.
C1PNLA-1	480V FEEDER	MAIN SWBD #1	PANELBOARD 1A	4-1/C #4/0	XHHW2	1-#2
C1PNLB-1	480V FEEDER	MAIN SWBD #1	PANELBOARD 1B	4-1/C #4/0	XHHW2	1-#2
C1MPC1-1	MINI-POWER CENTER	MAIN SWBD #1	MINI-POWER CENTER MPC1	3-1/C #6	XHHW2	1-#8
C2PNLA-1	480V FEEDER	MAIN SWBD #1	PANELBOARD 2A	4-1/C #4/0	XHHW2	1-#2
C2PNLB-1	480V FEEDER	MAIN SWBD #1	PANELBOARD 2B	4-1/C #4/0	XHHW2	1-#2
C1AL-1	480V, HIGHMAST LIGHTING	PANELBOARD 1A	CONTACTOR ENCL LCP-1A	3-1/C #6	XHHW2	1-#8
C1AL-1A	480V, HIGHMAST LIGHTING	PANELBOARD 1A	CONTACTOR ENCL LCP-1A	3-1/C #6	XHHW2	1-#8
C1AL-2	480V, HIGHMAST LIGHTING	PANELBOARD 1A	CONTACTOR ENCL LCP-1A	3-1/C #6	XHHW2	1-#8
C1AL-2A	480V, HIGHMAST LIGHTING	PANELBOARD 1A	CONTACTOR ENCL LCP-1A	3-1/C #6	XHHW2	1-#8
C1AL-3	480V, HIGHMAST LIGHTING	PANELBOARD 1A	CONTACTOR ENCL LCP-1A	3-1/C #6	XHHW2	1-#8
C1AL-3A	480V, HIGHMAST LIGHTING	PANELBOARD 1A	CONTACTOR ENCL LCP-1A	3-1/C #6	XHHW2	1-#8
C1AL-4	480V, HIGHMAST LIGHTING	PANELBOARD 1A	CONTACTOR ENCL LCP-1A	3-1/C #6	XHHW2	1-#8
C1AL-4A	480V, HIGHMAST LIGHTING	PANELBOARD 1A	CONTACTOR ENCL LCP-1A	3-1/C #6	XHHW2	1-#8
C1AL-5	480V, HIGHMAST LIGHTING	PANELBOARD 1A	CONTACTOR ENCL LCP-1A	3-1/C #6	XHHW2	1-#8
C1AL-5A	480V, HIGHMAST LIGHTING	PANELBOARD 1A	CONTACTOR ENCL LCP-1A	3-1/C #6	XHHW2	1-#8
C1AL-6	480V, HIGHMAST LIGHTING	PANELBOARD 1A	CONTACTOR ENCL LCP-1A	3-1/C #6	XHHW2	1-#8
C1AL-6A	480V, HIGHMAST LIGHTING	PANELBOARD 1A	CONTACTOR ENCL LCP-1A	3-1/C #6	XHHW2	1-#8
C2AL-8	480V, HIGHMAST LIGHTING	PANELBOARD 2A	CONTACTOR ENCL LCP-2A	3-1/C #6	XHHW2	1-#8
C2AL-8A	480V, HIGHMAST LIGHTING	PANELBOARD 2A	CONTACTOR ENCL LCP-2A	3-1/C #6	XHHW2	1-#8
C2AL-9	480V, HIGHMAST LIGHTING	PANELBOARD 2A	CONTACTOR ENCL LCP-2A	3-1/C #6	XHHW2	1-#8
C2AL-9A	480V, HIGHMAST LIGHTING	PANELBOARD 2A	CONTACTOR ENCL LCP-2A	3-1/C #6	XHHW2	1-#8
C2AL-11	480V, HIGHMAST LIGHTING	PANELBOARD 2A	CONTACTOR ENCL LCP-2A	3-1/C #6	XHHW2	1-#8
C2AL-11A	480V, HIGHMAST LIGHTING	PANELBOARD 2A	CONTACTOR ENCL LCP-2A	3-1/C #6	XHHW2	1-#8
C2AL-12	480V, HIGHMAST LIGHTING	PANELBOARD 2A	CONTACTOR ENCL LCP-2A	3-1/C #6	XHHW2	1-#8
C2AL-12A	480V, HIGHMAST LIGHTING	PANELBOARD 2A	CONTACTOR ENCL LCP-2A	3-1/C #6	XHHW2	1-#8
C2AL-14	480V, HIGHMAST LIGHTING	PANELBOARD 2A	CONTACTOR ENCL LCP-2A	3-1/C #6	XHHW2	1-#8
C2AL-14A	480V, HIGHMAST LIGHTING	PANELBOARD 2A	CONTACTOR ENCL LCP-2A	3-1/C #6	XHHW2	1-#8
C2AL-15	480V, HIGHMAST LIGHTING	PANELBOARD 2A	CONTACTOR ENCL LCP-2A	3-1/C #6	XHHW2	1-#8
C2AL-15A	480V, HIGHMAST LIGHTING	PANELBOARD 2A	CONTACTOR ENCL LCP-2A	3-1/C #6	XHHW2	1-#8
C2BL-7	480V, HIGHMAST LIGHTING	PANELBOARD 2B	CONTACTOR ENCL LCP-2B	3-1/C #6	XHHW2	1-#8
C2BL-7A	480V, HIGHMAST LIGHTING	PANELBOARD 2B	CONTACTOR ENCL LCP-2B	3-1/C #6	XHHW2	1-#8
C2BL-10	480V, HIGHMAST LIGHTING	PANELBOARD 2B	CONTACTOR ENCL LCP-2B	3-1/C #6	XHHW2	1-#8
C2BL-10A	480V, HIGHMAST LIGHTING	PANELBOARD 2B	CONTACTOR ENCL LCP-2B	3-1/C #6	XHHW2	1-#8
C2BL-13	480V, HIGHMAST LIGHTING	PANELBOARD 2B	CONTACTOR ENCL LCP-2B	3-1/C #6	XHHW2	1-#8
C2BL-13A	480V, HIGHMAST LIGHTING	PANELBOARD 2B	CONTACTOR ENCL LCP-2B	3-1/C #6	XHHW2	1-#8

CABLE AND WIRE SCHEDULE

CABLE TAG	SERVICE	FROM	TO	QTY/SIZE	TYPE	GND.
PMS1	12.47KV	POLE A4	FCO SW.	3-#4/0	ACSR	
PMS2	12.47KV	FCO SW.	MAIN SWGR	3-250MCM	EPR	#1/0
PF1	12.47KV	MAIN SWGR	UNIT SUB NO. 1 & TR-15AC-1	3-1/0	EPR	#6
C1MPCL	MPC'S AT LIGHTPOLES	MAIN SWBD #1	MPCL2, MPCL5	2-1/C, #10	XHHW2	1-#10
C2MPCL	MPC'S AT LIGHTPOLES	MAIN SWBD #1	MPCL8, MPCL11, MPCL14	2-1/C, #10	XHHW2	1-#10
C1AL-1Y	480V, HIGHMAST LIGHTING	LCP-1A	POLE L-1	3-1/C #6	XHHW2	1-#8
C1AL-1S	480V, HIGHMAST LIGHTING	LCP-1A	POLE L-1	3-1/C #6	XHHW2	1-#8
C1AL-2Y	480V, HIGHMAST LIGHTING	LCP-1A	POLE L-2	3-1/C #6	XHHW2	1-#8
C1AL-2S	480V, HIGHMAST LIGHTING	LCP-1A	POLE L-2	3-1/C #6	XHHW2	1-#8
C1AL-3Y	480V, HIGHMAST LIGHTING	LCP-1A	POLE L-3	3-1/C #6	XHHW2	1-#8
C1AL-3S	480V, HIGHMAST LIGHTING	LCP-1A	POLE L-3	3-1/C #6	XHHW2	1-#8
C1AL-4Y	480V, HIGHMAST LIGHTING	LCP-1A	POLE L-4	3-1/C #6	XHHW2	1-#8
C1AL-4S	480V, HIGHMAST LIGHTING	LCP-1A	POLE L-4	3-1/C #6	XHHW2	1-#8
C1AL-5Y	480V, HIGHMAST LIGHTING	LCP-1A	POLE L-5	3-1/C #6	XHHW2	1-#8
C1AL-5S	480V, HIGHMAST LIGHTING	LCP-1A	POLE L-5	3-1/C #6	XHHW2	1-#8
C1AL-6Y	480V, HIGHMAST LIGHTING	LCP-1A	POLE L-6	3-1/C #6	XHHW2	1-#8
C1AL-6S	480V, HIGHMAST LIGHTING	LCP-1A	POLE L-6	3-1/C #6	XHHW2	1-#8
C2AL-8Y	480V, HIGHMAST LIGHTING	LCP-2A	POLE L-8	3-1/C #6	XHHW2	1-#8
C2AL-8S	480V, HIGHMAST LIGHTING	LCP-2A	POLE L-8	3-1/C #6	XHHW2	1-#8
C2AL-9Y	480V, HIGHMAST LIGHTING	LCP-2A	POLE L-9	3-1/C #6	XHHW2	1-#8
C2AL-9S	480V, HIGHMAST LIGHTING	LCP-2A	POLE L-9	3-1/C #6	XHHW2	1-#8
C2AL-11Y	480V, HIGHMAST LIGHTING	LCP-2A	POLE L-11	3-1/C #6	XHHW2	1-#8
C2AL-11S	480V, HIGHMAST LIGHTING	LCP-2A	POLE L-11	3-1/C #6	XHHW2	1-#8
C2AL-12Y	480V, HIGHMAST LIGHTING	LCP-2A	POLE L-12	3-1/C #6	XHHW2	1-#8
C2AL-12S	480V, HIGHMAST LIGHTING	LCP-2A	POLE L-12	3-1/C #6	XHHW2	1-#8
C2AL-14Y	480V, HIGHMAST LIGHTING	LCP-2A	POLE L-14	3-1/C #6	XHHW2	1-#8
C2AL-14S	480V, HIGHMAST LIGHTING	LCP-2A	POLE L-14	3-1/C #6	XHHW2	1-#8
C2AL-15Y	480V, HIGHMAST LIGHTING	LCP-2A	POLE L-15	3-1/C #6	XHHW2	1-#8
C2AL-15S	480V, HIGHMAST LIGHTING	LCP-2A	POLE L-15	3-1/C #6	XHHW2	1-#8
C2BL-7Y	480V, HIGHMAST LIGHTING	LCP-2B	POLE L-7	3-1/C #6	XHHW2	1-#8
C2BL-7S	480V, HIGHMAST LIGHTING	LCP-2B	POLE L-7	3-1/C #6	XHHW2	1-#8
C2BL-10Y	480V, HIGHMAST LIGHTING	LCP-2B	POLE L-10	3-1/C #6	XHHW2	1-#8
C2BL-10S	480V, HIGHMAST LIGHTING	LCP-2B	POLE L-10	3-1/C #6	XHHW2	1-#8
C2BL-13Y	480V, HIGHMAST LIGHTING	LCP-2B	POLE L-13	3-1/C #6	XHHW2	1-#8
C2BL-13S	480V, HIGHMAST LIGHTING	LCP-2B	POLE L-13	3-1/C #6	XHHW2	1-#8
CTC1	TELEPHONE	D512-MPOE	UNIT SUB NO. 2	1-50PR AWG 24	CAT 5e	
CTC2	TELEPHONE	UNIT SUB NO. 2	SITE TRAILER	1-50PR AWG 24	CAT 5e	
CTC3	SIGNAL	MAIN SWGR	UNIT SUB NO. 2	1-4PR AWG 24	CAT 5e	

SHEET NOTES

- A. U.O.N, COPPER CABLE AND WIRE.
- B. REFER TO DWGS E23 TO E26 ON PHASE 3B GRADING & PAVING CONTRACT DOCUMENTS FOR CABLE AND WIRING ROUTING DIAGRAMS.

KEY NOTES

- 1 FURNISH AND INSTALL NEW OUTSIDE PLANT TYPE LAN DATA CABLE CTC1, CTC2 & CTC3 AS INDICATED. COORDINATE WITH PORT FOR SPECIFICATION REQUIREMENTS FOR THIS CABLE.

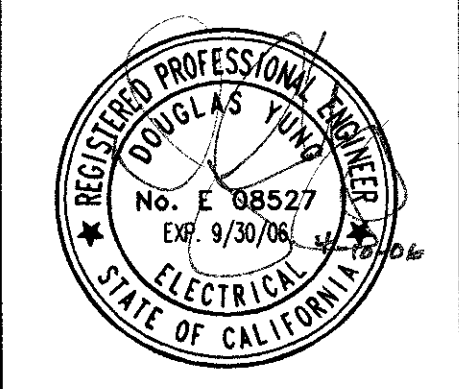
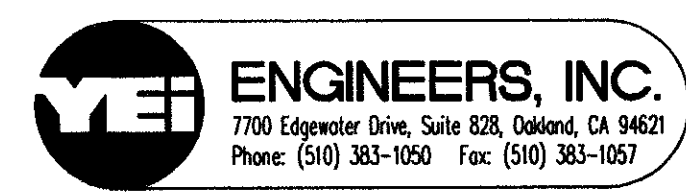
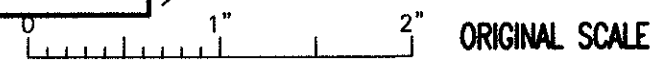
PRINT DATE: 04-10-06 11:43:50 F:\Drawings\2005\0603\AA3956\E19.dwg Printed by: Shew

REFERENCES:	NO.	REVISIONS	DATE	REV'D	APP'D
PLANS					
FIELD BOOKS					
"PORT OF OAKLAND DATUM" IS 3.20' BELOW N.G.V.D. '29					
CAUTION: CHECK TRACING FOR LATEST REVISIONS					

DRAWN	S. AO
DESIGNED	K. SCHWARTZ
CHECKED	G. WONG
	REG. ENGINEER NO. E8982
	REG. ENGINEER NO.

PORT OF OAKLAND
530 WATER ST. OAKLAND, CALIFORNIA

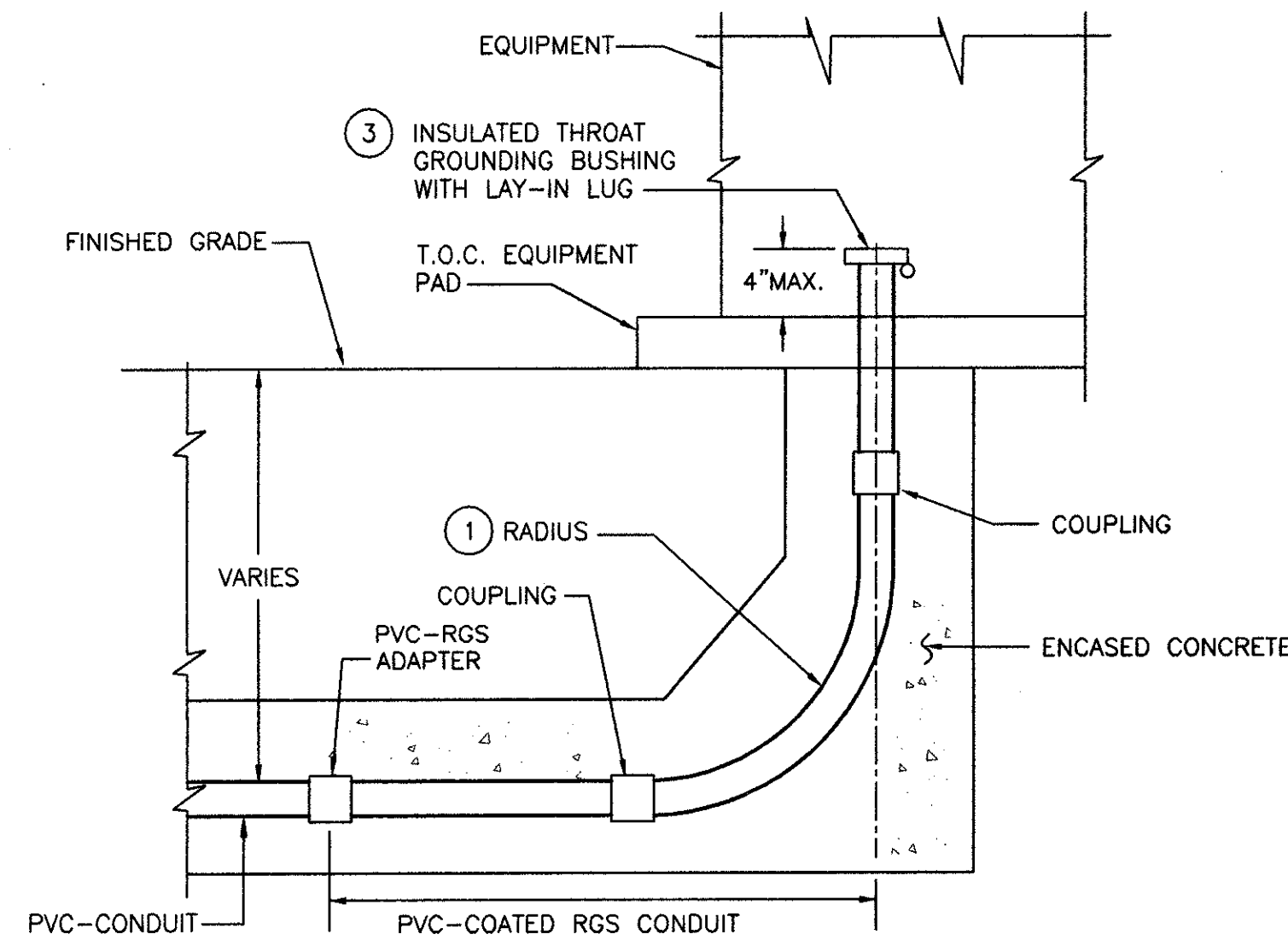
CAUTION: THIS PLAN MAY BE REDUCED



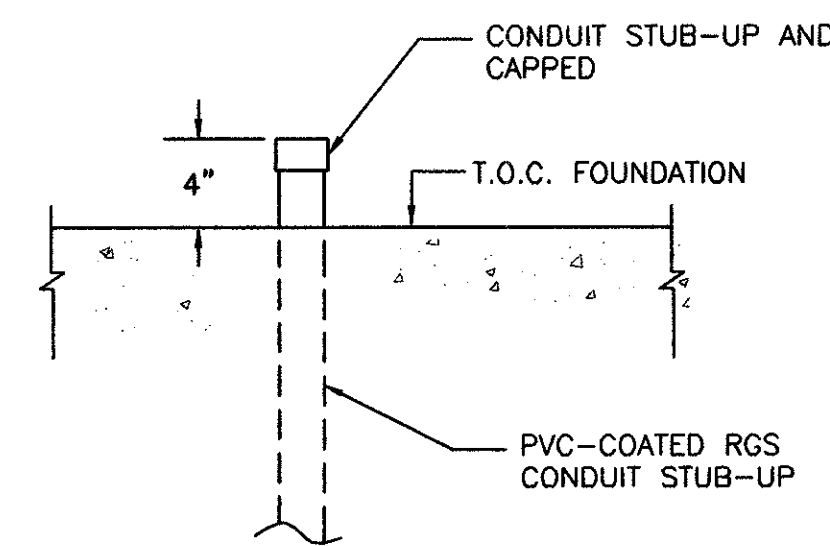
MARITIME SUPPORT CENTER	DATE: 04-10-06
CONSTRUCTION OF PHASE 3B CONTAINER TERMINAL YARD IMPROVEMENTS	SCALE: NONE
CABLES AND WIRE SCHEDULE	SHEET: 49 OF 56 SHEETS
E19	AA-3956

KEY NOTES

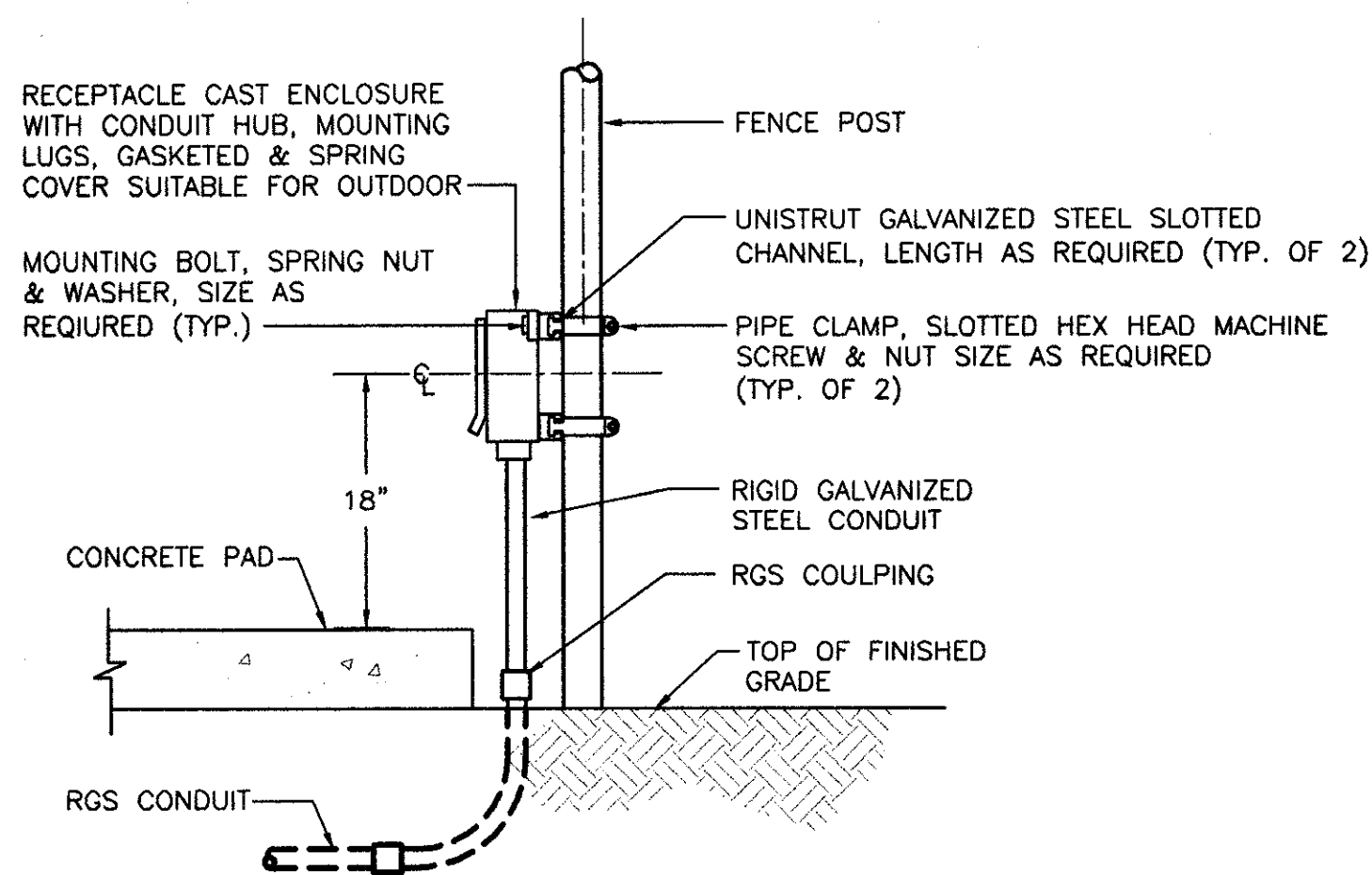
- ① MINIMUM BENDING RADIUS PER NATIONAL ELECTRIC CODE.
- ② SEE STRUCTURAL DRAWINGS S1 FOR LIGHT POLE FOUNDATION AND GUARD POST DETAILS AND LIGHTING POLE SUPPLIER'S PORT APPROVED SHOP DRAWINGS.
- ③ REFER TO SHOP DWGS OF EQUIPMENT FOR STUB UP LOCATION.



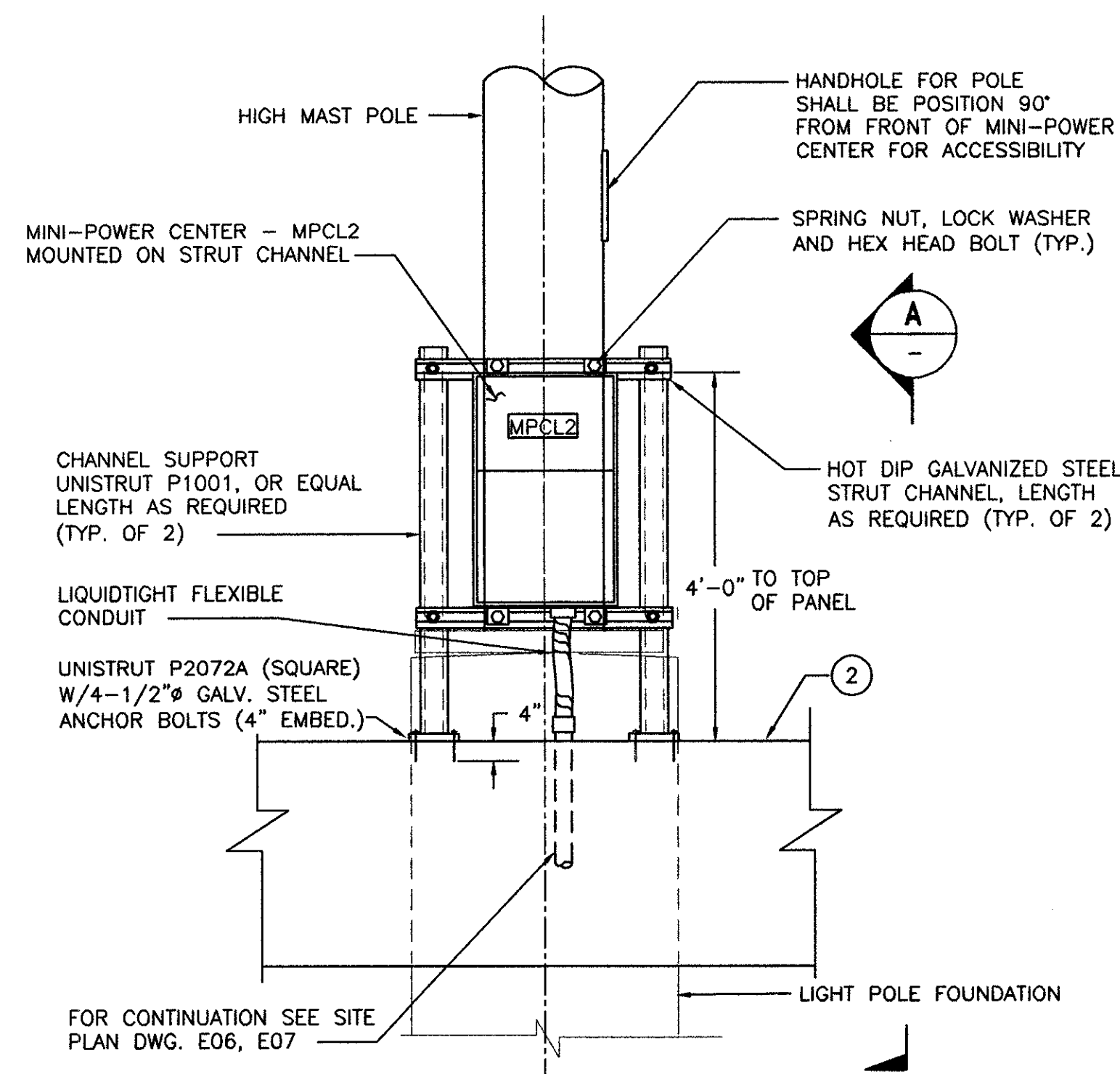
1 TYPICAL CONDUIT STUB-UP
E09, E11, E13 | E21 SCALE: NTS



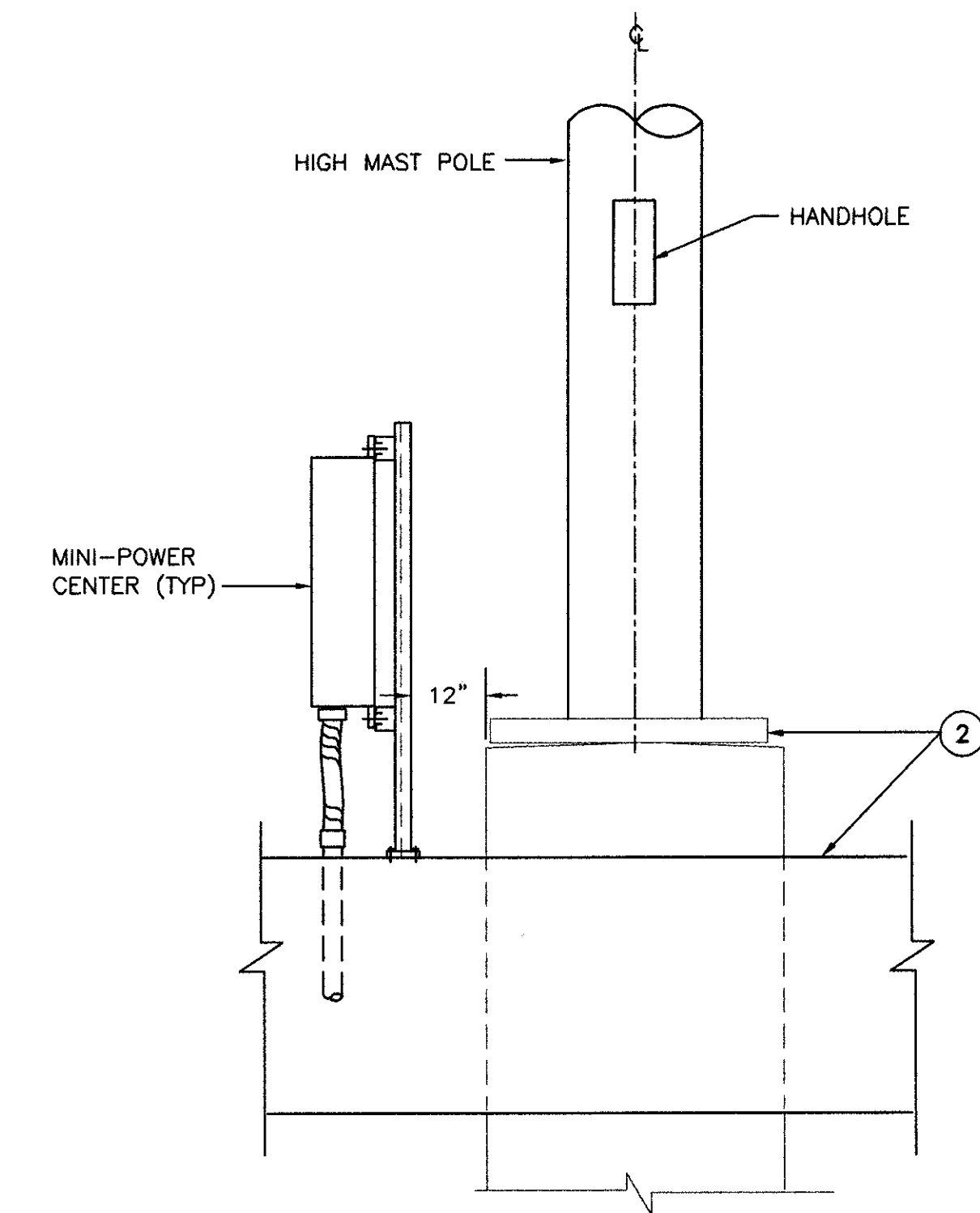
2 CONDUIT STUB-UP
E18 | E21 SCALE: NTS



3 DETAIL - RECEPTACLE MOUNTING
E11, E13 | E21 SCALE: NTS



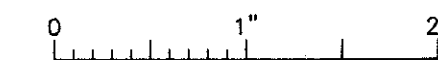
4 MOUNTING DETAIL AT LIGHT POLES L-2, L-5, L-8, L-11 & L-14
E06, E07 | E21 SCALE: NTS



A SECTION
SCALE: NTS

MINI-POWER CENTER

CAUTION: THIS PLAN MAY BE REDUCED



ORIGINAL SCALE

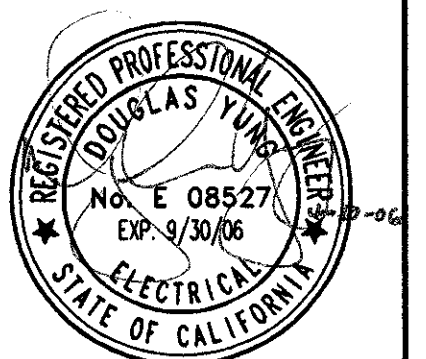
REFERENCES:
PLANS
FIELD BOOKS
"PORT OF OAKLAND DATUM"
IS 3.20' BELOW N.G.V.D. '29
CAUTION:
CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

DRAWN R. DONG
DESIGNED R. DONG
CHECKED G. WOMG REG. ENGINEER NO. E8982
REG. ENGINEER NO.

PORT OF OAKLAND
530 WATER ST. OAKLAND, CALIFORNIA

YEI ENGINEERS, INC.
7700 Edgewater Drive, Suite 828, Oakland, CA 94621
Phone: (510) 383-1050 Fax: (510) 383-1057



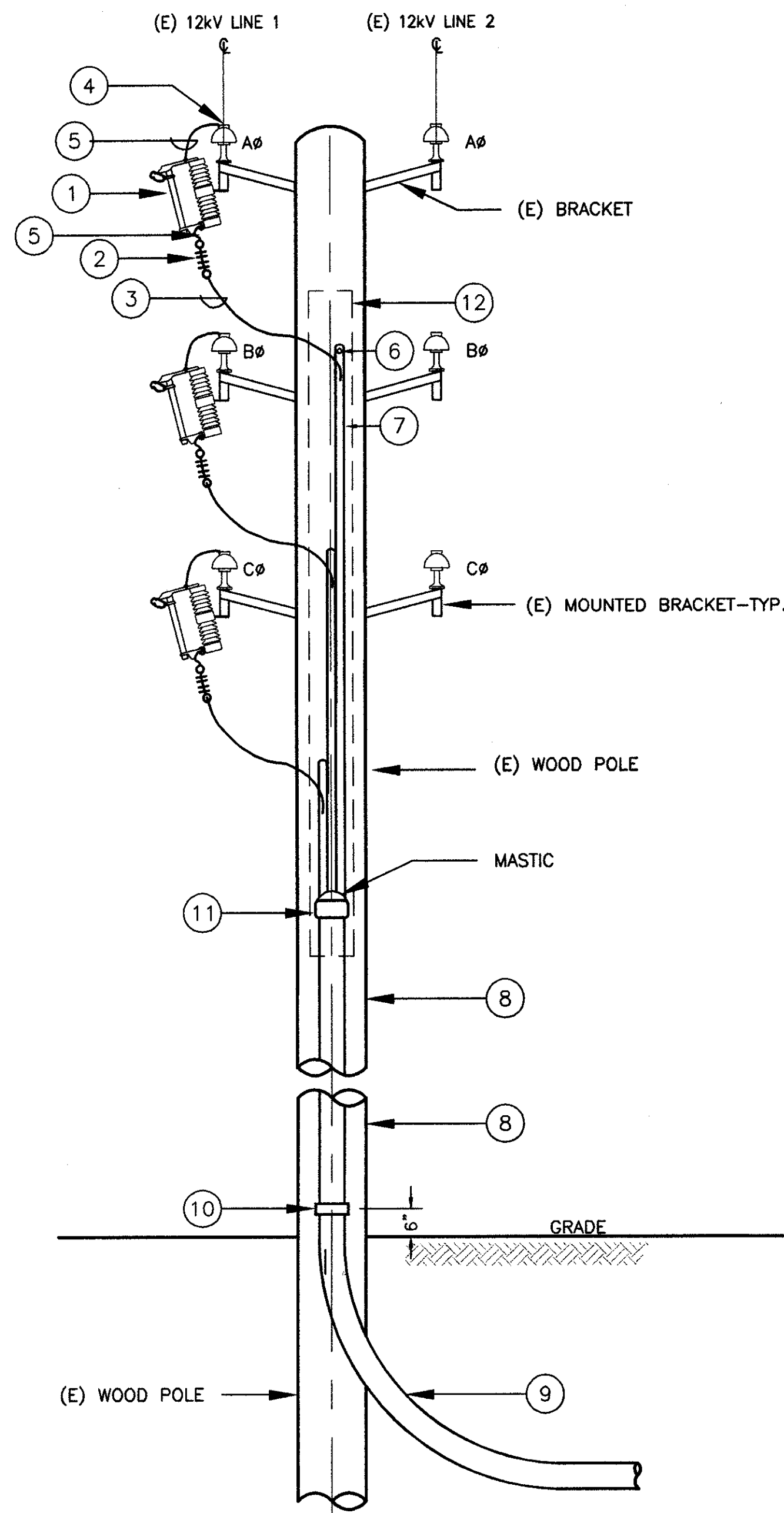
MARITIME SUPPORT CENTER
CONSTRUCTION OF PHASE 3B CONTAINER TERMINAL YARD IMPROVEMENTS
ELECTRICAL DETAILS, SHEET 1 OF 2

DATE: 04-10-06
SCALE: NONE
SHEET: 51 OF 56 SHEETS
E21 AA-3956

PRINT DATE: 04-10-06 11:43:17 F:\Drawings\2006\0603\A3956\E21.dwg Printed by: Shew

BILL OF MATERIAL

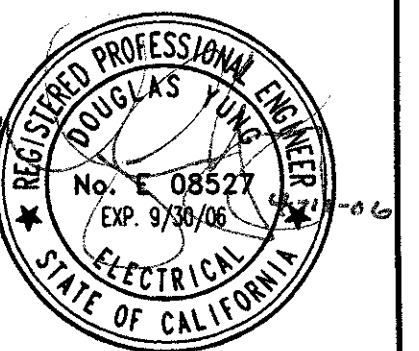
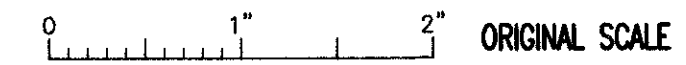
ITEM	QTY	UNIT	DESCRIPTION	
①	3	EA	FUSED CUTOUT, 15KV, 200A, COMPLETE WITH FUSEHOLDER, 150E FUSE AND CROSS ARM MOUNTING BRACKET.	AB CHANCE C710-133PB
②	1	KIT	CABLE TERMINATION KIT, COLD SHRUNK, QT-III, OUTDOOR, 4 SKIRT, FOR 3-500 KCMIL CABLE TERMINATIONS.	3M # 7695-S-4
③	500	FT	CABLE, 15KV, 1/C, SHIELD, TYPE EPR, 250 KCMIL, COPPER.	OKONITE
④	3	EA	CONNECTOR, HOT-LINE TAP, ALUMINUM, FARGO VISE TYPE DESIGN, FOR 500 KCMIL ACSR TO 500 KCMIL ACSR	HUBBELL GA-100 SERIES
⑤	20	FT	CABLE, BARE, #4/0 ACSR	GRAYBAR
⑥	3	EA	HOOK SCREW, FOR KELLEMS SUPPORT GRIP	HUBBELL # 203-03-001
⑦	3	EA	KELLEMS SUPPORT GRIP, SERVICE DROP TYPE, HEAVY DUTY, SINGLE EYE, CLOSED MESH, CABLE OD 1.27"	HUBBELL # 02217005
⑧	50	FT	CONDUIT, RGS, 6" IPS	GRAYBAR
⑨	1	EA	ELBOW, 90 DEGREE, RGS, 6"	GRAYBAR
⑩	1	EA	COUPLER, RGS, 6" IPS	GRAYBAR
⑪	1	EA	BUSHING, INSULATING, RGS, 6" IPS	GRAYBAR
⑫	10	FT	MOLDING, U-SHAPE, 6", SCH.40, FLANGED.	CARLON #59016



1 DETAIL - NEW RISER ON EXISTING POLE A4
 E06 E22 SCALE: NTS

NOTE: SIMILAR TO (E) POLE A5.

CAUTION: THIS PLAN MAY BE REDUCED



MARITIME SUPPORT CENTER
 CONSTRUCTION OF PHASE 3B CONTAINER
 TERMINAL YARD IMPROVEMENTS

DATE: 04-10-06
 SCALE: NONE
 SHEET: 52 OF 56 SHEETS

ELECTRICAL DETAILS, SHEET 2 OF 2

E22 AA-3956

PORT OF OAKLAND

530 WATER ST. OAKLAND, CALIFORNIA

NO.	REVISIONS	DATE	REV'D	APP'D

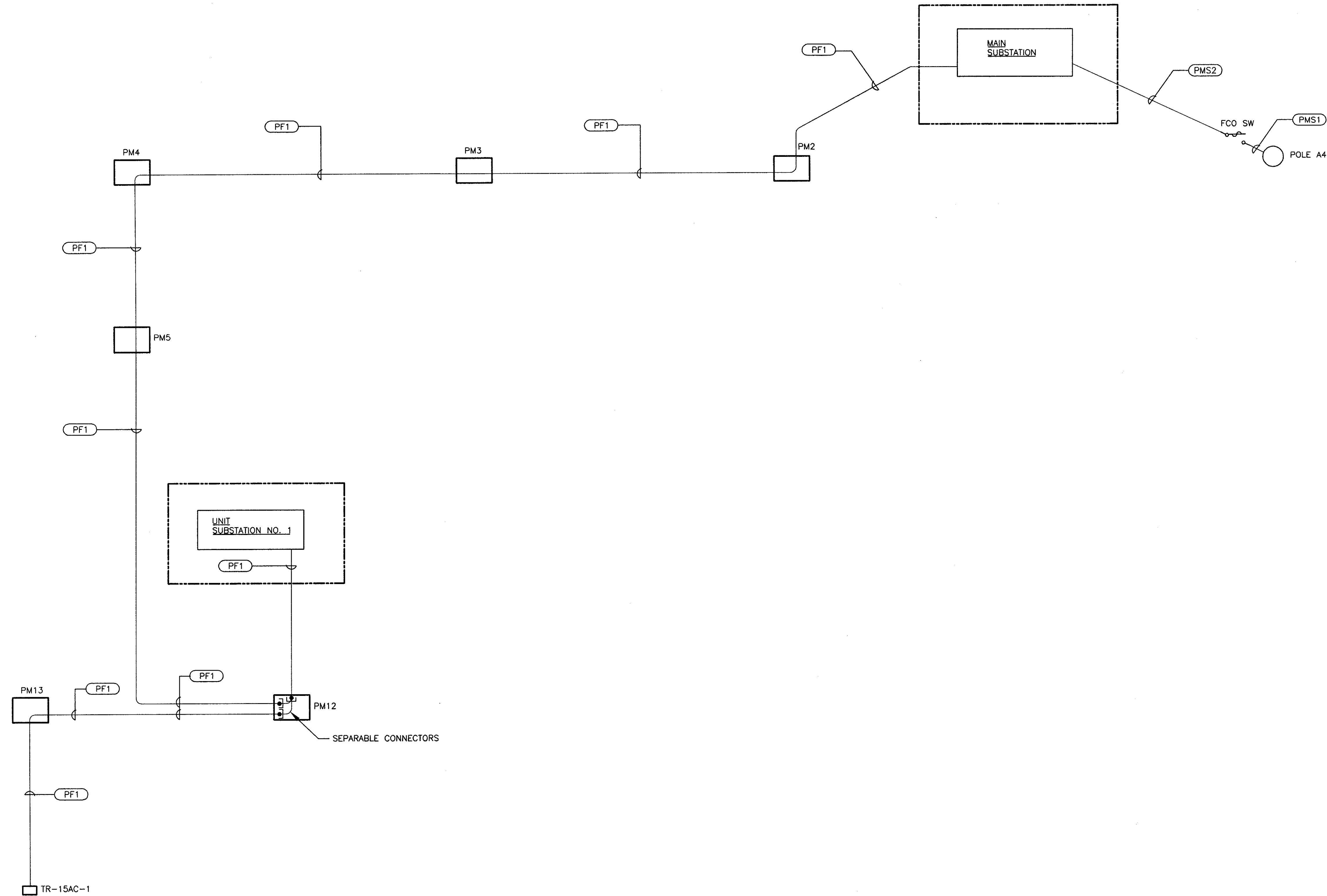
DRAWN	S. AO
DESIGNED	G. WONG E8982
CHECKED	D. YUNG REG. ENGINEER NO. E8527

REFERENCES:
 PLANS
 FIELD BOOKS
 "PORT OF OAKLAND DATUM"
 IS 3.20' BELOW N.G.V.D. '29
 CAUTION:
 CHECK TRACING FOR LATEST REVISIONS

PRINT DATE: 04-10-06 11:42:55 F:\Drawings\2006\0603\A3956\E22.dwg Printed by: Steve

SHEET NOTES

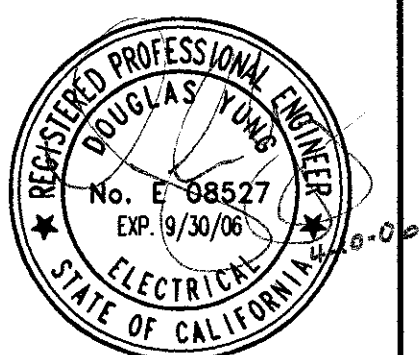
1. FOR REFERENCE TO CABLES & WIRE SCHEDULE, SEE DWG. E19.
2. FOR COORDINATION REFER TO DWGS. E02, E06, E07 AND E09.



12.47KV SYSTEM

CAUTION: THIS PLAN MAY BE REDUCED

0 1" 2" ORIGINAL SCALE



MARITIME SUPPORT CENTER

DATE: 04-10-06

CONSTRUCTION OF PHASE 3B CONTAINER TERMINAL YARD IMPROVEMENTS

SCALE: NONE

12.47KV SYSTEM ROUTING CIRCUIT DIAGRAM

SHEET: 53 OF 56 SHEETS

E23 AA-3956

REFERENCES:
PLANS
FIELD BOOKS
"PORT OF OAKLAND DATUM"
IS 3.20' BELOW N.G.V.D. '29
CAUTION:
CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

DRAWN R. DONG
DESIGNED R. DONG
CHECKED D. YUNG
REG. ENGINEER NO. E8527

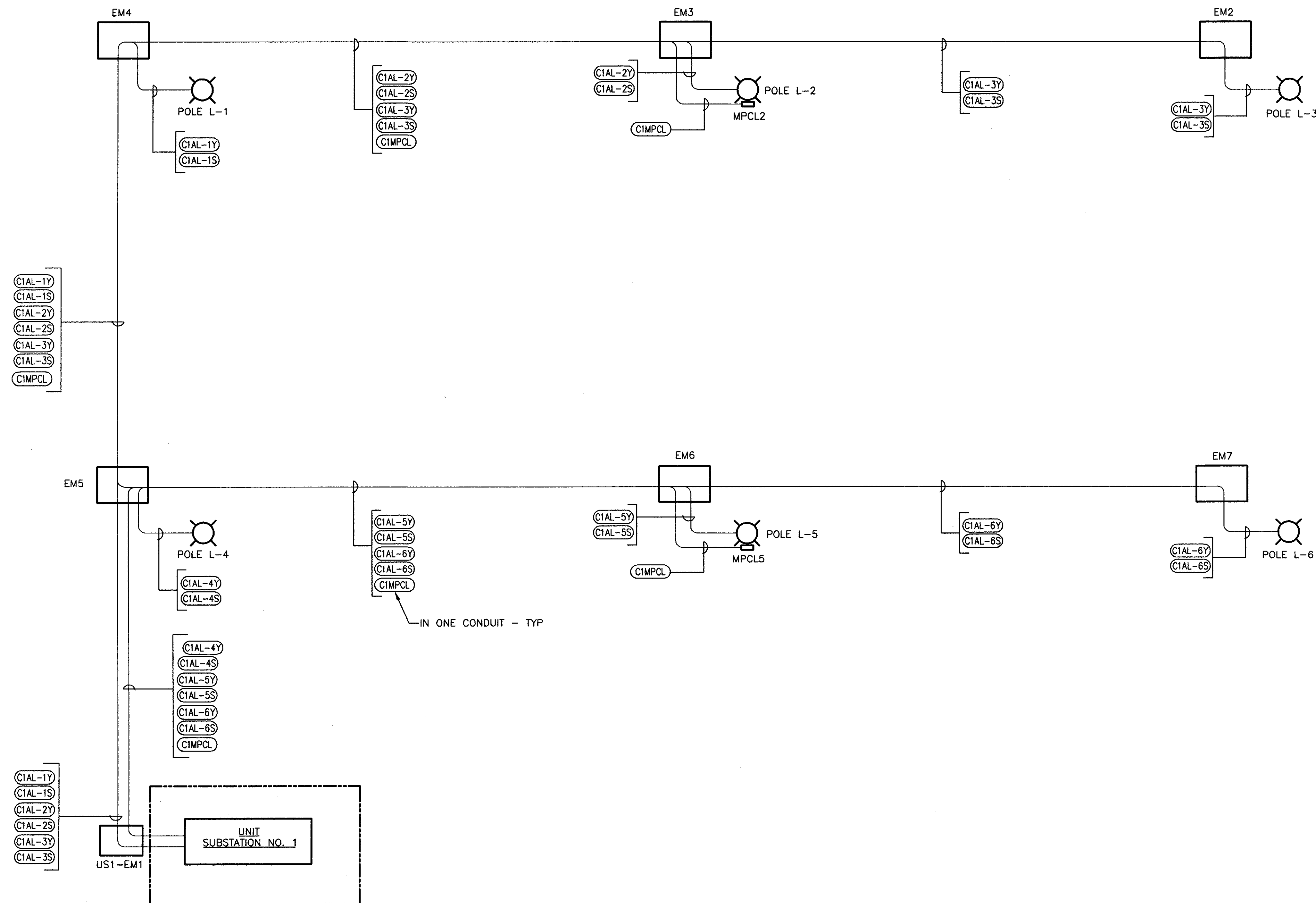
PORT OF OAKLAND

530 WATER ST. OAKLAND, CALIFORNIA

PRINT DATE: 04-10-06 11:42:41 F:\Drawings\2006\0603\AA3956\E23.dwg Printed by: Shew

SHEET NOTES

- FOR REFERENCE TO CABLES AND WIRE SCHEDULE, SEE DWG. E19
- FOR COORDINATION REFER TO DWGS. E03, E06, E07 AND E11.



480V YARD LIGHTING SYSTEM

CAUTION: THIS PLAN MAY BE REDUCED

0 1" 2" ORIGINAL SCALE



MARITIME SUPPORT CENTER

DATE: 04-10-06

CONSTRUCTION OF PHASE 3B CONTAINER
TERMINAL YARD IMPROVEMENTS

SCALE: NONE

SHEET: 54 OF 56 SHEETS

UNIT SUB NO. 1
ROUTING CIRCUIT DIAGRAM - SHEET 1

E24 AA-3956

PRINT DATE: 04-10-06 11:42:25 F:\Drawings\2006\0603\AA3956\E24.dwg Printed by: Shew

REFERENCES:

PLANS
FIELD BOOKS
"PORT OF OAKLAND DATUM"
IS 3.20' BELOW N.G.V.D. '29
CAUTION:
CHECK TRACING FOR LATEST REVISIONS

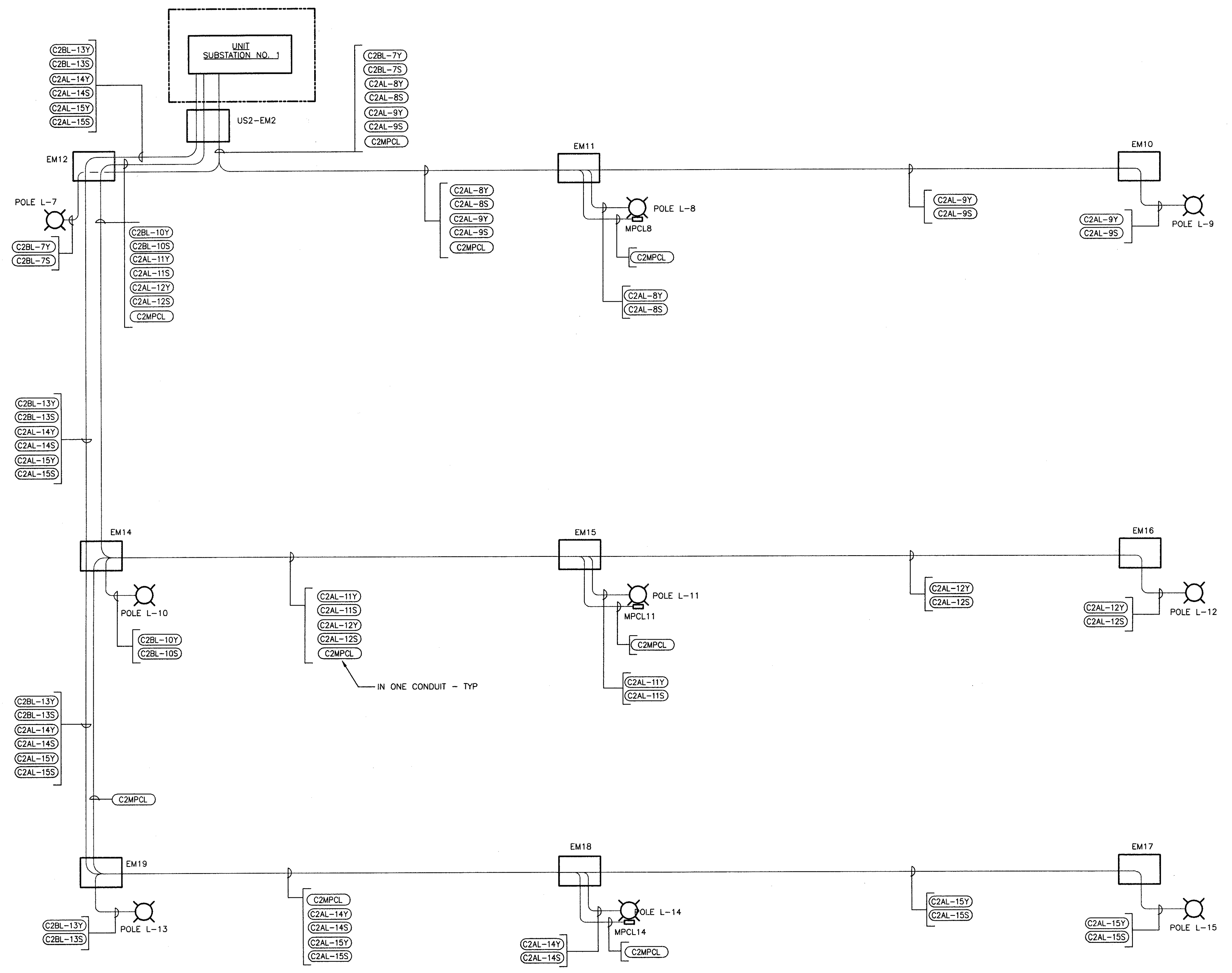
NO.	REVISIONS	DATE	REV'D	APP'D

DRAWN R. DONG
DESIGNED R. DONG
CHECKED D. YUNG
REG. ENGINEER NO. E8527

PORT OF OAKLAND
530 WATER ST. OAKLAND, CALIFORNIA

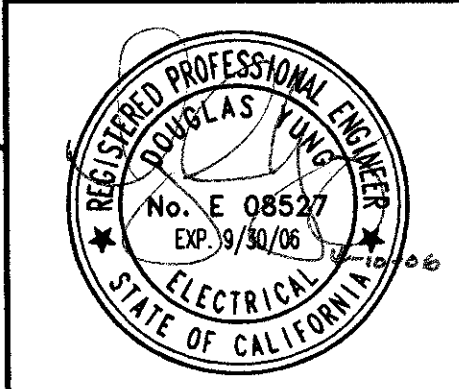
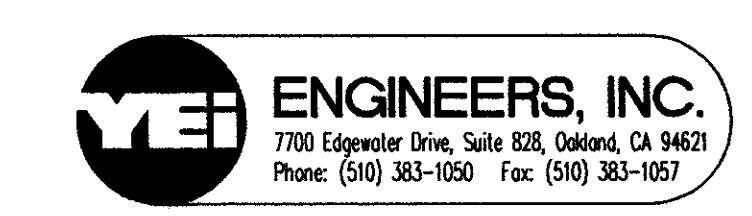
SHEET NOTES

- FOR REFERENCE TO CABLES AND WIRE SCHEDULE, SEE DWG. E19
- FOR COORDINATION REFER TO DWGS. E04, E06, E07 AND E11.



480V YARD LIGHTING SYSTEM

CAUTION: THIS PLAN MAY BE REDUCED ORIGINAL SCALE



REFERENCES:
PLANS
FIELD BOOKS
"PORT OF OAKLAND DATUM"
IS 3.20' BELOW N.G.V.D. '29
CAUTION:
CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

DRAWN R. DONG
DESIGNED R. DONG
CHECKED D. YUNG
REG. ENGINEER NO. E8527



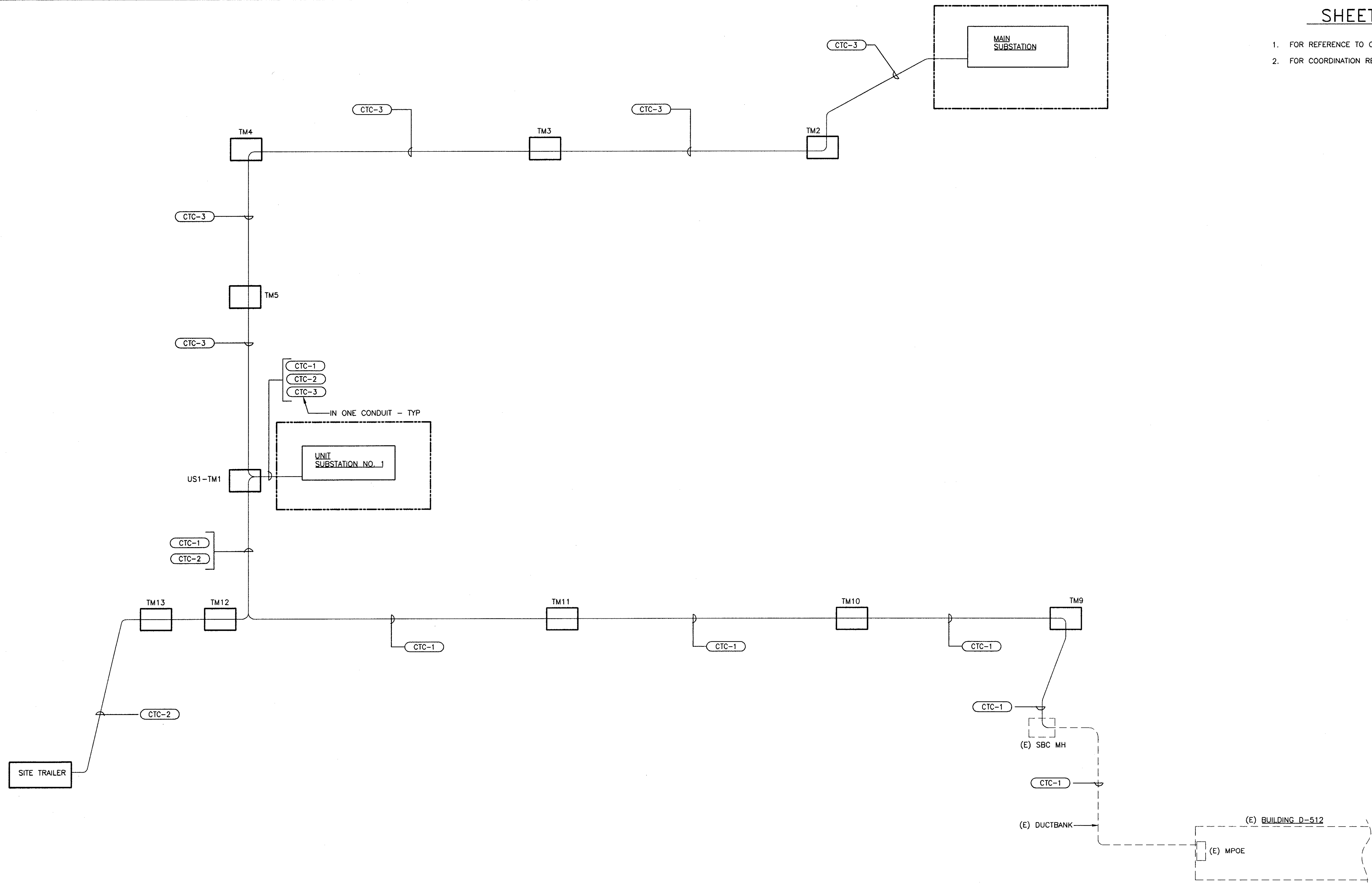
MARITIME SUPPORT CENTER
CONSTRUCTION OF PHASE 3B CONTAINER
TERMINAL YARD IMPROVEMENTS
UNIT SUB. NO. 1
ROUTING CIRCUIT DIAGRAM - SHEET 2

DATE: 04-10-06
SCALE: NONE
SHEET: 55 OF 56 SHEETS
E25 AA-3956

PRINT DATE 04-10-06 11:42:10 F:\Drawings\2006\0603\MA3956\E25.dwg Printed by Shew

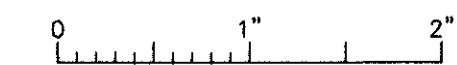
SHEET NOTES

1. FOR REFERENCE TO CABLES AND WIRE SCHEDULE, SEE DWG. E19
2. FOR COORDINATION REFER TO DWGS. E04, E06, E07 AND E11.

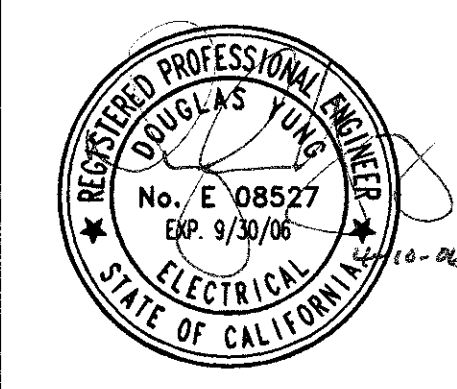
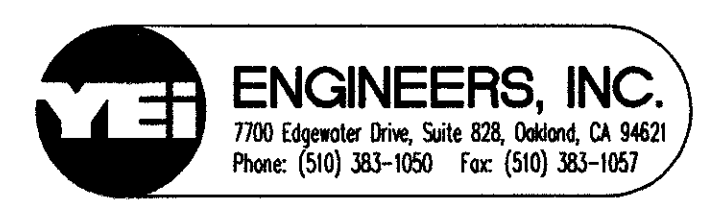


TELECOMMUNICATION SYSTEM

CAUTION: THIS PLAN MAY BE REDUCED



ORIGINAL SCALE



REFERENCES:
 PLANS
 FIELD BOOKS
 "PORT OF OAKLAND DATUM"
 IS 3.20' BELOW N.G.V.D. '29
 CAUTION:
 CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

DRAWN R. DONG
 DESIGNED R. DONG
 CHECKED D. YUNG
 REG. ENGINEER NO. E8527
 REG. ENGINEER NO.

PORT OF OAKLAND
 530 WATER ST. OAKLAND, CALIFORNIA

MARITIME SUPPORT CENTER
 CONSTRUCTION OF PHASE 3B CONTAINER
 TERMINAL YARD IMPROVEMENTS
 TELECOMMUNICATION SYSTEM
 ROUTING CIRCUIT DIAGRAM

DATE: 04-10-06
 SCALE: NONE
 SHEET: 56 OF 56 SHEETS
E26 AA-3956

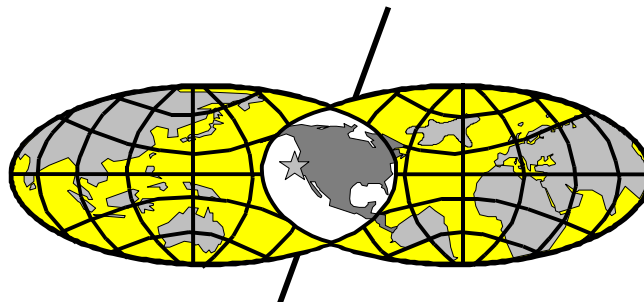
PRINT DATE 04-10-06 11:41:54 F:\Drawings\2006\0603\AA3956\E26.dwg Printed by Shev

PROJECT MANUAL

FOR

PAVING A 21-ACRE CONTAINER YARD WITHIN THE
MARITIME SUPPORT CENTER AREA
OAKLAND, CALIFORNIA

April, 2006



PORT OF OAKLAND

THE BOARD OF PORT COMMISSIONERS

ROOM 748

530 WATER STREET

OAKLAND, CA 94607

DOCUMENT 00010

**PAVING A 21-ACRE CONTAINER YARD WITHIN THE
MARITIME SUPPORT CENTER AREA,
OAKLAND, CALIFORNIA**

TABLE OF CONTENTS

INTRODUCTORY INFORMATION

00001	Title Page
00010	Table of Contents
00015	List of Plans

BIDDING REQUIREMENTS

00100	Invitation to Bid
00200	Instructions to Bidders
00320	Existing Conditions and Geotechnical Data
00340	Hazardous Material Surveys
00400	Bid Form
00411	Bond Accompanying Bid
00420	Contractor Registration and Safety Experience Form
00430	Port of Oakland Subcontractor and Supplier List Form
00455	Construction and Demolition Debris Waste Reduction and Recycling Requirements
00456	Regulatory Compliance Statement
00481	Noncollusion Affidavit
00482	Bidder Certifications

CONTRACT FORMS

00510	Notice of Award
00520	Agreement
00550	Notice to Proceed
00610	Construction Performance Bond
00620	Construction Labor and Material Payment Bond
00630	Letter of Assent

CONDITIONS OF THE CONTRACT

00800	Supplementary Conditions - Modifications to Standard Contract Provisions
00910	Addenda

SPECIFICATIONS

DIVISION 1 - GENERAL REQUIREMENTS

01100	Summary of Work
01120	Order of Work
01200	Measurement and Payment
01250	Modification Procedures
01310	Job Site Administration
01315	Project Meetings
01320	Progress Schedules and Reports
01330	Submittals
01331	List of Submittals
01340	Safety and Environmental Submittals
01343	Safety Program and Safety Representative Requirements
01410	Regulatory Requirements
01411	Regulatory Requirements for Hazardous Materials
01420	References and Definitions
01556	Traffic Control System
01563	Dust and Air Pollution Control
01564	Noise Control
01565	Site Security
01569	Temporary Fences
01620	Product Options and Substitutions
01720	Field Survey
01725	Preservation of Property
01730	Special Requirements for the Port's Railroad System Rail and Crane Rail Track Work
01770	Contract Closeout
01780	Project Record Documents

DIVISIONS 2 – SITE WORK

02111	Handling of Potentially Contaminated Material
02315	Excavation, Fill, and Subgrade Preparation
02740	Asphalt Concrete Pavement
02764	Pavement Markings
02830	Chain Link Fence

DIVISIONS 3 – CONCRETE

03300	Cast-in-Place Concrete
03400	Precast Concrete

DIVISIONS 4: OMITTED

DIVISIONS 5 – METALS

05050	Metal Materials and Methods
-------	-----------------------------

DIVISIONS 6 THROUGH 8: OMITTED

DIVISIONS 9 – FINISHES

09900 Painting of Metal Structures

DIVISIONS 10 THROUGH 16: OMITTED

The following documents from the Port of Oakland Standard Contract Provisions (October 2004 edition), as modified by Document 00800, Supplementary Conditions - Modifications to Standard Contract Provisions, are incorporated by reference into the Contract Documents:

00650	Agreement and Release of Any and All Claims
00680	Escrow Agreement for Security Deposits in Lieu of Retention
00700	General Conditions
00805	Supplemental General Conditions – Hazardous Materials
00810	Non-Discrimination and Small Local Business Utilization Policy
00815	Non-Discrimination in Construction Workforce Policy
00821	Surety Bond Program
00822	Apprenticeship Program
00823	Port of Oakland Maritime and Aviation Project Labor Agreement (MAPLA)
00824	MAPLA Substance Abuse Prevention Policy – Drug Testing Contractor Registration Packet
00825	Social Justice Labor Management Cooperation Trust Fund
00826	MAPLA Summary of Utilization of Off-Site Apprentice Work Force
00830	Project Insurance Manual
00831	Construction Safety Standards Manual

END OF DOCUMENT

DOCUMENT 00015

LIST OF PLANS

The Plans included with this Project Manual and made a part of the Contract Documents are supplied with this Project Manual and designated as PAVING A 21-ACRE CONTAINER YARD WITHIN THE MARITIME SUPPORT CENTER AREA, OAKLAND, CALIFORNIA, Plan File AA-3958. See Index to Plans within the Plans for a further description of the Plans.

END OF DOCUMENT

DOCUMENT 00100

INVITATION TO BID

The CITY OF OAKLAND, acting by and through its BOARD OF PORT COMMISSIONERS (the "Port"), will receive sealed Bids at the office of the Secretary of the Board of Port Commissioners, located at Room 748, 530 Water Street, Oakland, California, until 2:00 p.m. on May 24, 2006, for the following public work:

**PAVING A 21-ACRE CONTAINER YARD WITHIN THE
MARITIME SUPPORT CENTER AREA
OAKLAND, CALIFORNIA**

The work of this ninety-four (94) calendar day project consists generally of furnishing all labor, materials, appliances, tools, equipment, transportation, services, and supervision required for paving a 21-acre container yard within the Maritime Support Center area. The work also includes, but is not limited to: furnishing and installing asphalt concrete pavement, pavement marking and striping, pipe bollards, customs-approved chain link fence and gates, and truck wheel stops.

The Engineer's estimate for this project is \$3,300,000

A California Class A contractor's license is required to bid this Contract. Joint ventures must secure a joint venture license prior to award of this Contract.

Bidders shall refer to Document 00200, Instructions to Bidders, for required documents and items to be submitted in a sealed envelope for deposit into the Bid Box, located at the office of the Secretary of the Board of Port Commissioners, and applicable times for submission.

The Port will permit the successful Bidder to substitute securities for retention monies withheld to ensure performance of the contract, as set forth in Document 00680, Escrow Agreement for Security Deposits in Lieu of Retention, in accordance with Section 22300 of the California Public Contract Code.

Bidders will be required to comply with the Port's Non-Discrimination and Small/Local Business Utilization Policy (Policy). These requirements are described in the policy and implementing regulations, which are included in the Port of Oakland Standard Contract Provisions manual as Document 00810. Bidders are alerted that in order to receive preference points to modify the bids for comparison purposes, all certifications must be complete at time of bid. Bidders and subcontractors intending to receive preference points must be certified by the Port of Oakland prior to the time of bidding or must submit the Port's Database Questionnaire and all supporting documentation, to the Social Responsibility Division, at least ten (10) business days prior to bid opening, or submit a current City of Oakland Local Business Enterprise (LBE) or Small Local Business Enterprise (SLBE) certification letter with the bid documents. For a questionnaire, a checklist of required documents or any questions concerning the Port's policy, you may contact Bendu Jallah-Griffin at bgriffin@portoakland.com or by fax at (510) 451-1656. For a list of Port certified truckers, please contact Bendu Jallah-Griffin at bgriffin@portoakland.com or fax (510) 451-1656.

The Port has placed an Owner Controlled Insurance Program (OCIP) that will provide the General Liability, Worker's Compensation, Contractor's Legal Liability and Builders Risk for this project. The Contractor will be required to provide Automotive Liability Insurance for Contractor's vehicles and equipment.

A Performance Bond and a Labor and Material Payment Bond are required for this contract.

The successful Bidder, whether union or non-union, must comply with the Port of Oakland Maritime and Aviation Project Labor Agreement (MAPLA) included in the Port of Oakland Standard Contract Provisions manual as Document 00823, and must execute Document 00630, Letter of Assent. Non-union Bidders and Bidder's subcontractors are not required to sign union agreements nor are their employees required to become union members to perform work on this project.

The Contractor and all subcontractors shall pay their employees performing labor under this Contract salaries or wages at least equal to the general prevailing wage rates in effect at the time of advertising for bids, as determined by the Director of the Department of Industrial Relations of the State of California, for the particular crafts, classifications or types of workers employed on the project.

The Port will conduct a pre-bid meeting at the following time and place:

Time: 9:00 a.m.
Date: Friday, April 28, 2006
Place: Exhibit Room
First Floor, Port of Oakland Building
530 Water Street
Oakland, California

It is strongly recommended that bidders attend the pre-bid meeting. The pre-bid meeting will last approximately one hour, and will address the Port's Non-Discrimination and Small/Local Business Utilization Policy, insurance requirements, bonds, Maritime and Aviation Project Labor Agreement and any other special working conditions for this contract.

The Port will conduct one Site inspection tour. The tour shall depart immediately after the pre-Bid meeting. Bidders should meet for the Site inspection tour at the Harbor Facilities Complex, 651 Maritime Street, Oakland, California. Bidders should contact Vern Sakaida, at (510) 627-1264 no later than 10:00 a.m. on Thursday, April 27, 2006, to confirm arrangements and participate in the inspection tour.

The work of this project is subject to the Port of Oakland Construction and Demolition Debris Waste Reduction and Recycling Requirements, included in the Project Manual as Attachment 1 to Document 00455. The Port of Oakland Waste Reduction and Recycling Plan Form shall be submitted with the bid.

Bidders may obtain the Bidding Documents (Plans and Project Manual) for this project on line at the Port of Oakland website at <http://portofoakland.com/business/bidnotic.asp> on or after April 23, 2006. Detailed instructions on downloading the Bidding Documents are available at the following web address: <http://portofoakland.com/pdf/bidDownloadInstructions.pdf>. Any Addenda modifying the Plans and Project Manual will be posted at the same location.

Pursuant to Port of Oakland Ordinance No. 1606, §18, the Port of Oakland Standard Contract Provisions (Standard Contract Provisions) are incorporated by reference into Project Manuals issued by the Port for public works construction projects. The Contract Documents consist of the approved Project Manual, any addenda and the approved terms of the Standard Contract Provisions, as specified in more detail in Documents 00520, Agreement, and 00800, Supplementary Conditions – Modifications to Standard Contract Provisions.

The Standard Contract Provisions manual can be downloaded in PDF format from the Port of Oakland website, at http://portofoakland.com/pdf/bid_standardContract.pdf. Bidders who wish to obtain a hard copy of the Standard Contract Provisions should bring or mail a company check, cashiers check, or money order (no personal checks or cash) for \$25.00, made payable to Port of Oakland, to the Engineering Services Counter, located at 2nd Floor, 530 Water Street, Oakland, California. The Engineering Services Counter business hours are from 8:00 a.m. to Noon and 1:00 p.m. to 4:00 p.m., Monday through Friday, holidays excepted.

For questions pertaining to the download of the Plans and Project Manual, please contact Bill Russell at (510) 627-1439 or by E-mail at brussell@portoakland.com. For technical questions, in respecting the Bidding Documents, Bidders should contact Barry MacDonnell at (510) 627-1383 or by E-mail at bmacdonn@portoakland.com.

The Port specifically reserves the right, in its sole discretion, to reject any or all Bids, to re-bid, or to waive inconsequential defects in bidding not involving time, price or quality of the Work.

Bidders are solely responsible for the cost of preparing their Bids.

END OF DOCUMENT

DOCUMENT 00200

INSTRUCTIONS TO BIDDERS

Bids are requested for a general construction contract described in general as follows:

PORT OF OAKLAND CONTRACT 2006-03-M1

PAVING A 21-ACRE CONTAINER YARD WITHIN THE
MARITIME SUPPORT CENTER AREA
OAKLAND, CALIFORNIA

1. **RECEIPT OF BIDS.** The Port will receive sealed bids from Bidders until 2:00 p.m., on Wednesday, May 24, 2006. Bids received after the specified time will not be accepted and will be returned to the Bidder unopened.
2. **DETERMINATION OF APPARENT LOW BIDDER.** Apparent low Bid will be based solely on the Total Bid Price. All Bidders are required to submit Bids on all Bid items. The Bids will be compared on the basis of the modified bid amount calculated in accordance with the applicable paragraphs of Part IV, Section A, of Document 00810, Non-Discrimination and Small/Local Business Utilization Policy. If the Bid is accepted and the Contract awarded on the basis of the modified bid amount, the actual amount of the Bid before reduction under the Non-Discrimination and Small/Local Business Utilization Policy will be the amount awarded the Contractor.
3. **REQUIRED BID FORM.** Bidders must submit Bids on Document 00400, Bid Form. The Port will reject as non-responsive any Bid not submitted on the required form. Bids must be full and complete. Bidders must complete all Bid items and supply all information required by Bidding Documents. The Port reserves the right in its sole discretion to reject any Bid as non-responsive as a result of any error or omission in the Bid. Bidders must submit clearly written Bids, and the Port reserves the right to reject any Bid not clearly written. Bidders may not modify the Bid Form or qualify their Bids. The Bid must be clearly and distinctly written without any erasure or interlineation. Any changes in the Bid shall be clearly made, with the original entry crossed out and the new entry initialed by the Bidder.
4. **REQUIRED BID SECURITY.** Bidders must submit with their Bids cash, a certified check or cashier's check of or on a responsible bank in the United States, or a corporate surety bond furnished by a surety authorized to do a surety business in the State of California, of not less than ten percent (10%) of the aggregate amount of the Total Bid Price, payable to the Port of Oakland. The Port will provide the required form of corporate surety bond, Document 00411, Bond Accompanying Bid. The Port will reject as non-responsive any Bid submitted without the necessary Bid security. As soon as practicable after the Bid opening, if there are more than three (3) responsive Bidders, all Bid securities and Bid bonds except for those of the apparent lowest three responsive Bidders will be returned to the other Bidders. The remaining Bid securities and Bid bonds will be retained until award of the contract to the successful Bidder, at which time the Bid securities and Bid bonds of the second and third lowest bidders, if applicable, shall be returned. The Bid security and Bid bond of the successful Bidder will be returned after execution of the contract and deposit of all necessary bonds and other items.
5. **REQUIRED SUBCONTRACTORS LISTS.** Based on work which is included in the Total Bid

Price, Bidders must submit with their Bids the names of all subcontractors and their respective bid item sub-bids on Document 00430, Port of Oakland Subcontractor and Supplier List Form, for those subcontractors who will perform any portion of work, including labor, rendering of service, or specially fabricating and installing a portion of the work or improvement according to detailed drawings contained in the plans and specifications, in excess of one-half of one percent (0.5%) of the Total Bid Price. Bidders must also submit the names of all trucking brokers, on Document 00430, Port of Oakland Subcontractor and Supplier List Form regardless of whether the broker's portion of the work will or will not exceed one-half of one percent (0.5%) of the Total Bid Price and regardless of whether the Bidder is requesting any local business preference points for the listed broker(s).

6. **REQUIRED NON-COLLUSION AFFIDAVIT.** Bidders must submit with their Bids Document 00481, Non-Collusion Affidavit. The Port will reject as non-responsive any Bid submitted without the Non-Collusion Affidavit. No Bidder may make or file or be interested in more than one Bid for the same supplies, services or both.
7. **REQUIRED BIDDER'S CERTIFICATIONS.** Bidders must submit with their Bids Document 00482, Bidder Certifications. The Port will reject as non-responsive any Bid submitted without the Bidder Certifications.
8. **PRE-BID CONFERENCE AND SITE VISITS.** The Port will conduct a pre-Bid conference at 9:00 a.m., on Friday, April 28, 2006, in the Exhibit Room, First Floor, Port of Oakland Building, 530 Water Street, Oakland, California, to address insurance, bonds, Maritime and Aviation Project Labor Agreement, Port's Non-Discrimination Policy and Small/Local Business Utilization Policy, and other non-technical issues related to the work and the Project. The pre-Bid conference will last approximately one hour.

The Port will conduct one Site inspection tour on Friday, April 28, 2006, at approximately 10:00 a.m., immediately following the pre-Bid conference. The tour will depart promptly at the time stated. Bidders should meet for the Site inspection tour in front Harbor Facilities Complex, 651 Maritime Street, Oakland, California. Bidders should contact Vern Sakaida, at (510) 627-1264, no later than 10:00 a.m. on Thursday, April 27, 2006, to confirm arrangements and participate in the inspection tour. Bidders will be taken in Port vans to the Site.

9. **OTHER REQUIREMENTS PRIOR TO BIDDING.** Submission of a Bid signifies careful examination of Bidding Documents and complete understanding of the nature, extent and location of Work to be performed. Bidder must complete the tasks listed in Document 00520, Agreement, Article 5, as a condition to bidding, and submission of Bid shall constitute the Bidder's express representation to the Port that Bidder has fully completed these tasks.
10. **EXISTING CONDITIONS AND GEOTECHNICAL DATA.** Bidders may examine any available existing conditions information by giving the Port reasonable advance notice. The Port will not be responsible for accuracy of existing drawings or geotechnical data. Document 00320, Existing Conditions and Geotechnical Data, applies to all supplied existing drawings and geotechnical reports, and all other information supplied regarding existing conditions either above ground or below ground.
11. **ADDENDA.** Bidders must direct all questions about the meaning or intent of the Bidding Documents to the Port. Interpretations or clarifications considered necessary by the Port in response to such questions will be issued by Addenda posted at

<http://portofoakland.com/business/bidnotic.asp>. Notification of the issuance of Addenda will be faxed or emailed to each Bidder at the fax number or email address supplied to the Port by the Bidder. Questions received less than seven (7) days prior to the date for opening Bids may not be answered. Only questions answered by formal written Addenda will be binding. Oral and other interpretations and clarifications will be without legal effect.

- b. Addenda may also be issued to modify the Bidding Documents as deemed advisable by the Port.
- c. Addenda shall be acknowledged in Bid Form by number and shall be part of the Contract Documents. A complete listing of Addenda may be secured from the Port.
- d. Addenda will be issued only by the Port of Oakland and only in writing. Addenda will be identified as such and will be available for download at <http://portofoakland.com/business/bidnotic.asp>. Notification of issuance of Addenda will be delivered via fax or email to all who are known by the issuing office to have obtained Bidding Documents and who have provided a fax number or email address for receipt of Addendum notification.
- e. Copies of Addenda will be made available for inspection wherever Bidding Documents are on file for inspection.
- f. Addenda will be posted at <http://portofoakland.com/business/bidnotic.asp> no later than 3 full working days prior to the Bid Deadline. Addenda notifications will be issued such that they should be received by prospective Bidders, who have provided a fax number or email address for receipt of Addendum notification, no later than 3 full working days prior to the Bid Deadline. Addenda withdrawing the request for Bids or postponing the Bid Deadline may be issued any time prior to the Bid Deadline.
- g. Each Bidder shall be responsible for ascertaining, prior to submitting a Bid, that it has received all issued Addenda.

12. **LOG OF RESPONSES TO BIDDER QUESTIONS.** Clarifications that do not necessitate the issuance of a formal Addendum may, at the Port's discretion, be issued in written form in a 'Log of Responses to Bidder Questions'. The Log of Responses to Bidder Questions will be posted to the Port website at <http://portofoakland.com/business/bids.asp>, and may be periodically updated during the course of the bid period. It is the Port's intent to provide notification of updates to the Log to all who are known by the issuing office to have obtained Bidding Documents and who have provided a fax number or email address. However, it is Bidder's responsibility to monitor the Port website for posted updates. Questions received less than seven (7) days prior to the date for opening Bids may not be answered.

The Log of Responses to Bidder Questions is provided solely for Bidders' convenience; it is not part of the Contract Documents, and any interpretations or clarifications contained therein are without legal effect. Bidders are advised that any Bidder questions submitted to the Port may, at the Port's discretion, be incorporated into the posted Log of Responses to Bidder Questions."

13. **SUBSTITUTIONS.** Bidders must base their Bids on products and systems specified or indicated in the Contract Documents or listed by name in Addenda. Contractors and materials suppliers may submit proposals for substitutions for pre-Bid date approval, and up to thirty-five

(35) days following the Notice of Award.

- a. Submittals of proposals for substitutions shall contain sufficient information, as set forth in Specification Section 01620, Product Options and Substitutions, to assess acceptability of product or system. Insufficient proposed information shall be grounds for rejection of substitution.
- b. Approved substitutions will be listed in Addenda. The Port reserves the right not to act upon submittals of requests for substitutions until after Bid opening.
- c. Substitutions may be requested after the Contract Documents are signed in accordance with requirements specified in Document 00700, General Conditions, and Section 01620, Product Options and Substitutions.
- d. Port will require at least twenty-one (21) calendar days to review requests for substitutions.

14. **WAGE RATES.** Contractor and all subcontractors shall pay their employees performing work under this contract, salaries or wages at least equal to the general prevailing rates or per diem wages for each craft, classification, or type of worker in effect at the time of advertising for Bids, as determined by Director of Department of Industrial Relations of the State of California, subject to compliance with the Port of Oakland Maritime and Aviation Project Labor Agreement (MAPLA). This information is available on the Internet at <http://www.dir.ca.gov/DLSR/statistics-research.html> and <http://www.dir.ca.gov/DLSR/PWD/>. Free access to the Internet is available at the Oakland Public Library, Main Branch, 125 – 14th Street, Oakland, California 94612, (510) 238-3134, and all of its fifteen (15) branches, listed below:

NAME	ADDRESS	TELEPHONE NUMBER
Asian	388-9 th Street Oakland, California 94608	(510) 238-3400
Brookfield	9255 Edes Avenue Oakland, California 94603	(510) 615-5725
Cesar E. Chavez	1900 Fruitvale Avenue Oakland, California 94601	(510) 535-5620
Dimond	3565 Fruitvale Avenue Oakland, California 94602	(510) 482-7844
Eastmont	7200 Bancroft Avenue, Ste. 211, Oakland, California 94605	(510) 615-5726
Elmhurst	1427-88 th Avenue Oakland, California 94621	(510) 615-5727
Golden Gate	5433 San Pablo Avenue Oakland, California 94608	(510) 597-5023
Lakeview	555 El Embarcadero Oakland, California 94610	(510) 238-7344
Martin Luther King, Jr.	6833 International Boulevard Oakland, California 94621	(510) 615-5728
Melrose	5420 Bancroft Avenue Oakland, California 94601	(510) 535-5623
Montclair	1687 Mountain Boulevard	(510) 482-7810

	Oakland, California 94611	
Piedmont Avenue	160-41 st Street Oakland, California 94611	(510) 597-5011
Rockridge	5366 College Avenue Oakland, California 94618	(510) 597-5017
Temescal	5205 Telegraph Avenue Oakland, California 94609	(510) 597-5049
West Oakland	1801 Adeline Street Oakland, California 94607	(510) 238-7352

15. **PROJECT LABOR AGREEMENT.** The successful Bidder, whether union or non-union, must comply with the Port of Oakland Maritime and Aviation Project Labor Agreement, attached as Document 00823, and execute Document 00630, Letter of Assent. Non-union Bidders and Bidders' subcontractors are not required to sign union agreements nor are their employees required to become union members to perform work on this Project. The successful Bidder further must cause all "Contractors" (as such term is defined in the Project Labor Agreement) that contract under Contractor on this Contract and are covered by the Project Labor Agreement, to comply with the requirements imposed on "Contractors" (as such term is defined in the Project Labor Agreement) under said agreement and to execute Document 00630, Letter of Assent. Pursuant to the Project Labor Agreement, Contractors shall be required to make contributions to the Social Justice Trust Fund of \$0.15 per labor hour, as more fully described in Document 00825, Social Justice Labor Management Cooperation Trust Fund.
16. **COSTS OF DRUG TESTING.** The implementation costs of the Maritime and Aviation Project Labor Agreement Uniform Substance Abuse Policy must be included in the Total Bid Price. These costs are stated in Document 00824, Port of Oakland Maritime and Aviation Project Labor Agreement Substance Abuse Prevention Policy Drug Testing.
17. **NON-DISCRIMINATION AND SMALL/LOCAL BUSINESS UTILIZATION POLICY.** The successful Bidder must comply with the Port's Non-Discrimination and Small/Local Business Utilization Policy, a copy of which is enclosed as Document 00810. These provisions include steps which must be undertaken prior to the Bid date to provide equal opportunity for LBABEs and LIABEs to seek and obtain subcontracts on the Project. Bidders may be disqualified for failure to comply with these provisions. Bidders are alerted that in order to receive preference points to modify the bids for comparison purposes, all certifications must be complete at time of bid. To be certified for a particular project, a contractor must submit a Database Questionnaire and all supporting documentation to the Social Responsibility Division at least ten (10) business days prior to bid opening or submit a copy of a current City of Oakland Local Business Enterprise (LBE) or Small Local Business Enterprise (SLBE) certification letter with the bid documents. To receive further points for being local for two or more years, additional documentation may be required. Questions concerning the Port's Non-Discrimination and Small/Local Business Utilization Policy may be directed to the Social Responsibility Division contact person listed in document 00100. Questions regarding the Port's requirement to list all trucking brokers in the Bidder's submittal or receiving preference points for the use of local truckers and requests for a list of certified truckers, should be directed to Bendu Jallah-Griffin via e-mail at bgriffin@portoakland.com or by fax at (510) 451-1656.

Prior to the Port's contract award, the apparent low Bidder and its intended subcontractors

may be required to attend a pre-award conference for the purpose of Port review, approval, disapproval, or approval with conditions of the apparent low Bidder's compliance with the Port's Non-Discrimination and Small/Local Business Utilization Policy.

18. **BID SUBMISSION.** Each Bidder shall submit its Bid in an opaque sealed 10" x 13" envelope containing forms listed herein. The sealed envelope shall be hand delivered to the office of the Secretary of the Board of Port Commissioners, Room 748, 530 Water Street, Oakland, California, and deposited in the Bid Box in the reception area. The Bids will be time and date stamped upon receipt. All Bids should be marked as follow

Board of Port Commissioners
Port of Oakland
530 Water Street
Oakland, California 94607

BID FOR PORT CONTRACT 2006-03-M1

PAVING A 21-ACRE CONTAINER YARD WITHIN THE
MARITIME SUPPORT CENTER AREA
OAKLAND, CALIFORNIA

Bids must contain the following, fully executed documents:

- 1) Document 00400, Bid Form. The entire document is the Bid Form.
- 2) Cashier's check, certified check, or corporate surety bond of not less than 10% of the amount of the Bid. Bidder and its surety must execute Document 00411, Bond Accompanying Bid, if submitted.
- 3) Document 00420, Contractor Registration and Safety Experience Form.
- 4) Document 00430, Port of Oakland Subcontractor and Supplier List Form: If Bidder intends to employ subcontractors, Bidder must furnish the information required on these forms, in accordance with instructions contained in these Instructions to Bidders.
- 5) Completed Document 00455, Attachment 2, Construction and Demolition Debris Waste Reduction and Recycling Plan ("WRRP") form.
- 6) Document 00456, Regulatory Compliance Statement.
- 7) Document 00481, Non-Collusion Affidavit: subscribed and sworn before a notary public.
- 8) Document 00482, Bidder Certifications: signed and completed as indicated therein.

Bids shall be deemed to include any written responses of a Bidder to any questions or requests for information of the Port made as part of the Bid evaluation process after submission of the Bid. The provisions of the California Public Contract Code relating to relief from bids, Section 5100 et seq. are applicable to this contract.

19. **BID OPENING.** The Secretary of the Board of Port Commissioners shall time stamp Bids on receipt, and shall open Bids bearing a time stamp showing their receipt up to and including the time and date specified. The Secretary will open the Bids in the Board Room or at a designated conference room at the Port's offices. On submission of Bids, all Bid envelopes will be time stamped to reflect accurately their submittal time.

The three (3) apparent lowest responsive Bidders must execute and submit the following documents after Bids have been opened and duly inspected. The successful Bidders' failure to submit these documents properly and timely entitles the Port to reject the Bid as non-responsive.

- a. Submit the following document, by 5:00 p.m. of fifth (5th) day following Bid opening. Award of Contract depends on the accurate submission of this document and on the approval of the submissions by the Port:

A letter addressed to the Port Attorney, David L. Alexander, 530 Water Street, 4th Floor, Oakland, CA 94607, representing that such Bidder and all other "Contractors" (as such term is defined in Document 00823, Port of Oakland Maritime and Aviation Project Labor Agreement ("MAPLA")) covered by such MAPLA, are willing, ready and able to comply with the MAPLA, and that such Bidder and the other "Contractors" shall execute Document 00630, Letter of Assent, without modification or qualification, within twenty (20) days of the Notice of Award. The letter must be without qualification and must be in form acceptable to the Port Attorney.

20. **POST-NOTICE OF AWARD REQUIREMENTS.** The apparent low Bidder must execute and submit the following documents after Bids have been opened and duly inspected. The apparent low Bidder's failure to submit these documents properly and timely entitles the Port to reject the Bid as non-responsive.

- a. Submit the following documents to the Port by 5:00 p.m. of the twentieth (20th) day following receipt of the Notice of Award. Execution of contract depends upon approval of these documents:
- 1) Document 00520, Agreement: To be executed by the successful Bidder. Submit three (3) copies, each bearing all required original signatures.
 - 2) Document 00610, Construction Performance Bond. To be executed by the successful Bidder and surety, in the amount of one hundred percent (100%) of the Contract Sum.
 - 3) Document 00620, Construction Labor and Material Payment Bond. To be executed by successful Bidder and surety, in the amount of one hundred percent (100%) of the Contract Sum.
 - 4) Document 00630, Letter of Assent, executed by the Contractor and by all other "Contractors" (as such term is defined in the Port of Oakland Maritime and Aviation Project Labor Agreement ("MAPLA")) (See Document 00823)) who are covered by such Project Labor Agreement.
 - 5) Insurance forms, documents and certificates required by Document 00700, General Conditions, Paragraph 4.2, including, without means of limitation Aon

Form-1, Aon Form-2 and Aon Form-3 (as described therein). Port reserves the right to make changes and modifications to the Project Insurance Manual (See Document 00700, General Conditions, Paragraph 4.2 and Document 00830, Attachments, attaching the form of the Project Insurance Manual), including the forms to be filed thereunder, as Port may deem necessary from time to time after the bid date, provided that any such modification or change shall not result in an increase in Contractor's cost of providing insurance equivalent to the insurance earlier specified or lessen materially the coverage. In the event there is any modification or change to the Project Insurance Manual after the bid date, then at the election of Port, upon the latter of the Notice of Award of the Contract, the Port will provide the Project Insurance Manual to the successful bidder, which document shall be a Contract Document. In such case, all other copies of the Project Insurance Manual received by Bidder prior to the Contract Award are superceded.

- 6) Insurance Certificates and Endorsements required by Document 00700, General Conditions, Paragraphs 4.3 and 4.4.
 - 7) A resume or outline of the safety and health qualifications and experience for the Safety Representative listed by you on Document 00420, Contractor Registration And Safety Experience Form.
- b. Upon receipt of the Notice of Award, the apparent low Bidder and each of its subcontractors who employs workers in any apprenticeable craft or trade shall apply to the joint apprenticeship committee administering the apprenticeship standards of the craft or trade for a certificate approving the contractor or subcontractor under the apprenticeship standards for the employment and training of apprentices, in accordance with Section 1777.5 of the California Labor Code.
 - c. The Port shall have the right to contact directly the bond sureties proposed by the apparent low Bidder to confirm the issuance of the bonds.
21. **BID PROTEST.** Any Bid protest must be submitted in writing to the Secretary of the Board of Port Commissioners with a copy to the Chief Engineer, before 5:00 p.m. of the fifth (5th) business day following Bid opening.
- a. The initial protest document must contain a complete statement of the basis for the protest.
 - b. The protest must refer to the specific portion of the document which forms the basis for the protest.
 - c. The protest must include the name, address and telephone number of the person representing the protesting party.
 - d. The party filing the protest must concurrently transmit a copy of the initial protest document and any attached documentation to all other parties with a direct financial interest which may be adversely affected by the outcome of the protest. Such parties shall include all other Bidders who appear to have a reasonable prospect of receiving an award depending upon the outcome of the protest.

- e. The procedure and time limits set forth in this paragraph are mandatory and are the Bidder's sole and exclusive remedy in the event of Bid protest. The Bidder's failure to comply with these procedures shall constitute a waiver of any right to further pursue the Bid protest, including filing a Government Code Claim or legal proceedings. A Bidder may not rely on a protest submitted by another Bidder, but must timely pursue its own protest.
22. **BID EVALUATION.** The Port may reject any and all bids and waive any informalities or minor irregularities in the Bids. The Port also reserves the right, in its discretion, to reject any or all Bids and to re-bid the Project. The Port reserves the right to reject any or all nonconforming, non-responsive, unbalanced or conditional Bids, re-bid, and to reject the Bid of any Bidder if the Port believes that it would not be in the best interest of Project to make an award to that Bidder, whether because the Bid is not responsive or the Bidder is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria established by the Port.
- a. In evaluating Bids, the Port will consider the qualifications of Bidders, whether or not the Bids comply with the prescribed requirements, and such unit prices and other data, as may be requested in the Bid Form or prior to the Notice of Award.
 - b. The Port may conduct such investigations as the Port deems necessary to assist in the evaluation of any Bid and to establish the responsibility, qualifications and financial ability of Bidders, proposed subcontractors, suppliers and other persons and organizations to perform and furnish the Work in accordance with the Contract Documents. The Port shall have the right to communicate directly with Bidder's Surety regarding Bidder's bonds.
 - c. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of numerals and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between written words and figures, or words and numerals, will be resolved in favor of the words.
 - d. In addition to the price, in determining the lowest responsible, responsive Bidder, consideration shall be given to:
 - (i) The ability, capacity and skill of Bidder to perform the Work required by the Contract Documents;
 - (ii) The ability of Bidder to perform the Work required by the Contract Documents within the times specified, without delay;
 - (iii) The character, integrity, reputation, judgment, experience and efficiency of Bidder;
 - (iv) The quality of Bidder's performance on previous contracts with the Port of Oakland or City;
 - (v) The ability of Bidder to provide future maintenance, repair parts and services for the use of the supplies purchased;
 - (vi) Bidder's satisfaction of Port's Non-Discrimination and Small/Local Business

Utilization Policy, the responsiveness of information furnished under other applicable requirements.

- e. Bids that are within 10% (ten percent) or \$1,000,000.00 (one million dollars), whichever is less, of the apparent low bidder's Total Bid Price, will be reduced by an equivalent percentage for purposes of evaluation to determine the lowest responsible bidder's "Modified Bid Amount" in accordance with the applicable paragraphs of Part IV, Section A, of the Non-Discrimination and Small/Local Business Utilization Policy. The Modified Bid Amount is equal to the Total Bid Price shown on the Bid Form, less the product of "equivalent percentage," and said Total Bid Price. The "equivalent percentage" calculation is based upon the validated preference points, (i.e., 5 points = 5%).

EXAMPLE:

$$\begin{aligned}
 \text{MBA} &= \text{Modified Bid Amount} \\
 \text{TBP} &= \text{Total Bid Price (say \$20,000,000)} \\
 \text{EP} &= \text{Equivalent Percentage (e.g., say 5 points = 5\% = } 5/100) \\
 \text{MBA} &= \text{TBP} - \text{EP(TBP)} \\
 &= \$20,000,000 - (5/100) (\$20,000,000) \\
 &= \$20,000,000 - \$1,000,000 \\
 &= \$19,000,000
 \end{aligned}$$

Additional example is shown in the table below:

Bidder	Bid	Points	Bid Adjustment	Modified Bid Amount ¹
A	\$20,000,000	5	\$1,000,000	\$19,000,000
B	\$20,400,000	6	\$1,224,000	\$19,176,000
C	\$21,625,000	8	N.A. ²	

¹ Modified Bid Amount used for bid comparison purposes.

² Bid is more than \$1,000,000 over low bid, so no adjustment is made.

If the bid is accepted and the Contract awarded on the basis of the Modified Bid Amount, the actual amount bid before reduction under these rules will be the amount awarded the Contractor. The Board reserves the right to award the Contract to the lowest responsive bidder on the basis of this calculation.

23. **FAILURE TO EXECUTE AND DELIVER DOCUMENTS.** If the Bidder to whom the contract is awarded shall for twenty (20) days after such award fail or neglect to execute and deliver all required Contract Documents and file all required bonds, insurance certificates and other documents (see paragraph 20a, above), the Port may, in its sole discretion, deposit the Bidder's surety bond, cashier's check or certified check for collection, and proceeds thereof may be retained by the Port as liquidated damages for Bidder's failure to enter into the Contract Documents. The Bidder agrees that calculating the damages the Port may suffer as a result of the Bidder's failure to execute and deliver all required Contract Documents and other required documents would be extremely difficult and impractical and that the amount of the Bidder's required Bid security shall be the agreed and presumed amount of the Port's

damages.

24. **AWARD.** If the Contract is to be awarded, it will be awarded to the lowest responsible responsive Bidder within sixty (60) days of Bid opening or such longer period as may be specified in the resolution calling for Bids on the Project. The Notice of Award, Document 00510, shall be delivered as provided therein.

The Port reserves the right to reject all Bids.

Pursuant to Port of Oakland Ordinance No. 1606, §18, the Port of Oakland Standard Contract Provisions (Standard Contract Provisions) are incorporated by reference into Project Manuals issued by the Port for public works construction projects. The Contract Documents consist of the approved Project Manual, any addenda and the approved terms of the Standard Contract Provisions, as specified in more detail in Documents 00520, Agreement, and 00800, Supplementary Conditions – Modifications to Standard Contract Provisions.

25. **DEFINITIONS.** Except as set forth herein, all abbreviations and definition of terms used in these Instructions to Bidders are set forth in Specification Section 01420, References and Definitions.

26. **SIGNING BIDDING DOCUMENTS AND CONTRACT DOCUMENTS.** If the Bidder is a corporation, all Bidding Documents required to be executed by the Bidder (and, if such Bidder is the apparent low bidder and receives the Notice of Award, all Contract Documents required to be executed by such Bidder after Notice of Award) shall set forth the legal name of the corporation and must be signed by the officer or officers legally authorized by the corporation or by law to bind the corporation. If the Bidder is a non-corporate entity, all Bidding Documents required to be executed by the Bidder (and, if such Bidder is the apparent low bidder and receives the Notice of Award, all Contract Documents required to be executed by such Bidder after Notice of Award) shall be submitted in the name of the entity and signed by a partner or member, with authority to sign documents on behalf of such entity. The Port reserves the right to require additional evidence of the authority of any person executing the documents on behalf of the Bidder.

Any person signing on behalf of an entity thereby warrants their authority to bind the entity. The Port reserves the right to require additional evidence of the authority of any person executing documents on behalf of the Bidder.

27. **OBTAINING FULL-SIZE PLANS AND PROJECT MANUALS.** The Plans and Project Manual are available for download at <http://portofoakland.com/business/bidnotic.asp>. Ten sets of full-size Plans and ten Project Manuals, incorporating all addendum revisions, will be made available in hard-copy format to the Contractor after Award of Contract.

END OF DOCUMENT

DOCUMENT 00320

EXISTING CONDITIONS AND GEOTECHNICAL DATA

1.01 SUMMARY

This document sets forth the terms and conditions under which Contractor may review, study, use or rely upon existing conditions information concerning existing conditions at or near the Site, and geotechnical data at or near the Site. This document, the supplied existing conditions, and the available geotechnical data are not Contract Documents.

1.02 REPORTS AND INFORMATION

- A. Documents providing a general description of the Site and conditions of the Work may have been collected by the Port, its consultants, and prior contractors. These documents may consist of contracts, specifications, tenant improvement contracts, as-built drawings, utility drawings, information regarding Underground Facilities, and geotechnical reports for and around the Site. These documents and other information are not part of the Contract Documents.
- B. Bidders may inspect such available information regarding existing conditions and geotechnical reports in the Port's Engineering Services Counter, located at 530 Water Street, Second Floor, Oakland, CA, and copies may be obtained upon the Bidder's payment for the costs of reproduction and handling. These documents, reports and other information are not part of the Contract Documents.
- C. Information regarding existing conditions and geotechnical data may be included in the Project Manual, but shall not be considered part of the Contract Documents.
- D. The following information regarding existing conditions, Underground Facilities, and geotechnical reports and data, at or contiguous to the Site, are available for review in connection with the Contract:
 - 1. The Port's Emergency Plan of Action for Discoveries of Unknown Historic or Archeological Resources, Port of Oakland, dated June 2002.
 - 2. Final Geotechnical Study Report, Port of Oakland Support Services Complex Project, Maritime Street, Oakland, California, prepared by AGS, Inc., for Michael Willis Architects, dated December 2002.
 - 3. Final Report Geotechnical Engineering Study, Port of Oakland, Vision 2000 Project, Joint Intermodal Terminal, prepared by URS Greiner Woodward Clyde, dated June 1999.
 - 4. Geotechnical Investigation – DFAS Facility (Building 311), Seismic Retrofit Project, Fleet Industrial Support Center, Oakland, California, prepared by Harza Consulting Engineers and Scientists, dated June 1995.

5. Preliminary Geotechnical Study – Vision 2000 Maritime Development, Port of Oakland, Oakland, California, prepared by Geomatrix Consultants, Inc. in associated with Harza Engineering Company, dated August 1997.
6. Geotechnical Engineering Study – Unicold Transload Warehouse, Oakland, California, prepared by Geomatrix Consultants, Inc., dated November 2001.
7. Geotechnical Investigation – Oakland Harbor Navigation Improvement (-50 foot) Project, Port of Oakland, Oakland and Alameda, California, prepared by Subsurface Consultants, Inc., dated February 1999.
8. As-Built Drawings, Transportation Maintenance Shops (P-059), Drawings C13 and C14, catalogued September 5, 1990.
9. Drawing No. AA-3956, Construction of Phase 3B Container Terminal Yard Improvements, Maritime Support Center, Oakland, California, prepared by HPA, Inc., dated March 24, 2006.
10. Drawing No. AA-3957, Electrical System Construction at the Maritime Support Center, Oakland, California, prepared by YEI Engineers, Inc., dated March 9, 2006.

1.03 USE OF INFORMATION ON EXISTING CONDITIONS

- A. Above-Ground Existing Conditions. Under no circumstances shall the Port be deemed to make a warranty or representation of existing above-ground conditions, as-built conditions, or other above-ground actual conditions verifiable by reasonable independent investigation. These conditions are verifiable by the Bidder by the performance of its own independent investigation which the Bidder must perform prior to bidding and the Bidder must not rely on the information supplied by the Port regarding existing conditions. The Bidder represents and agrees that in submitting its bid, it is not relying on any information regarding above-ground existing conditions supplied by the Port.
- B. Underground Facilities. Information supplied regarding existing Underground Facilities at or contiguous to the Site is based on information furnished to the Port by others (e.g., former owners or tenants, the owners or builders of such Underground Facilities or others). Except as expressly set forth in this Document, the Port does not assume responsibility for the accuracy, completeness or thoroughness of this information, and the Bidder is solely responsible for any interpretation or conclusion drawn from this information. For those Underground Facilities that are owned by the Port, the Port will be responsible for the general accuracy of information regarding Underground Facilities. This express assumption of responsibility applies only if the Bidder has conducted the independent investigation required of it and discrepancies were not apparent.

1.04 LIMITED RELIANCE PERMITTED ON CERTAIN INFORMATION

- A. Geotechnical Data. Except as expressly set forth in this Document, the Port does not warrant, and makes no representation regarding, the accuracy, completeness or thoroughness of any geotechnical data. The Bidder represents and agrees that in

submitting its bid, it is not relying on any geotechnical data supplied by the Port, except as specifically set forth herein.

- B. The Bidder may rely upon the general accuracy of the "technical data" contained in the geotechnical reports and drawings identified above (if any), but only insofar as it relates to subsurface conditions, provided the Bidder has conducted the independent investigation required of it and discrepancies were not apparent. The term "technical data" in any referenced reports and drawings shall be limited as follows:
1. The term "technical data" shall include actual reported depths, reported quantities, reported soil types, reported soil conditions, and reported material, equipment or structures, that were encountered during subsurface exploration.
 2. The term "technical data" does not include, and the Bidder may not rely upon, any other data, interpretations, opinions or information shown or indicated in such drawings or reports that otherwise relate to subsurface conditions or described structures.
 3. The term "technical data" shall not include the location of Underground Facilities.
 4. The Bidder may not rely on the completeness of reports and drawings for the purposes of bidding or construction. The Bidder may rely upon the general accuracy of the "technical data" contained in such reports or drawings.
 5. The Bidder is solely responsible for any interpretation or conclusion drawn from any "technical data" or any other data, interpretations, opinions or information contained in supplied geotechnical data.

1.05 INVESTIGATIONS

- A. Before submitting a Bid, each Bidder will be responsible to obtain such additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the Site or otherwise, which may affect cost, progress, performance or furnishing of Work or which relate to any aspect of the means, methods, techniques, sequences or procedures of construction to be employed by the Bidder and safety precautions and programs incident thereto or which the Bidder deems necessary to determine its Bid for performing and furnishing the Work in accordance with the time, price and other terms and conditions of Contract Documents.

END OF DOCUMENT

DOCUMENT 00340

HAZARDOUS MATERIAL SURVEYS

1.01 SUMMARY

This Document describes hazardous material surveys included in or with the Contract Documents and use of data therein.

1.02 REPORTS AND INFORMATION

- A. The Port, its consultants, contractors and tenants have prepared documents providing a general description of the Site and locations of hazardous materials subject of the Work. These documents consist of surveys and/or reports included in or with this Project Manual, or made available for review and copying. The surveys and/or reports are the following:

FORMER FLEET AND INDUSTRIAL SUPPLY CENTER

California Department of Toxic Substances Control and the Port of Oakland, October 2000, Remedial Action Plan Onshore Operable Unit, Fleet and Industrial Supply Center Oakland.

PRC Environmental Management, Inc., October 1996, Final Environmental Baseline Survey Report for Fleet and Industrial Supply Center Oakland.

Tetra Tech EMI, August 1998, Final Phase II Remedial Investigation Report Onshore Operable Unit One, Volumes I and II.

2225 AND 2277 SEVENTH STREET SITES:

Alisto Engineering Group, January 30, 1996 Site Investigation Report, Port of Oakland Building C-401, 2277 Seventh Street, Oakland, California.

Iris Environmental, February 19, 2002, Expanded Environmental Site Assessment – Future Field Support Services Complex, Port of Oakland, Oakland, California.

Iris Environmental, June 2002, Phase II Environmental Site Assessment – Future Port Field Support Services Complex, 2225 & 2277 Seventh Street, Oakland, California, Volume I.

Iris Environmental, June 2002, Phase II Environmental Site Assessment – Future Port Field Support Services Complex, 2225 & 2277 Seventh Street, Oakland, California, Volume II – Appendix B.

Iris Environmental, October 2002, Human Health Risk Assessment and Abbreviated Phase II Environmental Site Assessment Report – Future Port of Oakland Field Support Services Complex, 2225 and 2277 Seventh Street, Oakland, California.

Iris Environmental, March 7, 2003, Response Package and Addendum to *Human Health Risk Assessment* for Future Port of Oakland Field Support Services Complex, 2225 and 2277 Seventh St., Oakland, California.

Iris Environmental, July 2003, Final Human Health Risk Assessment and Abbreviated Phase II Environmental Site Assessment Report – Future Port of Oakland Field Support Services Complex, 2225 and 2277 Seventh Street, Oakland, California.

ITSI, September 24, 2001, Replacement Monitoring Well Installation Workplan, 2227 Seventh Street, Oakland, California.

ITSI, November 8, 2001, Workplan for Additional Site Characterization, 2225 and 2227 Seventh Street, Oakland, California.

ITSI, May 2002, Additional Site Characterization and Remedial Action Plan for 2225 and 2277 Seventh Street, Oakland, California.

J R Associates, February 15, 1993 (for Uribe and Associates), Geophysical Investigation at the Imperial Shipping Site, Port of Oakland, Oakland, California.

NESCO, May 31, 1991: Tank Removal Closure Report, ANR Freight 2225 7th Street, Oakland, California

Port of Oakland, August 5, 2002 (draft), Port of Oakland, Field Support Services Complex, Former Shipper's Imperial Site, 7th and Maritime Streets, Port of Oakland Maritime Area, Draft Initial Study/Negative Declaration, Port of Oakland, Oakland, California.

Ramcon, September 10, 1992 Tank Removal Work Summary and Work Plan: ANR Freight 2225 7th Street, Oakland, California 94607.

Ramcon, Soil and Groundwater, October 12, 1992: Tank Removal Summary: Dongary Investments, Truck Maintenance Facility, 2225 7th Street, Oakland, California 94607.

Ramcon, March 18, 1993: Soil and Groundwater Site Assessment: Dongary Investments - Oakland, 2225 Seventh Street, Oakland, California.

SCA Environmental, April 25, 2002, Summary Report, Bulk Asbestos and Lead-Based Paint Survey, Buildings C-401, C-406, & C-407, 2225 and 2277 7th Street @ Middle Harbor Road, Oakland, California.

Treadwell & Rollo, July 2005, Free Product Recovery System Operation and Maintenance Manual, Harbor Facilities Center, Maritime and 7th Streets, Port of Oakland, Oakland, California.

Uribe and Associates, February 23, 1994: Port of Oakland Building C-401, 2277 7th Street, Oakland, Report of Underground Storage Tank Removals

Uribe and Associates, November 10, 1994: Report of Additional Investigation and Groundwater Monitoring Well Installation and Sampling at 2277 Seventh Street, Oakland, California.

Various Quarterly Groundwater Monitoring Reports, prepared by Various Consultants, dated April 1995 through January 2006.

- B. Bidders may inspect such surveys and/or reports at the Port's Engineering Services Counter, located at 530 Water Street, Second Floor, Oakland, CA, and copies may be obtained upon Bidders' payment of costs of reproduction and handling. These surveys and/or reports are not part of Contract Documents.

1.03 USE OF DATA

- A. Data regarding the locations of hazardous materials was obtained only for use of the Port and its consultants, contractors, and tenants for planning and design and are not part of Contract Documents. Bidder may rely on this information for its general accuracy regarding the locations of potentially hazardous materials subject of the Work. Otherwise, the provisions of Document 00320, Existing conditions and geotechnical data, apply to the Work.
- B. The Port does not warrant and makes no representation regarding the accuracy, completeness or thoroughness of any other data regarding existing conditions or hazardous materials, including, but not limited to, quantities, characteristics, volumes, structural features, location of Underground Facilities or connections thereto, or any information verifiable by visual inspection. Bidder represents and agrees that in submitting a Bid it is not relying on any data regarding existing conditions supplied by the Port, except the general location of potentially hazardous materials.

1.04 INVESTIGATIONS

- A. Before submitting a Bid, each Bidder shall be responsible for performing and/or obtaining such additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site or otherwise which may affect cost, progress, performance or furnishing of Work or which relate to any aspect of the means, methods, techniques, sequences or procedures of construction to be employed by Bidder and safety precautions and programs or projects incident thereto or which Bidder deems necessary to determine its Bid for performing and furnishing Work in accordance with the time, price and other terms and conditions of the Contract Documents.
- B. The Port has provided time in the period prior to bidding for Bidder to perform these investigations.

1.05 ACCESS TO SITE

- A. On written request, the Port may provide each Bidder access to Site to conduct such examinations, investigations, explorations, tests and studies as each Bidder

deems necessary for submission of a Bid. Bidder must fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests and studies. Any investigation performed by Contractor to verify hazardous materials/waste conditions must comply with the provisions of Document 00700, General Conditions, and Document 00805, Supplemental General Conditions – Hazardous Materials, including but not limited to the requirements regarding compliance with all laws, permits, giving of all notices, and indemnification. Bidders shall also present Port with proof of insurance with such coverages, policy limits and insurers as are satisfactory to the Port.

- B. Any Bidder requesting access to the Site shall submit a request in writing to the Port at least seven (7) days in advance of the proposed date of access. The Bidder's request for access shall describe the proposed date of access, the location and nature of any physical investigations or explorations, the equipment intended to be used, the identity of the parties who will use the access, the duration of such access, and any other information the Port may reasonably request. The Port will provide access only pursuant to a letter authorizing access. In providing access, the Port may impose such conditions or restrictions on access as it deems necessary and shall have the right to observe the access. Proof of insurance shall accompany such request. The request for access should be made to the Port to Barry MacDonnell at (510) 627-1383 or via E-mail at bmacdonn@portoakland.com, Port of Oakland Engineering, 530 Water Street, Oakland, California 94607.

END OF DOCUMENT

DOCUMENT 00400

BID FORM

To be submitted by date and time noted in Document 00200

BOARD OF PORT COMMISSIONERS
CITY OF OAKLAND

To: Secretary of the Board of Port Commissioners

Re: Contract 2006-03-M1

Paving a 21-Acre Container Yard Within the Maritime Support Center Area, Oakland, California

1. The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an agreement with the City of Oakland, a municipal corporation, acting by and through its Board of Port Commissioners ("Port") in the form included in the Contract Documents, Document 00520 Agreement, to perform and furnish all Work specified or indicated in the Contract Documents for the Contract Sum and within the Contract Time indicated in this Bid and in accordance with all other terms and conditions of the Contract Documents.
2. The Bidder accepts all of the terms and conditions of the Contract Documents and the Invitation to Bid and Instructions to Bidders, including without limitation, those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for sixty (60) calendar days after the day of Bid opening, unless a greater period is authorized by the Board, and may not be withdrawn during that time period. The Bidder will sign and submit the Agreement, Bonds and other documents required by Document 00200, Instructions to Bidders, by the time and in the manner set forth therein.
3. In submitting this Bid, the Bidder represents that:
 - (a) Bidder has examined all of the Contract Documents and of the following Addenda (receipt of all of which is hereby acknowledged).

<u>Date</u>	<u>Number</u>
_____	_____
_____	_____
_____	_____
_____	_____

[Attach additional pages if necessary]

- (b) Bidder has visited the Sites and performed all tasks, research, investigation, reviews, examinations, analysis, and given notices, regarding the Project and the Site, as set forth in Document 00520, Agreement, Article 5.

4. Based on the foregoing, Bidder proposes and agrees to fully perform the Work within the time stated and in strict accordance with the Contract Documents for the following sum of money listed in the following Bid Schedule:

SCHEDULE OF BID PRICES

All bid items, including lump sums, unit prices, and additive alternates must be filled in completely. Bid items are described in Section 01100, Summary of Work. Quote in numerals only, unless words are specifically requested.

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>ESTIMATED QUANTITY</u>	<u>UNIT PRICE (Figures)</u>	<u>TOTAL</u>
1	Mobilization and Demobilization	lump sum		\$ _____.
2	All Contract Work Other than Work Separately Provided for Under Other Bid Items	lump sum		\$ _____.
3	Furnish and Install Asphalt Concrete	36,000 Tons	\$ _____.	\$ _____.
4	Furnish and Apply Pavement Striping and Marking	lump sum		\$ _____.
5	Furnish and Truck Wheel Stops	1,050 EA	\$ _____.	\$ _____.
6	Furnish and Install Pipe Bollards	38 EA	\$ _____.	\$ _____.
7	Furnish and Install Customs Approved Chain Link Fence	1,100 LF	\$ _____.	\$ _____.
8	Furnish and Install Customs Approved Pedestrian and Swing Gates	lump sum		\$ _____.
9	Relocation of Port Furnished K-rail	100 EA	\$ _____.	\$ _____.
10.	Furnish and Install Customs Approved Chain Link Fence Mounted on K-rail	600 LF	\$ _____.	\$ _____.
11.	Install Port-Furnished Truck Wheel Stops	200 EA	\$ _____.	\$ _____.

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>ESTIMATED QUANTITY</u>	<u>UNIT PRICE (Figures)</u>	<u>TOTAL</u>
			TOTAL BID PRICE	\$_____.

5. Subcontractors and their sub-bids for work included in all bid items are listed on the attached Document 00430, Port of Oakland Subcontractor and Supplier List Form.
6. The undersigned understands that the Port reserves the right to reject this Bid, or all bids.
7. If written notice of the acceptance of this Bid, hereinafter referred to as Notice of Award, is mailed or delivered to the undersigned Bidder within the time described in Section 2 above or at any other time thereafter before it is withdrawn, the undersigned will execute and deliver the documents required by Document 00200, Instructions to Bidders, including, but not limited to, Document 00520, Agreement, Document 00610, Construction Performance Bond, Document 00620, Construction Labor and Material Payment Bond, Document 00630, Letter of Assent, and the required certificates of insurance, all within the time and in the manner specified in Document 00200, Instructions to Bidders.
8. Notice of Award or request for additional information may be addressed to the undersigned at the address set forth below.
9. The undersigned herewith encloses a certified check or cashier's check of or on a responsible bank in the United States, or a corporate surety bond furnished by a surety authorized to do a surety business in the State of California, in the amount of ten percent (10%) of Total Bid Price, and made payable to Port of Oakland.
10. The undersigned agrees to commence work under the Contract Documents on the date established in Document 00700, General Conditions, and to complete all work within the times specified in Document 00520, Agreement.
11. The undersigned agrees that, in accordance with Document 00700, General Conditions, liquidated damages for failure to complete all Work under the Contract Documents within the times specified in Document 00520, Agreement, shall be as set forth in Document 00520, Agreement.
12. The attention of the Bidder is directed to the necessity of including in the total for each Bid Item \$0.15 per hour of on-site craft work associated with that Bid Item, to be contributed to the Social Justice Program established under the terms of the Maritime and Aviation Project Labor Agreement. Refer to Document 00825, "Social Justice Labor Management Cooperation Trust Fund."
13. The implementation costs of the Maritime and Aviation Project Labor Agreement Uniform Substance Abuse Policy must be included in the Total Bid Price. These costs are stated in Document 00824, "Port of Oakland Maritime and Aviation Project Labor Agreement Substance Abuse Prevention Policy Drug Testing."
14. The names of all persons interested in the foregoing Bid as principals are:

(IMPORTANT NOTICE: If Bidder or other interested person (including any partner or joint venturer of any partnership or joint venture bidder, respectively) is a corporation, give the legal name of corporation, state where incorporated, and names of president and secretary thereof; if a partnership, give name of the firm and names of all individual co-partners composing the firm; if Bidder or other interested person is an individual, give first and last names in full).

licensed in accordance with an act for the registration of Contractors, and with license number: _____.

BIDDER:

By: _____
[Signature]

[Printed Name]
Its: _____
[If Corporation: Chairman, President or Vice President]

By: _____
[Signature]

[Printed Name]
Its: _____
[If Corporation: Secretary, Assistant Secretary,
Chief Financial Officer or Assistant Treasurer]

NOTE: If the Bidder is a corporation, set forth the legal name of the corporation together with the signature of the officer or officers authorized to sign contracts on behalf of the corporation. If the Bidder is a partnership, set forth the name of the firm together with the signature of the partner or partners authorized to sign contracts on behalf of the partnership.

Business Address: _____

Telephone Number: _____

Fax Number: _____

Date of Bid: _____

END OF DOCUMENT

DOCUMENT 00411

BOND ACCOMPANYING BID

KNOW ALL BY THESE PRESENTS:

That the undersigned _____
as Principal and the undersigned as Surety are held and firmly bound unto the City of Oakland, a
municipal corporation acting by and through its Board of Port Commissioners (the "Port"), as
obligee, in the penal sum of _____ Dollars
(\$_____) lawful money of the United States of America, being at least 10% of the
aggregate amount of said Principal _____'s bid, for the
payment of which, well and truly to be made, we bind ourselves, our successors, executors,
administrators, and assigns, jointly and severally, firmly by these presents.

WHEREAS, the said Principal _____ is
submitting a bid for Port Contract 2006-03-M1, Paving a 21-Acre Container Yard Within the
Maritime Support Center Area, Oakland, California.

THE CONDITION OF THIS OBLIGATION IS SUCH that if the bid submitted by the said
Principal _____ be accepted
and the contract be awarded to said Principal _____
_____ and said Principal _____
shall within a period of twenty (20) days after such award enter into the contract so awarded and
provide the required Construction Performance Bond, Construction Labor and Material Payment
Bond; Letter of Assent, insurance certificates and all other endorsements, forms and documents
required under Document 00200, Instructions to Bidders, then this obligation shall be void,
otherwise to remain in full force and effect.

IN WITNESS WHEREOF, the above bounden parties have executed this instrument this
_____ day of _____, 200__.

Principal: _____

By: _____

Its: _____

(If Corporation: Chairman, President or Vice President)

By: _____

Its: _____

(If Corporation: Secretary, Assistant Secretary,
Chief Financial Officer or Assistant Treasurer)

Surety: _____

By: _____

Attorney in Fact

END OF DOCUMENT

DOCUMENT 00420

CONTRACTOR REGISTRATION AND SAFETY EXPERIENCE FORM

INSTRUCTIONS

IN ORDER TO REGISTER TO UNDERTAKE WORK FOR THE CITY OF OAKLAND, ACTING BY AND THROUGH ITS BOARD OF PORT COMMISSIONERS, YOU MUST PROVIDE THE FOLLOWING:

- 1) FILL OUT THIS REGISTRATION FORM COMPLETELY; DO NOT LEAVE BLANKS.

INDEPENDENT CONTRACTOR REGISTRATION

CONTRACTORS LICENSE # _____

DATE: _____ FED I.D. # _____

FULL CORPORATE NAME OF COMPANY:

STREET ADDRESS: _____

MAILING ADDRESS: _____

PHONE: _____ FAX: _____

NAME OF PRINCIPAL CONTACT: _____

TYPE OF BUSINESS: _____ Sole Proprietor _____ Partnership

_____ Non Profit 501 C3 _____ Corporation

_____ Other (Please explain below)

INSURANCE

WORKER'S COMPENSATION:

CARRIER: _____

ADDRESS: _____

PHONE: _____

POLICY NUMBER: _____

GENERAL LIABILITY:

CARRIER: _____

ADDRESS: _____

PHONE: _____

POLICY NUMBER: _____

POLICY LIMITS: \$ _____

SURETY

The Surety as referred to in this contract, for performance and labor and material bonds shall be:

SURETY'S NAME: _____

STATUS (as Corporation, : _____
partnership, etc. and
state of organization)

ADDRESS: _____

CONTACT PERSON: _____

TELEPHONE NUMBER: _____

SAFETY EXPERIENCE

The following statements as to the Bidder's safety experience are submitted with the Bid, as part thereof, and the Bidder guarantees the truthfulness and accuracy of all information.

1. List your firm's interstate Experience Modification Rate for the last three years.
20__ __ 20__ __ 20__ __
- 1A. Based on the most recent Experience Modification Rate identified above for the most recent year being equal to or greater than 1.25 (Cal-OSHA TICF Assessment Threshold - California State Labor Code 62.7), Contractor acknowledges the designation of a Safety Representative(s) that shall be full-time and dedicated (100% of their time) to safety oversight of field operations for this Project.
2. Use your last year's Cal/OSHA 200 log to fill in the following number of injuries and illnesses:
 - a. Number of lost workday cases _____
 - b. Number of medical treatment cases _____
 - c. Number of fatalities _____
3. Employee hours worked last year _____
4. State the name of your firm's safety engineer/manager:

- 4A. Based on Item 1A, Contractor has designated the individual noted in Item 4 to be the Contractor's Safety Representative for this Project. A resume or outline of this individual's safety and health qualifications and experience shall be submitted as indicated in Document 00200, Instructions to Bidders, Post-Notice Of Award Requirements. Refer to Section 01343 - Safety Program and Safety Representative Requirements.

I CERTIFY, UNDER PENALTY OF PERJURY, THAT THE FOREGOING INFORMATION IS CURRENT AND ACCURATE AND I AUTHORIZE THE PORT OF OAKLAND, AND ITS AGENTS AND REPRESENTATIVES TO OBTAIN A CREDIT REPORT AND/OR VERIFY ANY OF THE ABOVE INFORMATION.

[Insert Name of the Bidder]

By: _____
Signature

Its: _____

Title and Name

Date

END OF DOCUMENT

DOCUMENT 00430

PORT OF OAKLAND SUBCONTRACTOR AND SUPPLIER LIST FORM
(See Document 00200 for instructions.)

Bidder: _____ Bid Date: _____

1. Submit this Document 00430 with the Bid as provided for in Document 00200, Instructions to Bidders.
2. Include Prime Bidder, Joint Venture Partners, and first-tier subcontractors performing Work in excess of one-half of one percent (0.5%) of total bid value.
3. List ALL trucking brokers that will participate in the work, regardless of whether the broker's bid will or will not exceed 0.5% of the total bid value and regardless of whether the Bidder is requesting any local business preference points for the listed broker(s).
4. In order to claim additional local participation credit, all certified LIABE and LBABE subcontractors and suppliers of any tier may be listed.
5. Dollar amount of work performed by any tier subcontractors (including trucking brokers) and suppliers shall be listed only once and shall not incorporate the dollar value of any other listed entity.
6. Dollar amount of materials or supplies bought by the Bidder for use and installation by a listed subcontractor shall be listed separately and clearly indicated that the Bidder is procuring the materials or supplies for the identified subcontractor.

Name, address, and telephone number of office of Prime Bidder, Subcontractor, Trucking Broker or Supplier	Type or Portion of Work to be Performed or Materials to be Supplied	Contractors License Number (if applicable)	Check if LIABE and/or LBABE and if Requesting Credit*		Term**	Dollar Amount of Bid of Each Subcontractor, Trucking Broker or Supplier to Prime Bidder***
			LIABE	LBABE		
Prime Bidder: _____ Address: _____ City/State/Zip: _____ Phone/Fax #: _____						
SUBCONTRACTORS/TRUCKING BROKERS/SUPPLIERS:						
1. Name: _____ Address: _____ City/State/Zip: _____ Phone/Fax #: _____						

* LIABE – Local Impact Area Business Enterprise, LBABE – Local Business Area Business Enterprise (See Non-Discrimination and Small/Local Business Utilization Policy, Document 00810). Bidder and subcontractors intending to receive preference points, must be certified by Port of Oakland prior to time of bidding.

** Term: Length of time (in years) located in the LIA or LBA (LIA = Local Impact Area, LBA = Local Business Area).

*** For LIABE or LBABE Prime Bidder Total bid amount excluding all Subcontractors' bid amounts.

(Bidder to attach additional sheets if necessary)

PORT OF OAKLAND SUBCONTRACTOR AND SUPPLIER LIST FORM

Bidder: _____ Bid Date: _____

Name, address, and telephone number of office of Subcontractor, Trucking Broker or Supplier	Type or Portion of Work to be Performed or Materials to be Supplied	Contractors License Number (if applicable)	Check if LIABE and/or LBABE and if Requesting Credit*		Term**	Dollar Amount of Bid of Each Subcontractor, Trucking Broker or Supplier to Prime Bidder
			LIABE	LBABE		
2. Name: _____ Address: _____ City/State/Zip: _____ Phone/Fax #: _____						
3. Name: _____ Address: _____ City/State/Zip: _____ Phone/Fax #: _____						
4. Name: _____ Address: _____ City/State/Zip: _____ Phone/Fax #: _____						
5. Name: _____ Address: _____ City/State/Zip: _____ Phone/Fax #: _____						

* LIABE – Local Impact Area Business Enterprise, LBABE – Local Business Area Business Enterprise (See Non-Discrimination and Small/Local Business Utilization Policy, Document 00810). Bidder and subcontractors intending to receive preference points, must be certified by Port of Oakland prior to time of bidding.

** Term: Length of time (in years) located in the LIA or LBA (LIA = Local Impact Area, LBA = Local Business Area).

(Bidder to attach additional sheets if necessary)

PORT OF OAKLAND SUBCONTRACTOR AND SUPPLIER LIST FORM

Bidder: _____ Bid Date: _____

Name, address, and telephone number of office of Subcontractor, Trucking Broker or Supplier	Type or Portion of Work to be Performed or Materials to be Supplied	Contractors License Number (if applicable)	Check if LIABE and/or LBABE and if Requesting Credit*		Term**	Dollar Amount of Bid of Each Subcontractor, Trucking Broker or Supplier to Prime Bidder
			LIABE	LBABE		
6. Name: _____ Address: _____ City/State/Zip: _____ Phone/Fax #: _____						
7. Name: _____ Address: _____ City/State/Zip: _____ Phone/Fax #: _____						
8. Name: _____ Address: _____ City/State/Zip: _____ Phone/Fax #: _____						
9. Name: _____ Address: _____ City/State/Zip: _____ Phone/Fax #: _____						

* LIABE – Local Impact Area Business Enterprise, LBABE – Local Business Area Business Enterprise (See Non-Discrimination and Small/Local Business Utilization Policy, Document 00810). Bidder and subcontractors intending to receive preference points, must be certified by Port of Oakland prior to time of bidding.

** Term: Length of time (in years) located in the LIA or LBA (LIA = Local Impact Area, LBA = Local Business Area).

(Bidder to attach additional sheets if necessary)

PORT OF OAKLAND SUBCONTRACTOR AND SUPPLIER LIST FORM

Bidder: _____ Bid Date: _____

Name, address, and telephone number of office of Subcontractor, Trucking Broker or Supplier	Type or Portion of Work to be Performed or Materials to be Supplied	Contractors License Number (if applicable)	Check if LIABE and/or LBABE and if Requesting Credit*		Term**	Dollar Amount of Bid of Each Subcontractor, Trucking Broker or Supplier to Prime Bidder
			LIABE	LBABE		
10. Name: _____ Address: _____ City/State/Zip: _____ Phone/Fax #: _____						
11. Name: _____ Address: _____ City/State/Zip: _____ Phone/Fax #: _____						
12. Name: _____ Address: _____ City/State/Zip: _____ Phone/Fax #: _____						
13. Name: _____ Address: _____ City/State/Zip: _____ Phone/Fax #: _____						

* LIABE – Local Impact Area Business Enterprise, LBABE – Local Business Area Business Enterprise (See Non-Discrimination and Small/Local Business Utilization Policy, Document 00810). Bidder and subcontractors intending to receive preference points, must be certified by Port of Oakland prior to time of bidding.

** Term: Length of time (in years) located in the LIA or LBA (LIA = Local Impact Area, LBA = Local Business Area).

(Bidder to attach additional sheets if necessary)

DOCUMENT 00455

**CONSTRUCTION AND DEMOLITION DEBRIS
WASTE REDUCTION AND RECYCLING REQUIREMENTS**

Attachment 1	Port of Oakland Resolution No. 01197
Attachment 2	City of Oakland Construction & Demolition Debris Waste Reduction and Recycling Plan
Attachment 3A	Construction and Demolition Debris Material Tracking Sheet
Attachment 3B	Construction and Demolition Debris Recycling Planning Sheet
Attachment 4	City of Oakland Construction & Demolition Debris Recycling Summary Report

DM

BOARD OF PORT COMMISSIONERS
CITY OF OAKLAND

RESOLUTION NO. 01197

RESOLUTION ESTABLISHING CONSTRUCTION AND
DEMOLITION DEBRIS WASTE REDUCTION AND
RECYCLING REQUIREMENTS FOR PORT PUBLIC
WORKS PROJECTS.

WHEREAS, the California Integrated Waste Management Act of 1989 (Assembly Bill 939), requires that each city and county in the state reduce material landfilled by fifty percent (50%) by end of the year 2000; and

WHEREAS, each city and county in California, including the City of Oakland (City), could face fines up to \$10,000 a day for not meeting the above mandated goal; and

WHEREAS, the Alameda County Waste Reduction and Recycling Act of 1990 (Measure D), adopted a goal to reduce the weight of discarded materials generated in Alameda County by seventy-five percent (75%) by the year 2010; and

WHEREAS, reusing, salvaging, and recycling construction and demolition (C&D) debris conserves natural resources and reduces the need for landfill space; and

WHEREAS, reusing, salvaging and recycling C&D debris furthers the City's efforts to stimulate markets for recycled materials and may reduce project costs to contractors and developers when compared to landfilling these materials; and

WHEREAS, the City Council of the City of Oakland found and determined that the public interest, health, safety and welfare will be best served if C&D debris is diverted from landfill disposal and that the diversion be monitored by the City; and

WHEREAS, the City Council adopted an Ordinance known as "Construction and Demolition Debris Waste Reduction and Recycling Requirements" as part of the Oakland Municipal Code (Chapter 15.34); and

WHEREAS, the Board of Port Commissioners concurs with, and supports the City Council's determination that the public interest, health, safety and welfare will be best served if C&D debris is diverted from landfill disposal; and

WHEREAS, the Port advocates sustainability goals that will be promoted if C&D debris is diverted from landfill disposal; now, therefore be it

RESOLVED that the Board of Port Commissioners hereby establish the following C&D debris waste reduction and recycling program to be monitored by the Port, similar to that adopted by the City.

SECTION 1: CONSTRUCTION AND DEMOLITION DEBRIS WASTE
REDUCTION AND RECYCLING REQUIREMENTS

The provisions of this resolution shall be known as the Port of Oakland Construction and Demolition Debris Waste Reduction and Recycling Requirements.

SECTION 2: APPLICATION

This resolution applies to all Port-sponsored Public Works projects. Tenant-sponsored projects and other development projects within the Port Area will subject to review by the City of Oakland.

SECTION 3: PURPOSE AND INTENT

The purpose of these provisions is to prescribe requirements designed to meet and further the goals of the California Integrated Waste Management Act of 1989 Assembly Bill 939 and the Alameda County Waste Reduction and Recycling Act of 1990 (Measure D). These requirements shall apply to affected projects as specified in this Resolution.

The intent of these provisions is to divert at a minimum 50% of construction and demolition (C&D) debris from landfills, process and return the materials into the economic mainstream thereby conserving natural resources and stimulating markets for recycled and salvaged materials.

The Executive Director or his/her designee is authorized to develop guidelines to implement the requirements of this Resolution, which may be amended from time to time.

SECTION 4: DEFINITIONS

For the purpose of this Resolution, the following definitions shall apply:

- a. "Addition" means an extension or increase in floor area or height of a building or structure.

- b. "Affected project" means a Port Public Works project that requires a waste reduction and recycling plan (WRRP) because it has a contract (bid) valuation greater or equal to \$50,000.
- c. "Alteration" means any change, addition or modification in construction or occupancy.
- d. "Apartment house" means any building or portion thereof that contains three or more dwelling units and, for the purpose of this Resolution, includes residential condominiums.
- e. "Appeal" means the process outlined in Section 10 of this Resolution.
- f. "Applicant" means the contractor, or representative, bidding on or awarded a Port Public Works contract.
- g. "Construction" means the manner or method of building.
- h. "Construction and demolition debris", "C&D debris", or "construction debris" means waste building materials resulting from construction, addition, remodeling, repair alteration or demolition operations.
- i. "Demolition" means deconstructing, destroying, razing, tearing down, or wrecking any facility including its foundation, covered by this Resolution. As used herein, the word "demolition" shall include any partial demolition and any interior demolition affecting more than ten percent of the replacement value of the structure as determined by the Port Permit Coordinator. Demolition work includes: (1) proper disposal of recyclables, solid waste, and hazardous materials pursuant to applicable regulations and approved plans, if any, (2) termination of utilities serving the premises including permits and final inspections and approvals, (3) removal of driveways and repair of public sidewalks, as required, and (4) site cleanup and restoration including grading, landscaping, and fencing as required.
- j. "Divert", "diverted", or "diversion" means to use C&D debris for any purpose other than disposal in a landfill, incineration facility, or alternative daily cover. Methods to divert materials from landfills include reuse, salvage, and recycling.
- k. "Diversion attainment" means at least fifty percent (50%) by weight of the total C&D debris is diverted on an affected project.
- l. "Hearing Officer" means the Port staff designated by the Executive Director to whom appeals can be made under this Resolution.

33145

"Non-affected projects" means projects that do not require a WRRP. Applicants for non-affected projects shall be encouraged to divert at least fifty percent (50%) of all project-related C&D debris.

"Port Permit Coordinator" means the Port officer or other designated authority charged with the administration and approval of construction and demolition permit applications submitted to the Port for projects in the Port Area. The Permit Coordinator is designated and authorized by the Executive Director and is responsible for implementing this Resolution.

"Recyclables" or "recycle" or "recycling" means residential, commercial, or industrial materials or by-products which are set aside, handled, packaged, or offered for collection in a manner different than solid waste for the purpose of being reused or processed and then returned to the economic mainstream in the form of commodities.

"Reuse" means recovering material for repeated use in the same form. This includes materials that are reused at the same location as they are generated.

"Salvage" means the recovering of C&D debris from a building or demolition site for the purpose of recycling, reuse, or proper storage for future recycling or reuse.

"Source separated" means recyclables that have been segregated from solid waste by or for the generator thereof on the premises at which they were generated for handling different from that of solid waste. This does not require that different types of recyclable commodities be separated from each other, except some organic recyclable material.

"Summary Report" means the report to be submitted to the Permit Coordinator at the conclusion of the affected project and prior to the final inspection, issuance of a temporary certificate of occupancy, or certificate of occupancy.

"Targeted materials" means the C&D debris listed on the WRRP form that could potentially be reused, recycled, or salvaged.

"WRRP" means waste reduction and recycling plan.

"WRRP form" means a form, provided by the Port for the purpose of compliance with this Resolution that must be submitted by the applicant for any affected project.

SECTION 5: SUBMISSION OF A WASTE REDUCTION AND RECYCLING PLAN (WRRP)

WRRP forms: For affected projects, prior to award of a Port Public Works contract, the applicant shall complete and submit a WRRP form to the Port's Permit Coordinator. The completed WRRP form shall delineate all of the following:

- (a) The estimated volume or weight of the affected project, C&D debris to be generated, listed by each type of material; and
- (b) Volume or weight of the C&D debris to be reused, salvaged or recycled listed by each type of material; and
- (c) The estimated volume or weight of C&D debris that will be landfilled listed by each type of material.

SECTION 6: REVIEW OF WRRP

- (a) Notwithstanding any other provision of this Resolution, the Port shall award no Public Works contract for any affected project prior to approval of the WRRP by the Port Permit Coordinator. Approval shall not be required if an emergency demolition is required to protect public health or safety.
- (b) Using the established guidelines, the Port Permit Coordinator shall approve a WRRP only if:
 - (1) The WRRP provides all the information set forth in Section 5 of this Resolution; and,
 - (2) The WRRP indicates that at least fifty percent (50%) by weight of all C&D debris generated by the project will be diverted; or
 - (3) The applicant demonstrates good cause as to why at least fifty percent (50%) by weight of all C&D debris generated by the project will not be diverted.

If the Port Permit Coordinator fails to approve the WRRP, he/she shall explain in writing the basis for denial.

- (c) The contractor shall submit an information copy of the approved WRRP to the City of Oakland when obtaining the building permit for the project.

SECTION 7: SUBMISSION OF A COMPLETED SUMMARY REPORT

(a) Documentation: At the conclusion of each affected project and prior to the final inspection by the Port, the applicant shall submit to the Permit Coordinator a summary report (SR), which contains the following documentation:

- (1) The actual volume or weight of C&D debris that was diverted by type of material, diversion method, and the actual volume or weight of C&D debris that was not diverted;
- (2) Any additional information the applicant believes is relevant to determining its efforts to comply in good faith with this Resolution;
- (3) Any barriers encountered that prohibited diversion of C&D debris; and
- (4) Any recommended actions that would further the efforts to recycle C&D debris.

(b) Determination of diversion: The Port Permit Coordinator shall review the information submitted under Section 7(a) to determine whether the applicant has diverted fifty percent (50%) by weight of the C&D debris based on established guidelines as follows:

- (1) Diversion goal: The applicant shall be found to have achieved a diversion goal if at least fifty percent (50%) by weight of the C&D debris generated by the affected project is diverted, and appropriate documentation as outlined in Section 7(a) is provided.
- (2) Good faith effort: When the Port Permit Coordinator determines that the affected project has not achieved the required diversion goal, he/she shall determine whether the applicant has made a good faith effort to comply with this Resolution. In making this determination, the Port Permit Coordinator may consider information submitted by the applicant, the availability of markets for the C&D debris that was not diverted, the size and type of project, the documented efforts of the applicant to divert C&D debris, and barriers encountered.

- (3) Non-attainment: The Port Permit Coordinator shall determine the affected project to have a non-attainment status if he/she determines that the applicant has not made a good faith effort to achieve diversion attainment or if the applicant fails to submit the documentation required by Section 7(a). The Port Permit Coordinator shall document all non-attainment information including applicant name, type and size of project, and any reason for non-attainment.

SECTION 8: PORT'S RIGHTS TO MONITOR AND INSPECT

- (a) Audit: The Port's Port Permit Coordinator may inspect and monitor all affected projects to determine levels of actual diversion activities and validate the information provided in the WRRP and SR.
- (b) Supporting Documentation: Applicant shall retain the receipts or weight tickets for the quantities of materials reused, salvaged, recycled and landfilled as indicated in the SR form for one year after the final inspection.
- (c) Materials Targeted for Diversion: The Executive Director or his/her designee may change the C&D debris materials targeted for diversion from time to time, based on local markets and conditions to further the intent of this Resolution.

SECTION 9: APPEALS

An appeal of the Port Permit Coordinator's decision not to approve the WRRP shall be made to the Hearing Officer according to the following appeal procedures:

- (a) Within ten calendar days after the date of a written decision by the Port Permit Coordinator to deny the WRRP, an appeal in writing from said decision must be filed with the Port Permit Coordinator by the applicant or any other Port Permit Coordinator by the applicant or any other interested party on a form prescribed by the Port Permit Coordinator. The appeal shall state specifically the error, abuse of discretion, or claim where the decision of the Port Permit Coordinator was not supported by substantial evidence in the record.
- (b) Upon receipt of the appeal, the Hearing Officer shall set the date for consideration thereof and, not less than ten (10) days prior thereto, give a written notice to the applicant

and/or appellant.

(c) In deciding the appeal, the Hearing Officer shall consider the purpose and intent, as well as the letter, of the pertinent provisions of this Resolution, and shall affirm, modify, or reverse the written decision of the Port Permit Coordinator.

(d) The written decision of the Hearing Officer shall be final.

SECTION 10: EVALUATION

The Port will evaluate the Construction and Demolition Debris Reduction and Recycling Resolution to determine its effectiveness in reducing the amount of C&D debris landfilled. In this determination, the Port will consider issues such as the amount of C&D debris landfilled, volume of construction and demolition activity, markets for C&D debris, and other barriers encountered by applicants.

SECTION 11: SEVERABILITY

In case any section or part of any section of this Resolution shall be found to be invalid for any reason, the remainder of the Resolution shall not be invalidated thereby, but in accordance with the intention of the Board hereby expressed, shall remain in full force and effect, all parts of this Resolution being hereby declared to be separable and independent of all others.

SECTION 12: EFFECTIVE DATE

This Resolution shall become effective upon adoption. Enforcement of this Resolution shall commence on May 8, 2001.

At **an adjourned regular meeting held May 8, 2001**

Passed by the following vote:

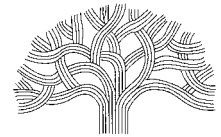
Ayes: **Commissioners Ayers-Johnson, Kiang, Protopappas, Scates, Tagami, Uribe and President Kramer - 7**

Noes: **None**

Absent: **None**

33145

Construction & Demolition Debris Waste Reduction and Recycling Plan (WRRP)



This form must be completed for the following types of projects:

- All New Construction
- Demolition, (excluding single family & duplex)
- Addition/Alteration with construction valuation exceeding \$50,000 (excluding single family & duplex)

CITY OF OAKLAND

NOTE: Building permits for affected projects will not be issued without an approved WRRP. Allow 3-5 business days for WRRP processing. A separate WRRP is required for each building permit issued. Submit WRRP with permit application to the Building Permit Counter, 250 Frank H. Ogawa Plaza, 2nd Floor. If you have questions, please call **(510) 238-SAVE (7283)**.

Application #: _____
 Project Address:(Include floor, suite, etc.): _____
 Contact Name: _____ Title: _____
 Company: _____
 Contact Mailing Address: _____
 Phone: _____ Fax: _____ Email: _____

- 1) Project Type (check one): New Construction Addition/Alteration Demolition
 2) Building Type (check one): Non-residential Single Family/Duplex Apartment
 3) Tenant Improvement (check one): Yes No (condo, live/work)

4) Size of Project _____ sq. ft Project Valuation \$ _____
 5) Estimated Start Date ___/___/___ Estimated Completion Date ___/___/___

6) **Briefly** describe project (e.g. renovate warehouse, remodel office, etc.), indicate handling method(s) for scrap/waste materials to ensure salvage/reuse or recycling, and communication method used to inform employees and subcontractors the recycling requirements. (Do not attach additional materials.)

For City Use Only:

Permit No. _____ App Filed ___/___/___ WRRP Submitted ___/___/___

Project Name _____ Permit Counter Staff Initials _____ OT

ESD Staff Initials _____ Received ___/___/___ Approved ___/___/___ Type of Assistance _____

PTS 104 305 DB ___/___/___ Applicant Contacted ___/___/___ Time Spent _____

50% Diversion Good Cause Non-Attainment Hold Placed ___/___/___

Approved Conditional Approval Not Approved Hold Removed ___/___/___

Requirement:

Reduce quantity of materials disposed at landfills by 50% or more by weight.

Instructions: From your materials take-offs estimate the total volume of construction scrap and discard to be generated. Determine how you will reuse or recycle at least 50% of that material. Consult the Builders Guide to Reuse and Recycling for vendors and recycling centers. All items on this list have the potential to be recycled.

Column A – Estimate quantity of waste/scrap for each material type & list in tons. Use Materials Conversion Worksheet, on web or in packet, for units not in tons, i.e., cy, sqft, bdf, etc.

Columns B, C, D –List estimated quantities to be reused, recycled, or disposed. $A=B+C+D$

Column E –name all vendors or facilities you plan to use for reuse, recycle or disposal of materials.

Column Totals – Add up all quantities listed in Column A, B, C and D.

Recycled Mixed Debris – See Instructions on Mixed Debris Worksheet. Do not forget the \$10.00 rebate.

Application #:

Project Address:

Material Type	A Total Quantity Discarded	B Salvage or Reuse*	C Recycling	D Disposal (non-recyclable)	E Proposed Destination(s)
<i>Example: Cardboard</i>	<i>1.5 tons</i>	<i>0.25</i>	<i>1.75</i>		<i>on site packaging & Davis St. Recycling Center</i>
Asphalt & Concrete					
Brick/ Masonry/Tile					
Cabinets/Fixtures/Windows/Doors/ Equipment (circle all that apply)					
Carpet					
Carpet Padding/Foam					
Cardboard					
Ceiling Tile (acoustic)					
Drywall (used/painted)					
Drywall (New, unpainted sheets or scrap)					
Landscape Debris (brush, chips, trees, stumps, etc.)					
Scrap Metal (all types)					
Wood, Pallets, & Lumber clean & unpainted, no pressure treated wood					
Garbage, non recyclable					
Other, indicate					
Recycled Mixed Debris §					
Column Totals(A=B+C+D)	A	B	C	D	

* See instructions for definition of Salvage/Reuse §- see instructions for Mixed Debris and Rebate Program

7. Fill in the blanks below to determine if your plan meets the City's requirement of reducing project waste by 50% or more.

Column Totals B _____ + C _____ = _____ ÷ A _____ = _____ x 100 = _____ %

8. Is the percentage listed in #7 greater than or equal to 50%? YES NO

If NO, explain why _____

Print Name: _____ Signature: _____ Date ____/____/____

Construction & Demolition Debris MATERIAL TRACKING SHEET

Material Type	A Reuse/Salvage	B Recycling	C Disposal	D Destination(s)
Example: Cardboard		1.5 cy, 2.5 cy, 3.5 cy	1.5 cy	Davis Street Recycling Center Davis Street Transfer Station
Asphalt & Concrete				
Brick/ Masonry/Tile				
Building Materials (doors, windows, fixtures, etc.)				
Carpet				
Carpet Padding/Foam (only)				
Cardboard				
Ceiling Tile (acoustic)				
Drywall (used)				
Drywall (new, unpainted sheets or scrap)				
Scrap Metal				
Unpainted Wood & Pallets				
Yard Trimmings, Brush, Trees, Stumps, etc.				
Garbage/Trash				
Other (<i>do not include dirt</i>)				
Mixed Debris Recycling				
Column Totals				

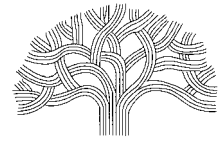
This sheet can be used prior to completing the C&D Debris Recycling Summary Report to help with recording the various materials that will be generated at each major phase of the project. Use of this sheet is optional, not required.

Construction & Demolition Debris RECYCLING PLANNING SHEET

Material Type	A Foundation			B Floor			C Frame			D Final		
	Salvage/ Reuse	Recycling	Disposal	Salvage/ Reuse	Recycling	Disposal	Salvage/ Reuse	Recycling	Disposal	Salvage/ Reuse	Recycling	Disposal
Asphalt & Concrete												
Brick/Masonry/Tile												
Building Materials (doors, Windows, fixtures,etc.)												
Carpet												
Carpet Padding/Foam (only)												
Cardboard												
Ceiling Tile (acoustic)												
Drywall (used)												
Drywall (new, unpainted sheets or scrap)												
Scrap Metal												
Unpainted Wood & Pallets												
Yard Trimmings, Brush, Trees, Stumps, etc.												
Garbage/Trash												
Other (<i>do not include dirt</i>)												
Column Totals												

This sheet can be used prior to completing the Waste Reduction & Recycling Plan (WRRP) to help with estimating the various materials that will be generated at each major phase of the project. Use of this sheet is optional, not required.

Construction & Demolition Debris Recycling Summary Report (CDSR)



CITY OF OAKLAND

This form must be completed for the following types of projects:

- All New Construction
- Demolition, (excluding single family & duplex)
- Addition/Alteration with construction valuation exceeding \$50,000 (excluding single family & duplex)

NOTE: Completed Summary Reports must be submitted prior to sign off at Final Inspection and issuance of certificate of occupancy or temporary certificate of occupancy. A separate Summary Report is required for each permit issued.

Submit completed Summary Report to the Building Inspector at Final Inspection or in advance of Final to the Building Services Counter, 250 Frank H. Ogawa Plaza, 2nd floor. If you have questions, please call **(510) 238-SAVE (7283)**.

Permit#: _____
Project Address (Include floor, suite, etc.): _____
Contact Name: _____ Title _____
Company Name: _____
Contact Mailing Address: _____
Phone: _____ Fax: _____ Email: _____

- 1) Project Type (check one): New Construction Addition/Alteration Demolition
- 2) Building Type (check one): Non-residential Single Family/Duplex Apartment (condo, live/work)
- 3) Tenant Improvement (check one): Yes No
- 4) Size of Project _____ sq. ft Project Valuation \$ _____
- 5) Completion Date ___/___/___
- 6) Do you have any suggestions for improving the program or services offered by the Recycling Program? Describe any difficulties you encountered in complying with the ordinance and tell us how to overcome that problem in the future.

For City Use Only:	Documentation Requested <input type="checkbox"/>	Documentation Provided <input type="checkbox"/>
Permit No. _____	Date submitted ___/___/___	
Inspector's Name _____	phone 238- _____	
ESD Staff Initials _____	Received ___/___/___	Type of Assistance _____
PTS <input type="checkbox"/> 305 DB ___/___/___	Applicant Contacted ___/___/___	Time Spent _____
<input type="checkbox"/> 50% Diversion	<input type="checkbox"/> Good Cause	<input type="checkbox"/> Non-Attainment
<input type="checkbox"/> Approved	<input type="checkbox"/> Not Approved	Reason: _____

**Requirement: Reduce quantity of materials disposed at landfills by 50% or more
(determined by weight)**

Column A – Total all receipts and invoices for actual quantities of materials. List ACTUAL quantities for each material type in tons. Use the Materials Conversion Worksheet provided for units other than tons. For on site reuse please include documentation.

Columns B, C, D – Indicate how items were handled in actual quantities reused, recycled, or disposed.

Column E – Name all vendors or facilities used to reuse, recycle or dispose of material listed.

Column Totals – Add up all quantities listed in Column A. Do the same for Columns B, C and D.

Recycled Mixed Debris This category is only for mixed debris loads that were taken to a recognized facility for recycling (See Mixed Debris Recycling Facilities insert). Invoices must be from approved recycling center and be coded for Mixed Debris Recycling.

Permit # _____

Project Address: _____

Material Type	A Total Quantity Discarded	B Salvage or Reuse*	C Recycling	D Disposal (non-recyclable)	E Proposed Destination(s)
<i>Example: Cardboard</i>	<i>1.5 tons</i>	<i>0.25</i>	<i>1.75</i>		<i>on site packaging & Davis St. Recycling Center</i>
Asphalt & Concrete					
Brick/ Masonry/Tile					
Cabinets/Fixtures/Windows/Doors/ Equipment (circle all that apply)					
Carpet					
Carpet Padding/Foam					
Cardboard					
Ceiling Tile (acoustic)					
Drywall (used/painted)					
Drywall (New, unpainted sheets or scrap)					
Landscape Debris (brush, chips, trees, stumps, etc.)					
Scrap Metal (all types)					
Wood, Pallets, & Lumber.(clean & unpainted, no pressure treated wood)					
Garbage (non recyclable)					
Other (indicate)					
Recycled Mixed Debris §					
Column Totals	A	B	C	D	

* See instructions for definition of Salvage/Reuse §- see instructions for Mixed Debris and Rebate Program

7. Fill in the blanks below to determine if your plan meets the City’s requirement of reducing project waste by 50% or more.

Column Totals B _____ + C _____ = _____ ÷ A _____ = _____ x 100 = _____ %

8. Is the percentage listed in #7 greater than or equal to 50%? YES NO

If NO, explain why _____

Print Name: _____ Signature: _____ Date ___/___/___

DOCUMENT 00456

REGULATORY COMPLIANCE STATEMENT

To be submitted by date and time noted in Document 00200

At the time specified in Document 00200, Instructions to Bidders, Bidder shall submit a complete and fully executed copy of this Regulatory Compliance Statement for the Port's review. The failure to submit this document as specified may be grounds for rejecting the bid as non-responsive. If the Bidder is a corporation, provide the following information for each person who is either (a) an officer of the corporation (president, vice president, secretary, treasurer), or (b) the owner of at least ten percent of the corporation's stock. If the Bidder is a partnership, provide the following information for each partner who owns 10 percent or more of the firm. If the Bidder is a joint venture, provide the following information for each firm that is a member of the joint venture.

1. At the time of submitting this form, is your firm ineligible to bid on or be awarded a public works contract, or perform as a subcontractor on a public works contract, pursuant to either Labor Code section 1777.1 or Labor Code section 1777.7?

Yes No

If the answer is "Yes," state the beginning and ending dates of the period of debarment:

2. Has CAL OSHA cited and assessed penalties against your firm for any "serious," "willful" or "repeat" violations of its safety or health regulations in the past five years?

NOTE: If you have filed an appeal of a citation, and the Occupational Safety and Health Appeals Board has not yet ruled on your appeal, you need not include information about it.

Yes No

If "yes," attached a separate signed page describing the citations, including information about the dates of the citations, the nature of the violation, the project on which the citation(s) was or were issued, the amount of penalty paid, if any. If the citation was appealed to the Occupational Safety and Health Appeals Board and a decision has been issued, state the case number and the date of the decision.

3. Has the federal Occupational Safety and Health Administration cited and assessed penalties against your firm in the past five years?

NOTE: If you have filed an appeal of a citation and the Appeals Board has not yet ruled on your appeal, or if there is a court appeal pending, you need not include information about the citation.

Yes No

If "yes," attach a separate signed page describing each citation.

4. Has the EPA or any Air Quality Management District or any Regional Water Quality Control Board cited and assessed penalties against either your firm or the owner of a project on which your firm was the contractor, in the past five years?

NOTE: If you have filed an appeal of a citation and the Appeals Board has not yet ruled on your appeal, or if there is a court appeal pending, you need not include information about the citation.

Yes No

If "yes," attach a separate signed page describing each citation.

5. Within the last five years has there ever been a period when your firm had employees but was without workers' compensation insurance or state-approved self-insurance?

Yes No

If "yes," please explain the reason for the absence of workers' compensation insurance on a separate signed page. If "No," please provide a statement by your current workers' compensation insurance carrier that verifies periods of workers' compensation insurance coverage for the last five years. (If your firm has been in the construction business for less than five years, provide a statement by your workers' compensation insurance carrier verifying continuous workers' compensation insurance coverage for the period that your firm has been in the construction business.)

Prevailing Wage and Apprenticeship Compliance Record

6. Has there been more than one occasion during the last five years in which your firm was required to pay either back wages or penalties for your own firm's failure to comply with the **state's** prevailing wage laws?

NOTE: This question refers only to your own firm's violation of prevailing wage laws, not to violations of the prevailing wage laws by a subcontractor.

Yes No

If "yes," attach a separate signed page or pages, describing the nature of each violation, identifying the name of the project, the date of its completion, the public agency for which it was constructed; the number of employees who were initially underpaid and the amount of back wages and penalties that you were required to pay.

7. During the last five years, has there been more than one occasion in which your own firm has been penalized or required to pay back wages for failure to comply with the **federal** Davis-Bacon prevailing wage requirements?

Yes No

If "yes," attach a separate signed page or pages describing the nature of the violation, identifying the name of the project, the date of its completion, the public agency for which it was constructed; the number of employees who were initially underpaid, the amount of back wages you were required to pay along with the amount of any penalty paid.

8. At any time during the last five years, has your firm been found to have violated any provision of California apprenticeship laws or regulations, or the laws pertaining to use of apprentices on public works?

NOTE: You may omit reference to any incident that occurred prior to January 1, 1998, if the violation was by a subcontractor and your firm, as general contractor on a project, had no knowledge of the subcontractor's violation at the time they occurred.

Yes No

If "yes," provide the date(s) of such findings, and attach copies of the Department's final decision(s).

Criminal Matters and Related Civil Suits

9. Has your firm or any of its owners, officers or partners ever been found liable in a civil suit or found guilty in a criminal action for making any false claim or material misrepresentation to any public agency or entity?
 Yes No
If "yes," explain on a separate signed page, including identifying who was involved, the name of the public agency, the date of the investigation and the grounds for the finding.
10. Has your firm or any of its owners, officers or partners ever been convicted of a crime involving any federal, state, or local law related to construction?
 Yes No
If "yes," explain on a separate signed page, including identifying who was involved, the name of the public agency, the date of the conviction and the grounds for the conviction.
11. Has your firm or any of its owners, officers or partners ever been convicted of a federal or state crime of fraud, theft, or any other act of dishonesty?
 Yes No
If "yes," identify on a separate signed page the person or persons convicted, the court (the county if a state court, the district or location of the federal court), the year and the criminal conduct.
12. Did your firm earn average gross revenues equal to or greater than \$50 million in the last three years?
 Yes No

* * * * *

I, the undersigned, certify and declare that I have read all the foregoing answers to this Regulatory Compliance Statement and know their contents. The matters stated in the questionnaire answers are true of my own knowledge and belief, except as to those matters stated on information and belief, and as to those matters I believe them to be true. I declare under penalty of perjury under the laws of the State of California, that the foregoing is correct.

Dated:

(Name)

ATTACHMENT A

PORT OF OAKLAND Regulatory Compliance Statement

Rating Guidelines

This document establishes the guidelines for evaluating a bidder's responses to the Port's Regulatory Compliance Statement ("RCS"). The Port will review the bidder's RCS upon receipt to determine whether it contains any responses that would render the bidder non-responsible. A satisfactory rating, in accordance with these guidelines, is a necessary prerequisite for a contractor to be found responsible. A satisfactory rating, however, is not in itself sufficient for a bidder to be found responsible. The RCS addresses only a portion of the issues which may be indicative of bidder non-responsibility. Many other issues, such as experience, technical capacity, and financial capacity, may also reflect on a bidder's responsibility. The Port may find a bidder non-responsible for any reason that is supported by substantial evidence.

Scoring the Responses

The Port will apply the following scores to each bidder's RCS:

Question 1: Any answer other than an unqualified "no" establishes that the bidder is non-responsible.

Question 2:

Has CAL OSHA cited and assessed penalties against your firm for any "serious," "willful" or "repeat" violations of its safety or health regulations in the past five years?

If the firm's average gross revenues for the last three years was less than \$50 million, scoring is as follows:

5 points for either "No" or "Yes" indicating 1 such instance.

3 points for "Yes" indicating 2 such instances.

0 points for "Yes" if more than 2 such instances.

If the firm's average gross revenues for the last three years was more than \$50 million, scoring is as follows:

5 points for either "No" or "Yes" indicating 1, 2, or 3 such instances.

3 points for "Yes" indicating either 4 or 5 such instances.

0 points for "Yes" if more than 5 such instances.

Question 3:

Has the federal Occupational Safety and Health Administration cited and assessed penalties against your firm in the past five years?

If the firm's average gross revenues for the last three years was less than \$50 million, scoring is as follows:

**5 points for either “No” or “Yes” indicating 1 such instance.
3 points for “Yes” indicating 2 such instances.
0 points for “Yes” or if more than 2 such instances.**

If the firm’s average gross revenues for the last three years was more than \$50 million, scoring is as follows:

**5 points for either “No” or “Yes” indicating 1, 2, or 3 such instances.
3 points for “Yes” indicating either 4 or 5 such instances.
0 points for “Yes” if more than 5 such instances.**

Question 4

Has the EPA or any Air Quality Management District or any Regional Water Quality Control Board cited and assessed penalties against either your firm or the owner of a project on which your firm was the contractor, in the past five years?

If the firm’s average gross revenues for the last three years was less than \$50 million, scoring is as follows:

**5 points for either “No” or “Yes” indicating 1 such instance.
3 points for “Yes” indicating 2 such instances.
0 points for “Yes” or if more than 2 such instances.**

If the firm’s average gross revenues for the last three years was more than \$50 million, scoring is as follows:

**5 points for either “No” or “Yes” indicating 1, 2, or 3 such instances.
3 points for “Yes” indicating either 4 or 5 such instances.
0 points for “Yes” if more than 5 such instances.**

Question 5

Within the last five years, has there ever been a period when your firm had employees but was without workers’ compensation insurance or state-approved self-insurance?

Yes No

**5 points for either “No” or “Yes” indicating 1 such instance.
0 points for any other answer.**

Question 6

Has there been more than one occasion during the last five years on which your firm was required to pay either back wages or penalties for your own firm’s failure to comply with the **state’s** prevailing wage laws?

Yes No

NOTE: This question refers only to your own firm’s violation of prevailing wage laws, not to violations of the prevailing wage laws by a subcontractor.

If your firm’s average gross revenues for the last three years was less than \$50 million, scoring is as follows:

5 points for either “No,” or “Yes” indicating either 1 or 2 such instance.
3 points for “Yes” indicating 3 such instances.
0 points for “Yes” and more than 3 such instances.

If your firm’s average gross revenues for the last three years was more than \$50 million, scoring is as follows:

5 points for either “No” or “Yes” indicating no more than 4 such instances.
3 points for “Yes” indicating either 5 or 6 such instances.
0 points for “Yes” and more than 6 such instances.

Question 7

During the last five years, has there been more than one occasion on which your own firm has been penalized or required to pay back wages for failure to comply with the federal Davis-Bacon prevailing wage requirements?

If your firm’s average gross revenues for the last three years was less than \$50 million, scoring is as follows:

5 points for either “No,” or “Yes” indicating either 1 or 2 such instance.
3 points for “Yes” indicating 3 such instances.
0 points for “Yes” and more than 3 such instances.

If your firm’s average gross revenues for the last three years was more than \$50 million, scoring is as follows:

5 points for either “No” or “Yes” indicating no more than 4 such instances.
3 points for “Yes” indicating either 5 or 6 such instances.
0 points for “Yes” and more than 6 such instances.

Question 8

At any time during the last five years, has your firm been found to have violated any provision of California apprenticeship laws or regulations, or the laws pertaining to use of apprentices on public works?

If your firm’s average gross revenues for the last three years was less than \$50 million, scoring is as follows:

5 points for either “No,” or “Yes” indicating either 1 or 2 such instance.
3 points for “Yes” indicating 3 such instances.
0 points for “Yes” and more than 3 such instances.

If your firm’s average gross revenues for the last three years was more than \$50 million, scoring is as follows:

5 points for either “No” or “Yes” indicating no more than 4 such instances.
3 points for “Yes” indicating either 5 or 6 such instances.
0 points for “Yes” and more than 6 such instances.

Question 9

Has your firm, or any of its owners, officers, or partners ever been found liable in a civil suit, or found guilty in a criminal action, for making any false claim or material misrepresentation to any public agency or entity?

Yes No

No = 5 points Yes = subtract 5 points

Question 10

Has your firm, or any of its owners, officers or partners ever been convicted of a crime involving any federal, state, or local law related to construction?

Yes No

No = 5 points Yes = subtract 5 points

Question 11

Has your firm or any of its owners, officers or partners ever been convicted of a federal or state crime of fraud, theft, or any other act of dishonesty?

Yes No

No = 5 points Yes = subtract 5 points

Question 12

No score.

Determination of Non-Responsibility

After tabulating the bidders score in accordance with these guidelines, the Port staff will make a recommendation to the Board or other decision-maker as to whether the bidder should be determined to be non-responsible based on its responses to the RCS. A bidder whose RCS yields a score equal to or less than 65% of the maximum available points should be deemed non-responsible. However, the RCS form does not address each and every issue that bears on the question of bidder responsibility. Therefore, the Port reserves the right to determine that any bidder is non-responsible on other grounds. The Port will provide a bidder notice and an opportunity to respond to the extent required by law prior to making a final determination that a bidder is non-responsible.

END OF DOCUMENT

DOCUMENT 00481

NON COLLUSION AFFIDAVIT

Public Contract Code § 7106

**NON COLLUSION AFFIDAVIT TO BE EXECUTED BY THE BIDDER AND
SUBMITTED WITH THE BID**

STATE OF CALIFORNIA)
) ss.
COUNTY OF _____)

_____, being first duly sworn, deposes and says that he or she is _____ of _____, the party making the foregoing bid, that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the Bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication or conference with anyone to fix the bid price of the Bidder or any other bidder, or to fix any overhead, profit or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the City of Oakland, a municipal corporation, acting by and through its Board of Port Commissioners, or anyone interested in the proposed contract; that all statements contained in the bid are true; and further, that Bidder has not, directly or indirectly, submitted its bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

Executed under penalty of perjury under the laws of the State of California.

(Name of Bidder)

(Signature of Principal)

Subscribed and sworn before me this ___ day of _____, 200__

Notary Public of the State of _____ (Seal)
In and for the County of _____
My Commission expires _____

(If Bidder is a partnership or joint venture, this affidavit must be signed and sworn to by every member of the partnership or venture.)

(If Bidder [including any partner or venturer of a partnership or joint venture Bidder] is a corporation, this affidavit must be signed by the Chairman, President or Vice President

and by the Secretary, Assistant Secretary, Chief Financial Officer or Assistant Treasurer.)

(If Bidder's affidavit on this form is made outside the State of California, the official position of the person taking such affidavit shall be certified according to law.)

END OF DOCUMENT

DOCUMENT 00482

**BIDDER CERTIFICATIONS
PORT OF OAKLAND
TO BE EXECUTED BY ALL BIDDERS AND SUBMITTED WITH BID**

The undersigned Bidder hereby certifies to the City of Oakland, a municipal corporation, acting by and through its Board of Port Commissioners, as set forth in Paragraphs 1 through 7 below:

1. CERTIFICATE OF NON-DISCRIMINATION

By my signature hereunder, on behalf of the bidder making this Bid, the undersigned certifies that there will be no discrimination in employment with regard to race, color, religion, sex, sexual orientation, or national origin; that all federal, state, and local directives and executive orders regarding non-discrimination in employment will be complied with; and that the principle of equal opportunity in employment will be demonstrated positively and aggressively.

2. STATEMENT OF CONVICTIONS

By my signature hereunder, I hereby swear, under penalty of perjury, that no more than one final, unappealable finding of contempt of court by a Federal Court has been issued against me within the past two years because of failure to comply with an order of a Federal Court or to comply with an order of the National Labor Relations Board.

3. PREVIOUS DISQUALIFICATIONS

By my signature hereunder, I hereby swear, under penalty of perjury, that the below indicated bidder, any officer of such bidder, or any employee of such bidder who has a proprietary interest in such bidder, has never been disqualified, removed or otherwise prevented from bidding on, or completing a Federal, State, or local government project because of a violation of law or a safety regulation except as indicated on the separate sheet attached hereto entitled "Previous Disqualifications. If such exceptions are attached, please explain the circumstances.

4. CERTIFICATION REGARDING NO CONTINGENCY FEE

By my signature hereunder, on behalf of the bidder making this Bid, the undersigned represents and warrants that no person or agency has been employed or retained to solicit or obtain the contract which is the subject of this Bid upon an agreement or understanding for a contingent fee, except a bona fide employee or agency. For breach or violation of this representation and warranty, the Port, at its option, may annul any such contract or deduct therefrom the price or otherwise recover from Bidder the full amount of the contingent fee.

As used in this Certification, "bona fide agency" means an established commercial or selling agency, maintained by Bidder for the purpose of securing business, that neither exerts nor proposes to exert improper influence to solicit or to obtain Port contracts nor holds itself out as being able to obtain any Port contract or contracts through improper influence.

As used in this Certification, "bona fide employee" means a person, employed by bidder and subject to bidder's supervision and control as to time, place and manner of performance, who neither exerts nor proposes to exert improper influence to solicit or to obtain Port contracts nor holds itself out as being able to obtain any Port contract or contracts through improper influence.

As used in this Certification, "contingent fee" means any commission, percentage, brokerage, or other fee that is contingent upon the success that a person or concern has in securing a Port contract.

As used in this Certification, "improper influence" means any influence that induces or tends to induce a Port Commissioner, employee or officer to give consideration or to act regarding a Port contract on any basis other than the merits of the matter.

5. CERTIFICATION REGARDING NON-DISCRIMINATION AND SMALL/LOCAL BUSINESS UTILIZATION POLICY

On behalf of the bidder making this Bid, the undersigned represents, warrants and covenants that (a) the Bidder has received and reviewed a copy of the Port of Oakland's "Non-Discrimination and Small/Local Business Utilization Policy" and Regulations thereto dated as of October 6, 1997, (b) in all matters in connection with its Bid the Bidder has complied with, and that if it is awarded the contract in the future it shall comply with, all aspects of the foregoing Policy and Regulations, including without limitation, in the hiring of Bidder's employees and its subcontractors, and (c) the Bidder shall provide all information reasonably requested by the Port to verify compliance with such matters.

6. CERTIFICATION OF WORKER'S COMPENSATION INSURANCE

By my signature hereunder, as Contractor, I certify that I am aware of the provisions of Section 3700 of the Labor Code which require every employer to be insured against liability for worker's compensation or to undertake self-insurance in accordance with the provisions of that Code, and I will comply with such provisions before commencing the performance of the work of this Contract.

7. CERTIFICATION OF PREVAILING WAGE RATES AND RECORDS

By my signature hereunder, as the Contractor, I certify that I am aware of the provisions of Section 1773 of the Labor Code which requires the payment of prevailing wage on public projects. Also, that the Contractor and any subcontractors under the Contractor shall comply with Section 1776, regarding wage records, and with Section 1777.5, regarding the employment and training of apprentices, of the Labor Code. It is the Contractor's responsibility to ensure compliance by any and all subcontractors performing work under this Contract.

Bidder:

[Insert Name of Bidder]

By: _____
[Signature]

Name: _____
[Printed Name]

Its: _____
[Title]

Dated: _____

END OF DOCUMENT

DOCUMENT 00510

NOTICE OF AWARD

Dated _____

TO: _____

ADDRESS: _____

PORT CONTRACT NO. 2006-03-M1

PROJECT: PAVING A 21-ACRE CONTAINER YARD WITHIN THE
MARITIME SUPPORT CENTER AREA
OAKLAND, CALIFORNIA

The Contract Sum of your contract is _____
Dollars (\$ _____).

Three copies of each of the Contract Documents (except Plans) accompany this Notice of Award. Ten sets of the Project Manual and Plans will be delivered separately or otherwise made available to you.

Upon receipt of this Notice of Award, you and each of your subcontractors who employ workers in any apprenticeable craft or trade, shall apply to the joint apprenticeship committee administering the apprenticeship standards of the craft or trade for a certificate approving you and your subcontractors under the apprenticeship standards for the employment and training of apprentices, in accordance with section 1777.5 of the California Labor Code.

Upon commencement of the work, you and each of your subcontractors shall certify and make available for inspection payroll records on forms provided by the Division of Labor Standards Enforcement, in accordance with section 1776 of the California Labor Code.

You must comply with the following conditions precedent within twenty (20) calendar days of your receipt of this Notice of Award, that is by _____, 200__.

1. You must deliver to Port three fully executed counterparts of Document 00520, Agreement. Each of the Contract Documents must bear your signature on the cover.
2. You must deliver to Port Document 00610, Construction Contract Performance Bond, executed by you and your surety.
3. You must deliver to Port Document 00620, Construction Labor and Material Payment Bond, executed by you and your surety.

4. You must deliver Document 00630, Letter of Assent, executed by the Contractor and by all other "Contractors" (as such term is defined in the Port of Oakland Maritime and Aviation Project Labor Agreement (See Document 00823)) who are covered by the Project Labor Agreement.
5. You must deliver to Port the insurance forms, documents and certificates required under Document 00200, Instructions to Bidders, including without limitation, Aon Form 1, Aon Form 2, and Aon Form 3. All forms to be submitted under the Project Insurance Manual shall correspond to the version in effect under the Project Insurance Manual provided to you by the Port.
6. You must deliver to the Port a resume or outline of the safety and health qualifications and experience for the Safety Representative listed by you on Document 00420, Contractor Registration And Safety Experience Form.

Further, you may deliver any requests for substitution within thirty-five (35) days of the date of this Notice of Award, that is by _____, 200__.

Failure to comply with these conditions within the time specified will entitle Port to consider your Bid abandoned, to annul this Notice of Award, and to declare your Bid Security forfeited.

Within twenty (20) days after you comply with those conditions, Port will return to you one fully signed counterpart of the Agreement.

CITY OF OAKLAND, a municipal corporation, acting by and through its Board of Port Commissioners

BY: _____
DAVID L. ALEXANDER, Port Attorney

Authorized by
Port Resolution No. _____

Adopted: _____

COPY OF RESOLUTION NO. _____

cc: La Shaa Gatlin
Mimi Lee
Lila Zinn
Thomas LaBasco

END OF DOCUMENT

DOCUMENT 00520

AGREEMENT

THIS AGREEMENT, made this ____ day of _____, ____ by _____ and _____ whose place of business is located at _____ (the "Contractor"), and the CITY OF OAKLAND, a municipal corporation, acting by and through its BOARD OF PORT COMMISSIONERS (the "Port"), acting under and by virtue of the authority vested in the City of Oakland by the laws of the State of California.

WHEREAS, the Port, by its Resolution No. _____, adopted on the _____ day of _____, _____, awarded to the Contractor the following contract:

Port Contract: 2006-03-M1

PAVING A 21-ACRE CONTAINER YARD WITHIN THE
MARITIME SUPPORT CENTER AREA
OAKLAND, CALIFORNIA

NOW, THEREFORE, in consideration of the mutual covenants hereinafter set forth, the Contractor and the Port agree as follows:

ARTICLE 1. Work

- 1.1 The Contractor shall complete all Work specified in the Contract Documents, in accord with the Plans, Specifications, and all other terms and conditions of the Contract Documents.

ARTICLE 2. Architect/Engineer, Chief Engineer, Construction Manager

- 2.1 The Project has been designed by, and Plans and Specifications have been prepared by or under the direction of HPA, Inc., who shall have the limited rights assigned to Architect/Engineer to the extent provided in the Contract Documents.
- 2.2 The Port has designated its Chief Engineer, who shall represent the Port in all matters relating to the Contract Documents. The Chief Engineer shall have final authority over all matters pertaining to the Contract Documents, and shall have sole authority to modify the Contract Documents on behalf of the Port, to accept work, and to make decisions or actions binding on the Port, and shall have sole signature authority on behalf of the Port, provided that the Chief Engineer's actions are subject to Port Ordinance No. 1606, as amended.
- 2.3 The Port's Chief Engineer has designated a Port Resident Engineer, to have charge of the execution and inspection of the Work of the Contract Documents. The specific duties of the Resident Engineer are set forth in 01310 Job Site Administration.

- 2.4 The Board of Port Commissioners may assign all or part of the Chief Engineer's rights, responsibilities and duties to a Construction Manager. The specific duties of the Construction Manager are set forth in Section 01310 Job Site Administration.

ARTICLE 3. Contract Times and Liquidated Damages

3.1 Contract Time

The Work shall be Substantially Complete within sixty-three (64) calendar days from the date when the Contract Time commences to run as provided in Section 00700, General Conditions.

The Work will be Finally Complete and ready for final payment in accordance with Section 01770, Contract Closeout within ninety-four (94) calendar days from the date when the Contract Time commences to run as provided in Document 00700, General Conditions.

Refer to Section 15.2.4 in Document 0700, General Conditions, regarding adverse weather days.

- 3.2 Work Order. The Contractor shall complete the work and/or portions of the work in full compliance with phases or stages of construction set forth in the Plans and in Section 01100, Summary of Work.

- 3.3 Liquidated Damages. The Port and the Contractor recognize that time is of the essence of this Agreement and that the Port will suffer financial loss in the form of contract administration expenses (including project management and consultant's expenses) if Work is not completed within the time specified above, plus any extensions thereof allowed in accordance with the Contract Documents. Consistent with Section 15.5 of Document 00700 General conditions, the Contractor and the Port agree that because of the nature of the Project, it would be impractical or extremely difficult to fix the amount of actual damages incurred by the Port because of a delay in completion of the Work (including a delay in the achievement of an event in the Milestone Schedule specified herein). Accordingly, the Port and Contractor agree that as liquidated damages for delay the Contractor shall pay the Port:

3.3.1 Six Thousand Dollars (\$6,000.00) for each day or portion thereof that expires after the time specified herein for the Contractor to Achieve Substantial Completion, until Work is Substantially Complete

3.3.2 Two Thousand Dollars (\$2,000.00) for each day or fraction thereof that expires after the time specified herein for the Contractor to achieve Final Completion, until Work is Finally Complete.

These measures of liquidated damages shall apply cumulatively and shall be presumed to be, except as provided below, the damages suffered by the Port resulting from delay in completion of work.

- 3.4 Liquidated damages for delay shall only cover administrative, overhead, general loss of public use damages, interest on bonds and lost revenues, suffered by the Port as a result of delay. Liquidated damages shall not cover the cost of completion of the Work,

damages resulting from defective work, costs of substitute facilities or damages suffered by others who then seek to recover their damages from the Port (for example, delay claims of other contractors, subcontractors, tenants, or third-parties, and defense costs thereof). Liquidated damage measures may be subject to reduction based on Port's actual possession and use of partially completed facilities in accordance with Section 01100, "Summary of Work".

ARTICLE 4. Contract Sum

- 4.1 The Port shall pay the Contractor the Contract Sum for completion of Work in accordance with the Contract Documents as set forth in Contractor's Bid Form, Document 00400, which is attached hereto. The Contract Sum shall be paid to the Contractor in accordance with the Contract Documents, including, without limitation, Section 1200, Measurement and Payment.

ARTICLE 5. The Contractor's Representations and Warranties

In order to induce the Port to enter into this Agreement, the Contractor makes the following representations and warranties:

- 5.1 The Contractor has visited the Site and has examined thoroughly and understood the nature and extent of the Contract Documents, Work, Site, locality, actual conditions, as-built conditions, and all local conditions, and federal, state and local laws and regulations that in any manner may affect cost, progress, performance or furnishing of Work or which relate to any aspect of the means, methods, techniques, sequences or procedures of construction to be employed by the Contractor and safety precautions and programs incident thereto.
- 5.2 The Contractor has examined thoroughly and understood all reports of exploration and tests of subsurface conditions, as built-drawings, drawings or reports, available for Bidding purposes, of physical conditions, including Underground Facilities, which are identified in Document 00320 Existing Conditions and Geotechnical Data or in Document 00340 Hazardous Materials Surveys, or which may appear in the Plans, and accepts the determination set forth in these documents and Document 00700 General Conditions of the limited extent of the information contained in such reports and drawings upon which the Contractor may be entitled to rely. The Contractor agrees that except for the information so identified, the Contractor does not and shall not rely on any other information contained in such reports and drawings.
- 5.3 The Contractor has conducted or obtained and has understood all such examinations, investigations, explorations, tests, reports and studies (in addition to or to supplement those referred to in Article 5.2 above) which pertain to the subsurface conditions, as-built conditions, Underground Facilities and all other physical conditions at contiguous to the Site or otherwise which may affect the cost, progress, performance or furnishing of Work, as the Contractor considers necessary for the performance or furnishing of Work at the Contract Sum, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of the General Conditions; and no additional examinations, investigations, explorations, tests, reports, studies or similar information or data are or will be required by the Contractor for such purposes.

- 5.4 The Contractor has correlated its knowledge and the results of all such observations, examinations, investigations, explorations, tests, reports and studies with the terms and conditions of the Contract Documents.
- 5.5 The Contractor has given the Port prompt written notice of all conflicts, errors, ambiguities or discrepancies that it has discovered in or among the Contract Documents and as-built and actual conditions and the written resolution thereof through Addenda issued by the Port is acceptable to the Contractor.
- 5.6 The Contractor is duly organized, validly existing and in good standing under applicable state law, and is duly qualified to conduct business in the State of California.
- 5.7 The Contractor has duly authorized the execution, delivery and performance of this Agreement, the other Contract Documents and the Work to be performed thereunder. The Contract Documents do not violate or create a default under any instrument, agreement, order or decree binding on the Contractor.
- 5.8 The Contractor hereby remakes all of the representations, warranties, certifications and other statements contained in Document 00482 Bidder Certifications, all of which are incorporated herein by this reference as if fully stated in this place.

ARTICLE 6. Contract Documents

- 6.1 Pursuant to Port Ordinance No. 1606, §18, the Port of Oakland Standard Contract Provisions are incorporated by reference into the Contract Documents to the extent approved by the Board. Contract Documents consist of the following documents, including all changes, addenda and modifications thereto, as listed on Document 00010, Table of Contents:

Document 00510	Notice of Award
Document 00520	Agreement
Document 00550	Notice to Proceed
Document 00610	Performance Bond
Document 00620	Labor and Material Bond
Document 00630	Letter of Assent
Document 00650	Agreement and Release of Any and All Claims
Document 00680	Escrow Agreement
Document 00700	General Conditions
Document 00805	Supplemental General Conditions – HazMat
Document 00810	Non-Discrimination and Small/Local Business Utilization Policy
Document 00815	Non-Discrimination in Construction Workforce Policy
Document 00822	Apprenticeship Program
Document 00823	Port of Oakland Maritime and Aviation Project Labor Agreement
Document 00824	Port of Oakland Aviation and Maritime Project Labor Agreement (MAPLA) Substance Abuse Prevention Policy, Drug Testing
Document 00825	Social Justice Labor Management Cooperation Trust Fund

Document 00826	Maritime and Aviation Project Labor Agreement (MAPLA) Summary of Utilization of Off-Site Apprentice Work Force
Document 00830	Project Insurance Manual
Document 00831	Construction Safety Standards Manual
Document 00910	Addenda
Specifications	Divisions 1 through 16
Plans listed in Document 00015	

- 6.2 There are no Contract Documents other than those listed above in this Article 6. Document 00320 Existing Conditions and Geotechnical Data, and Document 00340 Hazardous Materials Surveys, and the information supplied through these documents, are not Contract Documents. The Contract Documents may only be amended, modified or supplemented as provided in Document 00700 General Conditions.

ARTICLE 7. Miscellaneous

- 7.1 Except as set forth herein, terms used in this Agreement are defined in Document 00700 General Conditions, and Section 01420 References and Definitions of the Specifications, and will have the meaning indicated therein.
- 7.2 It is understood and agreed that in no instance are the persons signing this Agreement for or on behalf of the Port, or acting as an employee or representative of the Port, liable on this Agreement, or any of the Contract Documents, or upon any warranty of authority or otherwise, and it is further understood and agreed that liability of the Port is limited and confined to such liability as authorized or imposed by the Contract Documents or applicable law.
- 7.3 In entering into a public works contract or a sub-contract to supply goods, services or materials pursuant to a public works contract, the Contractor or subcontractor offers and agrees to assign to the awarding body all rights, title and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. § 15) or under the Cartwright Act (Chapter 2 (commencing with Section 16700) of Part 2 of Division 7 of the Business and Professions Code) arising from purchases of goods, services or materials pursuant to the public works contract or the sub-contract. This assignment shall be made and become effective at the time the Port tenders final payment to the Contractor, without further acknowledgment by the parties.
- 7.4 Copies of the general prevailing rates of per diem wages for each craft, classification, or type of worker needed to execute the Contract, as determined by Director of the State of California Department of Industrial Relations, are deemed included in the Contract Documents and on file at the Port's offices, and shall be made available to any interested party on request. Pursuant to Section 1861 of the Labor Code, the Contractor represents that it is aware of the provisions of Section 3700 of the Labor Code which require every employer to be insured against liability for worker's compensation or to undertake self-insurance in accordance with the provisions of that Code, and the Contractor shall comply with such provisions before commencing the performance of the Work of the Contract Documents.
- 7.5 This Agreement and the Contract Documents shall be deemed to have been entered into in the City of Oakland, County of Alameda, State of California, and shall be

governed in all respects by California law (excluding choice of law rules). Venue for all disputes or litigation hereunder shall be Alameda County.

IN WITNESS WHEREOF the parties hereto have executed this Agreement in **[triplicate]** the day and year first above written.

CONTRACTOR:

By: _____
Signature

Its: _____
Name and Title (If Corporation: Chairman,
President or Vice President)

By: _____
Signature

Its: _____
Name and Title (If Corporation: Secretary,
Assistant Secretary, Chief Financial Officer or
Assistant Treasurer)

PORT:

CITY OF OAKLAND, a municipal corporation, acting
by and through its Board of Port Commissioners,

By: _____
JERRY A. BRIDGES, Executive Director

Attest: _____
JOHN T. BETTERTON, Secretary

Approved as to form and legality this ____
day of _____, 200__

DAVID L. ALEXANDER, Port Attorney

Port Resolution No. _____
P. A. NO. _____

END OF DOCUMENT

DOCUMENT 00550

NOTICE TO PROCEED

Dated: _____, _____

TO: _____
(Contractor)

ADDRESS: _____

RE: PORT CONTRACT NO.: 2006-03- M1

CONTRACT FOR: PAVING A 21-ACRE CONTAINER YARD WITHIN THE
MARITIME SUPPORT CENTER AREA
OAKLAND, CALIFORNIA

You are notified that the Contract Time under the above contract will commence to run on _____, _____. By that date, you are to start performing your obligations under the Contract Documents. In accordance with Article 3 of Document 00520, Agreement, the date of Substantial Completion is _____ and the date of Final Completion is _____.

Before you may start any Work at the site, you must:

CITY OF OAKLAND, a municipal corporation, acting
by and through its Board of Port Commissioners

By: _____
_____, Chief Engineer

END OF DOCUMENT

DOCUMENT 00610

CONSTRUCTION PERFORMANCE BOND

THIS CONSTRUCTION PERFORMANCE BOND ("Bond") is dated _____ is in the penal sum of one hundred percent (100%) of the Contract Sum, which is _____ Dollars (\$_____), and is entered into by and between the parties listed below to ensure the faithful performance of the Construction Contract listed below. This Bond consists of this page and the Bond Terms and Conditions, Sections 1 through 12, attached to this page. Any singular reference to _____ (the "Contractor"), _____ (the "Surety"), City of Oakland, a municipal corporation, acting by and through its Board of Port Commissioners (the "Port") or other party shall be considered plural where applicable.

CONTRACTOR:

SURETY:

Name

Name

Address

Principal Place of Business

OWNER:

CONSTRUCTION CONTRACT:

CITY OF OAKLAND,
A Municipal Corporation, By and
Through Its Board of Port Commissioners

Paving a 21-Acre Container Yard Within the
Maritime Support Center Area
Oakland, California

Address: 530 Water Street
Oakland, CA 94607
Attention: Port Attorney

DATED _____, 200__ in the
amount of \$_____.
Contract No. 2006-03-M1

CONTRACTOR AS PRINCIPAL
Company:

SURETY
Company:

Signature: _____

Signature: _____

Name and Title: _____

Name and Title: _____

Address

Contact Person

Telephone Number

Approved as to Form and Legality this ____ day of
_____, 200__

_____, Port Attorney

BOND TERMS AND CONDITIONS

1. The Contractor and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Port for the complete and proper performance of the Construction Contract, which is incorporated herein by reference.
2. If the Contractor completely and properly performs all of its obligations under the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond.
3. If there is no Port Default, the Surety's obligation under this Bond shall arise after:
 - 3.1 The Port has declared a Contractor Default under the Construction Contract pursuant to the terms of the Construction Contract; and
 - 3.2 The Port has agreed to pay the Balance of the Contract Sum to:
 - 3.2.1 The Surety in accordance with the terms of this Bond and the Construction Contract; or
 - 3.2.2 To a contractor selected to perform the Construction Contract in accordance with the terms of this Bond and the Construction Contract.
4. When the Port has satisfied the conditions of Section 3, the Surety shall promptly (within thirty (30) days) and at the Surety's expense elect to take one of the following actions:
 - 4.1 Arrange for the Contractor, with consent of the Port, to perform and complete the Construction Contract (but Port may withhold consent, in which case the Surety must elect an option described in Sections 4.2, 4.3 or 4.4, below); or
 - 4.2 Undertake to perform and complete the Construction Contract itself, through its agents or through independent contractors; or
 - 4.3 Obtain bids from qualified contractors acceptable to the Port for a contract for performance and completion of the Construction Contract, and, upon determination by the Port of the lowest responsible bidder, arrange for a contract to be prepared for execution by the Port and the contractor selected with the Port's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract; and, if the Surety's obligations defined in Section 6, below, exceed the Balance of the Contract Sum, then the Surety shall pay to the Port the amount of such excess; or
 - 4.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor acceptable to the Port and with reasonable promptness under the circumstances, and, after investigation and consultation with the Port, determine in good faith the amount for which it may then be liable to the Port under Section 6, below, for the performance and completion of the Construction Contract and, as soon as practicable after the amount is determined, tender payment therefor to the Port with full explanation of the payment's calculation. If the Port accepts the Surety's tender under this Section 4.4, the Port may still hold Surety liable for future damages then unknown or unliquidated resulting from the Contractor Default. If the Port disputes the amount of

Surety's tender under this Section 4.4, the Port may exercise all remedies available to it at law to enforce the Surety's liability under Section 6, below.

5. If the Surety does not proceed as provided in Section 4, above, then the Surety shall be deemed to be in default on this Bond ten (10) days after receipt of an additional written notice from the Port to the Surety demanding that the Surety perform its obligations under this Bond. At all times the Port shall be entitled to enforce any remedy available to the Port at law or under the Construction Contract including, without limitation, and by way of example only, rights to perform work, protect work, mitigate damages, or coordinate work with other consultants or contractors.
6. The Surety's monetary obligation under this Bond is limited by the penal sum of this Bond. Subject to these limits, the Surety's obligations under this Bond are commensurate with the obligations of the Contractor under the Construction Contract. The Surety's obligations shall include, but are not limited to:
 - 6.1 The responsibilities of the Contractor under the Construction Contract for completion of the Construction Contract and correction of defective work;
 - 6.2 The responsibilities of the Contractor under the Construction Contract to pay liquidated damages, and for damages for which no liquidated damages are specified in the Construction Contract, actual damages caused by non-performance of the Construction Contract, including but not limited to, all valid and proper backcharges, offsets, payments, indemnities, or other damages;
 - 6.3 Additional legal, design professional and delay costs resulting from the Contractor Default or resulting from the actions or failure to act of the Surety under Section 4, above.
7. No right of action shall accrue on this Bond to any person or entity other than the Port or its successors or assigns.
8. The Surety hereby waives notice of any change, alteration or addition to the Construction Contract or to related subcontracts, purchase orders and other obligations, including changes of time. The Surety consents to all terms of the Construction Contract, including provisions on changes to the Contract. No extension of time, change, alteration, modification, deletion, or addition to the Contract Documents, or of the work required thereunder, shall release or exonerate Surety on this Bond or in any way affect the obligations of Surety on this Bond.
9. Any proceeding, legal or equitable, under this Bond shall be instituted in any court of competent jurisdiction where a proceeding is pending between the Port and the Contractor regarding the Construction Contract, or in the courts of the County of Alameda, or in a court of competent jurisdiction in the location in which the work is located.
10. Notice to the Surety, the Port or the Contractor shall be mailed or delivered to the address shown on the signature page. Actual receipt of notice by the Surety, the Port or the Contractor at the address shown on the signature page, however accomplished, shall be sufficient compliance as of the date received.
11. Any provision in this Bond conflicting with any statutory or regulatory requirement shall be deemed deleted herefrom and provisions conforming to such statutory requirement shall be

deemed incorporated herein.

12. Definitions.

- 12.1 Balance of the Contract Sum: The total amount payable by the Port to the Contractor pursuant to the terms of the Construction Contract after all proper adjustments have been made under the Construction Contract, for example, deductions for progress payments made, and increases/decreases for approved modifications to the Construction Contract.
- 12.2 Construction Contract: The agreement between the Port and the Contractor identified on the signature page, including all Contract Documents and changes thereto.
- 12.3 Contractor Default: Material failure of the Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Construction Contract, including but not limited to, "default," as provided in Document 00700 General Conditions.
- 12.4 Port Default: Material failure of the Port, which has neither been remedied nor waived, to pay the Contractor progress payments due under the Construction Contract or to perform other material terms of the Construction Contract, if such failure is the cause of the asserted Contractor Default and is sufficient to justify the Contractor's termination of the Construction Contract.

END OF DOCUMENT

DOCUMENT 00620

CONSTRUCTION LABOR AND MATERIAL PAYMENT BOND

THIS CONSTRUCTION LABOR AND MATERIAL PAYMENT BOND ("Bond") is dated _____, is in the penal sum of one hundred percent (100%) of the Contract Sum, which is _____ Dollars (\$_____), and is entered into by and between the parties listed below to ensure the payment of claimants under of the Construction Contract listed below. This Bond consists of this page and the Bond Terms and Conditions, Sections 1 through 13, attached to this page. Any singular reference to _____ (the "Contractor"), _____ (the "Surety"), the City of Oakland, a municipal corporation, acting by and through its Board of Port Commissioners (the "Port") or other party shall be considered plural where applicable.

CONTRACTOR:

SURETY:

Name

Name

Address

Principal Place of Business

OWNER:

CONSTRUCTION CONTRACT:

CITY OF OAKLAND,
A Municipal Corporation, By and
Through Its Board of Port Commissioners

Paving a 21-Acre Container Yard Within the
Maritime Support Center Area
Oakland, California

Address: 530 Water Street
Oakland, CA 94607
Attention: Port Attorney

DATED: _____, 200__, in the
amount of \$_____.
Contract No. 2006-03-M1

CONTRACTOR AS PRINCIPAL
Company:

SURETY
Company:

Signature: _____

Signature: _____

Name and Title: _____

Name and Title: _____

Approved as to Form and Legality this ____ day of
_____, 200__

_____, Port Attorney

BOND TERMS AND CONDITIONS

1. The Contractor and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Port and to Claimants, to pay for labor, materials and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference.
2. With respect to the Port, this obligation shall be fully satisfied if the Contractor:
 - 2.1 Promptly makes payment, directly or indirectly, for all sums due Claimants, and
 - 2.2 Defends, indemnifies and holds harmless the Port from all claims, demands, liens or suits by any person or entity who furnished labor, materials or equipment for use in the performance of the Construction Contract, provided the Port has promptly notified the Contractor and the Surety (at the address described in Paragraph 11) of any claims, demands, liens or suits and tendered defense of such claims, demands, liens or suits to the Contractor and the Surety, and provided there is no Port Default.
3. With respect to Claimants, this obligation shall be fully satisfied if the Contractor promptly makes payment, directly or indirectly through its subcontractors, for all sums due Claimants. However, if Contractor or its subcontractors fail to pay any of the persons named in Section 3181 of the California Civil Code, or amounts due under the Unemployment Insurance Code with respect to work or labor performed under the Contract, or for any amounts required to be deducted, withheld, and paid over to the Employment Development Department from the wages of employees of Contractor or subcontractors pursuant to Section 13020 of the Unemployment Insurance Code, with respect to such work and labor, then Surety will pay for the same, and also, in case suit is brought upon this Bond, a reasonable attorney's fee, to be fixed by the court.
4. Consistent with the California Mechanic's Lien Law, Civil Code §3082, et seq., the Surety shall have no obligation to Claimants under this Bond unless the Claimant has satisfied all applicable notice requirements.
5. The Surety's total obligation shall not exceed the penal amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by the Surety under this Bond.
6. Amounts due the Contractor under the Construction Contract shall be applied first to satisfy claims, if any, under any Construction Performance Bond and second, to satisfy obligations of the Contractor and the Surety under this Bond.
7. The Port shall not be liable for payment of any costs, expenses, or attorney's fees of any Claimant under this bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.
8. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.
9. Suit against the Surety on this Payment Bond may be brought by any Claimant, or its

assigns, at any time after the Claimant has furnished the last of the labor or materials, or both, but, per Civil Code §3249, must be commenced before the expiration of six months after the period in which stop notices may be filed as provided in Civil Code §3184.

10. Notice to the Surety, the Port or the Contractor shall be mailed or delivered to the address shown on the signature page. Actual receipt of notice by Surety, the Port or the Contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.
11. This Bond has been furnished to comply with the California Mechanic's Lien Law, including, but not limited to, Civil Code §§3247, 3248, et seq. Any provision in this Bond conflicting with said statutory requirements shall be deemed deleted herefrom to the extent of the conflict and all provisions conforming to such statutory or other legal requirements shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.
12. Upon request by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.
13. DEFINITIONS
 - 13.1.1 Claimant: An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials or equipment for use in the performance of the Contract, as further defined in California Civil Code §3181. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a stop notice might be asserted. The term Claimant shall also include the Unemployment Development Department as referred to in Civil Code §3248(b).
 - 13.1.2 Construction Contract: The agreement between the Port and the Contractor identified on the signature page, including all Contract Documents and changes thereto.
 - 13.1.3 Port Default: Material failure of the Port, which has neither been remedied nor waived, to pay the Contractor as required by the Construction Contract, provided that failure is the cause of the failure of Contractor to pay the Claimants and is sufficient to justify termination of the Construction Contract.

END OF DOCUMENT

DOCUMENT 00630

LETTER OF ASSENT

_____, 200__

David L. Alexander
Port Attorney
530 Water Street, 4th Floor
Oakland, CA 94607

Subject: PORT OF OAKLAND MARITIME AND AVIATION PROJECT LABOR AGREEMENT

Dear Mr. Alexander:

The undersigned party confirms that it agrees to be a party to and bound by the Project Labor Agreement (the "Labor Agreement") as entered into and by and between Davillier-Sloan, Inc./Parsons Constructors Inc. ("DSI/PCI") on behalf of the Port of Oakland, its successors or assigns, and the Building and Construction Trades Department, AFL-CIO, the Building and Construction Trades Council of Alameda County, AFL-CIO, and their affiliated unions, dated March 21, 2000, as such Labor Agreement may, from time to time, be amended by the parties or interpreted pursuant to its terms.

By executing this Letter of Assent, the undersigned party subscribes to, adopts and agrees to be bound by the written terms of the legally established trust agreements specifying the detailed basis upon which contributions are to be made into, and benefits made out of, such trust funds and ratifies and accepts the trustees appointed by the parties to such trust funds.

Such obligations to be a party to and bound by this Labor Agreement shall extend to all work covered by said Labor Agreement undertaken by the undersigned. The undersigned party shall require all of its subcontractors, of whatever tier, to become similarly bound for all their work within the scope of this Labor Agreement by signing an identical Letter of Assent.

This letter shall constitute a subscription agreement, to the extent of the terms of the letter.

CONTRACTOR/SUBCONTRACTOR: _____

California State License Number: _____

Name and Signature of
Authorized Person:

(Print Name)

(Title)

(Signature)

(Telephone Number)

cc: Ed Manning
Parsons Constructors
1100 Airport Road, 3rd Floor
Oakland, CA 94621

END OF DOCUMENT

DOCUMENT 00800

**SUPPLEMENTARY CONDITIONS
MODIFICATIONS TO STANDARD CONTRACT PROVISIONS**

The Port of Oakland Standard Contract Provisions (October 2004 edition), as modified by this Document 00800, Modifications to Standard Contract Provisions, are hereby incorporated into the Contract Documents for Paving a 21-Acre Container Yard Within the Maritime Support Center, Oakland, California.

Copies of the above-referenced Standard Contract Provisions are available for purchase at the Port's Engineering Services Counter, located at 2nd Floor, 530 Water Street, Oakland, California. The Engineering Services Counter business hours are from 8:00 a.m. to Noon and 1:00 p.m. to 4:00 p.m., Monday through Friday, holidays excepted.

The following are modifications to the Standard Contract Provisions applicable to this work:

1. This document includes requirements that supplement sections of DOCUMENT 00700 GENERAL CONDITIONS.
2. SUPPLEMENT TO, SECTION 2, delete paragraph "2.3 **CONDITIONS SHOWN IN REPORTS AND PLANS SUPPLIED FOR INFORMATIONAL PURPOSES**", in its entirety and replace with the following:

"2.3 **CONDITIONS SHOWN IN REPORTS AND PLANS SUPPLIED FOR INFORMATIONAL PURPOSES**

Reference is made to Document 00320 Existing Conditions and Geotechnical Data for identification of geotechnical reports, "as built" information, and other plans or other documents describing physical conditions in or relating to existing surface or subsurface conditions or structures at or contiguous to the Site. These materials are not Contract Documents and, except for any "technical data" regarding subsurface conditions specifically identified in Document 00320 Existing Conditions and Geotechnical Data, and "Underground Facilities" data (as limited in Document 00320), the Contractor may not in any manner rely on the information in these reports and plans. Subject to the foregoing, the Contractor must make its own independent investigation of all conditions affecting the Work and must not rely on information provided by the Port."

3. SUPPLEMENT TO SECTION 6 **CONSTRUCTION BY PORT OR BY SEPARATE CONTRACTORS.**

Add a new Section 6.4, which reads as follows:

6.4 **Port-Furnished Materials and Equipment.**

- 6.4.1 Materials and equipment to be furnished by the Port will be available at locations designated in the Contract Documents or if not designated in the Contract Documents will be delivered to the Site. Such Port-furnished

materials and equipment shall be hauled to and properly stored at the place of use by the Contractor at Contractor's sole expense, including all necessary loading and unloading that may be involved. All costs of storing, handling, and installing Port-furnished materials and equipment shall be considered as included in the Contract Price paid for the item involving such Port-furnished materials and equipment.

6.4.2 Contractor shall conduct a reasonable inspection of all Port-furnished materials and equipment. For Port-furnished materials and equipment designated prior to submission of bids, bidder shall be charged with all information and knowledge that a reasonable bidder would ascertain from having performed a reasonable inspection. For Port-furnished materials and equipment not designated prior to submission of bids, Contractor shall conduct a reasonable inspection not more than 21 days following delivery of such Port-furnished materials and equipment. Contractor shall provide the Port with written notice of all defects, omissions, damage, non-conformance, or quantity variations in the Port-furnished materials and equipment.

6.4.3 The Contractor shall be held responsible for all materials and equipment furnished to the Contractor, and shall pay all demurrage and storage charges. If any Port-furnished materials and equipment are lost or damaged from any cause whatsoever after receipt by the Contractor, the Contractor shall be liable to the Port for the cost of replacing or repairing such Port-furnished materials and equipment and the cost thereof may be deducted from any monies due or to become due the Contractor.

4. SUPPLEMENT TO, SECTION 13.4 **NOTICE OF CONCEALED OR UNKNOWN CONDITIONS**, delete paragraph "13.4.1", in its entirety and replace with the following:

"13.4.1 Before commencing work of digging trenches or excavation, the Contractor shall review all information available regarding subsurface conditions, including but not limited to information indicated in the Contract Documents or supplied in Document 00320, Existing Conditions and Geotechnical Data.

(a) In the case of any Underground Facilities which are located on Port property and are used to furnish services on Port property or are under the operation and control of the Port, or in any other case in which the Underground Services Alert does not provide an inquiry notification number and notify its members who have subsurface installations in the area of the proposed excavation, then the Contractor shall be fully responsible for locating the Underground Facilities and protecting such Underground Facilities during excavation. In locating the Underground Facilities Contractor shall investigate all records available at the Port and all other records available to it relative to the location of such Underground Facilities and shall make use of all necessary industry locating techniques and/or engage qualified locating service to perform such services for the Contractor. The

Contractor shall undertake no excavation Work until such time that the Underground Facilities are located and field marked or determined not to be in the area of excavation. Thereafter, subject to the further requirements in the Specifications, Contractor shall determine the exact location of the Underground Facilities by excavating with hand tools within the area of the location of the Underground Facilities. Contractor shall provide the Port with adequate prior written notice of its proposed excavation work in an area containing Port Underground Facilities, and shall submit for Port's approval its plan for locating and protecting the Underground Facility from damage due to the excavation work. The Port's favorable review of such plan shall in no way limit or restrict the responsibility of the Contractor under the Contract Documents and at law and Contractor shall not rely upon the Port's review as a representation of the location of the Underground Facility, the suitability of the plan or its compliance with law.

- (b) Subject to the terms and conditions of these documents, the Contractor shall also comply with Government Code Sections 4216 to 4216.9, and in particular Section 4216.2 which provides, in part:

"Except in an emergency, every person planning to conduct any excavation shall contact the appropriate regional notification center at least two working days, but no more than 14 calendar days, prior to commencing that excavation, if the excavation will be conducted in an area which is known, or reasonably should be known, to contain subsurface installations other than the underground facilities owned or operated by the excavator and, if practical, the excavator shall delineate with white paint or other suitable markings the area to be excavated. The regional notification center shall provide an inquiry identification number to the person who contacts the center and shall notify any member, if known, who has a subsurface installation in the area of the proposed excavation."

The Contractor shall contact the regional notification center, "Underground Service Alert" ("USA"), and schedule the work to allow ample time for the center to notify its members and, if necessary, for any member to field locate and mark its facilities. The Contractor is charged with knowledge of all subsurface conditions reflected in USA records. Prior to commencing excavation or trenching work, the Contractor shall provide the Port with copies of all USA records secured by the Contractor. The Contractor shall advise the Port of any conflict between information provided in Document 00320, Existing Conditions and Geotechnical Data, and that provided by USA records."

5. **SUPPLEMENT TO, SECTION 13.4 NOTICE OF CONCEALED OR UNKNOWN CONDITIONS**, delete paragraph "13.4.7", in its entirety and replace with the

following:

“13.4.7 The cost of all of the following will be included in the Contract Sum and the Contractor shall have full responsibility for:

- (a) Reviewing and checking all available information and data, including but not limited to, Document 00320, Existing Conditions and Geotechnical Data, and information on file at USA and at the Port’s utilities department;
- (b) Locating all Underground Facilities shown or indicated in the Contract Documents, available information, or indicated by visual observation, including but not limited to, and by way of example only, engaging qualified locating services and all necessary backhoeing and potholing;
- (c) Coordination of the Work with the owners of such Underground Facilities during construction; and
- (d) The safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.”

6. SUPPLEMENT TO, SECTION 13.4 **NOTICE OF CONCEALED OR UNKNOWN CONDITIONS**, delete paragraph “13.4.9”, in its entirety and replace with the following:

“13.4.9 The Contractor shall be allowed an increase in the Contract Sum or an extension of the Contract Times, or both, to the extent that they are attributable to the existence of any Underground Facility that is owned and was built by the Port only where the Underground Facility:

- (a) Was not shown or indicated in the Contract Documents or in the information supplied pursuant to Document 00320, Existing Conditions and Geotechnical Data, or in information on file at USA; and
- (b) The Contractor did not know of it; and
- (c) The Contractor could not reasonably have been expected to be aware of it or to have anticipated it from the information available. (For example, if surface conditions such as pavement repairs, valve covers, or other markings, indicate the presence of an Underground Facility, then an increase in the Contract Sum or an extension of the Contract Time will not be due, even if the Underground Facility was not indicated in the Contract Documents, in the information supplied to the Contractor pursuant to Document 00320 Existing Conditions and Geotechnical Data, in information on file at USA, or otherwise reasonably available to the Contractor.) “

7. SUPPLEMENT TO, SECTION 13.4 **NOTICE OF CONCEALED OR UNKNOWN CONDITIONS**, delete paragraph “13.4.10”, in its entirety and replace with the

following:

“13.4.10 The Contractor shall bear the risk that Underground Facilities not owned or built by the Port may differ in nature or locations shown in information made available by the Port pursuant to Document 00320, Existing Conditions and Geotechnical Data, in information on file at USA, or otherwise reasonably available to the Contractor. Underground Facilities are inherent in construction involving digging of trenches or other excavations and the Contractor is to apply its skill and industry to verify the information available.”

8. SUPPLEMENT TO DOCUMENT 00805 **SUPPLEMENTAL GENERAL CONDITIONS – HARZARDOUS MATERIALS, PARAGRAPH 7, SUPPLEMENT TO SECTION 13.1**, delete paragraph “13.1.4 Disposal” in its entirety and replace with the following:

“13.1.4 DISPOSAL. The Contractor has the sole responsibility for determining current waste storage, handling, transportation and disposal regulations for Hazardous Materials, Hazardous Wastes or any other materials or waste at the Site. Contractor shall be responsible for selecting each waste disposal facility from those on the Port’s approved list provided under this Contract. The Contractor must comply fully at its sole cost and expense with these regulations and any applicable Law. Nothing herein shall be interpreted to impose upon Contractor responsibility for the negligence or willful misconduct of the waste disposal facility, if such waste disposal facility is on the Port’s current approved list of disposal sites/designated facilities, as further described below. The Port may, but is not obligated to, require submittals with information regarding the chosen waste disposal facility or the negligence or willful misconduct of the waste disposal facility for it to review consistent with the Contract Documents.

The Contractor shall develop and implement a system acceptable to the Port to track Hazardous Waste from the Site to disposal, including appropriate “Hazardous Waste Manifests” on the EPA form, so that the Port may track the volume of waste it put in each landfill and receive from each landfill a certificate of receipt.

The Contractor shall dispose of Hazardous Waste, designated waste, universal waste, and other contaminated materials removed from Port project sites at disposal sites/designated facilities listed below:

**LIST OF NON-OWNED DISPOSAL SITES / DESIGNATED FACILITIES
included under the Port of Oakland Owner Controlled Insurance Program
(OCIP)**

1	Altamont Landfill and Resource Recovery Facility	10840 Altamont Pass Road Livermore, CA 94550
2	Alviso Independent Oil	5002 Archer Street Alviso, CA 95002
3	B&J Landfill	6426 Hay Road Vacaville, CA 95687

4	California Asbestos Monofill	P.O. Box 127 Obyrness Ferry Copperopolis, CA 95228
5	Chemical Waster Management, Inc.	35251 Old Skyline Road Kettlemen City, CA 93249
6	Clean Harbors Environmental Services, Inc. (all facilities) (formerly Safety Kleen/Laidlaw, Inc.)	2500 West Lokern Raod Buttonwillow, CA 93206 (one landfill location)
7	Crosby & Overton	1630 West 17 th Street Long Beach, CA 90813
8	D/K Environmental	3650 East 26 th Street Vernon, CA 90023
9	ECDC Environmental	1111 West Highway 123 East Carbon, UT 84520
10	Ecology Control Industries (ECI) (formerly Eriksen, Inc.)	255 Parr Boulevard Richmond, CA 94801
11	Evergreen Oil, Inc.	6880 Smith Avenue Newark, CA 94560
12	Filter Recycling Service	180 West Monte Avenue Rialto, CA 92316
13	Forward Landfill	1145 West Charter Way Stockton, CA 95206
14	Lightning Resources, Inc.	805 East Francis Street Ontario, CA 91761
15	Redwood Landfill, Inc.	8950 Redwood Highway Novato, CA 94948
16	Republic Services – Vasco Road Landfill	40001 North Vasco Road Livermore, CA 94550
17	Romic Environmental Technologies	2081 Bay Road East Palo Alto, CA 94303
18	Superior Special Services, Inc. (formerly Salesco Systems USA, Inc.)	5736 West Jefferson Phoenix, AZ 85043
19	SET Environmental, Inc.	5738 Cheswood Houston, TX 77087

The Contractor will be required to use the above-listed disposal sites, whether the Work is covered under OCIP or not.

Please note that this list will be revised from time to time and may not be current. Prior to considering use of any of the listed disposal sites/designated facilities, a current list should be obtained either from the Port Risk Management Department or Environmental and Safety Department.

The Contractor shall obtain documentation of the actual disposal or destruction of waste at a designated facility through a disposal certificate or certificate of destruction and forwarding the original to the Port.

9. SUPPLEMENT TO Document 00810, **PORT OF OAKLAND NON-DISCRIMINATION AND SMALL LOCAL BUSINESS UTILIZATION POLICY.**

SUPPLEMENT TO SECTION II. DEFINITIONS:

After the definition for “Department” add a new definition, which reads:

“Design-Builder” Shall mean any firm entering a contract with the Port in which the scope of work includes both the furnishing of design services for which professional registration is required under the California Business & Professions Code and construction contracting services for which a contractor’s license is required under the California Business & Professions Code.”

SUPPLEMENT TO SECTION III. PROGRAMS:

Add a new section E. Selection of Design Builders, which reads:

“E. Selection of Design-Builders

“Sealed Low Bid awards. For those contracts in which the Design-Builder is selected according to the lowest responsive and responsible bid, preference points will be awarded in the manner described in Part III, Section B, and its implementing regulations.

“Competitive Negotiation or Best Value awards. For those contracts in which the Design-Builder is selected through a process of competitive negotiation or Best Value, the Port will award preference points according to the following method.

“The Port, through its Selection Committee, will evaluate competing design-builder proposals based on a one hundred (100) point scale. Up to eighty-five (85) of the points will be allocated based on an evaluation of technical excellence of the consultant; up to fifteen (15) points will be allocated based on the following factors:

“Proposers may be awarded up to five (5) preference points depending on the proportionate share of work to be done by the prime and the subconsultants/subcontractors located in the LIA or LBA. Proposers may be awarded up to three (3) preference points depending on the proportionate share of prime contract work (all work performed by the prime contractor, whether professional services or construction) to be done by firms located in the LIA or the LBA. Proposers may be awarded up to four (4) preference points depending on the length of time the prime contractor and the subconsultants/subcontractors have been located in the LIA or the LBA. Proposers may be awarded up to three (3) preference points for demonstrating their commitment to Port community values and programs.”

Sections E-S shall now become Sections F-T.

SUPPLEMENT TO SECTION IV. REGULATIONS.

Replace A. Preference Points in Award of Construction and Consultant Contracts with A. Preference Points in Award of Construction, Consultant and Design Build Contracts.

Add a new section 1.6, which reads

“1.6 Preference Points for Design-Builders. In order to receive preference points, all certifications must be complete by the proposal due date. To be certified for a particular project, a contractor must submit a Database Questionnaire and all

supporting documents at least ten (10) business days prior to bid opening or submit a copy of a current City of Oakland Local Business Enterprise (LBE) or Small Local Business Enterprise (SLBE) certification letter with the bid documents.

“1.61 Proposers may be awarded up to five (5) preference points depending on the proportionate share of work to be done by firms (professional services and construction) located in the LIA or the LBA.

- “a. If all the contract work is to be performed by firms (professional services and construction) located within the LIA, the proposer will be awarded 5 points; or
- “b. If all the contract work is to be performed by firms (professional services and construction) located within the LBA, the proposer will be awarded 2.5 points; or
- “c. If the contract work is to be divided among offices within the LIA, LBA, and outside the LBA, the proposer will be awarded proportionate shares of the 5 LIA and 2.5 LBA points depending on the percentage of total work being done by firms (professional services and construction) in each area.

“1.62 Proposers may be awarded up to three (3) preference points depending on the proportionate share of prime contract work (all work performed by the prime contractor, whether professional services or construction) to be done in the LIA or the LBA.

- “a. If all the prime contract work is performed by a LIABE, the proposer will be awarded 3 points; or
- “b. If all the prime contract work is performed by a LBABE, the proposer will be awarded 1.5 points; or
- “c. If the prime contract work is divided among LIABE, LBABE, and/or firms located outside the LBA, as in the case of a joint venture or other form of strategic alliance, the proposers will be awarded proportionate shares of the 3 LIA and 1.5 LBA points depending on the percentage of prime contract work being done in each area.

“1.63 Proposers may be awarded up to four (4) preference points depending on the length of time the prime and the subconsultant/subcontractor have been located in the LIA or the LBA.

- “a. A proportionate share of 2 points will be awarded based on the percentage share of work being done by the prime or the subconsultants/subcontractors who have been located in the LIA or the LBA for more than 2 years but less than 5 years.

- “b. A proportionate share of 4 points will be awarded based on the percentage share of work being done by the prime or the subconsultants/subcontractors who have been located in the LIA or the LBA for 5 or more years.

“1.64 Proposers and their subs may be awarded up to three (3) preference points depending on the proportionate share of work to be done by firms (professional services and construction) for demonstrating their commitment to the Port’s community values and programs. Examples of this commitment may include proposers which do the following:

- “a. Mentor small local firms;
- “b. Commit to hiring local interns, student, or participating in local pre-apprentice and apprentice job training programs;
- “c. Participate in trade fairs or job fairs targeted to LIA businesses and job seekers;
- “d. Participate in other activities which are dedicated to the economic development of LIA businesses, citizens and students.

“1.65 For professional service consultants who will receive LIA or LBA preference points, the work must be performed at the qualifying office.”

10. Delete Document 00821 **SURETY BOND PROGRAM** in its entirety and **replace with Document 00821 SURETY BOND PROGRAM included in this Project Manual.**

END OF DOCUMENT

DOCUMENT 00910

ADDENDA

1. Addenda issued by Port in accordance with Section 11 of Document 00200, Instructions to Bidders, shall be listed below and attached to this Document. Addenda are part of the Contract Documents.

SCHEDULE OF ADDENDA:

Date of Issuance:

Addenda Number:

END OF DOCUMENT

DIVISION 1 GENERAL REQUIREMENTS

SECTION 01100

SUMMARY OF WORK

PART 1 GENERAL

1.01 SUMMARY

- A. This section includes summary of work including:
 - 1. Summary
 - 2. Work Covered By The Contract Documents
 - 3. Bid Items
 - 4. Work Under Other Contracts And Other Activities
 - 5. Future Work
 - 6. Work Sequence
 - 7. Cooperation Of Contractor And Coordination With Other Work
 - 8. Occupancy/Substantial Completion Requirements
 - 9. Contractor Use Of Premises
 - 10. Lines and Levels
 - 11. Protection Of Existing Structures and Utilities
 - 12. Work Restrictions
 - 13. Special Conditions And Restrictions Pertaining To Work
 - 14. Permits
 - 15. Security
 - 16. Submittals
 - 17. Utility Service Coordination
 - 18. Site Cleanup
 - 19. Project Address
 - 20. Reference Standards

1.02 WORK COVERED BY THE CONTRACT DOCUMENTS

- A. The Work includes, but is not limited to, furnishing all labor, materials, appliances, tools, equipment, transportation, services and supervision required for paving a 21-acre container yard within the Maritime Support Center area. The work also includes furnishing and installing asphalt concrete pavement, pavement marking and striping, pipe bollards, customs-approved chain link fence and gates, and truck wheel stops.
- B. The Work of this Contract includes work covered by unit prices and lump sum prices.
- C. The Work of this Contract includes construction of all the work shown on the Port Plans AA-3958, described by the Contract Documents.
- D. Coordinate with work provided by the Port under separate contract shown on the Plans or described in this Document, as described in Section 1.07, below.

- E. Unless provided otherwise in the Contract Documents, all risk of loss to the Work covered by the Contract Documents shall rest with the Contractor until Final Completion and Acceptance of the Work.
- F. The Contractor's use of the Site for Work and storage is limited to the area designated on the Plans.

1.03 BID ITEMS

- A. Any bid item may be deleted in total or in part prior to or after award of Contract without compensation in any form or adjustment of other bid items or prices therefore.
- B. Measurement and payment of bid items will be in accordance with the following:

ITEM 1: Mobilization and Demobilization will not be measured. The lump sum price to be paid under this Item includes full compensation for furnishing all labor, materials, appliances, tools, equipment, transportation, services and supervision for accomplishing all work involved in the mobilization and demobilization.

Except as otherwise specified, mobilization shall consist of preparatory work and operations, including but not limited to, those necessary for the movement of personnel, equipment, supplies, and incidentals to the project site; for the establishment of all offices, buildings and other facilities necessary for the work on the project; and for all other work and operations which must be performed or costs incurred prior to beginning work on the various bid items on the project site.

Refer to Document 1200, Measurement and Payment on progress payment for mobilization and demobilization.

ITEM 2: All Contract Work Other than Work Separately Provided for Under Other Bid Items will not be measured. The lump sum price to be paid under this Item includes full compensation for accomplishing all Work shown on the Plans or specified herein, but not to be paid for under separate bid items.

ITEM 3: Furnish and Install Asphalt Concrete will be measured by the weight of asphalt concrete in tons placed. The unit price shall be full compensation for constructing new asphalt concrete pavement. This shall include furnishing and applying tack coat; and furnishing, placing, spreading, and compacting new asphalt concrete as shown on the Plans and specified herein.

- ITEM 4: Furnish and Apply Pavement Striping and Marking** will not be measured. The lump sum price shall be full compensation for furnishing and applying new striping and markings to pavement as shown on the Plans and specified herein.
- ITEM 5: Furnish and Install Truck Wheel Stops** will be measured by the number of truck wheel stops installed. The unit price to be paid under this item shall be full compensation for furnishing and installing truck wheel stops and truck wheel stop anchors as shown on the Plans and specified herein.
- ITEM 6: Furnish and Install Pipe Bollards** will be measured by the number of bollards installed. The unit price to be paid under this item shall be full compensation for furnishing and installing permanent and removable pipe bollards including excavation, transporting the excavated material to a Port site within 2 miles of the project location as directed by the Engineer, and construction of the pipe bollard foundations as shown on the Plans and specified herein.
- ITEM 7: Furnish and Install Customs Approved Chain Link Fence** will be measured by the linear foot of fence installed. The unit price to be paid under this item includes full compensation for furnishing and installing Customs approved chain link fence, associated fittings, foundation excavation, stockpiling excavated materials, and backfill with Portland cement concrete as shown on the Plans and specified herein.
- ITEM 8: Furnish and Install Customs Approved Pedestrian and Swing Gates** will not be measured. The lump sum price to be paid under this item includes full compensation for furnishing and installing Customs approved pedestrian and swing gates, associated fittings, foundation excavation, stockpiling excavated materials, and backfill with Portland cement concrete as shown on the Plans and specified herein.
- ITEM 9: Relocation of Port Furnished K-rail** will be measured by the number of K-rail sections relocated. The unit price to be paid under this item shall be full compensation for loading on-site Port furnished K-rail, transporting the K-rail to a Port site within 2 miles of the project location as directed by the Engineer, unloading the K-rail, and anchoring the K-rail as shown on the Plans or as directed by the Engineer, and specified herein.

Notwithstanding Section 01200, "Measurement and Payment," of the Project Manual, the quantity of K-rail relocated under this Item may vary from 50% to 200% of the estimated quantity without affecting the unit bid price.

- ITEM 10: Furnish and Install Customs Approved Chain Link Fence Mounted on K-rail** will be measured by the linear foot of fence installed. The unit price to be paid under this item includes full compensation for furnishing and installing Customs approved chain link fence mounted on K-rail, associated fittings, connections, and anchoring as shown on the Plans

and specified herein.

ITEM 11: Install Port-Furnished Truck Wheel Stops will be measured by the number of Port-Furnished truck wheel stops installed. The unit price to be paid under this bid item shall be full compensation for loading, transporting from a Port site within 2 miles of the project location, installing and anchoring truck wheel stops as directed by the Engineer and as shown on the Plans and specified herein.

Notwithstanding Section 01200, "Measurement and Payment", of the Project Manual, the quantity of Port-Furnished truck stops installed under this Item may vary from 50% to 200% of the estimated quantity without affecting the unit bid price.

- C. Unit prices. See Section 01200, Measurement and Payment. Unit Prices shall apply to work covered by unit prices so long as actual quantities performed on the Project are between 75% and 125% of the established quantities referenced herein. If actual quantities exceed these parameters, then the unit price shall be adjusted in accordance with Section 01200, Measurements and Payment.

1.04 WORK UNDER OTHER CONTRACTS AND OTHER ACTIVITIES

- A. Work Under Other Contracts: The Contractor shall coordinate its work fully and shall coordinate shared access fully with the following work performed concurrently under separate contracts which will occur within or adjacent to the limit lines of this Contract:

1. Construction of Phase 3B Container Terminal Yard Improvements within the Maritime Support Center Area.

During this Contract the Phase 3B Container Terminal Yard Improvements (Phase 3B Grading Contractor) and its Subcontractors will be actively performing the Phase 3B Container Terminal Yard Improvements construction. The 21-Acre Container Yard Paving Contractor (Phase 3C Paving Contractor) and its Subcontractors shall cooperate with, coordinate with, and allow access to the Phase 3B Grading Contractor and its Subcontractors to complete their Work. In addition, the Phase 3C Paving Contractor will attend joint construction meetings with the Phase 3B Grading Contractor and the Engineer to coordinate and schedule construction activities. Any delay claims by the Phase 3B Grading Contractor resulting for the Phase 3C Paving Contractor not allowing access to, cooperating with, or coordinating with the Phase 3B Grading Contractor may be assessed against the Phase 3C Paving Contractor.

- B. Other Activities: The activities set forth below are anticipated to be in progress by others on or adjacent to the Site before and during the Work under this Contract. Contractor shall coordinate work fully and shall coordinate shared access fully with the contractors/operators performing these other activities and other work.

1. Operations of GSC Logistics in the Maritime Support Center.

2. Operations of Shipper's Transport Express (STE) in the Maritime Support Center. The Contractor shall maintain access at all times for STE traffic.
3. Rail yard operations in the Joint Intermodal Terminal.
4. Auto, pedestrian and commercial traffic on Maritime Street, Middle Harbor Road and Seventh Street.
5. Miscellaneous container storage/handling south of the project site.
6. Operations of Unicold Corporation in the Maritime Support Center.
7. Operations of Port Facilities at the Harbor Facilities Complex in the Maritime Support Center.

1.05 FUTURE WORK

Contractor shall coordinate fully with the Port and any contractors performing such work during the Work.

1.06 WORK SEQUENCE

- A. The Contractor shall construct the Work in stages and at times to accommodate Port operation requirements during the construction period; and coordinate construction schedule and operations with the Port.
- B. Refer to Section 01120, "Order of Work", of these Specifications, and requirements on the Plans for Stage Construction.

1.07 COOPERATION OF CONTRACTOR AND COORDINATION WITH OTHER WORK.

- A. The Contractor shall coordinate with the Port and its forces, or other contractors and forces, as required by Document 00700, General Conditions.
- B. The Contractor shall employ a full time coordinator to constantly review the Contract Documents, the work of other contractors, submittals, changes, and prepare overlay Plans as necessary to avoid conflicts, errors, omissions and untimely construction.

1.08 OCCUPANCY/SUBSTANTIAL COMPLETION REQUIREMENTS

- A. The Contractor shall allow the Port to take possession of and use any completed or partially completed portion of the Work during the progress of the Work as soon as is possible without interference to the Work. Possession or use of a portion of the Work, installation and/or placing into operation of equipment by the Port shall not in any way evidence the completion of the Work or any part of it.
- B. The Contractor shall not be held responsible for damage to the occupied/used part of the Work resulting from the Port's occupancy.

- C. The Contractor shall make available, in areas occupied or used, on a 24-hour day and 7-day week basis if required, any utility services, as are in condition to be put in operation at the time of early occupancy.
 - 1. Responsibility for operation and maintenance of said equipment shall remain with the Contractor.
 - 2. The Contractor shall make, and the Port shall certify, an itemized list of each piece of equipment so operated with the date operation commences.
 - 3. Itemized list shall be basis for commencement of warranty period for equipment.
 - 4. The Port shall pay for the utility cost arising out of the Port's occupancy during construction.
- D. Use or occupancy by the Port prior to acceptance of work does not relieve the Contractor of its responsibility to maintain insurance and bonds required under the Contract Documents until the entire Work is completed and accepted by the Port.
- E. Prior to date of the Port's Final Acceptance of the Work, all necessary repairs or renewals in Work or part thereof so used, not due to ordinary wear and tear, but due to defective materials or workmanship or to operations of Contractor, shall be made at expense of Contractor, as required in Document 00700, General Conditions.
- F. Use by the Port of Work or any part thereof as contemplated by this section shall in no case be construed as constituting acceptance of Work or any part thereof. Such use shall neither relieve the Contractor of any responsibilities under the Contract Documents, nor act as waiver by the Port of any of the conditions thereof.
- G. The Port may specify in the Contract Documents that portions of the Work, including electrical and mechanical systems or separate structures, shall be substantially completed on milestone dates prior to substantial completion of all of the Work. The Contractor shall notify the Port in writing when the Contractor considers any such part of the Work ready for its intended use and substantially complete and request the Port to issue a Certificate of Substantial Completion for that part of the Work.

1.09 CONTRACTOR USE OF PREMISES

- A. Prior to commencement of Work or excavation, the Contractor and the Port shall jointly survey the area adjacent to the Project area making permanent note and record of such existing damage as cracks, sages, or other similar damage. This record shall serve as a basis for determination of subsequent damage to structures, conditions or other existing improvements due to the Contractor's operations. All parties making the survey shall sign the official record of existing damage. Cracks, sages, or damage of any nature to the adjacent Project area, not noted in the original survey but subsequently noted, shall be reported immediately to the Port.

1.10 LINES AND LEVELS

- A. The Contractor shall be responsible for the lines and levels. For additional survey requirements, refer to Section 11.2 of the General Conditions and Section 01720 of Division 1.
 - 1. The Contractor shall employ a licensed civil engineer or surveyor to establish and maintain all lines and levels necessary for the location and construction of the Work.
 - 2. The Contractor shall verify the levels shown on Plans with existing levels and notify the Port of any discrepancies before proceeding with the Work.

1.11 PROTECTION OF EXISTING STRUCTURES AND UTILITIES

- A. Prior to performing any excavation, the Contractor shall notify Underground Service Alert and the Engineer, and shall locate all existing underground facilities in accordance with Section 13.4, "Notice of Concealed or Unknown Conditions", of the General Conditions.
- B. The Plans indicate existing above and below grade structure, drainage lines, storm drains, sewers, water, gas, electrical, hot water and other similar items and utilities which are known to the Port.
- C. The Contractor shall locate these known existing installations before proceeding with trenching, or other operations which may cause damage, and shall maintain them in service where appropriate. Damage to utilities caused by the Contractor shall be repaired to the satisfaction of the Engineer and the utility owner by either the Contractor or the Port at the Engineer's discretion. The cost of said repairs shall be borne by the Contractor.
- D. Additional utilities whose locations are unknown to the Port are suspected to exist. The Contractor shall be alert to their existence. If they are encountered, immediately report to the Port for disposition of the same.
- E. In addition to reporting if a utility is damaged, the Contractor shall take appropriate action as provided in the General Conditions.
- F. Additional compensation or extension of time on account of utilities not shown or otherwise brought to the Contractor's attention including reasonable action taken to protect or repair damage shall be determined as provided in the General Conditions.
- G. Contractor shall take all appropriate action to protect monitoring wells located at the Site from damage as shown on the Plans. Refer to Plans for locations of monitoring wells that are to be destroyed under this Contract.

1.12 WORK RESTRICTIONS

- A. Access: Contractor's access to the Site shall be from Maritime Street and as directed by the Engineer.

- B. **Parking:** Parking is available at the Site for the Contractor's employees' vehicles in areas designated by the Engineer.
- C. **Storage:** Contractor's equipment and materials may be stored at the Site in areas designated by the Engineer. The Contractor shall be responsible for the security of material and equipment stored at the Site.
- D. **Working Hours:** During daylight hours of the week as noted in the General Conditions. Contractor shall apply and obtain approval for work during night or for work during weekends and holidays.
- E. **Access by Government Authorities:** Contractor shall at all times provide site access to employees, contractors and consultants of governmental authorities and the Port with respect to environmental investigations and remediation activities at the site and adjoining lands being performed by or for the Port.

1.13 SPECIAL CONDITIONS AND RESTRICTIONS PERTAINING TO WORK

- A. In accordance with the Port of Oakland Resolution No. 01197, Construction and Demolition Debris Waste Reduction Requirements, included in the Project Manual as Attachment 1 to Document 00455, at least 50% of construction and demolition debris resulting from the project shall be diverted from landfill.
 - 1. Contractor shall complete the Construction and Demolition Debris Waste Reduction and Recycling Plan form (WRRP form), included in the Project Manual as Attachment 2 to Document 00455, and submit it with the Bid, in accordance with the provisions of Document 00200, Instructions to Bidders.
 - 2. The Construction and Demolition Debris Material Tracking Sheet and Construction and Demolition Debris Recycling Planning Sheet, included in the Project Manual as Attachments 3A and 3B to Document 00455, are provided for Contractor's convenience. Use of these sheets is optional.
 - 3. At the conclusion of the Project and prior to final inspection by the Port, the Contractor shall, in accordance with the provisions of Resolution 01197, Section 7(a), complete the Construction and Demolition Debris Recycling Summary Report form (SR), included in the Project Manual as Attachment 4 to Document 00455, and submit said form to:

Port of Oakland
Permit Coordinator
530 Water Street, 2nd Floor
Oakland, CA 94607.

- B. Contractor shall be required to submit to Port a Traffic Management Plan which includes the location of staging areas, identification of traffic routes, identification of construction hours, on-site construction parking, detours, flagging and other matters. The Traffic Management Plan is subject to review and approval of the Port prior to initiation of construction. Upon approval of the Traffic Management Plan, Contractor shall be required to comply with its requirements.

- C. Contractor shall comply with requirements regarding noise and vibration set forth in the City of Oakland Ordinance No. 11895 C.M.S. during construction, in addition to any other noise control limitations contained in the Specifications, including Section 01564, Noise Control.
- D. The Work may require the Contractor to remove, handle, transport and dispose of contaminated and hazardous substances. Contractor shall submit prior to the commencement of the Work all submittals required by Section 01340, Safety and Environmental Submittals, and shall not commence work until approval by the Port, comply fully with the requirements of such submittals and all other requirements of the Contract Documents, applying to such activities.

1.14 PERMITS

- A. The Port has applied to the Building Services Department of the City of Oakland for building permits for the proposed Work. The Contractor shall obtain said permits, and any other required permits that have not been applied for by the Port, and shall pay all remaining fees due. Contractor shall submit copies of all permits to the Engineer prior to commencing Work. All applicable permit fees will be reimbursed as specified in the General Conditions. The Contractor shall consider itself bound by the conditions of all required permits including environmental permits.
- B. The project is subject to the requirements of the State of California General Construction Activity Storm Water Permit No. CAS000002 (General Permit). Contractor shall develop a Storm Water Pollution Prevention Plan ("SWPPP") and a Storm Water Sampling and Analysis Plan ("SWSAP").
- C. The specification of specific permits applying to the Work shall not limit or restrict the obligation of the Contractor in the performance of the Work to comply with any and all other permits which are described in the Contract Documents or which apply to the performance of the Work. Refer to Section 13.2 of Document 00700, General Conditions.

1.15 SECURITY

- A. The Contractor shall be responsible for security of the Work and of its equipment and materials at the project site. The Contractor shall not adversely affect the security of the Port and adjacent tenants or other contractors. Keys shall not be left in unattended equipment.
- B. The Contractor shall at all times exercise control over any persons or vehicles, other than from regulating agencies, visiting the work site of its activities.

1.16 SUBMITTALS

Refer to Section 01330, Submittals, and Section 01331, List of Submittals.

1.17 UTILITY SERVICE COORDINATION

- A. If scope of work requires utility service for contractor use, contractor shall verify

and establish utility service from private/municipal utility company(s), e.g., PG&E, EBMUD, AT&T, AP&T, Comcast, , etc.

1. The contractor shall apply for service and coordinate all necessary work to establish such service with such private/municipal utility company(s).
 - a. To prevent potential work delay, contractor shall notify and coordinate with utility company(s) as soon as possible.

Scheduling of utility work from utility company(s), including, but not limited to, new service connection, service removal/disconnect, service shutdown/interruption, may take months from date of initial notification. Contractor shall exercise due diligence in notifying and coordinating utility work to prevent work delay.
 - b. The contractor shall be responsible for all payments required by the private/municipal utility company(s) to provide utility service for contractor and related use. Contractor shall make timely payments to the private/municipal utility company(s) so as to prevent delay in utility coordination/work.
 - c. If contractor requires non potable water supply to implement the scope of work, and in the event such water may not be reasonably obtained from utility company(s), the Port may, at its sole discretion, provide non-potable water supply only to the contractor at no cost to contractor. The Port will not provide potable water for contractor use.
2. The contractor shall contract and pay for all utility service used during time of construction and/or occupancy.
3. The contractor shall coordinate with and pay private/municipal utility company(s) for all work needed to disconnect, cancel, and/or remove service after completion of construction and/or after vacation. Contractor shall make timely payments to the private/municipal utility company(s) for the disconnection, cancellation of removal of service so as to prevent delay in utility coordination/work.

1.18 SITE CLEANUP

Contractor shall maintain the work site in a clean and orderly condition during the work of this Contract. Spoils and debris resulting from the work of this contract shall be removed and legally disposed of. Contractor shall ensure that all materials and equipment are properly secured and the work site left in a clean and orderly condition at the end of each work day and whenever Contractor leaves the worksite.

Contractor shall provide necessary equipment to fully collect, contain and legally dispose of all solid wastes generated by the work of this contract.

1.19 PROJECT ADDRESS

For permitting and other purposes, the address associated with this project is 555 Maritime Street at B Street, Oakland, California 94607.

PART 2 PRODUCTS

2.01 REFERENCE STANDARDS

For products specified by association or trade standards, the Contractor shall comply with requirements of the standard, except where more rigid requirements are specified or are required by applicable codes.

PART 3 EXECUTION

Not applicable to this section.

END OF SECTION

SECTION 01120

ORDER OF WORK

PART 1 - GENERAL

1.01 WORK INCLUDED

Work under this Section includes requirements for stage construction as specified in Section 5-1.05, "Order of Work", of the State Specifications and these Specifications.

1.02 REFERENCE STANDARDS AND SPECIFICATIONS

State of California, Department of Transportation, Standard Specifications, latest edition (State Specifications)

PART 2 - PRODUCTS

(Not Used)

PART 3 - EXECUTION

3.01 STAGE CONSTRUCTION

- A. The work shall be performed in conformance with the stages of construction shown on the Plans and/or specified herein. Nonconflicting work in subsequent stages may proceed concurrently with work in preceding stages, provided satisfactory progress is maintained in said preceding stages of construction.
- B. Attention is directed to Section 01556, "Traffic Control System" of these Specifications and to the stage construction and traffic handling sheets of the Plans.
- C. Attention is directed to the provisions in Section 01725, "Preservation of Property" elsewhere in these Specifications.

3.02 ORDER OF WORK

Project Work shall be performed based on the schedule produced by the Contractor and approved by the Engineer. The schedule shall provide for the timely completion of all portions of the project work in accordance with Article 3 of Document 00520, Agreement.

END OF SECTION

SECTION 01200

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.01 SUMMARY

- A. This section describes requirements and procedures for determining amount of work performed and for obtaining payment for work performed.

1.02 REFERENCES

California Public Contract Code

1.03 SCOPE OF WORK

Work under the Contract Documents, or under any bid item, allowance or alternate, shall include all labor, materials, transport, handling, storage, supervision, administration and all other items necessary for the satisfactory completion of Work, whether or not expressly specified or shown.

1.04 DETERMINATION OF QUANTITIES

- A. Quantity of work to be paid for under any item for which a unit price is fixed in the Contract Documents shall be number, as determined by the Port, of units of work satisfactorily completed in accordance with Contract Documents or as directed by Port. Unless otherwise provided, determination of number of units of work so completed will be based, so far as practicable, on actual measurement or count within prescribed or ordered limits, and no payment will be made for work done outside of limits. Measurements and computations will be made by methods as the Port may consider appropriate for class of work measured. Contractor shall immediately inform Port of any disputes regarding quantity measurements, and shall immediately supply Port with any documentation supporting such disputed measurements.
- B. For material specified to be paid for by weight, the unit shall be a ton of 2,000 pounds. Quantities shall be based on the scale weight for each load weighed by a licensed public weighmaster on scales carrying a certificate issued by the Department of Weights and Measures of Alameda County or other approved certifying public agency, certifying to their accuracy. Weight slips bearing the signatures of said licensed public weighmaster, giving the weight of materials in the truck, shall be given to the Port as soon as the truck arrives at the work site. All trucks used for such hauling shall be weighed empty daily at such times as directed by the Port.
- C. For material brought onto the site by barge, measurement will be performed jointly by Port and Contractor representatives in accordance with normal and customary methods of measuring such quantities in barges, which shall include the use of using "sticks".

- D. For non-contaminated soil and waste materials removed from the site and specified to be paid for by weight, the Port will inspect and record an estimate of the weight of materials removed for comparison with weight slips bearing the signature of said public weighmaster submitted with requests for payment.
- E. For contaminated soil and waste materials removed from the site and specified to be paid for by weight, the Port will inspect and record an estimate of the weight of material removed for comparison with the weight stated on the hazardous waste manifests or bills of lading from the disposal facility submitted with request for payment.
- F. For material specified to be paid for by the linear foot, the unit shall be measured on a horizontal plane.
- G. For material specified to be paid for by the square foot, the unit shall be measured on the surface area.
- H. For material specified to be paid for by the square yard, the unit shall be measured on the surface area.
- I. For aggregate base, aggregate subbase, and imported fill the weight of the material to be paid for will be determined by deducting from the weight of the material delivered to the work the weight of water in the material, at the time of weighing, in excess of one percent (1%) more than the optimum moisture content as determined by the State of California Test Method No. Calif. 216.
- J. Material specified to be measured and paid for by volume will be inspected, estimated and recorded by the Engineer for comparison with quantities submitted with requests for payment.
- K. When the estimated quantity for a specific portion of the work is designated as a final quantity (F) on the Bid Form, it shall be the final quantity for which payment for such specific portion of the work will be made, unless the dimensions of said portions of the work shown on the Plans are revised by the Engineer. If such dimensions are revised, and such revisions result in an increase or decrease in the quantity of such work, the final quantity for payment will be revised in the amount represented by the change in the dimensions. The estimated quantity for such specific portion of the work shall be considered as approximate only and no guarantee is made that the quantity actually used in the work or which can be determined by computations based on the details and dimensions shown on the Plans will equal the estimated quantity. No allowance will be made in the event that the quantity based on computations or the final installed quantity does not equal the estimated quantity.

1.05 SCOPE OF PAYMENT

- A. Except as otherwise expressly stipulated in 01100, Summary of Work, payment to the Contractor at the unit price or other price fixed in the contract for performing the work required under any item, or (if the contract is on a lump sum price basis) at the lump sum price fixed in the contract for performing all Work required under the Contract Documents, and as either may be adjusted pursuant to any approved change order, shall be full compensation for completing, in accordance with the Contract Documents,

all Work required under the item or under the Contract Documents, and for all expense incurred by the Contractor for any purpose in connection with the performance and completion of said Work, including all incidental work necessary for completion of the Work.

- B. The Contract Sum, whether lump sum, unit price or otherwise, shall be deemed to include all costs necessary to complete the required Work, individual Work item or unit price item, and shall also include any costs for loss or damage arising from nature of Work or, prosecution of the Work, or from action of elements. Unless the Contract Documents expressly provide otherwise, the Contract Sum and each individual bid item and unit price item, respectively, shall be deemed to include:
1. Any and all costs which may arise from any unforeseen difficulties encountered during, and all risks of any description connected with, prosecution of Work, bid item or unit price item, respectively, until acceptance by the Port;
 2. All expenses which may be incurred due to suspension, or discontinuance of Work, bid item or unit price item, respectively, as provided in the Contract Documents;
 3. Escalation to allow for cost increases between time of Contract Award and completion of Work, bid item or unit price item, respectively.
- C. Whenever it is specified herein that the Contractor is to do work or furnish materials of any class for which no price is fixed in the Contract Documents, it shall be understood that the Contractor is to do such work or furnish such materials without extra charge or allowance or direct payment of any sort, and that cost of doing work or furnishing materials is to be included in price bid, unless it is expressly specified herein, in particular cases, that work or material is to be paid for as extra work.
- D. No payment shall be made for materials or equipment not yet incorporated into the Work, except if specified in the Project Manual. For the materials and equipment referenced in the Project Manual as subject to payment prior to incorporation into the work, where the Contractor requests payment on the basis of such materials and equipment not incorporated in the Work, the Contractor must satisfy the following conditions:
1. The materials and/or equipment shall be delivered and suitably stored at the site or at another local location agreed to in writing, for example, a mutually acceptable warehouse;
 2. Full title to the materials and/or equipment shall vest in the Port at the time of delivery to the site, warehouse or other storage location;
 3. The Contractor shall obtain a negotiable warehouse receipt, endorsed over to the Port for materials and/or equipment stored in an off-site warehouse. No payment shall be made until such endorsed receipts are delivered to the Port;
 4. Stockpiled materials and/or equipment shall be available for the Port's inspection, but the Port shall have no obligation to inspect them and its inspection or failure to inspect shall not relieve the Contractor of any obligations

under the Contract Documents. Materials and/or equipment shall be segregated and labeled or tagged to specifically identify this specific Contract Documents;

5. After delivery of materials and/or equipment, if any inherent or acquired defects are discovered, defective materials and/or equipment shall be removed and replaced with suitable materials and/or equipment at the Contractor's expense;
6. At its expense, the Contractor shall insure the materials and/or equipment against theft, fire, vandalism, and malicious mischief, as well as any other coverages required under the Contract Documents;
7. The Contractor's application for payment shall be accompanied by a bill of sale, invoice or other documentation warranting that the Port has received the materials and equipment free and clear of all liens and evidence that the materials and equipment are covered by appropriate property insurance and other arrangements to protect the Port's interest therein, all of which must be satisfactory to the Port. This documentation shall include, but not be limited to, conditional releases of mechanics' liens and stop notices from all those providing materials and equipment as to which the application for payment relates, as well as unconditional releases of the same from the same as to the previous applications for payment for which they have not already been provided.

1.06 BASIS OF PAYMENT

- A. Unit Pay Quantities: When estimated quantity for specific portions of Work is listed in Bid Form, quantity of work to be paid for shall be actual number of units satisfactorily completed in accordance with Contract Documents.
- B. Lump Sum: When estimated quantity for specific portion of Work is not indicated and unit is designated as Lump Sum, payment will be on a Lump Sum basis for Work satisfactorily completed in accordance with Contract Documents.
- C. Allowances: Allowance items will be paid for as provided in Section 01100, Summary of Work. Funds authorized for Allowance work will not be released for contract payments unless Allowance work has been authorized in writing by the Port.
- D. The Port does not expressly, or by implication, agree, warrant, or represent in any manner, that actual amount of Work will correspond with amount shown or estimated and reserves right to increase or decrease amount of any class or portion of Work, to leave out entire Bid Item or Items, or to add work not included in Bid, when in its judgment such change is in best interest of the Port. No change in Work shall be considered waiver of any other condition of the Contract Documents. No claim shall be made for anticipated profit, for loss of profit, for damages, or for any extra payment whatsoever, except as otherwise expressly provided for in the Contract Documents, because of any differences between amount of work actually done and estimated amount as set forth herein, or for elimination of extra Bid Items.
- E. Notwithstanding the above provisions, the unit prices set forth in the Bid Form shall be utilized where they are applicable. If the Contract Change Order increases or decreases the quantity of an item of work by more than twenty-five percent (25%),

such that the application of unit prices in the Bid will cause substantial inequity to the Port or Contractor, unit prices will be adjusted as follows:

1. **Increases of More Than 25 Percent.** If the total pay quantity of any item of work required under the Contract exceeds the estimated quantity set forth in the Bid by more than 25 percent, no adjustment in unit price will be made unless the Engineer or the Contractor so requests in writing not later than fifteen (15) calendar days after substantial completion of the subject item of work. If the Engineer or the Contractor so requests in writing, the work in excess of 125 percent of the estimated quantity set forth in the Bid and not covered by an executed change order specifying the compensation to be paid, will be paid for by adjusting the Contract unit price as provided below; or, at the option of the Engineer, payment for the work involved in such excess will be made on the basis of force account.

Such adjustment of the unit price, for the work in excess of 125 percent of the estimated bid quantity, will be the difference between the Contract unit price and the actual cost of performing the unit of work. If the costs applicable to such item of work include fixed costs, such fixed costs will be deemed to have been recovered by the Contractor by the payments made for 125 percent of the estimated quantity set forth in the Bid for such item, and in computing the actual unit cost, such fixed costs will be excluded. Subject to the above provisions, such actual unit cost will be determined by the Engineer in the same manner as if the work were to be paid for on a force account basis; or such adjustment will be as agreed to in writing signed by the Contractor and the Engineer.

2. **Decreases of More Than 25 Percent.** If the total pay quantity of any item of work required under the Contract is less than 75 percent of the estimated quantity set forth in the Bid, but the item of work is not entirely eliminated, an adjustment in unit price pursuant to this paragraph will not be made unless the Contractor so requests in writing not later than fifteen (15) calendar days after substantial completion of the subject item of work. If the Contractor so requests, such adjustment, if not covered by an executed change order specifying the compensation to be paid for the quantity less than 75 percent of the estimated quantity set forth in the Bid, will be paid for by adjusting the Contract unit price as provided below.

Such adjustment of the Contract unit price for the decrease of more than 25 percent will be the difference between the Contract unit price and the actual cost of performing the unit of work. Such actual unit cost will be determined by the Engineer in the same manner as if the work were to be paid for on a force account basis; or such adjustment will be as agreed to in writing signed by the Contractor and the Engineer. The payment for the total pay quantity of such item of work shall in no case exceed the payment which would be made for the performance of 75 percent of the estimated quantity set forth in the Bid for such item at the Contract unit price.

1.07 PROGRESS PAYMENTS

A. Schedule of Values.

1. Within the time frames set in Document 00700, Section 11.1, the Contractor shall submit a detailed breakdown of its bid by scheduled Work items and/or activities, including coordination responsibilities and project record document responsibilities. Where more than one subcontractor comprises the work of a work item or activity, the Schedule of Values shall show a separate line item for each subcontract. The Contractor shall furnish such breakdown, of the total Contract Sum, by assigning dollar values (cost estimates) to each applicable Progress Schedule network activity (per Section 01320), which cumulative sum equals the total Contract Sum. The format and detail of the breakdown shall be as directed by the Port to facilitate and clarify future progress payments to the Contractor for direct Work under the Contract Documents. This breakdown shall be referred to as the Schedule of Values.
2. The Contractor's overhead, profit, insurance, cost of bonds and/or other financing, as well as "general conditions costs," (e.g., site cleanup and maintenance, temporary roads and access, off site access roads, temporary power and lighting, security, submittals, and the like), shall be prorated through all activities so that the sum of all the Schedule of Values line items equal the Contractor's total Contract Sum, less any allowances designated by the Port.
3. The Port will review the breakdown in conjunction with the Progress Schedule to ensure that the dollar amounts of this Schedule of Values are, in fact, fair market cost allocations for the Work items or activities listed. Upon favorable review by the Port, this Schedule of Values will be accepted for use by the Port. The Port shall be the sole judge of fair market cost allocations.
4. Any attempt to increase the cost of early activities, i.e., "front loading," will be rejected by the Port, resulting in a complete reallocation of monies until such "front loading" is corrected. Repeated attempts at "front loading" may result in suspension or termination of the Work or refusal to process progress payments, until such time as the Schedule of Values is acceptable to the Port.

B. Payment Requests

1. Unless otherwise agreed, Contractor shall submit to the Port, on or before the first (1st) day of each month, five (5) copies of a request for payment for the cost of the Work put in place during the period from the first day of the previous month to the last day of the previous month. Such requests for progress payments shall be based upon Schedule of Values prices of all labor and materials incorporated in the Work up until midnight of the last day of that one-month period, less the aggregate of previous payments. If the Contractor is late submitting its payment request, that payment request may be processed at any time during the succeeding one-month period, resulting in processing of the Contractor's payment request being delayed for more than a day-for-day basis.
2. Payment requests may include, but are not necessarily limited to the following:
 - a. Material, equipment and labor incorporated into the Work, less any previous payments for the same;

- b. Up to seventy-five percent (75%) of the actual cost (not bid cost) of major equipment identified in paragraph 1.05.D above, if purchased and delivered to the site or stored off site, as may be approved by the Port.
 - c. Up to fifty percent (50%) of the actual cost (not bid cost) of materials identified in paragraph 1.05.D above specifically fabricated for the Project that are not yet incorporated into the Work, provided such materials are located on the Site.
3. The Contractor shall, at the time any payment request is submitted, certify in writing the accuracy of the payment request and that the Contractor has fulfilled all scheduling requirements of Document 00700, General Conditions, and Section 01320, Progress Schedules and Reports, including updates and revisions. The certification shall be executed by a responsible officer of the Contractor.
4. No progress payment will be processed prior to the Port receiving all requested, acceptable schedule update information. No progress payment will be processed unless Project Record Documents are being kept up to date. Engineer will check and verify that the Record Drawings are kept up to date prior to processing payment.
5. Each payment request shall list each Change Order executed prior to date of submission, including the Change Order Number, and a description of the work activities, consistent with the descriptions of original work activities. The Contractor shall submit a monthly Change Order status log to the Port.
6. If the Port requires substantiating data, the Contractor shall submit information requested by the Port, with cover letter identifying Project, payment request number and date, and detailed list of enclosures. The Contractor shall submit one copy of substantiating data and cover letter for each copy payment request submitted.
7. Monthly progress payments shall be made, based on total value of activities completed or partially completed, as determined by the Port with participation of the Contractor, and based upon approved activity costs. Accumulated retainage will be shown as separate item in payment summary. If the Contractor fails or refuses to participate in construction progress evaluation with the Port, the Contractor shall not receive current payment until the Contractor has participated fully in providing construction progress information and schedule update information for the Port.
8. Legal title to all Work shall pass to and vest in the Port as Work is performed, and title to all materials and equipment shall pass to and vest in the Port when such materials and equipment are delivered to the Site or as soon as title passes from the vendor or supplier thereof. The Contractor shall keep the site and all materials and equipment free and clear of all liens, stop notices and charges arising out of performance of the Contract Documents, and shall indemnify, defend and hold harmless all those indemnified pursuant to Section 13.3 of Document 00700, General Conditions, from the claims, suits, actions, losses and liabilities described therein, including those which are a result of any breach of

this responsibility and shall defend any claim or suit brought against any party required to be indemnified hereunder based upon any such claim of title or lien.

9. The Contractor shall promptly pay each Subcontractor or subconsultant the amount to which such Subcontractor or subconsultant is entitled, and shall, by an appropriate agreement with each Subcontractor or subconsultant, require each Subcontractor or subconsultant to make payments to its sub-subcontractors or sub-subconsultants in a similar manner.

C. Progress Payments

1. Upon receiving the Contractor's payment request, the Port will review the payment request and make necessary adjustments to percent of completion of each activity. One copy will be returned to the Contractor with description of adjustments made. All parties will update percentage of completion values in the same manner, i.e., express value of an accumulated percentage of completion to date.
2. Progress Payment requests or any supporting information submitted after 3:30 p.m. will be considered received at the beginning of the next business day for date of receipt purposes.
3. The payment request may be reviewed by the Engineer and/or inspectors, for the purpose of determining that the payment request is a proper payment request, and shall be rejected, revised or approved by the Port pursuant to the cost breakdown prepared in accordance with this Section.
4. If it is determined that the payment request is not a proper payment request suitable for payment, the Port shall return it to the Contractor as soon as practicable, but no later than seven (7) calendar days after receipt, together with a document setting forth in writing the reasons why the payment request is not proper. If the Port determines that portions of the payment request is not proper or not due under the Contract Documents, then the Port may approve the other portions of the payment request, and in the case of disputed items or defective work not remedied, may withhold up to 150% of the disputed amount from the progress payment.
5. Pursuant to Public Contract Code Section 20104.50, if the Port fails to make any progress payment within thirty (30) calendar days after receipt of an undisputed and properly submitted payment request from a contractor, the Port shall pay interest to the Contractor equivalent to the legal rates set forth in subdivision (a) of Section 685.010 of the Code of Civil Procedure. The thirty (30) calendar day period shall be reduced by the number of calendar days by which the Port exceeds the seven (7) calendar day return requirement set forth herein. Undisputed and properly submitted payment request shall mean that the following items have been submitted in compliance with the Contract Documents:
 - (a) Certified Payroll Reports and Summary of Utilization of Construction Workforce
 - (b) Updated monthly schedule

- (c) Updated project record documents (as-built drawings and specifications)
 - (d) Aon Insurance Form-4,
 - (e) Monthly change order status log
 - (f) Copy of substantiating data, when applicable
 - (g) Copy of Document 00825-Attachment A, Social Justice Trust Fund Contribution form with attachments (for MAPLA projects only)
6. Within ten (10) business days after approval by the Port's Construction Department Manager of each request for progress payment, the Port will mail payment to the Contractor, for an amount equal to ninety percent (90%) of the Port's estimate, or a lesser amount if so provided in Contract Documents, provided that payments may at any time be withheld if, in judgment of the Port, Work is not proceeding in accordance with the Contract Documents, or the Contractor is not complying with requirements of the Contract Documents, or to comply with stop notices or to offset liquidated damages accruing or expected.
 7. At any time after ninety-five percent (95%) of the work has been completed, the Engineer may reduce the total amount withheld from payment to such lesser amount as the Engineer determines is adequate security for the fulfillment of the balance of the Work and other requirements of the Contract, but in no event will said amount be reduced to less than one hundred twenty-five percent (125%) of the Engineer's estimated value of the work uncompleted. Such reduction will only be made upon the written request of the Contractor and only if approved in writing by the surety on the Contractor's performance bond and by the surety on the Contractor's payment bond.
 8. Retention will not be reduced if the Contractor, in opinion of the Port, is behind schedule. If retention is reduced at any point during performance of the Work and the Contractor subsequently falls behind schedule, retention may be raised back to original percentage specified in Paragraph 1.07.C.6.
 9. Before any progress payment or final payment is made, the Contractor may be required to submit satisfactory evidence that the Contractor is not delinquent in payments to employees, subcontractors, suppliers, or creditors for labor and materials incorporated into Work. The Contractor shall issue payments to subcontractors, and subconsultants within five (5) business days of receipt of payment from the Port.
 10. The Port reserves and shall have the right to withhold payment for any equipment and/or specifically fabricated materials that, in the sole judgment of the Port, is not adequately and properly protected against weather and/or damage, prior to or following incorporation into the Work.
 11. Granting of progress payment or payments by the Port, or receipt thereof by the Contractor, shall not be understood as constituting in any sense acceptance of Work or of any portion thereof, and shall in no way lessen liability of the Contractor to replace unsatisfactory work or material, though unsatisfactory character of work or material may have been apparent or detected at time payment was made.
 12. When the Port shall charge sum of money against the Contractor under any

provision of the Contract Documents, amount of charge shall be deducted and retained by the Port from amount of next succeeding progress payment or from any other moneys due or that may become due the Contractor under the Contract Documents. If, on completion or termination of the Contract Documents, such moneys due the Contractor are found insufficient to cover the Port's charges against it, the Port shall have right to recover balance from the Contractor or Sureties.

13. The Port reserves the right, but shall not have the duty, to withhold payment from the Contractor as follows:
 - (a) In addition to any retention, an amount, not less than ten percent (10%) of the Total Progress Payment due to failure of the Contractor to abate, within that working day or immediately, in cases of imminent danger, infractions of the Port's Construction Safety Standards Manual, Contractor's Safety Plan, Cal/OSHA, Federal OSHA, ANSI or other applicable safety standards.
 - (b) In addition to any other retention, an amount, not to exceed twenty percent (20%) of the Total Progress Payment, due to four or more repeated infractions in a single payment period by the Contractor of the Port's Construction Safety Standards Manual, Contractor's Safety Plan, Cal/OSHA, Federal OSHA, ANSI or other applicable safety standards.

Whenever Port, in its discretion, withholds any such moneys otherwise due Contractor, written notice of the amount withheld and the reasons therefor shall be provided to Contractor, and when Contractor provides adequate written assurance that it has removed the cause(s) of such safety violations, Port will pay Contractor the amount so withheld.

Notwithstanding any of the foregoing, the Port's failure to withhold such progress payments shall not be considered an acceptance of approval of the Contractor's safety program or the administration thereof, nor shall the foregoing restrict the Port's ability to terminate the Contractor in the appropriate circumstances pursuant to the termination provisions of the General Conditions.

14. When a bid item for mobilization is included in the Schedule of Bid Prices or when mobilization appears in the schedule of values, mobilization of the Contractor will be paid, subject to the other requirements of this Section 01200, as follows:
 - (a) When the Engineer's estimate of the total amount of the material furnished and delivered and of the work done by the Contractor (but not including mobilization costs) is five percent (5%) or more of the (Total Bid Price); then the total amount earned for mobilization, to date, will be fifty percent (50%) of the bid item price or schedule of values item price for mobilization or two and one-half percent (2.5%) of the (Total Bid Price), whichever is lesser. This amount will be included in the Engineer's estimate.

- (b) When the Engineer's estimate, not including mobilization costs, is ten percent (10%) or more of the (Total Bid Price), the total amount earned for mobilization, to date, will be seventy five percent (75%) of the total bid item price or schedule of values item price for mobilization or three and three-quarters percent (3.75%) of the (Total Bid Price), whichever is lesser. This amount will be included in the Engineer's estimate.
- (c) When the Engineer's estimate, not including mobilization costs, is twenty percent (20%) or more of the (Total Bid Price), the total amount earned for mobilization, to date, will be ninety percent (90%) of the total bid item price or schedule of values item price for mobilization or four and one-half percent (4.5%) of the (Total Bid Price), whichever is lesser. This amount will be included in the Engineer's estimate.
- (d) The remaining ten percent (10%) of the total bid item price or schedule of values item price for mobilization will be paid to Contractor in accordance with the retention requirements of this Section.
- (e) Contractor shall provide Port with a detailed breakdown of the mobilization costs included in such Bid Item to facilitate and clarify future progress payments to Contractor.

1.08 SUBSTITUTION OF SECURITIES IN LIEU OF RETENTION

Pursuant to provisions of Public Contract Code Section 22300, substitution of securities for any monies withheld under the Contract Documents to insure performance is permitted under following conditions:

1. At request and expense of the Contractor, securities listed in Section 16430 of the Government Code, bank or savings and loan certificates of deposit, interest bearing demand deposit accounts, standby letters of credit, or any other security mutually agreed to by the Contractor and the Port which are equivalent to the amount withheld under retention provisions of the Contract Documents shall be deposited with Controller or with a state or federally chartered bank in California, as the escrow agent, who shall then pay such monies to the Contractor. Upon satisfactory completion of the Contract Documents, securities shall be returned to the Contractor.
2. Alternatively, the Contractor may request and the Port shall make payment of retentions earned directly to the escrow agent at the expense of the Contractor. At the expense of the Contractor, the Contractor may direct the investment of the payments into securities and the Contractor shall receive the interest earned on the investments upon the same terms provided for in this section for securities deposited by the Contractor. Upon satisfactory completion of the Contract Documents, the Contractor shall receive from escrow agent all securities, interest, and payments received by the escrow agent from the Port, pursuant to the terms of this section. The Contractor shall pay to each subcontractor, not later than twenty (20) calendar days after receipt of the payment, the respective amount of interest earned, net of costs attributed to retention withheld from each subcontractor, on the amount of retention withheld to insure the performance of the Contractor.
3. The Contractor shall be beneficial owner of securities substituted for monies withheld

and shall receive any interest thereon.

4. The Contractor shall enter into escrow agreement according to Document 00680, Escrow Agreement, as authorized under Public Contract Code Section 22300, specifying amount of securities to be deposited, terms and conditions of conversion to cash in case of default of the Contractor, and termination of escrow upon completion of the Contract work.

1.09 FINAL PAYMENT

- A. As soon as practicable after all required Work is completed in accordance with the Contract Documents, including the Contractor's maintenance after Final Acceptance, the Port will pay to the Contractor, in manner provided by law, unpaid balance of contract price of Work, or whole contract price of Work if no progress payment has been made, determined in accordance with terms of the Contract Documents, less sums as may be lawfully retained under any provisions of the Contract Documents or by law.
- B. Prior progress payments shall be subject to correction in the final payment. The Port's determination of amount due as final payment shall be final and conclusive evidence of amount of Work performed by the Contractor under the Contract Documents, and shall be full measure of compensation to be received by the Contractor.
- C. The Contractor and each assignee under an assignment in effect at time of final payment shall execute and deliver at time of final payment and as a condition precedent to final payment, Document 00650, Agreement and Release of Any and All Claims, discharging the Port, its officers, agents, employees and consultants of and from liabilities, obligations, and claims arising under the Contract Documents.

1.10 EFFECT OF PAYMENT

Payment will be made by the Port, based on the Port's observations at the site and the data comprising the Application for Payment. Payment will not be a representation that the Port has:

1. made exhaustive or continuous on-site inspections to check the quality or quantity of Work;
2. reviewed construction means, methods, techniques, sequences or procedures;
3. reviewed copies of requisitions received from subcontractors and material suppliers and other data requested by the Port to substantiate the Contractor's right to payment;
or
4. made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

PART 2 PRODUCTS

Not applicable to this section.

PART 3 - EXECUTION

Not applicable to this section.

END OF SECTION

SECTION 01250

MODIFICATION PROCEDURES

PART 1 GENERAL

1.01 SUMMARY

- A. This section describes general procedural requirements for alterations, modifications and extras. This section provides the basis for pricing contractor claims of all types.
- B. Related Sections
 - 1. Section 01100: Summary of Work
 - 2. Section 01200: Measurement and Payment

1.02 GENERAL

- A. Any change in scope of work or deviation from Contract Documents shall be accomplished only when authorized in writing by the Port.
- B. Changes in scope of Work or deviation from Contract Documents may be initiated only by the Contractor or the Port.
 - 1. The Contractor may initiate changes by submitting Requests For Information (RFI), Requests For Substitution (RFS), Notice of Concealed or Unknown Conditions, or Notice of Hazardous Waste or Materials Conditions.
 - a. RFIs shall be submitted to seek clarification of Contract Documents.
 - b. RFSs shall be submitted in accordance with Document 00700 General Conditions to request substitution of materials or methods of execution.
 - c. Notices of Concealed or Unknown Conditions shall be submitted in accordance with Document 00700, General Conditions.
 - d. Notices of Hazardous Waste Conditions shall be submitted in accordance with Document 00700, General Conditions.
 - 2. The Port may initiate changes by issuing a Field Change.
 - 3. The Port may initiate changes in the Work or Contract Times by issuing Requests For Proposal (RFP) to the Contractor. Such RFPs will detail all proposed changes in the Work and request a quotation of changes in Contract Sum and Contract Times from the Contractor.
 - 4. The Contractor shall be responsible for its costs to implement and administer RFIs, RFPs and RFSs throughout the Contract duration. Regardless of the number of RFIs, RFPs and RFSs submitted, the Contractor will not be entitled to

additional compensation. The Contractor shall be responsible for both Port's and Architect/Engineer's administrative costs for answering RFIs where the answer could reasonably be found by reviewing the Contract Documents, as determined by the Port; such costs will be deducted from progress payments.

1.03 PROCEDURE

- A. The Contractor shall submit RFIs to the Port immediately upon discovering the need for clarification. The Contractor shall reference each RFI to an activity on the Progress Schedule and shall note time criticality of the RFI, indicating time within which a response is required and priority when more than one RFI is submitted at the same time. The Port shall respond by issuing a Clarification. Failure by Contractor to reference RFI to an activity on the Progress Schedule and note time criticality on the RFI shall constitute Contractor's waiver of any claim for time delay or interruption to the Work resulting from asserted delay in responding to the RFI.
- B. The Port shall have a maximum of seven (7) calendar days to respond to each RFI. If issuance of a Clarification is anticipated to take longer than seven (7) calendar days of receipt of the RFI, the Port will notify the Contractor accordingly and provide an estimated date for issuance of the Clarification. If the RFI remains unresolved after twenty-one (21) calendar days, the Contractor and the Port shall consider convening a meeting to discuss the RFI. RFIs submitted after 3:30 p.m. will be considered received at the beginning of the next business day.
 - 1. If the Contractor is satisfied with the Clarification and does not request change in Contract Sum or Contract Times, then the Clarification shall be executed without a change.
 - 2. If the Contractor believes that the Clarification results in change in Contract Sum or Contract Times, the Contractor shall notify the Port who may then deny request for change or issue RFP.
- C. The Contractor shall submit RFSs to the Port who may then deny request or issue an RFP.
- D. The Contractor shall submit Notices of Concealed or Unknown Conditions to resolve unanticipated conditions incurred in the execution of the Work. Procedures in Document 00700, General Conditions, shall be followed. If the Port determines that a change in Contract Sum or Contract Times is justified, the Port shall issue a RFP.
- E. The Contractor shall submit Notices of Hazardous Waste Conditions to resolve problems regarding hazardous materials encountered in the execution of the Work. Procedures in Paragraph 13.5 of Document 00700, General Conditions, shall be followed. If the Port determines that a change in Contract Sum or Contract Times is justified, the Port shall issue RFP.
- F. The Port may issue a Field Change to the Contractor. The Contractor shall not proceed with a Field Change until the Port approves it in writing.

1. If the Contractor is satisfied with a Field Change and does not request change in Contract Sum or Contract Time(s), then the Field Change shall be executed without a Change Order.
 2. If the Contractor believes that a Field Change results in change in Contract Sum or Contract Times, the Contractor shall notify the Port. The Port may then deny request for change, cancel the Field Change or issue an RFP.
- G. The Contractor shall respond to the Port's RFP within fourteen (14) calendar days by furnishing a complete breakdown of costs of credits, deducts and extras; itemizing materials, labor, taxes, overhead and profit. Subcontract work shall be so indicated.
- H. Upon approval of an RFP, the Port will issue a Change Order directing the Contractor to proceed with the changed work. If the parties do not agree on the price for an RFP, the Port may decide the issue per Document 00700 (General Conditions), Section 12; Contractor shall nevertheless perform the changed work notwithstanding any claims or disagreements of any nature.
- I. Payment shall be made for Change Order work along with other work in progress payment following completion of Change Order work. Partial completion of Change Order work shall be paid for that part completed during the period covered by the monthly payment request.

1.04 COST DETERMINATION

- A. Total cost of changed work or of work omitted shall be the sum of labor costs, material costs, equipment rental costs and specialist costs as defined herein plus overhead and profit as allowed herein. This limit applies in all cases of claims for changed work, whether calculating Change Orders, RFPs, or calculating claims of all types, whether in negotiation, litigation or arbitration, and applies even in the event of fault, negligence, strict liability, or tort claims of all kinds, including strict liability or negligence. No other costs arising out of or connected with the performance of changed work, of any nature, may be recovered by the Contractor. No special, incidental or consequential damages may be claimed or recovered against Port, its representatives or agents, whether arising from breach of contract, negligence or strict liability, unless specifically authorized in the Contract Documents.
- B. Overhead and Profit:
1. Overhead shall be as defined in Article 1.08.
 2. Overhead and profit on labor for changed work shall be 25 percent (25%)
 3. Overhead and profit on materials for changed work shall be 10 percent (10%).
 4. Overhead and profit on equipment rental for changed work shall be 10 percent (10%).

5. When changed work is performed by a first tier subcontractor, the Contractor shall receive a 5 percent (5%) markup on subcontractors' total costs of changed work.
6. When changed work is performed by a lower tier subcontractor, the Contractor shall receive a total of 10 percent (10%) markup on the lower tier subcontractors' total costs of changed work. The Contractor and first tier subcontractors and lower tier subcontractors shall divide the 10% markup as mutually agreed.

C. Taxes:

1. Alameda County Sales Tax shall be included.
2. Federal and Excise Tax shall not be included.

D. Owner Operated Equipment

When owner-operated equipment is used to perform changed work, the Contractor will be paid for equipment and operator as follows:

1. Payment for equipment will be made in accordance with Paragraph 1.05.C.
2. Payment for cost of labor will be made at no more than rates of such labor established by collective bargaining agreements for type of worker and location of work, whether or not owner-operator is actually covered by such an agreement.

1.05 COST BREAKDOWN

- A. Labor - the Contractor will be paid cost of labor for workers (including forepersons when authorized by the Port) used in actual and direct performance of changed work. Labor rate, whether employer is the Contractor, subcontractor or other forces, will be sum of following:
1. Actual Wages - Actual wages paid shall include any employer payments to or on behalf of workers for health and welfare, pension, vacation and similar purposes.
 2. Labor surcharge - Payments imposed by Port, City, State and Federal laws and ordinances, and other payments made to, or on behalf of, workers, other than actual wages as defined in subparagraph 1 above, such as taxes and insurance. Labor surcharge shall be as set forth in California Department of Transportation official labor surcharges schedule which is in effect on date upon which changed work is accomplished and which schedule is incorporated herein by reference as though fully set forth herein.
- B. Material - Only materials furnished by the Contractor and necessarily used in performance of changed work will be paid for. Cost of such materials will be cost, including sales tax, to purchaser (Contractor, subcontractor or other forces) from supplier thereof, except as the following are applicable:

1. If cash or trade discount by actual supplier is offered or available to purchaser, it shall be credited to Port notwithstanding fact that such discount may not have been taken.
2. For materials salvaged upon completion of changed work, salvage value of materials shall be deducted from cost, less discount, of materials.
3. If cost of a material is, in opinion of the Port, excessive, then cost of material shall be deemed to be lowest current wholesale price at which material is available in quantities concerned delivered to Site, less any discounts as provided in subparagraph 1 above.

C. Equipment Rental

For the Contractor or subcontractor-owned equipment, payment will be made at rental rates listed for equipment in California Department of Transportation official equipment rental rate schedule which is in effect on date upon which changed work is accomplished and which schedule is incorporated herein by reference as though fully set forth herein. For rented equipment, payment will be made based on actual rental invoices. Equipment used on changed work shall be of proper size and type. If, however, equipment of unwarranted size or type and cost is used, cost of use of equipment shall be calculated at rental rate for equipment of proper size and type. Rental rates paid shall be deemed to cover cost of fuel, oil, lubrication, supplies, small tools, necessary attachments, repairs and maintenance of any kind, depreciation, storage, insurance, and all incidentals. Unless otherwise specified, manufacturer's ratings, and manufacturer approved modifications, shall be used to classify equipment for determination of applicable rental rates. Individual pieces of equipment or tools not listed in said publication and having a replacement value of one hundred dollars (\$100) or less, whether or not consumed by use, shall be considered to be small tools and no payment will be made therefor as payment is included in payment for labor. Rental time will not be allowed while equipment is inoperative due to breakdowns.

1. For equipment on Site, rental time to be paid for equipment shall be time equipment is in operation on changed work being performed or on standby as approved by the Port. The following shall be used in computing rental time of equipment:
 - a. When hourly rates are listed, less than thirty (30) minutes of operation shall be considered to be one-half (1/2) hour of operation.
 - b. When daily rates are listed, less than four (4) hours of operation shall be considered to be one-half (1/2) day of operation.
2. For equipment which must be brought to Site to be used exclusively on changed work, cost of transporting equipment to Site and its return to its original location shall be determined as follows:
 - a. Port will pay for costs of loading and unloading equipment.

- b. Cost of transporting equipment in low bed trailers shall not exceed hourly rates charged by established haulers.
 - c. Cost of transporting equipment shall not exceed applicable minimum established rates of California Public Utilities Commission.
 - d. Payment for transporting, and loading and unloading equipment as above provided will not be made if equipment is used on Work in any other way than upon changed work.
 - e. If the equipment is to be used at another job site, the Port will pay transportation charges to the Port, but will not to the other job site.
3. Rental period shall begin at time equipment is unloaded at Site of changed work and terminate at end of day on which the Port directs the Contractor to discontinue use of equipment. Rental period shall not include Saturdays and Sundays unless Contractor is actually charged for the equipment and, if equipment is delivered on Friday for Monday work then no rental charge shall be paid by Port. Excluding Saturdays, Sundays, and legal holidays, unless equipment is used to perform changed work on such days, rental time to be paid per day shall be four (4) hours for zero (0) hours of operation, six (6) hours for four (4) hours of operation and eight (8) hours for eight (8) hours of operation, time being prorated between these parameters. Hours to be paid for equipment which is operated less than eight (8) hours due to breakdowns, shall not exceed eight (8) less number of hours equipment is inoperative due to breakdowns.

D. Work Performed by Special Forces or Other Special Services

When the Port and the Contractor, by agreement, determine that special service or item of changed work cannot be performed by forces of the Contractor or those of any subcontractors, service or changed work item may be performed by specialist. Invoices for service or item of changed work on basis of current market price thereof may be accepted without complete itemization of labor, material, and equipment rental costs when it is impracticable and not in accordance with established practice of special service industry to provide complete itemization. In those instances wherein the Contractor is required to perform changed work necessitating a fabrication or machining process in a fabrication or machine shop facility away from Site, charges for that portion of changed work performed in such facility may, by agreement, be accepted as a specialist billing. Port must be notified in advance of all off-site work. To specialist invoice price, less credit to Port for any cash or trade discount offered or available, whether or not such discount may have been taken, will be added 15 percent (15%) in lieu of overhead and profit provided in Paragraph 1.04.B.

1.06 FORCE-ACCOUNT

- A. If it is impracticable because of nature of work or disagreements, or for any other reason, to fix an increase or decrease in price definitely in advance, the Contractor may be directed to proceed at a not-to-exceed (NTE) maximum price which shall not under any circumstances be exceeded. Subject to such limitation, such changed work shall be paid for at actual necessary cost for Force-Account Work or at the negotiated

cost, as determined by the Port. The cost for Force-Account Work and Field Change Work shall be determined pursuant to Article 1.04.

- B. Force Account Work and Field Change Work shall be used when it is not possible or practical to price out the changed work or claim for extra work prior to the start of that work. In these cases, either Force Account Work or Field Change Work will be utilized during the pricing and negotiation phase of the change. Once negotiations have been concluded and a bilateral agreement has been reached, the tracking of the work under Force Account is no longer necessary. Force Account Work shall also be used when negotiations between the Port and the Contractor have broken apart and a bilateral agreement on the value of the changed work cannot be reached. Other uses of Force Account Work and Field Change Work may be approved by the Port.
- C. The Contractor shall report to the Port each day in writing in detail amount and cost of labor and material used, and any other expense incurred in Force-Account Work on preceding work day as required herein. No claim for compensation for Force-Account Work will be allowed unless report shall have been made.
- D. Whenever Force-Account Work and Field Change Work is in progress, definite price for which has not been agreed on in advance, the Contractor shall report to the Port when 75% of the not-to-exceed amount has been expended.
- E. Force Account Work and Field Change Work shall be paid as changed work under this Section. The described methods of determining payment for work and materials shall not apply to performance of work or furnishings of material which, in the Port's judgment, may properly be classified under items for which prices are established in the Contract Documents.

1.07 PORT FURNISHED MATERIALS

Port reserves right to furnish materials as it deems advisable, and the Contractor shall have no claims for costs and overhead and profit on such materials.

1.08 OVERHEAD DEFINED

The following constitutes charges that are deemed included in overhead for all contract modifications, including Force-Account Work or Field Change Work, whether incurred by the Contractor, subcontractors, or suppliers:

1. Drawings: field drawings, shop drawings, etc. including submissions of drawings
2. Routine field inspection of work proposed
3. General Superintendence
4. General administration and preparation of change orders
5. Computer services
6. Reproduction services
7. Salaries of project engineer, project manager, superintendent, timekeeper, storekeeper and secretaries
8. Janitorial services

9. Temporary on-site facilities
 - a. Offices
 - b. Telephones
 - c. Plumbing
 - d. Electrical: Power, lighting
 - e. Platforms
 - f. Fencing, etc.
10. Home office expenses.
11. Insurance and Bond premiums.
12. Procurement and use of vehicles and fuel used coincidentally in base bid work.
13. Surveying
14. Estimating
15. Protection of work
16. Final cleanup
17. Other incidental work

1.09 RECORDS AND CERTIFICATION

- A. Force-Account (cost reimbursement) charges shall be recorded daily upon Cost Breakdown for Contract Modification Form included herein. The Contractor or authorized representative shall complete and sign form. On the Contract Modification Form, the Contractor shall provide names and classifications of workers and hours worked by each, itemize materials used, and also list size type and identification number of equipment, and hours operated, and shall indicate work done by specialists. Other forms with equivalent information on it may be used at the Port's discretion.
- B. No payment for Force-Account Work shall be made until the Contractor submits original invoices substantiating materials and specialists charges. No payment for Field Change Work shall be made until negotiations have been completed and the subsequent Change Order issued.
- C. Port shall have the right to audit all records in possession of the Contractor relating to activities covered by the Contractor's claims for modification of Contract, including Force-Account Work and Field Change Work, as set forth in Document 00700 General Conditions.
- D. Further, Port shall have right to audit, inspect, or copy all records maintained in connection with this Contract, including financial records, in possession of the Contractor relating to any transaction or activity occurring or arising out of, or by virtue of, Contract. If the Contractor is a joint venture, right of Port shall apply collaterally to same extent to records of joint venture sponsor, and of each individual joint venture member.

1.10 WORK SUSPENSIONS

- A. In the case of work suspensions or claims for delay, Contractor may not claim and recover costs based upon the "Eichlay" formula. Contractor must prove and substantiate actual costs, overhead per the criteria stated herein, and actual project expenses, using the criteria set forth in this Section, reduced if appropriate by taking

into account any costs reasonably avoidable through reasonable mitigation measures.

PART 2 PRODUCTS

Not applicable to this section.

PART 3 EXECUTION

Not applicable to this section.

PART 4 COST BREAKDOWN FORM

COST BREAKDOWN FORM FOLLOWS ON NEXT PAGES

**COST BREAKDOWN FORM FOR CONTRACT MODIFICATION
SHEET 1 OF 2**

One separate form shall be used by the Contractor, each first tier subcontractor and each lower tier subcontractor. One form for each shall be used for each change order. One form for each, for each day shall be used for Force-Account work.

CHANGE ORDER NUMBER: _____ DATE: _____

CHANGE ORDER DESCRIPTION: _____

CONTRACTOR: _____

LABOR				
NAME	CLASSIFICATION	HOURS	RATE *	TOTAL
TOTAL LABOR COSTS (Enter here and on Line 1 of Sheet 2)				

* The Contractor shall provide a list of classification worked broken down into direct wages and labor surcharge

MATERIALS	
DESCRIPTION	COST
TOTAL MATERIAL COSTS (Enter here and on Line 4 of Sheet 2)	

COST BREAKDOWN FORM FOR CONTRACT MODIFICATION
SHEET 2 OF 2

EQUIPMENT RENTAL				
SIZE AND TYPE	I.D. #	HOURS	RATE	TOTAL
TOTAL EQUIPMENT RENTAL COSTS (Enter here and on Line 8)				

SPECIALIST	
DESCRIPTION	COST
TOTAL SPECIALIST COSTS (Enter here and on Line 11)	

TOTAL COSTS		
1. TOTAL LABOR COSTS		
2. 25 % of Line 1		
3. ADD Lines 1 and 2		
4. TOTAL MATERIAL COSTS		
5. 10 % of Line 4		
6. 8.25 % of line 4		
7. ADD Lines 4, 5 and 6		
8. TOTAL EQUIPMENT RENTAL COSTS		
9. 10 % of Line 8		
10. ADD Lines 8 and 9		
11. TOTAL SPECIALIST COSTS		
12. 10 % of Line 11		
13. ADD Lines 11 and 12		
14. TOTAL COST OF EXTRA WORK (ADD Lines 3, 7, 10 and 13)		

CONTRACTOR OR AUTHORIZED REPRESENTATIVE: _____

APPROVED BY PORT: _____

RECAPITULATION OF COSTS FORM FOR CONTRACT MODIFICATION

Use this form to add total costs of changed work of the Contractor, first tier subcontractors and lower tier subcontractors. One form shall be used for each change order. One form shall be used each day for Force-Account work.

1. TOTAL COST OF CONTRACTOR'S EXTRA WORK		
2. FIRST TIER SUBCONTRACTOR	COST OF EXTRA WORK	
2a.		
2b.		
2c.		
2d.		
2e.		
2f.		
3. TOTAL COSTS OF FIRST TIER SUBCONTRACTORS' EXTRA WORK (Add Lines 2a through 2f)		
4. 5 percent of Line 3		
5. LOWER TIER SUBCONTRACTOR	COST OF EXTRA WORK	
5a.		
5b.		
5c.		
5d.		
5e.		
5f.		
6. TOTAL COSTS OF LOWER TIER SUBCONTRACTORS' EXTRA WORK (Add Lines 5a through 5f)		
7. 10 percent of Line 6		
8. CONTRACT CHANGE ORDER AMOUNT (Add Lines 1, 3, 4, 6 and 7)		

CONTRACTOR OR AUTHORIZED REPRESENTATIVE: _____

APPROVED BY PORT: _____

END OF SECTION

SECTION 01310

JOB SITE ADMINISTRATION

PART 1 GENERAL

1.01 SUMMARY

- A. This section describes requirements for job site administration, including:
 - 1. Port's Resident Engineer
 - 2. Contractor's Project Management Team.

- B. Related Sections.
 - 1. Section 01100: Summary of Work
 - 2. Section 01320: Progress Schedules and Reports
 - 3. Section 01330: Submittals
 - 4. Section 01780: Project Record Documents

1.02 PORT'S MANAGEMENT TEAM

- A. The Port shall be represented on this Contract by its Chief Engineer, who will act personally or through designated representatives. The Chief Engineer has designated the Resident Engineer to represent the Chief Engineer in carrying out the duties of the Port. The Chief Engineer may delegate all or a portion of the Resident Engineer's duties to a Construction Manager.

- B. The Resident Engineer as referenced in the definitions will be assigned to manage the Contract on behalf of the Port. The Resident Engineer, under authority from the Port, has the responsibility to administer the Contract so that its completion may be accomplished in accordance with the Contract Documents. Should the performance of the Contractor or the quality of the Contractor's work, or the materials furnished by the Contractor, fail to meet the standards specified, the Resident Engineer may take such action or require such measures to be taken by Contractor as may be required to meet the requirements of the Contract.

- C. Functions of the Resident Engineer include, but are not limited to, the following:
 - 1. The Resident Engineer functions as the primary Port representative with the Contractor in all matters concerning the Contract, monitoring the Contractor's performance in all respects to ascertain that the Work is performed in accordance with all the requirements of the Contract.
 - 2. The Resident Engineer is the focal point of contact with the Contractor regarding clarification of discrepancies and resolution of questions of fact that arise during performance of the Work under the Contract. The Resident Engineer also performs this role with regard to all agency and utility construction interfaces with the Work under this Contract.
 - 3. The Contractor is required by the Contract to provide formal notice of any and all potential claims arising during the performance of the Work. The Resident

- Engineer will administer the processing and resolution of any such claims in accordance with the requirements of the Contract.
4. All contractual correspondence, including submittals, shall be directed and processed through the Resident Engineer unless otherwise specifically directed in the Contract. Any required or requested interface between the Contractor and the Port, the Architect/Engineer, or any other representative of the Port, will be coordinated by the Resident Engineer.
 5. Except for emergencies or unless otherwise assigned, the Port's Chief Engineer reserves to itself the authority to act on the following items:
 - a. Instruct Contractor to start or stop the work.
 - b. Authorize performance by Contractor of extra work or changed work beyond the Resident Engineer's monetary authority
 - c. Authorize payment to Contractor for work performed.
 - d. Authorize final acceptance of the Work.
 - e. Extend the Contract Times, subject to the express limits placed upon the Chief Engineer under Port Ordinance 1606.

1.03 CONTRACTOR'S PROJECT MANAGEMENT TEAM

- A. The Contractor shall staff the Project with a management team qualified and experienced in construction of a public works project of this value, nature and complexity. This team shall possess the competency, skills and authority specified in Paragraph 10 of Document 00700, General Conditions.
 1. The Contractor shall submit to the Port prior to Notice to Proceed the names, detailed project experience, references, and proposed project position for each team member. Key team members shall have a minimum of five (5) years of experience in the proposed position.
 2. If, during the course of the Project, the Contractor finds it necessary to replace a member of the Project Management Team, the name, qualifications, and experience of the proposed replacement shall be submitted to the Port for approval.
- B. The Project Management Team shall be composed of members with the necessary skills and be sufficient in number to handle all duties normal to a project of this scale and complexity. Special attention shall be given to the responsibility for coordination and scheduling.
- C. The Contractor's Project Management Team shall be capable of performing the following duties, including but not necessarily limited to:
 1. Maintain the schedule and resolve construction related issues.
 2. Coordinate permitting and construction activities to ensure timely completion of the Project.
 3. Maintain a CPM schedule as specified in Section 01320, Progress Schedules and Reports.
 4. Coordinate construction activities of suppliers and subcontractors with those of the Contractor and each other to insure timely deliveries for installation.

5. Coordinate the construction activities of subcontractors to insure available manpower and adequate labor to maintain the Project schedule.
6. Coordinate necessary inspections with the Port, approved Testing Laboratory, and other agencies as required for the progress of the Work.
7. Participate in Project meetings with the Port and the Architect/Engineer to review the progress of the construction, and identify and resolve outstanding construction-related issues.
8. Coordinate the installation operation and maintenance of temporary utilities required during construction.
9. Prior to submittal of Shop Drawings, Product Data, Samples and other submittals, as specified in Section 01330, review for compliance with the Contract Documents and coordination with other work.
 - a. Check field dimensions and clearance dimensions.
 - b. Check relation to available space.
 - c. Check anchor bolt settings.
 - d. Review the effect of changes, if any, on the Work of other contracts or by Others.
 - e. Check compatibility of equipment and work of the various trades.
 - f. Check motor voltages and control characteristics.
 - g. Coordinate controls and interlocks: Voltages and wiring of electric switches and relays.
 - h. Coordinate wiring and control diagrams.
 - i. Certify compliance with Contract Documents or list differences.
10. Prepare coordination drawings as required to ensure coordination of Work of, or affected by, mechanical and electrical Work, or to resolve conflicts. Reproduce and distribute reviewed copies to all concerned parties.
11. Observe required testing and maintain a record of tests:
 - a. Testing Laboratory and name of inspector.
 - b. Subcontractor.
 - c. Manufacturer's representative present.
 - d. Date and time of testing.
 - e. Type of product or equipment.
 - f. Type of test, and test results.
 - g. Retesting required
12. Verify that Subcontractors maintain an accurate and up-to-date record of Contract Documents.
13. Observe the Work for compliance with requirements of the Contract Documents. Maintain list of observed deficiencies and discrepancies.
14. Equipment Start-up:
 - a. Check to ensure that utilities and specified connections are complete and that equipment is in operable condition.
 - b. Observe testing, adjusting, and balancing.
 - c. Record results, including time and date of start-up.
15. Inspection of Equipment:
 - a. Prior to inspection, check that equipment is clean, repainted as required, tested, and operational.
 - b. Assist inspector; prepare list of items to be completed or corrected.
16. Assemble Project Record Documents from subcontractors and ensure that completed Project Record Documents are submitted to the Port in

accordance with Section 01770, Contract Closeout, and other requirements of the Contract Documents.

1.04 HAZARDOUS WASTE ABATEMENT JOB SITE ADMINISTRATION REQUIREMENTS

- A. Hazardous materials or hazardous waste work shall not commence until:
1. Arrangements have been made by the Contractor for disposal of the hazardous materials/waste at an acceptable site.
 2. A treatment system for contaminated water is installed by the Contractor or the Port, or arrangements have been made for containing and disposing of such water in a manner acceptable to the Port.
 3. Environmental work area is marked and decontamination systems are effectively segregated as approved by Port.
 4. Tools, equipment, and hazardous materials/waste receptacles are on hand.
 5. Arrangements have been made for site security.
 6. All other preparatory steps have been taken and applicable notices posted and permits obtained.
 7. The underground utilities within the limits of construction have been identified, located, marked and shut off.
- B. In the event of an Emergency Response to a hazardous materials/waste spill, leak, etc., work shall immediately commence to evaluate and contain the hazardous materials/waste, notice shall immediately be given to the Port, and preliminary notifications to responsible agencies shall be made concurrently. Paragraph 16.4 "Emergencies" of Document 00700, General Conditions, shall apply. Contractor shall notify emergency service agencies, including fire, ambulance, police and any other agency which may service the work site in case of an emergency.
- C. A Daily Log shall be maintained by Contractor. The log will document the date and time of, but not be limited to, the following items:
1. Meetings (purpose, attendees, brief discussion)
 2. Visitations (authorized and unauthorized)
 3. Personnel (by name, entering and leaving the work area or zones for hazardous materials response).
 4. Special or unusual events (i.e., barrier breaching, equipment failures, and accidents).
 5. Laboratory analytical results and air monitoring tests and test results.
- D. The log book shall document Contractor's completion of the following:
1. Inspection of Work Area prior to start of contaminated material removal and daily thereafter.
 2. Removal of any sheet plastic barriers.
 3. Contractor's inspections prior to backfilling or any other operation that shall conceal the condition of the contaminated areas from which contaminated materials have been removed.

4. Removal of waste materials from work area including measurements of items for payment.
 5. Decontamination of equipment (list items).
 6. Notifications to appropriate regulatory agencies.
- E. Except as otherwise indicated, special reports of any accidents, spills, or containment breaches shall be submitted to Port within one day from any such occurrence.
- F. Contractor shall prepare an overall contingency plan for emergencies including fire, accident, power failure, or any other event that may require modification or abridgement of decontamination or work area isolation procedures prior to commencing work at the Port. Nothing in this specification should impede safe exiting or provision of adequate medical attention to injured parties in the event of an emergency at the Port. This plan shall be updated annually by Contractor and shall include:
1. Telephone numbers and locations of emergency services including but not limited to fire, ambulance, doctor, hospital, police, power company, telephone company, and key Contractor personnel shall be included in the contingency plan.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

END OF SECTION

SECTION 01315

PROJECT MEETINGS

PART 1 GENERAL

1.01 SUMMARY

- A. This section describes the required project meetings for this work. These meetings include:
 - 1. Preconstruction Conference.
 - 2. Scheduling Meetings.
 - 3. Progress Meetings.
 - 4. Special Meetings.
 - 5. Safety Meetings.

- B. Related Sections.
 - 1. Section 01100: Summary of Work
 - 2. Section 01200: Measurement and Payment
 - 3. Section 01320: Work Schedules and Reports
 - 4. Section 01330: Submittals

1.02 PRECONSTRUCTION CONFERENCE

- A. The Port will call for and administer Preconstruction Conference at time and place to be announced. Conference will occur as soon after award as can be reasonably scheduled.

- B. The Contractor, all subcontractors, and major suppliers shall attend Preconstruction Conference.

- C. Agenda will include, but not be limited to, the following items.
 - 1. Schedules.
 - 2. Personnel and vehicle permit procedures.
 - 3. Use of premises.
 - 4. Location of the Contractor's on-site facilities.
 - 5. Employee parking.
 - 6. Security.
 - 7. Housekeeping.
 - 8. Submittals.
 - 9. Inspection and testing procedures, on-site and off-site.
 - 10. Utility shutdown procedures.
 - 11. Control and reference point survey procedures.
 - 12. Injury and Illness Prevention Program.
 - 13. Contractor's Initial CPM Schedule
 - 14. Contractor's Schedule of Values
 - 15. Contractor's Schedule of Submittals.

- D. The Port will distribute copies of minutes to attendees. Attendees shall have seven (7) calendar days to submit comments or additions to minutes. Minutes will constitute final memorialization of results of conference.

1.03 SCHEDULING MEETINGS

- A. Meet with the Port prior to Start Date of the Work under the Contract Documents and conduct initial review of the Contractor's draft Shop Drawing and Sample Submittal Schedule, draft Schedule of Values, and Initial Progress Schedule.
- B. Authorized representative in the Contractor's organization, designated in writing, who will be responsible for working and coordinating with the Port relative to preparation and maintenance of Progress Schedule shall attend initial review meeting.
- C. The Contractor shall, within thirty (30) days from the Notice to Proceed date, meet with the Port to review the Original CPM Schedule submittal.
 - 1. The Contractor shall have its manager, superintendent, scheduler, and key subcontractor representatives, as required by the Port, in attendance. The meeting will take place over a continuous one-day period.
 - 2. The Port's review will be limited to submittal's conformance to Contract requirements, including, but not limited to, coordination requirements. However, review may also include:
 - a. Clarifications of Contract Requirements.
 - b. Directions to include activities and information missing from submittal.
 - c. Requests to the Contractor to clarify its schedule.
 - 3. Within five (5) days of the Schedule Review Meeting, the Contractor shall respond in writing to all questions and comments expressed by the Port at the Meeting.
- D. The Port will administer scheduling meetings and shall distribute minutes of scheduling meetings to attendees. Attendees shall have seven (7) calendar days to submit comments or additions to minutes. Minutes will constitute final memorialization of results of conference.

1.04 PROGRESS MEETINGS

- A. The Port will schedule and administer Progress Meetings throughout duration of Work. Progress meetings will be held weekly unless otherwise directed by the Port.
 - 1. Meetings shall be held at the Contractor's on-site office unless otherwise directed by the Port.
 - 2. The Port will prepare agenda and distribute to the Contractor, in advance of meeting.
 - 3. The Port will preside at meeting.
 - 4. The Port will record and distribute minutes to the Contractor and all other participants, and those affected by decisions made at meeting, within five (5) calendar days after meeting. Attendees shall have seven (7) calendar days to submit comments or additions to minutes. Minutes will constitute final memorialization of results of meeting.

- B. Progress Meetings shall be attended by the Contractor's job superintendent, major subcontractors and suppliers, the Port, and others as appropriate to agenda topics for each meeting.
- C. Agenda will contain the following items as appropriate:
 - 1. Review of work progress.
 - 2. Status of Construction Work Schedule, adjustments.
 - 3. Submittals.
 - 4. Delivery schedules.
 - 5. Utility shutdowns, traffic disruptions, runway, taxiway or other closures, and other interferences with Airport Seaport operations, tenants or public scheduled activities during the subsequent two (2) weeks.
 - 6. Quality control.
 - 7. Pending changes.
 - 8. Substitutions.
 - 9. Review of the Contractor's safety program activities and results, including report on all serious injury and/or damage accidents.
 - 10. Other items affecting progress of work.
- D. A meeting will be held on approximately the 10th and 25th of each month to review the schedule update submittal and progress payment application.
 - 1. At this meeting, at a minimum, the following items will be reviewed: Percent complete of each activity; Time impact evaluations for Change Orders and Time Extension Request; actual and anticipated activity sequence changes; actual and anticipated duration changes; and actual and anticipated contractor delays.
 - 2. These meetings are considered a critical component of overall monthly schedule update submittal and the Contractor shall have appropriate personnel attend. At a minimum, these meetings shall be attended by the Contractor's General Superintendent and Scheduler.
 - 3. The Contractor shall plan on the meeting taking no less than four (4) hours.

1.05 SPECIAL MEETINGS

- A. Special meetings may be called by any party by notifying all desired participants, the Port, and Inspector five (5) calendar days in advance, giving reason for meeting. Special meetings may be held without advance notice in emergency situations.
- B. At any time during the progress of the Work, Port shall have authority to require the Contractor to attend conference of any or all of the contractors engaged in the Work or in other work, and notice of such conference shall be duly observed and complied with by the Contractor.
- C. The Contractor shall schedule and conduct coordination meetings as necessary to discharge coordination responsibilities in the General Conditions. The Port shall be given five (5) calendar days written notice of coordination meetings. The Contractor shall maintain minutes of coordination meetings and shall distribute minutes of coordination meetings to all attendees. Attendees shall have seven (7) calendar days to submit comments or additions to minutes. Minutes will constitute final memorialization of results of coordination meetings.

1.06 SAFETY MEETINGS

- A. Conduct monthly Contractor Safety Committee meetings.
- B. Conduct weekly tool-box safety talks.
- C. If the Owner Controlled Insurance Program (OCIP) is implemented by the Port, attend, and require all field personnel to attend, one session of a safety orientation conducted by OCIP Safety Office. Orientations for field personnel are conducted weekly. Personnel will, upon completion of orientation, be issued a badge which will allow entry to the construction site. Construction sites may require additional badges to allow entry to designated areas of the Port. Require all supervisory personnel to attend one session of a safety orientation conducted by OCIP Safety Office. Orientations for supervisory personnel are conducted biweekly. All safety meetings conducted by the Contractor or subcontractors may be attended by representatives of the OCIP. Port Risk Manager shall be notified of times and places of all Contractor's and subcontractors' safety meetings.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

END OF SECTION

SECTION 01320

PROGRESS SCHEDULES AND REPORTS

1.01 SUMMARY

- A. Scheduling of Work under these Contract Documents shall be performed by the Contractor in accordance with requirements of this Section.
 - 1. Development of schedule, cost and resource loading of the schedule, monthly payment requests and project status reporting requirements of the Contract Documents shall employ computerized Critical Path Method (CPM) scheduling.
 - 2. CPM Schedule shall be cost loaded based on Schedule of Values as approved by the Port.
 - 3. Submit schedules and reports as specified in Document 00700 General Conditions.
- B. Upon Award of Contract, the Contractor shall immediately commence development of Initial and Original CPM Schedules to ensure compliance with CPM schedule submittal requirements.
- C. Related Sections:
 - 1. Section 01100: Summary of Work
 - 2. Section 01200: Measurement and Payment
 - 3. Section 01315: Project Meetings
 - 4. Section 01330: Submittals

1.02 QUALIFICATIONS

- A. The Contractor shall employ experienced scheduling personnel qualified to use the latest version of Primavera Project Planner or equivalent for windows, latest version. Experience level required is set forth below. The Contractor may employ such personnel directly or may employ a consultant for this purpose. After bid opening, the apparent successful low bidder shall provide the Port a written verification that the Contractor has the required personnel under its employ or that the Contractor will employ the required CPM consultant.
 - 1. The written statement shall identify individual who will perform CPM scheduling.
 - 2. Capability and experience shall be verified by description of construction projects on which individual has successfully applied computerized CPM.
 - 3. Required level of experience shall include at least two projects of similar nature, scope and value not less than three-fourths the Total Bid Price of this Project. The written statement shall provide contact persons for referenced projects with current telephone and address information.
- B. The Port reserves right to approve the Contractor's scheduler, or consultant, and right to reject them at any time. The Port also reserves right to refuse replacement of the

Contractor's scheduler or consultant, if it believes such replacement will negatively affect performance of the Contract Documents.

1.03 GENERAL

- A. The Progress Schedule shall be based on and incorporate milestone and completion dates specified in the Contract Documents.
- B. Overall time of completion and time of completion for each milestone shown on Progress Schedule shall adhere to times in Document 00520 Agreement, unless an earlier (advanced) time of completion is requested by the Contractor and agreed to by the Port. Any such agreement shall be formalized by a Change Order.
 - 1. The Port is not required to accept an earlier (advanced) schedule, i.e., one that shows early completion dates for the Contract Times.
 - 2. The Contractor shall not be entitled to extra compensation in event agreement is reached on an earlier (advanced) schedule and the Contractor completes its Work, for whatever reason, beyond completion date shown in earlier (advanced) schedule but within the Contract Times.
 - 3. A schedule showing the work completed in less than the Contract Times, which has been accepted by the Port, shall be considered to have Project Float. The Project Float is the time between the scheduled completion of the work and Substantial Completion. Project Float is a resource available to both the Port and the Contractor.
- C. Float Ownership: Neither the Port nor the Contractor owns float. The Project owns the float. As such, liability for delay of the Substantial Completion Date rests with the party whose unexcused delay, last in time, actually cause delay to the Substantial Completion Date.
 - 1. For example, if Party A incurs unexcused delay and uses some, but not all of the float and Party B later incurs unexcused delay and uses the remainder of the float as well as additional time beyond the float, Party B shall be liable for the delay that represents a delay to the Substantial Completion Date.
 - 2. Party A would not be responsible for the delay since it did not consume all of the float and additional float remained; therefore, the Substantial Completion Date was unaffected by Party A.
- D. The Progress Schedule shall be the basis for evaluating job progress, payment requests, and time extension requests. Responsibility for developing Contract CPM schedules and monitoring actual progress as compared to Progress Schedule rests with the Contractor.
- E. Failure of the Progress Schedules to include any element of the Work or any inaccuracy in Progress Schedules will not relieve the Contractor from responsibility for accomplishing the Work in accordance with the Contract Documents. The Port's acceptance of schedules shall be for its use in monitoring and evaluating job progress, payment requests, and time extension requests, and shall not, in any manner, impose a duty of care upon the Port, or act to relieve the Contractor of its responsibility for means and methods of construction.

- F. Use Primavera Project Planner or equivalent for Windows, latest version. Such software shall be compatible with Windows operating system. The Contractor shall transmit contract schedule files to the Port on 3.5-inch high density floppy disk or other Port acceptable media at times requested by the Port.
- G. Transmit each item under form approved by the Port.
 - 1. Identify Project with the Port Contract number, and name of the Contractor.
 - 2. Provide space for the Contractor's approval stamp and the Port's review stamps.
 - 3. Submittals received from sources other than the Contractor will be returned to the Contractor without the Port's review.

1.04 INITIAL CPM SCHEDULE

- A. Initial CPM Schedule submitted for review at the pre-construction conference shall serve as the Contractor's schedule for up to sixty (60) calendar days after the Notice to Proceed.
- B. Indicate detailed plan for the Work to be completed in first sixty (60) calendar days of the Contract; details of planned mobilization of plant and equipment; sequence of early operations; submittals, and procurement of materials and equipment. Show Work beyond ninety (90) calendar days in summary form.
- C. Initial CPM Schedule shall be time-scaled.
- D. Initial CPM Schedule shall be cost and resource loaded. Accepted cost and resource loaded schedule will be used as basis for monthly progress payments until acceptance of the Original CPM Schedule. Use of Initial CPM Schedule for progress payments shall not exceed sixty (60) calendar days.
- E. The Port and the Contractor shall meet to review and discuss the Initial CPM Schedule within ten (10) calendar days after it has been submitted to the Port. The Initial CPM Schedule shall be submitted at the PreConstruction Conference.
 - 1. The Port's review and comment on the schedule shall be limited to Contract Documents conformance (with sequencing, coordination, and milestone requirements).
 - 2. The Contractor shall make corrections to schedule necessary to comply with Contract Documents requirements and shall adjust schedule to incorporate any missing information requested by the Port. The Contractor shall resubmit Initial CPM Schedule if requested by the Port.
- F. If, during the first sixty (60) calendar days after Notice-to-Proceed, the Contractor is of the opinion that any of the Work included on its Initial CPM Schedule has been impacted, the Contractor shall submit to the Port a written Time Impact Evaluation (TIE) in accordance with Article 1.10 of this Section. The TIE shall be based on the most current update of the Initial CPM Schedule.

1.05 ORIGINAL CPM SCHEDULE

- A. Submit a detailed proposed Original CPM Schedule presenting an orderly and realistic plan for completion of the Work, in conformance with requirements as specified herein.
- B. Progress Schedule shall include or comply with following requirements:
 - 1. Time scaled, cost and resource (labor and major equipment) loaded CPM schedule.
 - 2. No activity on schedule shall have duration longer than fifteen (15) workdays, with exception of submittal, approval, fabrication and procurement activities, unless otherwise approved by the Port.
 - a. Activity durations shall be total number of actual workdays required to perform that activity.
 - 3. The start and completion dates of all items of Work, their major components, and milestone completion dates, if any.
 - 4. Port-furnished materials and equipment, if any, identified as separate activities.
 - 5. Activities for maintaining Project Record Documents.
 - 6. Dependencies (or relationships) between activities.
 - 7. Processing/approval of submittals and shop drawings for all Contract Documents-required material and equipment. Activities that are dependent on submittal acceptance or material delivery shall not be scheduled to start earlier than expected acceptance or delivery dates.
 - a. Include time for submittals, resubmittals, and reviews by the Port. Coordinate with accepted schedule for submission of shop drawings, samples and other submittals.
 - b. The Contractor shall be responsible for all impacts resulting from resubmittal of shop drawings and submittals.
 - 8. Procurement of major equipment, through receipt and inspection at the jobsite, identified as separate activity.
 - a. Include time for fabrication and delivery of manufactured products for the Work.
 - b. Show dependencies between procurement and construction.
 - 9. Activity description; what Work is to be accomplished and where.
 - 10. The total cost of performing each activity shall be total of labor, material, equipment, excluding overhead and profit of the Contractor. Overhead and profit of the General

Contractor shall be shown as a separate activity in the schedule. Sum of cost for all activities shall equal total Contract value.

11. Resources required (labor, major material and major equipment) to perform each activity.
12. Responsibility code for each activity corresponding to the Contractor or Subcontractor responsible for performing the Work.
13. Identify the activities which constitute the controlling operations or critical path. No more than twenty-five (25%) of the activities shall be critical or near critical. Near critical is defined as float in the range of one (1) to (10) calendar days.
14. Twenty (20) workdays for developing punch list(s), completion of punch list items, and final clean-up for the Work or any designated portion thereof. No other activities shall be scheduled during this period.
15. Interface with the work of other contractors, the Port, and agencies such as, but not limited to, utility companies.
16. Show detailed Subcontractor Work activities. In addition, furnish copies of Subcontractor schedules upon which CPM was built.
 - a. Also furnish for each Subcontractor, as determined by the Port, submitted on Subcontractor letterhead a statement certifying that Subcontractor concurs with the Contractor's Original CPM Schedule and that Subcontractor's related schedules have been incorporated, including activity duration, cost and resource loading.
 - b. Subcontractor schedules shall be independently derived and not a copy of the Contractor's schedule.
 - c. In addition to the Contractor's schedule and resource loading, obtain from electrical, mechanical, structural and plumbing Subcontractors, and other subcontractors as required by the Port, productivity calculations common to their trades, such as units per person day, feet of pipe per day per person, feet of wiring per day per person, and similar information.
 - d. Furnish schedule for the Contractor/Subcontractor CPM schedule meetings which shall be held prior to submission of Original CPM schedule to the Port. The Port shall be permitted to attend scheduled meetings as an observer.
17. Activity durations shall be in Workdays.
18. Submit with the schedule a list of anticipated non-Workdays, such as weekends and holidays. The Progress Schedule shall exclude in its Workday calendar all non-Workdays on which the Contractor anticipates critical Work will not be performed.

- C. Original CPM Schedule Review Meeting: The Contractor shall, within thirty (30) calendar days from the Notice to Proceed date, meet with the Port to review the Original CPM Schedule submittal.
1. The Contractor shall have its Contract Manager, Project Superintendent, Project Scheduler, and key Subcontractor representatives, as required by the Port, in attendance. The meeting will take place over a continuous one-day period.
 2. The Port's review will be limited to submittal's conformance to Contract Documents requirements, including, but not limited to, coordination requirements. However, review may also include:
 - a. Clarifications of Contract Documents Requirements.
 - b. Directions to include activities and information missing from submittal.
 - c. Requests to the Contractor to clarify or adjust its schedule.
 3. Within five (5) calendar days of the Schedule Review Meeting, the Contractor shall respond in writing to all questions and comments expressed by the Port at the Meeting.

1.06 ADJUSTMENTS TO CPM SCHEDULE

- A. Adjustments to Original CPM Schedule: The Contractor shall have adjusted the Original CPM Schedule submittal to address all review comments from original CPM Schedule review meeting and resubmit network diagrams and reports for the Port's review.
1. The Port, within ten (10) calendar days from date that the Contractor submitted the adjusted schedule, will either:
 - a. accept schedule and cost and resource loaded activities as submitted, or
 - b. advise the Contractor in writing to review any part or parts of the adjusted schedule which either do not meet Contract Documents requirements or are unsatisfactory for the Port to monitor Project's progress, resources and status or evaluate monthly payment requests by the Contractor.
 2. The Port may accept the adjusted schedule with conditions that the first monthly CPM schedule update be revised to correct deficiencies identified.
 3. When the adjusted schedule is accepted, it shall be considered as the "Original CPM Schedule" which will then be immediately updated to reflect the current status of the work.
 4. The Port reserves the right to require the Contractor to adjust, add to, or clarify any portion of Original CPM Schedule which may later be discovered to be insufficient for monitoring of Work or approval of partial payment requests. No additional compensation will be provided for such adjustments, additions, or clarifications.

- B. Acceptance of the Contractor's schedule by the Port will be based solely upon schedule's compliance with Contract Documents requirements.
 - 1. By way of the Contractor assigning activity durations and proposing sequence of Work, the Contractor agrees to utilize sufficient and necessary management and other resources to perform work in accordance with the schedule.
 - 2. Upon submittal of schedule update, each current updated schedule shall be considered "current" CPM schedule.
 - 3. Submission of the Contractor's schedule to the Port shall not relieve the Contractor of total responsibility for scheduling, sequencing, and pursuing Work to comply with requirements of Contract Documents, including adverse effects such as delays resulting from ill-timed work.
- C. Submittal of Original CPM Schedule, and subsequent schedule updates, shall be understood to be the Contractor's representation that the Schedule meets requirements of the Contract Documents and that Work shall be executed in sequence indicated on the schedule.
- D. The Contractor shall distribute Original CPM Schedule and all adjustments and updates to it to Subcontractors for review and written acceptance, which shall be noted on Subcontractors' letterheads to the Contractor and transmitted to the Port for the record.

1.07 MONTHLY CPM SCHEDULE UPDATE SUBMITTALS

- A. Following acceptance of the Contractor's Original CPM Schedule, the Contractor shall monitor progress of Work and adjust schedule each month to reflect actual progress and any anticipated changes to planned activities.
 - 1. Each schedule update submitted shall be complete, including all information requested for the Original CPM Schedule submittal.
 - 2. Each schedule update shall continue to show all work activities including those already completed. These completed activities shall accurately reflect "as built" information by indicating when activities were actually started and completed.
- B. A meeting will be held on approximately the twenty-fifth (25th) of each month to review the schedule update submittal and progress payment application.
 - 1. At this meeting, at a minimum, the following items will be reviewed: Percent complete of each activity; Time Impact Evaluations for Change Orders and Time Extension Request; actual and anticipated activity sequence changes; actual and anticipated duration changes; and actual and anticipated Contractor delays.
 - 2. These meetings are considered a critical component of overall monthly schedule update submittal and the Contractor shall have appropriate personnel attend. At a minimum, these meetings shall be attended by the Contractor's General Superintendent and Scheduler.

- C. Within seven (7) calendar days after monthly schedule update meeting, the Contractor shall submit the updated CPM Schedule update.
- D. Within seven (7) calendar days of receipt of above noted revised submittals, the Port will either accept or reject monthly schedule update submittal.
 - 1. If accepted, percent complete shown in monthly update will be basis for Application for Payment by the Contractor. The schedule update shall be submitted as part of the Contractor's Application for Payment.
 - 2. If rejected, update shall be corrected and resubmitted by the Contractor before the Application for Payment is submitted.
- E. Updating, changing or revising of any report, curve, schedule or narrative submitted to the Port by the Contractor under the Contract Documents, or the Port's review or acceptance of any such report, curve, schedule or narrative shall not have the effect of amending or modifying, in any way, the Substantial Completion date or milestone dates or of modifying or limiting, in any way, the Contractor's obligations under the Contract Documents.

1.08 SCHEDULE REVISIONS

- A. Updating the Schedule to reflect actual progress shall not be considered revisions to the Schedule. Since scheduling is a dynamic process, revisions to activity durations and sequences are expected on a monthly basis.
- B. To reflect revisions to the schedule, the Contractor shall provide the Port with a written narrative with a full description and reasons for each Work activity revised. For revisions affecting the sequence of work, the Contractor shall provide a schedule diagram which compares the original sequence to the revised sequence of work. The Contractor shall provide the written narrative and schedule diagram for revisions two (2) workdays in advance of the monthly schedule update meeting.
- C. Schedule revisions shall not be incorporated into any schedule update until the revisions have been reviewed by the Port. The Port may request further information and justification for schedule revisions and the Contractor shall, within three (3) calendar days, provide the Port with a complete written narrative response to the Port's request.
- D. If the Contractor's revision is still not accepted by the Port, and the Contractor disagrees with the Port's position, the Contractor has seven (7) calendar days from receipt of the Port's letter rejecting the revision, to provide a written narrative providing full justification and explanation for the revision. The Contractor's failure to respond in writing within seven (7) calendar days of the Port's written rejection of a schedule revision shall be contractually interpreted as acceptance of the Port's position, and the Contractor waives its rights to subsequently dispute or file a claim regarding the Port's position.
- E. At the Port's discretion, the Contractor can be required to provide subcontractor certifications of performance regarding proposed schedule revisions affecting said subcontractors.

1.09 RECOVERY SCHEDULE

- A. If the Schedule Update shows a substantial completion date twenty-one (21) calendar days beyond the Contract Substantial Completion date, or a delay of individual milestone completion dates, the Contractor shall within seven (7) calendar days, submit to the Port the proposed revisions to recover the lost time. As part of this submittal, the Contractor shall provide a written narrative for each revision made to recapture the lost time. If the revisions include sequence changes, the Contractor shall provide a schedule diagram comparing the original sequence to the revised sequence of work.
- B. The revisions shall not be incorporated into any schedule update until the revisions have been reviewed by the Port.
- C. If the Contractor's revisions are not accepted by the Port, the Port and the Contractor shall follow the procedures in paragraph 1.08.C, 1.08.D and 1.08.E above.
- D. At the Port's discretion, the Contractor can be required to provide subcontractor certifications for revisions affecting said subcontractors.

1.10 TIME IMPACT EVALUATION FOR CHANGE ORDERS, AND OTHER DELAYS

- A. When the Contractor is directed to proceed with changed work, the Contractor shall prepare and submit, within fourteen (14) calendar days from the direction to proceed, a Time Impact Evaluation (TIE) which includes both a written narrative and a schedule diagram depicting how the changed work affects other schedule activities. The schedule diagram shall show how the Contractor proposes to incorporate the changed work in the schedule, and how it impacts the current schedule update critical path. The Contractor is also responsible for requesting time extensions based on the TIE's impact on the critical path. The diagram must be tied to the main sequence of schedule activities to enable the Port to evaluate the impact of changed work to the scheduled critical path.
- B. The Contractor shall be required to comply with the requirements of Paragraph 1.09.A for all types of delays such as, but not limited to, the Contractor/Subcontractor delays, adverse weather delays, strikes, procurement delays, fabrication delays, etc.
- C. The Contractor shall be responsible for all costs associated with the preparation of Time Impact Evaluations, and the process of incorporating them into the current schedule update. The Contractor shall provide the Port with 4 copies of each TIE.
- D. Once agreement has been reached on a TIE, the Contract Times will be adjusted accordingly. If agreement is not reached on a TIE, the Contract Times may be extended in an amount the Port allows, and the Contractor may submit a claim for additional time claimed by the Contractor.
- E. The Contractor's TIEs must be based on the as-built critical path. The Port may request the TIE also to show the as planned critical path.

1.11 TIME EXTENSIONS

- A. The Contractor is responsible for requesting time extensions for time impacts that, in the opinion of the Contractor, impact the critical path of the current schedule update. Notice of time impacts shall be given in accord with Articles 12 and 15 of Document 00700, General Conditions.
- B. Where an event for which either the Contractor or the Port is responsible impacts the projected Substantial Completion date, the Contractor shall provide a written mitigation plan, including a schedule diagram, which explains how (e.g., increase crew size, overtime, etc.) the impact can be mitigated. The Contractor shall also include a detailed cost breakdown of the labor, equipment and material the Contractor would expend to mitigate Port caused time impact. The Contractor shall submit its mitigation plan to the Port within 14 calendar days from the date of discovery of said impact. The Contractor is responsible for the cost to prepare the mitigation plan.
- C. Failure to request time, provide TIE, or provide the required mitigation plan will result in the Contractor waiving its right to a time extension and cost to mitigate the delay.
- D. No time will be granted under the Contract Documents for cumulative effect of changes.
- E. The Port will not be obligated to consider any time extension request unless requirements of Contract Documents are complied with.
- F. Failure of the Contractor to perform in accordance with the current schedule update shall not be excused by submittal of TIEs.
- G. If the Contractor does not submit a TIE within the required fourteen (14) calendar days for any issue, it is mutually agreed that the Contractor does not require a time extension for said issue.

1.12 SCHEDULE REPORTS

- A. Submit four (4) copies of the following reports with the Initial CPM Schedule, the Original CPM Schedule, and each monthly update.
- B. Required Reports:
 - 1. Two activity listing reports: one sorted by activity number and one by total float. These reports shall also include each activity's early/late and actual start and finish dates, original and remaining duration, float, responsibility code and the logic relationship of activities.
 - 2. Cost report sorted by activity number including each activity's associated cost, percentage of Work accomplished, earned value to-date, previous payments and amount earned for current update period.
 - 3. Schedule plots presenting time scaled network diagram showing activities and their relationships with the controlling operations or critical path clearly highlighted.

4. Cash flow report calculated by early start, late start and indicating actual progress. Provide an exhibit depicting this information in graphic form.
5. Planned versus actual resource (i.e., labor) histogram calculated by early start and late start.

C. Other Reports

In addition to above reports, the Port may request, from month-to-month, any two of the following reports. Submit four (4) copies of all reports.

1. Activities by early start
2. Activities by late start
3. Activities grouped by subcontractors or selected trades
4. Activities with scheduled early start dates in a given time frame, such as fifteen (15) or thirty (30) calendar day outlook
5. Any other report producible from the scheduling software.

- D. Furnish the Port with report files on 3.5-inch high density floppy disks or other Port approved media containing all schedule files for each report generated.

1.13 PROJECT STATUS REPORTING

- A. In addition to submittal requirements for CPM scheduling identified in this Section, the Contractor shall provide a monthly project status report (i.e., written narrative report) to be submitted in conjunction with each CPM Schedule as specified herein. Status reporting shall be in form specified below.

- B. The Contractor shall prepare monthly written narrative reports of status of Project for submission to the Port. Written status reports shall include:

1. Status of major Project components (percent complete, amount of time ahead or behind schedule) and an explanation of how Project will be brought back on schedule if delays have occurred.
2. Progress made on critical activities indicated on CPM schedule.
3. Explanations for any lack of work on critical path activities planned to be performed during last month.
4. Explanations for any schedule changes, including changes to logic or to activity durations.
5. List of critical activities scheduled to be performed next month.
6. Status of major material and equipment procurement.
7. Any delays encountered during reporting period.

8. The Contractor shall provide printed report indicating actual versus planned resource loading for each trade and each activity. This report shall be provided on weekly and monthly basis.
 - a. Actual resource shall be accumulated in field by the Contractor, and shall be as noted on the Contractor's daily reports. These reports will be basis for information provided in computer generated monthly and weekly printed reports.
 - b. The Contractor shall explain all variances and mitigation measures.
9. The Contractor may include any other information pertinent to the status of the Project. The Contractor shall include additional status information requested by the Port at no additional cost.
10. Status reports, and the information contained therein, shall not be construed as claims, notice of claims, notice of delay, or requests for changes or compensation.

1.14 WEEKLY SCHEDULE REPORT

At the Weekly Progress Meeting, the Contractor shall provide and present a time scaled three week look ahead schedule that is based and correlated by activity number to the current schedule (i.e., Initial, Original CPM, or Schedule Update).

PART 2 PRODUCTS

Not applicable to this section.

PART 3 EXECUTION

Not applicable to this section.

END OF SECTION

SECTION 01330

SUBMITTALS

PART 1 GENERAL

1.01 SUMMARY

- A. This section describes general requirements for submittals for the Work:
1. Procedures
 2. Schedule of Shop Drawing and Sample Submittals
 3. Progress Schedule
 4. Product Data
 5. Shop drawings
 6. Samples
 7. Composite Drawings
 8. Quality Control Submittals
 - a. Design Data
 - b. Test Reports
 - c. Certificates
 - d. Manufacturers' Instructions
 9. Machine Inventory Sheets
 10. Operations and Maintenance Manuals
 11. Computer Programs
 12. Project Record Documents
 13. Delay of Submittals
- B. Related Sections
1. Section 01100: Summary of Work
 2. Section 01200: Measurement and Payment
 3. Section 01250: Modification Procedures
 4. Section 01320: Progress Schedules and Reports
 5. Section 01331: List of Submittals
 6. Section 01343: Safety Program and Safety Representative Requirements
 7. Section 01770: Contract Closeout
 8. Section 01780: Project Record Documents

1.02 PROCEDURES

- A. Submit at own expense, the following submittals: Schedule of Shop Drawing and Sample Submittals, Safety Plans, Progress Schedule, Product Data, Shop Drawings, Samples, Quality Control Data, Machine Inventory Sheets, Operations and Maintenance Manuals, Computer Programs, and Project Record Documents required by the Contract Documents. Submit these submittals to the Port for review and approval in accordance with accepted schedule of Shop Drawings and Samples

submittals. Contractor schedule of Shop Drawings and Samples submittals shall include dates when each respective submittal will be submitted for Port approval. If no such schedule is agreed upon, or if the Contract Time is less than one hundred (100) calendar days, then all Shop Drawing, Samples and product data submittals shall be completed and submitted within thirty (30) calendar days after receipt of Notice of Award from the Port. The Port shall retain all samples.

- B. Transmit each item with a standard letter of transmittal in form approved by the Port. Identify project, the Contractor, subcontractor, major supplier, pertinent drawing sheet and detail number, submittal number and specification section number as appropriate. Provide space for the Contractor, the Port and A/E review stamps. Where manufacturer's standard drawings or data sheets are used, they shall be marked clearly to show those portions of the data which are applicable to this project. Submittals shall be submitted based on each specification section. Submittals containing information about more than one specification section will be returned for resubmittal. Submittals shall include all information requested by each specification section. (No partial submittals) Incomplete submittals will be returned not reviewed. Provide a submittal number and reference to Specifications Section and/or Drawing sheets and details, for each submittal for ease of identification of submittal as specified herein.
- C. The data shown on the Shop Drawings shall be complete with respect to quantities, dimensions, specified performance and design criteria, materials and similar data to show the Port the materials and equipment the Contractor proposes to provide and to enable the Port to review the information for the limited purposes specified below. Samples shall be identified clearly as to material, supplier, pertinent data such as catalog numbers and the use for which it is intended and otherwise as the Port may require to enable the Port to review the submittal. The number of each Sample to be submitted will be as specified in the Specifications.
- D. At the time of each submission, the Contractor shall give the Port specific written notice of all variations, if any, that the Shop Drawing or Sample submitted may have from the requirements of the Contract Documents, and the reasons therefore. This written notice shall be in a written communication separate from the submittal. In addition, the Contractor shall cause a specific notation to be made on each Shop Drawing and Sample submitted to the Port for review and approval of each such variation. If the Port accepts deviation, the Port shall issue appropriate Contract Modification.
- E. Submittal coordination and verification is responsibility of the Contractor; this responsibility shall not be delegated in whole or in part to subcontractors or suppliers. Before submitting each Shop Drawing or Sample, the Contractor shall have reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents, and shall have determined and verified:
 - 1. All field measurements, quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers and similar information with respect thereto;

2. All materials with respect to intended use, fabrication, shipping, handling, storage, assembly and installation pertaining to the performance of the Work; and
 3. All information relative to the Contractor's sole responsibilities and of means, methods, techniques, sequences and procedures of construction and safety precautions and programs incident thereto.
- F. The Contractor's submission to the Port of a Shop Drawing or Sample submittal will constitute the Contractor's representation that it has satisfied its obligations under the Contract Documents, and as set forth immediately above, with respect to the Contractor's review and approval of that submittal.
- G. Designation of work "by others", if shown in submittals, shall mean that work will be the responsibility of the Contractor rather than subcontractor or supplier who has prepared submittals.
- H. After review by the Port of each of the Contractor's submittals, two sets of material will be returned to the Contractor with actions defined as follows:
1. NO CORRECTION NOTED - Accepted subject to its compatibility with future submittals for portions of the work not covered in this submittal. Does not constitute approval or deletion of specified or required items not shown on the submittal.
 2. MAKE CORRECTIONS NOTED (NO RESUBMISSIONS REQUIRED) - Same as 1. above, except that minor corrections as noted shall be made by the Contractor.
 3. REVISE AND / OR CORRECT (RESUBMIT) - Rejected because of major inconsistencies or errors which shall be resolved or corrected by the Contractor prior to subsequent review by the Port.
 4. SUBMIT OMITTED ITEMS – Submit items as noted by the Architect/Engineer on the submittal cover sheet.
 5. REJECTED (RESUBMIT) - Submitted material does not conform to Contract Documents in major respect, i.e.: wrong size, model, capacity, or material.
- I. It is considered reasonable that the Contractor shall make a complete and acceptable submittal at least by second submission. The Port reserves the right to deduct monies from payments due the Contractor to cover additional costs of the Port's and the Architect/Engineer's review beyond the second submission. Illegible submittals will be rejected and returned to the Contractor for resubmission.
- J. Favorable review will not constitute acceptance by the Port of any responsibility for the accuracy, coordination and completeness of the submittals. Accuracy, coordination, and completeness of Submittals shall be sole responsibility of the Contractor, including responsibility to backcheck comments, corrections, and modifications from the Port's or the Architect/ Engineer's review before fabrication. Submittals may be prepared by

the Contractor, subcontractors, or suppliers, but the Contractor shall ascertain that submittals meet requirements of Contract Documents, while conforming to structural space and access conditions at point of installation. The Port's review will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as indicated by the Contract Documents. Favorable review of submittal, method of work, or information regarding materials and equipment the Contractor proposes to furnish shall not relieve the Contractor of responsibility for errors therein and shall not be regarded as assumption of risks or liability by the Port, or any officer or employee thereof, and the Contractor shall have no claim under Contract on account of failure or partial failure or inefficiency or insufficiency of any plan or method of work or material and equipment so accepted. Favorable review shall be considered to mean merely that the Port has no objection to the Contractor using, upon his own full responsibility, plan or method of work proposed, or furnishing materials and equipment proposed.

- K. The Port's review will not extend the means, methods, techniques, sequences or procedures of construction or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions. No such review shall constitute review by the City of Oakland or any other agency.
- L. Submit complete initial submittal for those items where required by individual specification Sections. Complete submittal shall contain sufficient data to demonstrate that items comply with Contract Documents, shall meet minimum requirements for submissions cited in technical specifications, shall include motor data and seismic anchorage certifications, where required, and shall include necessary revisions required for equipment other than first named. If the Contractor submits incomplete initial submittal, when complete submittal is required, submittal may be returned to the Contractor without review.
- M. It shall be the Contractor's responsibility to copy, conform and distribute reviewed submittals in sufficient numbers for the Contractor's files, subcontractors and vendors.
- N. After the Port's review of submittal, revise and resubmit as required. Identify changes made since previous submittal.
 - 1. Begin no fabrication or work which require submittals until return of submittals not requiring resubmittal.
 - 2. Normally, submittals will be processed and returned to the Contractor within ten (10) calendar days of receipt.
- O. Distribute copies of reviewed submittals to concerned persons. Instruct recipients to promptly report any inability to comply with provisions.
- P. All shop drawings and submittals shall be number identified by the Contractor, prior to submission to the Port, in accordance with the following:

- a. The Contractor shall use the List of Submittals (Section 01331), if included in the Project Manual, as the basis for number identification of all shop drawings and submittals. The contractor shall assign a number to all submittals listed in Section 01331 that have not been numbered.
- b. Affix the specification number under which each submittal is made on every copy of each shop drawing, product data, sample, certification, O & M manual, etc. (i.e. overhead coiling doors shop drawings and data would bear the number "08330") following the corresponding submittal number listed in Section 01331, List of Submittals. If the submittal is not listed or numbered in Section 01331, the contractor shall assign a number in accordance with the format specified herein.
- c. On each submittal following the specification number, add the letter suffix designation (i.e. if 22 was the submittal number assigned, overhead coiling doors shop drawings with its product data would be numbered 22-08330-A). The letter suffix indicates whether it is the original submittal or a resubmittal (i.e., if the original overhead coiling door shop drawings were marked "revise and resubmit", the first resubmittal would be marked 22-08330-B).
- d. All submittals shall include all information requested by each specification section. No partial submittals will be accepted unless previously authorized by the Port. In the event a partial submittal is authorized, each subsequent different submittal (as opposed to resubmittal) shall be assigned the next available submittal number (i.e. if O & M manuals for overhead coiling doors are submitted at a later date and the next available submittal number is 31, they should have the number "31" (i.e. 31-08330-A).

Q. Submission requirements:

1. Schedule submissions at least thirty (30) calendar days before dates reviewed submittals will be needed.
2. Submit one reproducible transparency and two prints of Shop Drawings and number of copies of Product Data which the Contractor requires for distribution plus three copies which will be retained by the Port. Submit at least eight (8) copies of all other submittals.
3. Submit three Samples, unless otherwise specified.
4. Accompany submittals with transmittal letter, in duplicate, containing:

Date, and revision date and submittal number.

Project title and Project number.

Contractor's name and address.

Specification Section clearly identified.

The quantity of each Shop Drawing, Product Datum, and Samples submitted.

Notification of deviations from Contract Documents.

Materials safety data sheet (MSDS) for each item complying with OSHA's Hazard Communication Standard 29 CFR 1910.1200.
Other pertinent data.

5. Submittal shall include:

Date and revision dates.
Revisions, if any, identified.
Project Title and number.
The names of:
 The Architect/Engineer, Contractor, Subcontractor, Supplier, Manufacturer, and separate detailer, when pertinent.
Identification of product material by location within the Project.
Relation to adjacent structure or materials.
Field dimensions, clearly identified as such.
Specification Section number and applicable detail reference numbers on the drawings.
Applicable standards, such as ASTM, ANSI, FS, NEMA, SMACNA or ACI.
A blank space, on each Drawing or data sheet, 5" x 4" for the Architect/Engineer's stamp.
Identification of deviations from Contract Documents.
Contractor's stamp, initialed or signed, with language certifying the review of submittals, verification of field measurements, construction criteria and technical standards in compliance with Contract Documents.

R. Resubmission requirements:

1. Shop Drawings:

- a. Revise initial Shop Drawings as required and resubmit as specified for initial submittals.
- b. Indicate on Shop Drawings any changes which have been made other than those requested by the Port.

2. Product Data and Samples: Submit new Data and Samples as required for initial submittals.

S. Number of resubmissions:

1. One reexamination of the Contractor's submittals which have been returned for correction or replacement will be included in the scope of this Contract. Any additional reexamination of the Contractor's submittals will be considered additional scope services to be paid by the Contractor through the Port. The Port shall be paid its internal costs and/or Architect/Engineer's hourly rate at 2.5 times direct payroll expenses and the consultant's time at 1.25 times the amount billed by the Architect/Engineer, if applicable.

T. Role of Architect/Engineer.

1. Port reserves the right to delegate all or portions of its rights and responsibilities under this Section 01330 to the Architect/Engineer, or to another consultant, and Contractor shall comply with Port's requests to interface with the Architect/Engineer consistent with such delegation.

1.03 SCHEDULE OF SHOP DRAWING AND SAMPLE SUBMITTALS

- A. Submit preliminary Schedule of Shop Drawing and Sample Submittals as required by Document 00700 General Conditions. The Schedule of Shop Drawings and Sample Submittals shall include all shop drawings, samples and product data submittals required by the Contract Documents, and if included in the Project Manual, the submittals listed in Section 01331, List of Submittals. Submit two (2) copies of final and accepted schedule of submittals of shop drawings and samples as required by Document 00700 General Conditions, and in no event later than thirty (30) calendar days following Notice of Award. The Schedule of Shop Drawings and Sample Submittals shall include specific dates when each respective submittal will be submitted for Port approval.
- B. Schedule of Shop Drawing and Sample Submittals will be used by the Port to schedule their activities relating to review of submittals. Schedule of submittals shall indicate a spreading out of submittals and early submittals of long lead-time items and of items which require extensive review.
- C. Schedule of Shop Drawing and Sample Submittals shall be reviewed by the Port and shall be revised and resubmitted until accepted by the Port.

1.04 PROGRESS SCHEDULE

- A. See Section 01320, Progress Schedules and Reports, for schedule and report requirements.
- B. Submit one (1) reproducible and three (3) print copies of schedule at each of the following times:
 1. Initial CPM Schedule at the Preconstruction Conference (covering in detail first sixty (60) calendar of contract performance, and at a summary level for remainder of contract).
 2. Original CPM Schedule within thirty (30) calendar days of the Notice to Proceed date (covering in detail entire Work of Contract to completion).
 3. Adjustments to the CPM Schedule as required.
 4. CPM Schedule updates monthly, five (5) calendar days prior to monthly progress meeting.
- C. Submit four (4) copies of the reports listed in Section 01320, Progress Schedules and Reports, with:
 1. Initial CPM Schedule

2. Original CPM Schedule
 3. Each monthly Schedule update
- D. Progress Schedules and Reports shall be submitted electronically on windows compatible diskettes in addition to hard copies specified above.

1.05 PRODUCT DATA

- A. Within ten (10) calendar days after Start Date of the Contract Times submit two (2) copies of complete list of major products proposed for use, with name of manufacturer, trade name, and model number of each product. Tabulate product data by specification section number.
- B. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation, and reference standards.
- C. Product or Catalog Data:
1. Manufacturers standard drawings shall be modified to delete non-applicable data or include applicable data.
 2. Manufacturers catalog sheets, brochures, diagrams, schedules, charts, illustrations and other standard descriptive data shall be modified as follows:
 - a. Mark each copy to identify pertinent materials, products, or models.
 - b. Show dimensions and clearances required; performance characteristics and capacities; wiring diagrams and controls.
- D. Supplemental Data:
1. Submit number of copies which the Contractor requires, plus two (2) copies which will be retained by the Port.
 2. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturer's standard data to provide information unique to Project.
- E. Provide copies for Project Record Documents described in Section 01770 Contract Closeout.

1.06 SHOP DRAWINGS

- A. Minimum Sheet Size: 8-1/2 inches by 11 inches. All others: Multiples of 8-1/2 inches by 11 inches, 34 inches by 44 inches maximum.
- B. For 8-1/2 inch by 11 inch and 11 inch by 17 inch sheets, submit number of copies which the Contractor requires, plus **[2]** copies which will be retained by the Port.

- C. For 17 inch by 22 inch through 34 inch by 44 inch sheets, submit 1 reproducible transparency and **[2]** prints. After review, reproduce and distribute.
- D. Original sheet or reproducible transparency will be marked with the Port's and the Architect/Engineer's review comments and returned to the Contractor.
- E. Mark each copy to identify applicable Products, models, options, and other data; supplement manufacturers' standard data to provide information unique to Work.
- F. Include manufacturers' installation instructions when required by specification section.
- G. If the Contractor submits shop drawings for items which shop drawings are not specified, the Port will not be obliged to review them.
- H. The Contractor shall be responsible for procuring copies of shop drawing for its own use as he may require for the progress of the work.
- I. Shop drawings shall be drawn to scale and completely dimensioned, giving plan together with such sections as are necessary to clearly show construction detail and methods.

1.07 SAMPLES

- A. Submit full range of manufacturers' standard colors, textures, and patterns for the Port's selection.
- B. Submit samples to illustrate functional and aesthetic characteristics of Product, with integral parts and attachment devices. Coordinate submittal of different categories for interfacing work.
- C. Include identification on each sample, giving full information.
- D. Submit three (3) samples unless otherwise specified.
- E. Sizes: Unless otherwise specified, furnish the following:
 - 1. Paint Chips: Manufacturers' standard
 - 2. Flat or Sheet Products: Minimum 6 inches square, maximum 12 inches square
 - 3. Linear Products: Minimum 6 inches, maximum 12 inches long
 - 4. Bulk Products: Minimum 1 pint, maximum 1 gallon
- F. Full size samples may be used in Work upon approval.
- G. Field Samples and Mock-ups:
 - 1. Erect field samples and mock-ups at Project site in accordance with requirements of Specification sections.

2. Modify or make additional field samples and mock-ups as required to provide appearance and finishes approved by the Port.
 3. Approved field samples and mock-ups may be used in Work upon approval.
 4. Construct or prepare as many additional Samples as may be required, as directed by the Port, until desired textures, finishes, and/or colors are obtained.
 5. Accepted Samples and mock-up shall serve as the standard of quality for the various units of work.
- H. No review of a Sample shall be taken in itself to change or modify the requirements in the Contract Documents.
- I. Finishes, materials, and workmanship in the completed Work shall match accepted Samples.

1.08 COMPOSITE DRAWINGS

- A. The Contractor shall prepare composite drawings and installation layouts, where required, to solve field conditions.
- B. Drawings shall consist of dimensioned plans and elevations and shall give complete information, particularly as to size and location of sleeves, inserts, attachments, openings, conduit, ducts, boxes, and structural interferences.
- C. Composite shop drawings and field installation layouts shall be coordinated in field by the Contractor and his or her subcontractors for proper relationship to work of applicable trades based on field conditions and shall be checked and approved by them for submission to the Port for final acceptance.

1.09 QUALITY CONTROL SUBMITTALS

- A. Design Data: Submittals requiring design data shall be stamped and signed by a professional engineer registered in the State of California.
- B. Test Reports: Three (3) copies. One (1) copy will be marked with the Port's and the Architect/Engineer's review comments and returned to the Contractor.
 1. Indicate that material or product conforms to or exceeds specified requirements.
 2. Reports may be from recent or previous tests on material or product, but must be acceptable to the Port. Comply with requirements of each individual specification Section.
- C. Certificates: Three (3) copies. One (1) copy will be marked with the Port's and the Architect/Engineer's review comments and returned to the Contractor.
 1. Indicate that material or product conforms to or exceeds specified requirements.

2. Submit supporting reference data, affidavits, and certifications as appropriate.
 3. Certificates may be recent or from previous test results on material or product, but must be acceptable to the Port.
- D. Manufacturers' Instructions: Three (3) copies. One (1) copy will be marked with the Port's and the Architect/Engineer's review comments and returned to the Contractor.
1. Include manufacturer's printed instructions for delivery, storage, assembly, installation, startup, adjusting, and finishing.
 2. Identify conflicts between manufacturer's instructions and Contract Documents.

1.10 MACHINE INVENTORY SHEETS

Submit two (2) copies of machine inventory sheets. If necessary, both copies will be marked with the Port's and/or the Architect/Engineer's review comments and returned to the Contractor for correction until satisfactory information is provided. The Port will retain satisfactorily corrected sheets for its own use.

1.11 OPERATIONS AND MAINTENANCE MANUALS

- A. Submit 2 copies of manufacturers' operations and maintenance manuals. If necessary, both copies will be marked with Port's review comments and returned to the Contractor for correction until satisfactory information is provided. The Port will retain satisfactorily corrected manuals for its own use.
- B. Operations and maintenance manuals shall include the following as appropriate:
1. Operating instructions
 2. Preventive maintenance instructions
 3. Cleaning instructions
 4. Safety precautions
 5. Trouble shooting procedures
 6. Theory of operation to discrete component level
 7. Schematic diagrams, flow diagrams, wiring diagrams, logic diagrams, etc. to discrete component level
 8. Parts lists showing all discrete components with part number, current prices and availability
 9. List of replaceable supplies; paper, ink, ribbon, etc. with part numbers, current prices and availability
 10. Recommended levels of spare parts and supplies to keep on hand
 11. Manufacturers' service and maintenance technical manuals
 12. Names, addresses and telephone numbers of service and repair firms for the equipment
- C. Manuals shall be the same as are used by manufacturers' authorized technicians to completely service and repair the equipment.

1.12 COMPUTER PROGRAMS

AA-3958/104879

When any equipment requires operation by computer programs, submit copy of program on appropriate diskette plus all user manuals and guides for operating the programs and making changes in the programs for upgrading and expanding the databases. Program must be Windows 95 compatible. Provide required licenses to the Port at no additional cost.

1.13 PROJECT RECORD DOCUMENTS

Submit one copy of each of the Project Record Documents listed in Section 01770 Contract Closeout.

1.14 DELAY OF SUBMITTALS

Delay of submittals by the Contractor is considered avoidable delay. Liquidated damages incurred because of late submittals will be assessed to the Contractor.

PART 2 PRODUCTS

Not applicable to this section.

PART 3 EXECUTION

Not applicable to this section.

END OF SECTION

SECTION 01331

LIST OF SUBMITTALS

The submittals listed on this page shall be submitted in the order in which they are listed and numbered.

(For Field Use)

Submittal Number	Specification Section	Document Title and/or Comments*		
1.	01320	Initial CPM Schedule Original CPM Schedule Monthly CPM Schedule Update		
2.	01330	Schedule of Shop Drawings and Sample Submittals		
3.	01340	Health and Safety Plan for Potentially Hazardous Waste Operations		
4.	01340	Submittals for Compliance with State General Construction Activity Storm Water NPDES Permit		
5.	01340	Soil and Groundwater Management Plan		
6.	01340	Debris Containment Program		
7.	01340	Dust and Air Pollution Management Plan		
8.	01200	Schedule of Values		
9.	01556	Traffic Handling Plans		

* **The Contractor shall refer to the individual specifications sections for complete and detailed information for all submittals listed in the specifications.**

Submittals: Technical Sections/Project Record Documents

The following submittals are listed in the order in which they appear in this package.

For the submittals listed below, submittal numbers shall be assigned by the Contractor at the time of submittal. Submittals listed below shall be numbered in the order in which they are submitted, beginning with the number “ 10. ”

(For Field Use)

Submittal Number	Specification Section	Document Title and/or Comments*		
	01780	Project Record Documents		
	02111	Daily Field Reports		
	02315	Excavation Plan		
	02315	Stockpile Management Plan		
	02315	Fill Placement Plan		
	02740	Proposed Asphalt Concrete Job Mix Formula		
	02740	Delivery Certificates		
	02764	Manufacturer's Technical Information		
	02764	Complete List of Materials		
	02830	Schedule of Materials		
	03300	Proposed Concrete Mix Designs		

(For Field Use)

Submittal Number	Specification Section	Document Title and/or Comments*		
	03300	Delivery Certificates		
	03300	Shop Drawings		
	03400	Schedule of Materials		
	03400	Shop Drawings		
	03400	Design Data and Manufacturer's Data		
	03400	Certificates of Conformance		
	03400	Manufacturer's Instructions or Installation Guides		
	03400	Factory and Field Test Reports		
	03400	Record Drawings		
	05050	Manufacturer's Product Data		
	05050	Welding procedures and qualification test records		
	05050	ICBO Evaluation Reports		
	05050	Shop Drawings		
	09900	Manufacturer Product Data		

(For Field Use)

Submittal Number	Specification Section	Document Title and/or Comments*		
	09900	Schedule of Materials		
	09900	Samples		

SECTION 01340

SAFETY AND ENVIRONMENTAL SUBMITTALS

PART 1 - GENERAL

1.01 SCOPE

Prepare and submit written safety and environmental Plans and Programs as specified herein prior to start of site work. All written safety and environmental Plans and Programs required to be submitted herein must be favorably reviewed by the Port prior to the Contractor starting work at the site.

1.02 PORT'S REVIEW OF SUBMITTALS

Neither the Port's review of, nor comments on, any of the submittals shall constitute a representation of warranty as to compliance with any legal requirements. The Port reserves the right to reject all or portions of a submittal as inadequate to protect health, safety, or the environment. If project conditions change, promptly update the Plans and Programs, as appropriate, and submit the revised Plans and Programs to the Engineer at no additional charge to the Port.

1.03 PLANS AND PROGRAMS

A. Submit the following site-specific, checked items within fifteen (15) calendar days after the effective date of the Contract and prior to starting work at the site.

1. Health and Safety Plan. Health and Safety Plan will be evaluated according to the minimum criteria established in the Port Construction Safety Standards Manual:

a. For Non-Hazardous Waste Operations:

Describe the health and safety hazards anticipated in performing the work, measures to be taken to reduce those hazards and to protect employees and the public. Include procedures for identifying and reporting unforeseen hazards.

b. For Potential Hazardous Waste Operations:

Describe the health and safety hazards anticipated in performing the work, and measures to be taken to reduce those hazards and to protect employees and the public. Include procedures for identifying and reporting unforeseen hazards.

Identify an individual(s), either an employee or subcontractor, who is trained in accordance with CCR Title 8, Section 5192 (Cal/OSHA), Hazardous Waste Operations and Emergency Response (HAZWOPER), and who is qualified to identify potentially hazardous wastes or contaminated soils which might be encountered on the jobsite. Describe methods of identifying these materials and

communicating the findings to the Engineer. The Plan does not need to comply with CCR Title 8, Section 5192 (Cal/OSHA).

c. For Identified Hazardous Waste Operations:

All aspects of the Health and Safety Plan shall comply with CCR, Title 8, Section 5192 (Cal/OSHA), Hazardous Waste Operations and Emergency Response. The Plan shall be signed by an individual Certified in the Comprehensive Practice of Industrial Hygiene (CIH) by the American Board of Industrial Hygiene and trained in hazardous waste site operations as required by Section 5192. If hazard conditions change, promptly update the Plan and resubmit to the Engineer, at no additional charge to the Port.

Include the following items:

- 1) Training, medical, and respirator approval documentation for all employees who will work at the site.
- 2) The names and addresses of the waste hauler and the landfill for hazardous waste.

2. Asbestos Abatement Program in accordance with CCR Title 8, Section 1529 (Cal/OSHA):

Include the following items:

- a. Registration with Cal/OSHA as an Asbestos Abatement Contractor, (required for removing more than 100 square feet of materials containing greater than 0.1 percent asbestos).
- b. Notifications for asbestos work, including Cal/OSHA, the Bay Area Air Quality Management District, and, where appropriate, EPA Region IX.
- c. Training, medical, and respirator approval documentation for all employees who will work at the site.
- d. The identity of the Competent Person, as defined by Cal/OSHA.
- e. The Contractor's asbestos control procedures, including:
 - 1) Staging of the project.
 - 2) Placement and number of negative air machines and exhausts.
 - 3) Staging of waste containers.
- f. Weekly progress reports as the project progresses.

- g. At project completion, documentation, including daily reports or logs, air monitoring results, waste manifests, and other similar pertinent information.
- h. Material Safety Data Sheets for hazardous materials brought onto the site.
- i. Procedures for identifying and reporting unforeseen hazards.
- j. The names and addresses of the waste hauler and the landfill for asbestos waste.

3. Lead Compliance Program in accordance with CCR Title 8, Section 1532.1 (Cal/OSHA):

Include the following checked items:

- a. Training, medical, and respirator approval documentation for all employees who will work at the site.
- b. The identity of the Competent Person, as defined by Cal/OSHA.
- c. Material Safety Data Sheets for hazardous materials brought onto the site.
- d. The Contractor's procedures for identifying and reporting unforeseen hazards.
- e. The names and addresses of the waste hauler and the landfill for hazardous and non-hazardous wastes.

4. Storm Water Pollution Prevention Plan (SWPPP) including:

- a. A site map identifying storm drain inlets.
- b. Identification of potential sources of pollution.
- c. A plan to eliminate non-storm water discharges such as washwater, spills, and others.
- d. Best Management Practices (BMPs) to minimize discharges of pollutants in storm water runoff.
- e. How agencies and the Port will be notified in case of spills.

5. Compliance with State General Construction Activity Storm Water NPDES Permit, including:
- a. Development of a Storm Water Pollution Prevention Plan that complies with all requirements of the General Construction Activity Storm Water Permit.
 - b. Development of a color coded site map showing:
 - 1) Areas of soil disturbance that have been stabilized.
 - 2) Areas to be graded, in addition to a time schedule.
 - 3) Areas of potential soil erosion where control practices will be implemented (Indicate the control practices and time schedule for implementation).
 - 4) Locations of post-construction projects (i.e., ponds, grassy swales, detention basins).
 - c. Development of a Storm Water Sampling and Analysis Plan (SWSAP)
 - d. Development of a Site Inspection Checklist.
 - e. Submittal of the Site Inspection Checklist on a weekly basis.

6. Disposal of Fluorescent Lights and/or Ballasts Plan, as applicable.

7. Soil and Groundwater Management Plan:

Describe how any disturbed soil or collected water will be handled, including temporary storage, testing and/or treatment, and disposal. Identify all activity where potential exists for waste to be generated.

Where feasible, excavated soil from utility trenching may be placed back within the utility corridor near the original excavation.

Soil that cannot be placed back in the utility trench, and waste generated from other activities shall be tested by the Contractor as per General Conditions, Article 14.1, Alterations, Modifications and Force Account Work. The Contractor shall provide the name of an analytical laboratory, contact name for coordinating environmental testing, and waste hauler, if used.

In addition, the Plan must include a section describing soil management measures to be implemented during the performance of the work, to prevent soil pollution.

8. Debris Containment Program:

Describe the control of debris generated by the performance of the work and how the work area will be maintained unencumbered by the debris confined inside the work area.

9. Dust and Air Pollution Management Plan:

Describe measures to be taken to control dust and prevent air pollution resulting from the performance of the work. Describe in detail how dust and air emissions generated during the performance of the work will be minimized, controlled, contained, treated and/or disposed. The Plan must incorporate air pollution controls described in Section 01563 of these specifications, as well as an Air Quality Site Inspection Checklist to be completed and submitted on a weekly basis.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

- END OF SECTION -

SECTION 01343

SAFETY PROGRAM AND SAFETY REPRESENTATIVE REQUIREMENTS

PART 1 - GENERAL

1.01 SCOPE

Prepare and submit written documentation of Contractors, and Subcontractors Safety Performance including Experience Modification Rates (EMR) and Lost Workday Case Rate (LWCR) in construction for the last three years. Also submit written documentation of the safety experience of Contractors project site personnel, to be designated by contractor, as Safety Representative(s). All written safety performance and safety experience documentation of designated personnel must be favorably reviewed by the Port prior to the Contractor starting work at the site.

1.02 PORT'S REVIEW OF DOCUMENTATION

- A. Neither the Port's review of, nor comments on, any of the documentation shall constitute a representation of warranty as to contractor compliance with any legal requirements. The Port reserves the right to reject all or portions of Contractor's documentation as inadequate to meet the acceptable Contractor safety performance and safety experience of designated personnel.
- B. If project safety performance changes during the term of the contract, Contractor may, at the Port's written request, be required to provide the Port with prompt written notification of an action plan (including resumes of Safety Representative(s)) to bring safety performance to the acceptable level at no additional charge to the Port.

1.03 PREVIOUS SAFETY PERFORMANCE AND SAFETY EXPERIENCE DOCUMENTATION

- A. Submit completed Contractor Registration and Safety Experience Form - Document 00420, resume(s) (if full time) or outline(s) of designated Safety Representative(s) "Safety Experience" and/or "Completed Safety Training". The items as noted shall be submitted as specified in Document 00200, Instructions to Bidders, and must be found favorable to the Port prior to Contractor starting work at the project site.
- B. If Contractor's most recent Experience Modification Rate (EMR) identified on Document 00420 equals or is greater than 1.25 (Cal-OSHA TICF Assessment threshold - California State Labor Code 62.7 and 6314.1), Contractor acknowledges the designation of a Safety Representative(s) who shall be full-time, dedicating 100% of their time to safety oversight of field operations for this Project and with a line of reporting directly to President of the company or his/her designated corporate representative. If the EMR is greater than 1.25, the Contractor's Safety Representative shall meet the requirements of paragraph 1.04 A.

- C. Contractor shall designate the individual noted in Document 00420 as Contractor's competent Safety Representative(s) who shall be present during all work on site.
- D. The Port reserves the right to require a full time Safety Representative per paragraph 1.04 A, if during the contract time, more than two (2) safety incidents occur. This full time Safety Representative shall be at no additional cost to the Port.

1.04 CONTRACTOR'S SAFETY REPRESENTATIVE(S)

Based on the scope of work, and the documented safety performance of the contractor and sub contractors:

- A. Contractor shall employ and designate a full time competent Safety Representative(s) who shall report directly to the Contractor's Company President and/or his/her designated corporate representative, and shall spend 100% of their time present during all work on site in overseeing safety operations. The Safety Representative shall be required to have a minimum of five (5) years experience in administering safety on construction or heavy construction project sites with similar scope of work.
- B. The Contractor shall employ and shall designate a Safety Coordinator(s) who is qualified and has received an OSHA Certificate evidencing a minimum of eight to ten (8-10) hours of OSHA-Competent Person Training in addition to 40 hours of OSHA HAZWOPER certification. This Competent Person may also have collateral duties onsite, and shall be capable of:
 - (a) identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and the general public, and
 - (b) who has authorization to take prompt corrective measures to eliminate them, and
 - (c) aggressively and effectively implement and maintain the Contractor's Safety Program or site-specific Injury and Illness Prevention Program (IIPP), and
 - (d) shall spend 100% of their time present during all work on site in overseeing field operations

- END OF DOCUMENT -

SECTION 01410

REGULATORY REQUIREMENTS

PART 1 GENERAL

1.01 SUMMARY

This section includes regulatory requirements applicable to the Contract Documents.

Specific reference in the specifications to codes and regulations or requirements of regulatory agencies shall mean the latest printed edition of each adopted by the regulatory agency at the date of submission of bids unless the document referenced is shown dated.

Should any conditions develop not covered by the Contract Documents wherein the finished work will not comply with current codes, a change order detailing and specifying the required work shall be submitted to and approved by the Port before proceeding with the Work.

1.02 REFERENCES TO REGULATORY REQUIREMENTS

- A. Codes, laws, ordinances, rules and regulations referred to shall have full force and effect as though printed in full in these specifications. Codes, laws, ordinances, rules and regulations are not furnished to the Contractor, since the Contractor is assumed to be familiar with their requirements. The listing herein of applicable codes, laws and regulations for hazardous waste abatement work is supplied to the Contractor as a courtesy and shall not limit the Contractor's responsibility for complying with all applicable laws, regulations or ordinances having application to the Work. Where conflict among the requirements or with these specifications exists, the most stringent requirements shall be used.
- B. Conform to referenced codes, laws, ordinances, rules and regulations.
- C. Precedence:
 - 1. Where specified requirements differ from the requirements of applicable codes, ordinances and standards, the more stringent requirements shall take precedence.
 - 2. Where the Plans or Specifications require or describe products or execution of better quality, higher standard or greater size than required by applicable codes, ordinances and standards, the Plans and Specifications shall take precedence so long as such increase is legal.
 - 3. Where no requirements are identified in the Plans or Specifications, comply with all requirements of applicable codes, ordinances and standards of governing authorities having jurisdiction.

1.03 CODES

Codes which apply to the Contract Documents include, but are not limited to, the following:

- A. Cal. Building Code (Part 2, Title 24, C.C.R., including, without means of limitation, sections 16A, 102A.23, 308, 420A, 504-506, 904.2.6, 1019 and 1604)
- B. Cal. Electrical Code (Part 3, Title 24, C.C.R.)
- C. Cal. Mechanical Code (Part 4, Title 24, C.C.R.)
- D. Cal. Plumbing Code (Part 5, Title 24, C.C.R.),
- E. State Elevator Safety Regulations (Part 7, Title 24, C.C.R.)
- F. Uniform Building Code
- G. Uniform Plumbing Code
- H. Uniform Mechanical Code
- I. National Electrical Code

1.04 LAWS, ORDINANCES, RULES AND REGULATIONS

- A. Contractor acknowledges that the City of Oakland operates under a City Charter and that the Work of this contract is a municipal affair subject to the requirements of Port Ordinance No. 1606. The Port reserves all rights to revise, adopt, amend, or enact legislation with respect to this Agreement at any time with or without notice and in its sole discretion. Subject to the foregoing, during prosecution of Work to be done under the Contract Documents, comply with applicable laws, ordinances, rules and regulations, including, but not limited to, the following:
 - B. Federal
 - 1. Americans With Disabilities Act of 1990 ADA
 - 2. 29 CFR, Section 1910.1001, Asbestos
 - 3. 40 CFR, Subpart M, National Emission Standards for Asbestos
 - 4. Executive Order 11246
 - 5. 29CFR, Section 1910.1001, Asbestos.
 - 6. 40CFR, Subpart M, National Emission Standards for Asbestos.
 - C. State of California
 - 1. California Code of Regulations, Titles 5, 8, 19, 21, 22, 24 and 25
 - 2. California Public Contract Code to the extent that specific Provisions are identified pursuant to Port Ordinance No. 1606, Section 18
 - 3. California Health and Safety Code
 - 4. California Government Code
 - 5. California Labor Code
 - 6. California Civil Code
 - 7. California Code of Civil Procedure
 - 8. CPUC General Order 95, Rules for Overhead Electric Line Construction
 - 9. CPUC General Order 128, Rules for Construction of Underground Electric Supply and Communications Systems
 - 10. California Occupational Safety and Health Administration (Cal OSHA)
 - 11. Occupational Safety and Health Administration (OSHA): Hazard Communications Standards.

D. State of California Agencies:

1. State and Consumer Services Agency
2. Office of the State Fire Marshall
3. Office of Statewide Health Planning and Development
4. CalTrans
5. California State Lands Commission
6. California Department of Toxic Substances Control

E. Regional and Local Agencies:

1. Bay Area Air Quality Management District Regulation 11, Rule 2.
2. City of Oakland
3. County of Alameda
4. San Francisco Bay Conservation and Development Commission
5. S.F. Bay Regional Water Quality Control Board

F. Other Requirements:

1. National Fire Protection Association (NFPA): Pamphlet 101, Life Safety.
2. References on the Plans or in the Specifications to "code" or "building code" not otherwise identified shall mean the codes specified above, together with all additions, amendments, changes, and interpretations adopted by code authorities of the jurisdiction.

G. Maintain a copy of each of the above documents in the Contractor's field office.

H. Other Applicable Laws, Ordinances and Regulations:

1. Work shall be accomplished in conformance with all applicable laws, ordinances, rules and regulations of Federal, State and local governmental agencies and jurisdictions having authority over the Project.
2. Work shall be accomplished in conformance with all rules and regulations of public utilities and utility districts.
3. Where such laws, ordinances rules and regulations require more care or greater time to accomplish Work, or require better quality, higher standards or greater size of products, Work shall be accomplished in conformance to such requirements with no change to the Contract Time and Contract Sum, except where changes in laws, ordinances, rules and regulations occur subsequent to the execution date of the Agreement.

1.05 CONFLICTS

- A. Between referenced regulatory requirements: Comply with the one establishing the more stringent requirement.
- B. Between referenced regulatory requirements and the Contract Documents: Comply

with the one establishing the more stringent requirement.

1.06 REQUIRED PROVISIONS ON CONTRACT CLAIM RESOLUTION

- A. The California Public Contracts Code specifies required provisions on resolving contract claims less than \$375,000, which are set forth below, and constitute a part of the Contract Documents.

For the purposes of this section, "Claim" means a separate demand by the Contractor of \$375,000 or less for (1) a time extension, (2) payment or money or damages arising from work done by or on behalf of the Contractor arising under the Contract Documents and payment of which is not otherwise expressly provided for or the claimant is not otherwise entitled to, or (3) an amount the payment of which is disputed by the Port. In order to qualify as a Claim, the written demand must state that it is a claim submitted under Section 12 of Document 00700 General Conditions and be submitted in compliance with all requirements of Section 12 of Document 00700 General Conditions. Separate claims which total more than \$375,000 do not qualify as a "separate demand of \$375,000 or less", as referenced above, and are not subject to this section.

A voucher, invoice, payment application, or other routine or authorized form of request for payment is not a claim under the Contract Documents. If such request is disputed as to liability or amount, then the disputed portion of the submission may be converted to a claim under the Contract Documents by submitting a separate claim in compliance with Contract Documents claim submission requirements.

CAUTION: This section does not apply to tort claims and nothing in this section is intended nor shall be construed to change the time periods for filing tort claims or actions specified by Chapter 1 and Chapter 2 of Part 3 of Division 3.6 of Title 1 of the California Government Code.

B. PROCEDURE

1. The Claim must be in writing, submitted in compliance with all requirements of Section 12 of Document 00700 General Conditions, including, but not limited to, the time prescribed by and including the documents necessary to substantiate the Claim, pursuant to Section 12.3 of Document 00700 (General Conditions). Claims must be filed on or before the day of final payment. Nothing in this section is intended to extend the time limit or supersede notice requirements for the filing of claims as set forth in Section 12 of Document 00700 General Conditions or elsewhere in the Contract Documents.
2. For Claims of fifty thousand dollars (\$50,000) or less
 - a. The Port shall respond in writing within 45 days of receipt of the Claim, or
 - b. The Port may request in writing within 30 days of receipt of the Claim, any additional documentation supporting the Claim or relating to any defenses or claims the Port may have against Claimant.

1. If additional information is thereafter required, it shall be requested and provided in accordance with this section, upon mutual agreement of the Port and the Claimant.
 2. The Port's written response to the Claim, as further documented, shall be submitted to Claimant within 15 days after receipt of further documentation or within a period of time no greater than taken by Claimant in producing the additional information, whichever is greater.
3. For Claims over Fifty Thousand Dollars (\$50,000) and less than or equal to \$375,000:
- a. The Port shall respond in writing within 60 days of receipt of the Claim, or
 - b. The Port may request in writing within 30 days of receipt of the Claim, any additional documentation supporting the Claim or relating to any defenses or claims the Port may have against the Claimant.
 1. If additional information is thereafter required, it shall be requested and provided in accordance with this section, upon mutual agreement of Port and Claimant;
 2. The Port's written response to the Claim, as further documented, shall be submitted to the Claimant within 30 days after receipt of further documentation or within a period of time no greater than taken by the Claimant in producing the additional information, whichever is greater.
4. Meet and Confer
- a. If the Claimant disputes the Port's written response, or the Port fails to respond within the time prescribed above, the Claimant shall notify the Port, in writing, either 15 days of receipt of the Port's response or within 15 days of the Port's failure to timely respond, and demand an informal conference to meet and confer for settlement of the issues in dispute. Upon demand the Port will schedule a meet and confer conference within 30 days for settlement of the dispute.
 - b. Following the meet and confer conference, if the Claim or any portion remains in dispute, Claimant may file a claim as provided in Chapter 1 (commencing with Section 900) and Chapter 2 (commencing with Section 910) of Part 3 of Division 3.6 of Title 1 of the California Government Code. For purposes of those provisions, the running of the period of time within which a claim must be filed shall be tolled from the time Claimant submits his or her written claim as set forth above in Document 00700, Article 12B.1, until the time that Claim is denied as a result of the meet and confer process, including any period of time utilized by the meet and confer process.

1.07 COMPLIANCE WITH AMERICANS WITH DISABILITIES ACT

- A. The Contractor acknowledges that, pursuant to the Americans with Disabilities Act (ADA), programs, services and other activities provided by a public entity to the public, whether directly or through a contractor, must be accessible to the disabled public. The Contractor shall provide the services specified in this Agreement in a manner that complies with the ADA and any and all other applicable federal, state and local disability rights legislation. The Contractor shall not discriminate against disabled persons in the provision of services, benefits or activities provided under this Agreement and further agrees that any violation of this prohibition on the part of the Contractor, its employees, agents or assigns shall constitute a material breach of this Agreement.

PART 2 PRODUCTS

Not applicable to this section.

PART 3 EXECUTION

Not applicable to this section.

END OF SECTION

SECTION 01411

REGULATORY REQUIREMENTS FOR HAZARDOUS MATERIALS

PART 1 GENERAL

1.01 SUMMARY

- A. This section includes regulatory requirements applicable to Work in connection with hazardous waste abatement and disposal, including, but not limited to, asbestos and asbestos containing materials, lead based paint, polychlorinated biphenyls, petroleum contaminated soils and materials, construction and demolition debris and any other hazardous substance or hazardous waste.
- B. This section supplements Section 01410 and the work specific listings of applicable regulatory requirements elsewhere in the specifications.
- C. Related Sections.
 - 1. Section 01410: Regulatory Requirements.

1.02 REFERENCES TO REGULATORY REQUIREMENTS

- A. Codes, laws, ordinances, rules and regulations applicable to the Work shall have full force and effect as though printed in full in the Contract Documents. Codes, laws, ordinances, rules and regulations are not furnished to the Contractor, since the Contractor is assumed to be familiar with their requirements. The listing herein of applicable codes, laws and regulations for hazardous waste abatement work is supplied to the Contractor as a courtesy and shall not limit the Contractor's responsibility for complying with all applicable laws, regulations or ordinances having application to the Work. Where conflict among the requirements or with these specifications exists, the most stringent requirements shall be used.
- B. The Contractor's work shall conform to all applicable codes, laws, ordinances, rules and regulations which are in effect on date of contracting.

1.03 LAWS, ORDINANCES, RULES AND REGULATIONS

- A. During prosecution of Work under Contract Documents, the Contractor shall comply with applicable laws, ordinances, rules and regulations, including, but not limited to, those listed below.
- B. Federal:
 - 1. Statutory Requirements:
 - a. Resource Conservation and Recovery Act, 42 U.S.C. §§ 6901 et seq.
 - b. Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986, 42 U.S.C. §§ 9601 et seq.

- c. Toxic Substances Control Act of 1976, 15 U.S.C. §§ 2601 et seq.
 - d. Hazardous Materials Transportation Act of 1975, 49 U.S.C. §§ 1801 et seq.
 - e. Clean Water Act, 33 U.S.C. §§ 1251 et seq.
 - f. Safe Drinking Water Act, 42 U.S.C. §§3001 et seq.
 - g. Clean Air Act, section 112, 42 U.S.C. §7412
 - h. Occupational Safety and Health Act of 1970, 29 U.S.C. §§ 651 et seq.
 - i. Underground Storage Tank Law, 42 U.S.C. §§6991 et seq.
 - j. The Emergency Planning and Community Right to Know Act of 1986, 42 U.S.C. §§ 11001 et seq.
2. Environmental Protection Agency (EPA):
- a. 40 C.F.R. Parts. 260, 264, 265, 268, 270
 - b. 40 C.F.R. Parts 258 et seq.
 - c. 40 C.F.R. Part 761
 - d. 40 C.F.R. Parts 122-124
3. Occupational Safety and Health Administration (OSHA):
- a. OSHA Worker Protection Standards, Title 29 CFR Part 1926.58, Construction Standards and 29 CFR 1910.1001 General Industry Standard
 - b. OSHA, 29 C.F.R. Part 1926.1101, Construction Standards for Asbestos
 - c. OSHA, Lead Exposure in Construction: Interim Final Rule, 29 C.F.R. 1926.62
 - d. National Emission Standard for Hazardous Air Pollutants, Title 40 CFR Part 61
 - e. Asbestos Hazardous Emergency Response Act, Title 40 C.F.R. 763
4. Department of Transportation:
- a. Title 49 C.F.R. 173.1090
 - b. Title 49 C.F.R. 172
 - c. Title 49 C.F.R. 173
 - d. DOT, HM 181 and MH126f
- C. State of California Requirements:
1. Statutory Law:
- a. The Carpenter-Presley-Tanner Hazardous Substance Account Act, Cal. Health & Saf. Code §§25300 et seq.
 - b. Health and Safety Code § 25359.4
 - c. Hazardous Waste Control Law, Health & Safety Code §§25100 et seq.
 - d. Porter Cologne Water Quality Control Act, Cal. Water Code §§13000 et seq.
 - e. Health and Safety Code §§25915-25924
 - f. Cal. Labor Code Chapter 6, including, without limitation, §§ 6382, 6501.5-6501.9, 6503.5, 9021.5, 9080
 - g. Cal. Bus. and Prof. Code, including without limitation, §§7058.5, 7065.01,

- 7118.5.
- h. Underground Storage of Hazardous Substance Act, Cal. Health & Saf. Code §§25280 et seq.
 - i. Petroleum Underground Storage Tank Cleanup, Health and Safety Code §§25299.10 et seq.
 - j. Safe Drinking Water and Toxic Enforcement Act of 1986, Health & Saf. Code §§25249.5 et seq. (Proposition 65)
 - k. Above Ground Petroleum Storage Act, Health and Safety Code §§ 25270 et seq.
 - l. Hazardous Materials Release Response Plans and Inventory, California Health and Safety Code Chapter 6.95.
2. Administrative Code and Regulations:
- a. Title 22 C.C.R. Division 4.5, Environmental Health Standards for the Management of Hazardous Waste § 6600 et seq.
 - b. Cal OSHA Worker Protection Standards, Title 8 C.C.R. §§1529, 5208
 - c. Title 8 C.C.R. §1532.1, Lead in Construction
 - d. Title 23 C.C.R. §2610 et seq.
3. Local Agency Requirements:
- a. Bay Area Air Quality Management District, Fugitive Dust Rules
 - b. Bay Area Air Quality Management District Regulation 11-2-303
 - c. State Water Resources Control Board, General Construction Activity, Stormwater Permit Requirements (Order 92-08 DWQ)
 - d. San Francisco Bay Conservation and Development Commission, Permit Requirements
4. City, County and Port Requirements:
- a. Oakland Fire Department
 - b. City of Oakland Ordinances
 - c. County of Alameda Ordinances
 - d. Port of Oakland Ordinances
5. Consent Agreements
- a. Consent Agreement between the Port of Oakland and the State of California, California Environmental Protection Agency, Department of Toxic Substances Control, concerning the Fleet Industrial Supply Center, Oakland

1.04 PERMITS

- A. The Contractor shall comply with, implement and acknowledge effectiveness of all the permits applicable to the Work, and initiate and cooperate in securing all required notifications or approvals therefore, including but not limited to permits affecting environmental work.

PART 2 PRODUCTS

Not applicable to this section.

PART 3 EXECUTION

Not applicable to this section.

END OF SECTION

SECTION 01420

REFERENCES AND DEFINITIONS

PART 1 GENERAL

1.01 SUMMARY

- A. This section includes reference standards, abbreviations, symbols and definitions used in the Contract Documents.
- B. Material and workmanship specified by reference to number, symbol, or title of specific standard such as state standard, commercial standard, federal specifications, technical society, or trade association standard, or other similar standard shall comply with requirements of standards except when more rigid requirements are specified or required by applicable codes.
- C. Standards referred to, except as modified herein, shall have full force and effect as though printed in the Contract Documents. Standards are not furnished to the Contractor, since manufacturers and trades involved are assumed to be familiar with their requirements.

1.02 REFERENCE TO STANDARDS AND SPECIFICATIONS OF TECHNICAL SOCIETIES; REPORTING AND RESOLVING DISCREPANCIES:

- A. Reference to standards, specifications, manuals or codes of any technical society, organization or association, or to the laws or regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard, specification, manual, code or laws or regulations in effect at the time of opening of Bids, except as may be otherwise specifically stated in the Contract Documents.
- B. If during the performance of the Work, the Contractor discovers any conflict, error, ambiguity or discrepancy within the Contract Documents or between the Contract Documents and any provision of any such law or regulation applicable to the performance of the Work or of any such standard, specification, manual or code or of any instruction of any supplier, the Contractor shall report it in writing at once to the Port, and the Contractor shall not proceed with the Work affected thereby until consent to do so is given by the Port.
- C. Except as otherwise specifically stated in the Contract Documents or as may be provided by Change Order, or Field Change, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity or discrepancy between the provisions of the Contract Documents and:
 - 1. The provisions of any such standard, specification, manual, code, or instruction (whether or not specifically incorporated by reference in the Contract Documents); or
 - 2. The provisions of any such laws or regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such law or regulation).

No provision of any such standard, specification, manual, code or instruction shall be effective to

change the duties and responsibilities of Port, the Contractor, or Architect/Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the Contract Documents, nor shall it be effective to assign to Port, Architect/Engineer, or any of their consultants, agents or employees any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

D. The Contractor shall comply with the applicable portions of standards and specifications published by the technical societies, institutions, associations and governmental agencies referred to in the Contract Documents.

1. Unless expressly otherwise specified, comply with referenced standards and specifications; latest revision in effect at the time the Bid is submitted. If reference standards change between time bid is submitted and time Agreement is signed, or thereafter during performance of the Work, so advise Port in writing.
 - a. Exception: Comply with issues in effect as listed in governing legal requirements.

E. Referenced Grades Classes and Types: Where an alternative or optional grade, class or type of product or execution is included in a reference but is not identified in the Contract Documents, provide the highest, best and greatest of the alternatives or options for the intended use and prevailing conditions.

F. Jobsite Copies:

1. The Contractor shall obtain and maintain at the Project site copies of the following reference standards:
 - a. Model Codes: Uniform Building Code (UBC), Uniform Fire Code (UFC), Uniform Mechanical Code (UMC), Uniform Plumbing Code (UPC), NFPA 70-National Electric Code (NEC) and NFPA 101-Life Safety Code, including applicable amendments for jurisdiction in which Project is located.
 - b. State Codes: California Code of Regulations, Division of Occupational Safety and Health regulations; CalTrans Standard Specifications 1992 and Standard Plans.
 - c. General Standards: UBC Standards, other model code standards, UL Building Products Listing, FM Approval Guide and ASTM Standards in Building Codes.
 - d. Fire and Life Safety Standards: All referenced standards pertaining to fire rated construction and exiting.
 - e. Common Materials Standards: American Concrete Institute (ACI), American Institute of Steel Construction (AISC), American Welding Society (AWS), Gypsum Association (GA), National Fire Protection Association (NFPA), Tile Council of America (TCA) and Woodwork Institute of California (WIC) standards to the extent referenced within the Specifications.

- f. Research Reports: ICBO Research Reports and CABO National Evaluation Service Reports (NER) for all products used.

G. Edition Date of References:

- 1. When an edition or effective date of a reference is not given, it shall be understood to be the current edition or latest revision published as of the date of opening Bids.
- 2. All amendments, changes, errata and supplements as of the effective date shall be included.

H. ASTM and ANSI References: Specifications and Standards of the American Society for Testing and Materials (ASTM) and the American National Standards Institute (ANSI) are identified in the Plans and Specifications by abbreviation and number only and may not be further identified by title, date, revision or amendment. It is presumed that the Contractor is familiar with and has access to these nationally-and industry-recognized specifications and standards.

1.03 STANDARDS

A. ACI (American Concrete Institute)

Standard 318, Building Code Requirements for Reinforced Concrete

B. AISC (American Institute of Steel Construction)

Specifications and Code of Standard Practice for Steel Buildings and Bridges

C. ANSI (American National Standards Institute, formerly American Standards Association)

Standard C2, NESC (National Electrical Safety Code)

D. ASTM (American Society for Testing and Materials)

- 1. C31, Making and Curing Concrete Test Specimens in the Field
- 2. C42, Obtaining and Testing Drilled Cores and Sawed Beams of Concrete
- 3. C143, Test Method for Slump of Portland Cement Concrete

E. IAPMO (International Association of Plumbing and Mechanical Officials)

- 1. UMC (Uniform Mechanical Code)
- 2. UPC (Uniform Plumbing Code)

F. ICBO (International Conference of Building Officials)

1. UBC (Uniform Building Code)
 2. UBC Standard 26-8, Welding Reinforcing Steel, Sheet Metal inserts and Connections in Reinforced Concrete Construction
 3. UBC Standard 26-10, Concrete Tests
 4. UFC (Uniform Fire Code)
- G. NEMA (National Electric Manufacturer's Association)
- H. NFPA (National Fire Protection Association)
1. Pamphlet 1, Fire Prevention Code
 2. Pamphlet 13, Sprinkler Systems, Installation
 3. Pamphlet 24, Private Fire Service Mains
 4. Pamphlet 70, NEC (National Electric Code)
 5. Pamphlet 71, Signaling Systems, Central Station
 6. Pamphlet 80, Fire Doors and Windows
 7. Pamphlet 101, Life Safety Code
- I. UL (Underwriters' Laboratories, Inc.)

1.04 ABBREVIATIONS

- A. Listed hereinafter are the various organizations or references which may appear in the Contract Documents, along with their respective acronyms and/or abbreviations:

AA	Aluminum Association
AABC	Associated Air Balance Council
AAMA	Architectural Aluminum Manufacturers Association
AAP	Affirmative Action Program
AASHTO	American Association of State Highway and Transportation Officials
ABMA	American Boiler Manufacturers Association
ABPA	American Board Products Association
ACI	American Concrete Institute
AGA	American Gas Association
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
ANSI	American National Standards Institute (formerly American Standards Association)
AMCA	Air Moving and Conditioning Association, Inc.
ANSI	American National Standards Institute
APA	American Plywood Association
ARI	Air Conditioning and Refrigeration Institute
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASI	Architect's Supplemental Instructions
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials

AWCI	Association of the Wall and Ceiling Industries
AWPA	American Wood Preserves Association
AWPB	American Wood Preservers Bureau
AWS	American Welding Society
AWWA	American Water Works Association
BIL	Basic Insulation Level
Cal/OSHA	California Occupational Safety and Health Administration
CCD	Construction Change Directive
CCR	California Code of Regulations
CFR	Code of Federal Regulations
CISPI	Cast Iron Soil Pipe Institute
CLMFI	Chain Link Manufacturers Institute
CO	Change Order
CPM	Critical Path Method
CPUC	California Public Utilities Commission
CRA	California Redwood Association
CRSI	Concrete Reinforcing Steel Institute
CS	Commercial Standards, U.S. Department of Commerce
CTI	Ceramic Tile Institute
DHI	Door and Hardware Institute
FGMA	Flat Glass Marketing Association
FM	Factory Mutual
FS	Federal Specifications
GA	Gypsum Association
HPMA	Hardwood Plywood Manufacturers Association
HVAC	Heating, Ventilating and Air Conditioning
IACS	International Annealed Copper Standards
IAPMO	International Association of Plumbing and Mechanical Officials
ICBO	International Conference of Building Officials
ICEA	Insulated Cable Engineers Association
I.D.	Identification
IEEE	Institute of Electrical and Electronic Engineers, Inc.
IES	Illuminating Engineering Society
JATC	Joint Apprenticeship Training Committee
JV	Joint Venture
Kw	Kilowatt
LBE	Local Business Enterprise
MBE	Minority Business Enterprise
M.I.	Middle Initial
MIA	Masonry Institute of America
MIA	Marble Institute of America
ml	milliliter
MLSFA	Metal Lath/Steel Framing Association
mm	millimeter
MS	Military Specifications
MSS	Manufacturers Standardization Society of the Valve & Fitting Industry
M/WBE	Minority and Woman-Owned Business Enterprise
NAAMM	National Association of Architectural Manufacturers
NBS	National Bureau of Standards
NEC	National Electric Code
NEMA	National Electric Manufacturer's Association

NESC	National Electrical Safety Code
NFPA	National Fire Protection Association
NFPA	National Forest Products Association
NOFMA	National Oak Flooring Manufacturers Association
NSF	National Sanitation Foundation
NTMA	National Terrazzo & Mosaic Association
NWWDA	National Wood Windows and Doors Association
OSA	Division of State Architect (formerly known as the Office of the State Architect)
PCA	Portland Cement Association
PCI	Prestressed Concrete Institute
PDI	Plumbing and Drainage Institute
PM	Preventive Maintenance
PR	Proposal Request
PS	Product Standard, U. S. Department of Commerce
RFI	Request for Information
RFS	Request for Substitution
RIS	Redwood Inspection Service
SDI	Steel Deck Institute
SFM	State of California, Office of State Fire Marshal
SIGMA	Sealed Insulating Glass Manufacturers Association
SJI	Steel Joint Institute
SMACNA	Sheet Metal and Air Conditioning Contractors National Association
SPIB	Southern Pine Inspection Bureau
SSPC	Steel Structures Painting Council
SWI	Steel Window Institute
TCA	Tile Council of America
UBC	Uniform Building Code
UFC	Uniform Fire Code
UL	Underwriters' Laboratories, Inc.
UMC	Uniform Mechanical Code
UPC	Uniform Plumbing Code
WCLIB	West Coast Lumber Inspection Bureau
WIC	Woodwork Institute of California
WHI	Warnock Hersey International
WWPA	Western Wood Products Association

B. ABBREVIATIONS IN SPECIFICATIONS

accord	accordance
Co.	Company
Corp.	Corporation
cu.	cubic
Div.	Division
dia.	diameter
ft.	foot (feet)
gal.	gallon (gallons)
hr.	hour
in.	inch (inches)
Inc.	Incorporated
lbs.	pounds

Mfg.	Manufacturing
No.	number
o.c.	on centers
O.D.	outside diameter
psi	pounds per square inch
psf	pounds per square foot
sq.	square
T & G	tongue and groove
U.S.	United States
yd.	yard (yards)

C. ABBREVIATIONS IN PLANS

Additional abbreviations, used on Plans, are listed thereon.

1.05 SYMBOLS

A. SYMBOLS IN SPECIFICATIONS

:	"shall be" or "shall" - where used within sentences or paragraphs
#1	number
1#	pound
&	and
%	percent
C.	Centigrade
F.	Fahrenheit
°	degree
/	per, except where used to combine words; example: power/fuel.
"	inch (inches)
'	foot (feet)
@	at

B. SYMBOLS IN PLANS

Symbols, used on Plans, are shown thereon.

1.06 DEFINITIONS

- A. Wherever any of the words or phrases defined below, or a pronoun used in place thereof, is used in any part of the Contract Documents, it shall have the meaning here set forth:

ADDENDUM/ADDENDA: Written or graphic instruments issued prior to the opening of Bids which clarify, correct or change the bidding requirements or the Contract Documents. Addenda shall not include the minutes of the pre-bid conference and site visit.

AGREEMENT (Document 00520): Agreement is the basic contract document that binds the parties to construction Work. Agreement defines relationships and obligations between Port and the Contractor and by reference incorporates Conditions of Contract, Drawings, Specifications and contains Addenda and all Modifications

subsequent to execution of Contract.

ALTERNATE: Work added to or deducted from the Base Bid, if accepted by Port.

APPROVED EQUAL: Approved in writing by Port as being of equivalent quality, utility and appearance.

ARCHITECT / ENGINEER: The person holding a valid California State Architect's or Engineer's license, whose firm has been designated within the Contract Documents as the Architect/Engineer to provide architectural services on the Project, and who may have engaged engineering subconsultants to provide services on Project. When the Architect is referred to within the Contract Documents and no Architect/Engineer has in fact been designated, then the matter shall be referred to Port. The term Architect/Engineer shall be construed to include all its consultants retained for the Project, as well as employees of the Architect/Engineer. When the designated Architect/Engineer is an employee of Port, its authorized representatives on the Project will be included under the term Architect/Engineer.

ATTORNEY: The Port Attorney of the Board.

BID: The offer or proposal of the Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

BIDDER: Person, firm, entity or association who submits a Bid.

BIDDING DOCUMENTS: All documents comprising the Project Manual (including all documents and specification sections listed on Document 00010 Table of Contents), including documents supplied for bidding purposes only and Contract Documents.

BOARD: The Board of Port Commissioners of the City of Oakland.

BY OTHERS: Work that is outside scope of Work to be performed by the Contractor under the Contract Documents, which will be performed by Port, other contractors, or other means.

BY PORT: Work that will be performed by Port or its agents at the Port's expense.

CHANGE ORDER: A written instrument prepared by Port and signed by Port and the Contractor, stating their agreement upon all of the following:

- a. a change in the Work,
- b. the amount of the adjustment in the Contract Sum, if any, and
- c. the amount of the adjustment in the Contract Time, if any.

CHIEF ENGINEER: The Chief Engineer of the Port.

CITY: The City of Oakland, Alameda County, California.

CONCEALED: Work not exposed to view in the finished Work, including within or

behind various construction elements.

CONSTRUCTION MANAGER: A representative of Port with authority to act on behalf of Port, as designated by Port.

CONTRACT CONDITIONS: Conditions of Contract define basic rights, responsibilities and relationships of the Contractor and Port and consists of two parts: General Conditions and Supplemental General Conditions.

- a. General Conditions are general clauses which are common to the Port Contracts.
- b. Supplemental General Conditions modify or supplement General Conditions to meet specific requirements for the Contract Documents.. Supplemental General Conditions are also referred to sometimes as Supplementary Conditions.

CONTRACT DOCUMENTS or CONTRACT: Contract Documents shall consist of the documents identified as the Contract Documents in Document 00520, Agreement, plus all changes, Addenda and Modifications thereto.

CONTRACT MODIFICATION: Either:

- a. a written amendment to the Contract Documents signed by the Contractor and Port; or
- b. a Change Order; or
- c. a written directive for a minor change in the Work issued by Port.

CONTRACT SUM: The sum stated in the Agreement and, including authorized adjustments, the total amount payable by Port to the Contractor for performance of the Work and the Contract Documents. The Contract Sum is also referred to as the Contract Price or the Contract Amount.

CONTRACT TIMES: The number or numbers of days or the dates stated in the Agreement (i) to achieve Substantial Completion of the Work or designated milestones and/or (ii) to complete the Work so that it is ready for final payment and is accepted.

CONTRACTOR: The person or entity identified as such in the Agreement and referred to throughout the Contract Documents as if singular in number and neuter in gender. The term "Contractor" means the Contractor or its authorized representative.

CONTRACTOR'S EMPLOYEES: Persons engaged in execution of Work under the Contract Documents as direct employees of the Contractor, as subcontractors, or as employees of subcontractors.

DATE OF SUBSTANTIAL COMPLETION: Date of Substantial Completion of Work or designated portion thereof is date certified by the Port when construction is sufficiently complete in accordance with Contract Documents for Port to occupy Work or designated portion thereof and have beneficial use of it for the purposes intended.

DAY: One calendar day, unless the word "day" is specifically modified to the contrary.

DEFECTIVE: An adjective which, when modifying the word "Work", refers to Work that is unsatisfactory or unsuited for the use intended, faulty, or deficient, that it does not conform to the Contract Documents, or does not meet the requirements of any inspection, reference standard, test or approval referred to in the Contract Documents (including but not limited to approval of samples and "or equal" items), or has been damaged prior to final payment (unless responsibility for the protection thereof has been assumed by Port). The Port is the judge of whether Work is defective.

DRAWINGS: The graphic and pictorial portions of the Contract Documents, wherever located and whenever issued, showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules and diagrams.

ENGINEER/RESIDENT ENGINEER: A person designated by the Chief Engineer of the Port authorizing such person to act on his behalf.

EQUAL: Equal in the opinion of the Port. Burden of proof of equality is responsibility of the Contractor.

EXPOSED: Work exposed to view in the finished Work, including behind louvers, grilles, registers and various other construction elements.

FIELD CHANGE: A written work change directive to the Contractor from the Port, or the Architect/Engineer approved by the Port, ordering alterations or modifications which do not result in change in Contract Sum or Contract Times, and do not substantially change the Contract Documents.

FINAL ACCEPTANCE or FINAL COMPLETION: The Port's acceptance of the Work as satisfactorily completed in accordance with the Contract Documents. Requirements for Final Acceptance/Final Completion include, but are not limited to:

- a. All Systems having been tested and accepted as having met requirements of the Contract Documents.
- b. All required instructions and training sessions having been given by the Contractor.
- c. All as-built drawings and operations and maintenance manuals and Machine Inventory Sheets having been submitted by the Contractor, reviewed by and accepted by the Port.
- d. All punch list work, as directed by the Port, having been completed by the Contractor.
- e. Generally all Work, except Contractor maintenance after Final Acceptance, having been completed to satisfaction of the Port.

FORCE ACCOUNT: Work directed to be performed without prior agreement as to lump sum or unit price cost thereof, and which is to be billed at cost for labor,

materials, equipment, taxes, and other costs, plus a specified percentage for overhead and profit.

FURNISH: Supply only, do not install.

INDICATED: Shown or noted on the Drawings.

INSPECTOR: The person engaged by the Port to inspect the workmanship, materials, or manner of construction of buildings or portions of buildings, to determine if such construction complies with the Contract Documents.

INSTALL: Install or apply only, do not furnish.

LATENT: Not apparent by reasonable inspection, including but not limited to, the inspections and research required as a condition to bidding under the General Conditions.

MATERIAL OR MATERIALS: These words shall be construed to embrace machinery, manufactured articles, materials of construction (fabricated or otherwise), and any other classes of material to be furnished in connection with Contract, except where a more limited meaning is indicated by context.

MILESTONE: A principal event identified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all Work.

MODIFICATION: Same as Contract Modification.

NOT IN CONTRACT: Work that is outside the scope of work to be performed by the Contractor under the Contract Documents.

NOTICE OF AWARD: A written notice given by the Port to lowest responsive, responsible bidder advising that Bidder's bid and other qualifying information is acceptable to the Port, and requiring Bidder to fulfil the post-notice of award requirements in Section 00200, Instructions to Bidders, and any requirements in the Contract Documents applicable to Contractor at such time. The notice shall be in the form set forth in Document 00510, Notice of Award, with such changes thereto as the Port may determine in its discretion.

NOTICE TO PROCEED: A written notice given by the Port to the Contractor fixing the date on which the Contract Time will commence to run and on which contractor shall start to perform the Contractor's obligations under the Contract Documents. The notice shall be in the form set forth in Document 00550, Notice to Proceed, with such changes thereto as the Port may determine in its discretion.

OFFICE OF THE PORT: The Port's office at 530 Water Street, P.O. Box 2064, Oakland, California 94604-2064, or such other office as the Port may have after notice of such change of office is provided by the Port.

OFF SITE: Outside geographical location of the Project.

PLANS: Same as Drawings.

PORT: The City of Oakland, a municipal corporation, acting by and through its Board of Port Commissioners.

PORT-FURNISHED, CONTRACTOR-INSTALLED: Items furnished by the Port at its cost for installation by the Contractor at its cost under the Contract Documents.

PORT REPRESENTATIVE(S): The person or persons assigned by the Port to be the Port's agent(s) at the Site.

PROGRESS REPORT: a periodic report submitted by the Contractor to the Port with progress payment invoices accompanying actual work accomplished to the Program Schedule. See Section 01320, Progress Schedules and Reports.

PROJECT: Total construction of which Work performed under the Contract Documents may be whole or part.

PROJECT MANUAL: Project Manual consists of Bidding Requirements, Agreement, Bonds, Certificates, Contract Conditions, and Specifications.

PROVIDE: Furnish and install.

REQUEST FOR INFORMATION ("RFI"): A document prepared by the Contractor requesting information regarding the Project or Contract Documents. The RFI system is also a means for the Port and Architect/Engineer to submit Contract Document clarifications or supplements to the Contractor.

REQUEST FOR SUBSTITUTION ("RFS"): A document prepared by the Contractor requesting substitution of any unlisted materials in lieu of materials named in the Specifications or approved for use in Addenda.

RFI-REPLY: A document consisting of supplementary details, instructions or information issued by the Port or Architect/Engineer which clarifies or supplements Contract Documents, and with which the Contractor shall comply. RFI-Replies do not constitute changes in Contract Sum or Contract Times except as otherwise agreed in writing by the Port. RFI-Replies will be issued through the RFI administrative system.

SAMPLES: Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.

SHOP DRAWINGS: All drawings, diagrams, illustrations, schedules and other data or information which are specifically prepared or assembled by or for the Contractor and submitted by the Contractor to illustrate some portion of the work.

SHOWN: As indicated on Drawings.

SITE: The particular geographical location of Work performed pursuant to the Contract Documents.

SOQ: Shall have the meaning provided in Document 00450, Statement of

Qualifications for Construction Work.

SPECIFICATIONS: Divisions 1 through 16 as listed on the Document 00010, Table of Contents. Specifications are the written portion of the Contract Documents consisting of requirements for materials, equipment, construction systems, standards and workmanship for the Work, and performance of related services.

SPECIFIED: As written in Specifications.

START DATE: The date specified by the Port, in the Notice to proceed or otherwise, for commencement of performing Work under the Contract Documents.

SUBCONTRACTOR: A person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "subcontractor" is referred to throughout the Contract Documents as if singular in number and neuter in gender and means a subcontractor or an authorized representative of the subcontractor. The term "subcontractor" does not include a separate contractor or subcontractors of a separate contractor.

SUBSTANTIAL COMPLETION: The Work (or a specified part thereof) has progressed to the point where, in the opinion of the Port as evidenced by a Certificate of Substantial Completion, the Work is sufficiently complete, in accordance with the Contract Documents, so that the Work (or specified part) can be utilized for the purposes for which it is intended; or if no such certificate is issued, when the Work is complete and ready for final payment is evidenced by written recommendation of the Port for final payment. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

UNDERGROUND FACILITIES: Pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels or other such facilities or attachments, and any encasements containing such facilities which have been installed underground to furnish any of the following services or materials: Electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, sewage and drainage removal, traffic or other control systems or water.

WORK: The entire completed construction or the various separately identifiable parts thereof required to be furnished under the Contract Documents within the Contract Time. Work includes and is the result of performing or furnishing labor and furnishing and incorporating materials and equipment into the construction, and performing or furnishing services and furnishing documents, all as required by the Contract Documents including the Plans and Specifications. Wherever the word "work" is used, rather than the word "Work", it shall be understood to have its ordinary and customary meaning.

- B. Wherever words "as directed", "as required", "as permitted", or words of like effect are used, it shall be understood that direction, requirements, or permission of the Port is intended. Words "sufficient", "necessary", "proper", and the like shall mean sufficient, necessary or proper in judgement of the Port. Words "approved", "acceptable", "satisfactory", "favorably reviewed" or words of like import, shall mean approved by, or acceptable to, or satisfactory to, or favorably reviewed by the Port.

- C. Wherever the word "may" is used, the action to which it refers is discretionary. Wherever the word "shall" is used, the action to which it refers is mandatory.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

END OF SECTION

SECTION 01556

TRAFFIC CONTROL SYSTEM

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. This Section sets forth the requirements concerning flagging and traffic-handling equipment and devices used in carrying out the requirements for public convenience and public safety during construction of this project. A traffic control system shall consist of closing traffic lanes and providing flaggers and traffic control devices in accordance with the details shown on the Plans, the provisions of Section 12, "Construction Area Traffic Control Devices," of the State Specifications.

1.02 REFERENCE STANDARDS AND SPECIFICATIONS

- A. State of California, Department of Transportation, Standard Specifications, latest edition (State Specifications).

1.03 SUBMITTALS

- A. Prepare and submit detailed traffic handling plans for all phases of construction work to the Engineer for approval. The traffic handling plans shown on the stage construction drawings are conceptual only.

PART 2 - PRODUCTS

2.01 FLAGGERS

- A. Flaggers shall be provided in conformance with provisions in Section 12-2, "Flagging", of the State Specifications.
- B. The provisions in Section 12-2.02, "Flagging Costs", shall not apply.

2.02 TRAFFIC CONTROL DEVICES

- A. Traffic control devices shall conform to the provisions in Section 12-3, "Traffic-Handling Equipment and Devices," of the State Specifications.
- B. During the hours of darkness traffic cones shall be affixed with reflective cone sleeves. The reflective sheeting of sleeves on the traffic cones shall be visible at 1,000 feet at night under illumination of legal high beam headlights, by persons with vision of or corrected to 20/20. The type of reflective cone sleeve used shall be at the option of the Contractor. Only one type of reflective cone sleeve shall be used on the project.

PART 3 - EXECUTION

3.01 GENERAL REQUIREMENTS

- A. Attention is directed to requirements on the plans for Stage Construction.
- B. The provisions in this Section will not relieve the Contractor from his responsibility to provide such additional devices or take such measures as may be necessary to comply with the provisions in Section 7-1.09, "Public Safety," of the State Specifications.
- C. If any component in the traffic control system is displaced, or ceases to operate or function as specified, from any cause, during the progress of the work, the Contractor shall immediately repair said component to its original condition or replace said component with like equipment.

- END OF SECTION -

SECTION 01563

DUST AND AIR POLLUTION CONTROL

PART 1 – GENERAL

1.01 WORK INCLUDED

- A. Work under this Section includes applying either water or dust palliative for the prevention of dust nuisance as specified in Section 10, "Dust Control", of the State Specifications and these Specifications.
- B. Work under this Section includes the control of emissions on construction related equipment and compliance by the Contractor with all air pollution and environmental control rules, regulations, ordinances and statutes which apply to any phase of the project.

1.02 REFERENCE STANDARDS AND SPECIFICATIONS

- A. State of California, Department of Transportation, Standard Specifications, 1992 edition (State Specifications)

1.03 SUBMITTALS

- A. Dust Management Plan: To control dust, the Contractor shall prepare a Dust Management Plan including the following measures:
 - 1. Water all exposed or disturbed soil surfaces (active construction areas) at least twice-daily, or apply non-toxic dust control emulsion, binder or stabilizer to eliminate visible dust plumes. Enclose, cover, water twice daily or apply non-toxic soil binders to exposed stockpiles (dirt, sand, etc.).
 - 2. Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least 2 feet of freeboard.
 - 3. Limit traffic speeds on unpaved roads to 15 mph.
 - 4. Pave, apply water three times daily, or apply non-toxic soil stabilizer on all unpaved access roads, parking areas, and staging areas at construction site.
 - 5. Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas at construction site. If visible soil materials are carried onto adjacent public streets, contractor shall also sweep these streets daily with water sweepers.
 - 6. Install sandbags or other erosion control measures to prevent silt runoff to public roadways.
 - 7. Hydroseed or apply non-toxic soil stabilizer to inactive construction areas (previously graded areas that are inactive for 10 days or more).

8. Replant vegetation in disturbed areas as quickly as possible.
9. Limit the area subject to excavation, grading, and other construction activity at any one time.
10. Suspend excavation and grading activity when winds (sustained) exceed 25 mph.
11. Install wheel washers for all exiting trucks, or wash off the tires or tracks of all trucks and equipment leaving the project site.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Water shall conform to the provisions of these Specifications.
- B. Dust palliative shall conform to the provisions in Section 18, “Dust Palliative”, of the State Specifications.

PART 3 – EXECUTION

3.01 APPLICATION

- A. Water shall be applied as specified in these Specifications.
- B. The Dust Management Plan, when approved by Port, shall be implemented by Contractor. Contractor shall maintain a copy of the Dust Management Plan at the construction site at all times, and make the document available to operating personnel during construction activities.
- C. Dust palliative shall be applied as provided in Section 18, “Dust Palliative”, of the State Specifications.
- D. To control exhaust emissions, the Contractor shall:
 1. Implement emissions controls on all construction-related equipment, including equipment tune up, and use of California low-sulfur, low-aromatic diesel fuel in equipment that is not required under state law to use low-sulfur diesel.
 2. Encourage construction workers to carpool, especially on “Spare the Air” days.
- E. Contractor shall comply with all air pollution and environmental control rules, regulations, ordinances and statutes which apply to any phase of the project.

- END OF SECTION -

SECTION 01564

NOISE CONTROL

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Work under this Section includes providing noise pollution control during construction and dredging as specified in these Specifications.

PART 2 – EXECUTION

- A. To control construction-related noise impacts, Contractor shall implement the following measures:
1. All construction equipment, fixed, and mobile, and motor-vehicles used on the project site shall be properly maintained to minimize noise generation. This will include maintaining equipment silencers, shields, and mufflers in proper operating order. Use “quiet package” or “hush” equipment which is readily available for such equipment as trailer-mounted compressors, generators, welders, etc. All equipment shall be operated in the quietest manner practicable.
 2. Material stockpiles and/or vehicle staging areas shall be located as far as practicable from dwellings.
 3. Any public address system operated on the project site shall be designed and adjusted for minimum sound levels and minimum “spill over” of sound onto adjacent properties.
 4. All project workers exposed to noise levels above 80 dBA shall be provided with personal protective equipment for hearing protection (i.e., ear plugs and/or muffs). Areas where noise levels are routinely expected to exceed 80 dBA shall be clearly posted “Hearing Protection Required in this Area”.
 5. The Contractor shall designate a disturbance coordinator responsible for responding to noise complaints. The name and telephone number of the coordinator shall be clearly posted at the construction site. The disturbance coordinator shall determine causes and implement measures to mitigate the noise impact, including the enforcement of the allowable hours of construction, the identification of poorly muffled equipment and requiring its repair or replacement; and recommending temporary construction noise barriers.
 6. Phase or control high noise-producing construction activities to ensure that requirements in the City of Oakland Noise Ordinance are not exceeded.
 7. For pile driving restrictions, see Division 3 – Concrete.

- END OF SECTION -

SECTION 01565

SITE SECURITY

PART 1 GENERAL

1.01 SUMMARY

A. This section includes a summary of the work including:

1. Site security

1.02 SECURITY

A. The Contractor shall be responsible for security of the work and of his equipment and materials at the project site.

The following special security measures shall be taken for work within the work area:

1. Site Security.

- a. Secure perimeter of project with fencing, K-rail or chain link fencing (6-8 Feet height). Install gates with locks that are locked in off-hours
- b. Place construction signage to read "Unauthorized Personnel Not Allowed" in strategic locations (i.e., access points).
- c. Identify locations where high-valued equipment and materials exist on the project site and secure these areas with temporary fencing with locks. Provide temporary lighting for these areas. Consider installation of video monitoring.
- d. Secure machinery and equipment on project site by removing keys at the end of each shift. Contractors shall centralize parking of their mobile equipment (i.e., one location).
- e. Identify locations where off-site materials will be stored by Contractor/Subcontractors and notify Resident Engineer of location. Advise subcontractors of the requirement to notify Contractor in writing and request site approval for off-site storage locations.
- f. Establish Protocols for Oakland Police Department response. Coordinate and meet with Oakland Police Representative on an ongoing basis to review pre-planning activities. Schedule periodical site visits to identify areas of concern

PART 2 PRODUCTS

Not applicable to this section

PART 3 EXECUTION

Not applicable to this section

END OF SECTION

SECTION 01569

TEMPORARY FENCES

PART 1 – GENERAL

1.01 WORK INCLUDED

- A. Work under this Section includes furnishing, constructing, maintaining, and removing temporary fences as shown on the plans, as specified herein, and as directed by the Engineer.
- B. Except as otherwise specified in this Section, temporary fences shall conform to the plan details and the specifications for permanent fences of similar character as provided in Section 80, "Fences," of the State Specifications.

1.02 REFERENCE STANDARDS AND SPECIFICATIONS

- A. State of California, Department of Transportation, Standard Specifications and Standard Plans, 1992 edition (State Specifications)

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Used materials may be provided if such used materials are good, sound, and are suitable for the purpose intended.
- B. Materials may be commercial quality providing the dimensions and sizes of said materials are equal to, or greater than, the dimensions and sizes shown on the plans or specified by the specifications.
 - 1. Posts shall be either metal or wood at the Contractor's option.
 - 2. Galvanizing and painting of steel items will not be required.
 - 3. Treating wood with wood preservatives will not be required.
 - 4. Concrete footings for metal posts will not be required.

PART 3 – EXECUTION

3.01 INSTALLATION

- A. Install temporary fences as indicated on the plans and as specified in Section 80, "Fences", of the State Specifications.

- B. Temporary fences that are damaged from any cause during the progress of the work shall be repaired or replaced by the Contractor at his expense.
- C. When no longer required for the work as determined by the Engineer, temporary fences shall be removed. Removed facilities shall become the property of the Contractor.
- D. Removed temporary fence materials that are not damaged may be reused in the permanent work providing such materials conform to all of the requirements specified for the permanent work and such materials are new when used for the temporary fences.
- E. Holes caused by the removal of temporary fences shall be backfilled to grade and compacted to match surrounding soil.

- END OF SECTION -

SECTION 01620

PRODUCT OPTIONS AND SUBSTITUTIONS

PART 1 GENERAL

1.01 SUMMARY

- A. Procedures are described for selecting products and requesting substitutions of unlisted materials in lieu of materials named in the specifications or approved for use in addenda.
- B. Related Sections
 - 1. Section 01250: Modification Procedures
 - 2. Section 01330: Submittals

1.02 CONTRACTOR'S OPTIONS

- A. For products specified only by reference standard: Select any product meeting that standard.
- B. For products specified by naming one or more products or manufacturers:
 - 1. Select products of any named manufacturer meeting specifications.
 - 2. For any product or manufacturer which is not specifically named submit Request for Substitution (RFS).

1.03 SUBSTITUTIONS

- A. Within a period of 35 days after Award of Contract, Port and the Architect/Engineer will consider RFS from the Contractor. After that period, requests will be considered only when product becomes unavailable due to no fault of the Contractor. Requests for review of proposed substitute items will not be accepted from anyone other than the Contractor. The RFS will state the extent, if any, to which the evaluation and acceptance of the proposed substitute will prejudice the Contractor's achievement of substantial completion on time, and whether or not acceptance of the substitute for use in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Port for work on the Project).
- B. Submit separate RFS (and four copies) for each product and support each request with:
 - 1. Product identification
 - 2. Manufacturer's literature

3. Samples, as applicable
 4. Name and address of similar projects on which product has been used, and date of installation
 5. Name, address and telephone number of manufacturer's representative or sales engineer
 6. For construction methods:
Detailed description of proposed method.
Drawings illustrating methods.
- C. Where required, itemize a comparison of the proposed substitution with product specified and list significant variations, including but not limited to dimensions, weights, service requirements, and functional differences. If variation from product specified is not pointed out in submittal, variation will be rejected even though submittal was favorably reviewed.
- D. State whether the substitute will require a change in any of the Contract documents (or provisions of any other direct contract with Port for work on the Project) to adapt the design of the proposed substitute, and whether or not incorporation or use of the substitute in connection with Work is subject to payment of any license fee or royalty. Submit data relating to changes in construction schedule.
- E. All variations of the proposed substitute from that specified will be identified in the RFS and available maintenance, repair and replacement service will be indicated.
- F. Include accurate cost data comparing proposed substitution with product and amount of net change in Contract price, including but not limited to, an itemized estimate of all costs or credits that will result directly or indirectly from acceptance of such substitute, including costs of redesign and claims of other contractors effected by the resulting change, all of which will be considered by the Port in evaluating the proposed substitute. The Port may require the Contractor to furnish additional data about the proposed substitute.
- G. Substitutions will not be considered for acceptance when:
1. They will result in delay meeting construction milestones or completion dates.
 2. They are indicated or implied on submittals without formal request from the Contractor.
 3. They are requested directly by subcontractor or supplier.
 4. Acceptance will require substantial revision of Contract Documents.
 5. They disrupt the Contractor's job rhythm or ability to perform efficiently.
- H. Substitute products shall not be ordered without written acceptance of the Port.

- I. The Port will determine acceptability of proposed substitutions and reserve right to reject proposals due to insufficient information.
- J. Accepted substitutions will be evidenced by a change order. All Contract requirements apply to Work involving substitutions.

1.04 CONTRACTOR'S REPRESENTATION AND WARRANTY

- A. Requests constitute a representation and warranty that the Contractor:
 - 1. Has investigated proposed product and determined that it meets or exceeds, in all respects, specified product
 - 2. Will provide the same warranty for substitution as for specified product
 - 3. Will coordinate installation and make other changes which may be required for Work to be complete in all respects
 - 4. Waives claims for additional costs which may subsequently become apparent
 - 5. Will compensate the Port for additional redesign costs associated with substitution
 - 6. Will be responsible for Construction Schedule slippage due to substitution
 - 7. Will be responsible for Construction Schedule delay due to late ordering of available specified products caused by requests for substitution which is subsequently rejected by the Port
 - 8. Will compensate the Port for all costs; including extra costs of Contract, extra cost to other contractors, and any claims brought against the Port, caused by late requests for substitutions or late ordering of products.

1.05 PORT'S DUTIES

- A. Review the Contractor's RFS with reasonable promptness.
- B. Notify the Contractor in writing of decision to accept or reject requested substitution.

1.06 COST OF REVIEW

- A. The Port will record time required in evaluating substitutes proposed or submitted by the Contractor. Whether or not the Port accepts the substitute item so proposed or submitted by the Contractor, the Contractor shall reimburse the Port for the charges incurred for evaluating each such proposed substitute item.
- B. The Port reserves the right to waive the requirement of paragraph A above.

1.07 ADMINISTRATIVE REQUIREMENTS

Specified products, materials, or systems for Project may include engineering or on-file standards required by the Regulatory Agency. The Contractor's substitution of products, materials or systems may require either additional engineering, testing, reviews, approvals, assurances, or other information for compliance with Regulatory Agency requirements or both. The Contractor shall provide all agency approvals or other additional information required and pay additional costs for required Port or Architect/Engineer's services made necessary by the substitution at no increase in Contract Sum or schedule time, and as a part of substitution proposal.

PART 2 PRODUCTS

Not applicable to this section.

PART 3 EXECUTION

Not applicable to this section.

END OF SECTION

SECTION 01720

FIELD SURVEY

PART 1 GENERAL

1.01 SUMMARY

- A. This section describes field surveying services to be performed by the Contractor and by the Port, and procedures to accomplish these services. This section supersedes and controls any conflicting provisions for field surveying which may appear elsewhere in the Project Manual. In the event of conflicting information between this section and the Plans, the information shown on the Plans shall govern.
- B. Related Documents
1. Document 00320: Geotechnical Data and Existing Conditions
 2. Document 00700: General Conditions
- C. Related Sections
1. Section 01100: Summary of Work
 2. Section 01315: Project Meetings

1.02 DEFINITION OF TERMS

- **Port Land Surveyor:** The person designated by the Port's Director of Engineering to be in responsible charge of land surveying for the Port. The Port Land Surveyor may designate full-time Port survey staff, and the current Land Survey and Mapping Consultant Team, commonly known as the Port Land Surveys and Mapping Group, to act on his/her behalf. For the purpose of this project, the Port Land Surveyor reports to and serves under the direction of the Engineer.
- **Project Surveyor:** The term Project Surveyor as used within this section, shall refer to the Professional Engineer or Land Surveyor hired by the Contractor for the purpose of providing survey services to this project.
- **Monument:** For the purpose of this project, a term generally referring to a constructed device (such as a brass disk or driven pin) whose precise location and position, relative to the Port of Oakland's geospatial system - NAD83 has been measured and published. Although the published information may contain a vertical element, a Monument generally refers only to the HORIZONTAL components of its location.
- **Benchmark:** For the purpose of this project, a natural point (such as the top of a large rock) or a constructed device (such as a brass disk or bolt) whose vertical element relative to the Port of Oakland Datum has been measured and published. Benchmarks are generally not measured with any horizontal precision and horizontal information, which accompanies them, is usually for location purposes only.

- **Primary Control:** These monuments generally include, but are not limited to, those shown on Record of Survey 990. These monuments serve as the “final authority” for all other survey control.
- **Secondary Control:** For the purpose of this project, these are semi-permanent control points or monuments set by the Port Land Surveyor, the City of Oakland, other Governmental Agencies, or Professional Engineers or Surveyors, with locations precisely derived based upon Primary Control. The function of these control points or monuments is to serve as an extension of the Primary Control into other Port areas.
- **Project Control:** For the purpose of this project, this control will be semi-permanent points set by the Port Land Surveyor from and adjusted to either the primary or secondary control to serve as local control in the area of a specific project.
- **Construction Control:** Construction control are temporary points set directly from primary, secondary, or project control for the purpose of providing the Contractor efficient, reliable means to set offset line and grade stakes.
- **Contractor’s Line & Grade:** Line and grade reference points are those points set by the Contractor at the offset and alignment interval it considers necessary for the construction of the intended improvements in conformance to design.

1.03 RESPONSIBILITIES

A. PORT OF OAKLAND

1. The Port Land Surveyor, as directed by the Engineer, will set “Construction Control” for the purpose of providing the Contractor the means of setting “Line and Grade” stakes. Construction Control points will be set with such precision and methods as warranted to be within intended design tolerances.
2. As directed by the Engineer, the Port Land Surveyor will serve as the technical liaison between the Contractor and the Engineer regarding issues related to field surveying.
3. Prior to construction, the Port Land Surveyor will review the project site for any known Primary or Secondary Control Monuments and, if required, will inspect these monuments to determine whether or not they are in good condition and correctly located. The Port Land Surveyor will provide to the Contractor a list and locations of all such correctly located monuments in good condition not already shown accurately on the Plans. The monuments shown on this list, together with those shown on the Plans will then be considered as being under the Contractor’s care and responsibility. When possible, as determined by the Engineer, such

monuments will be marked in the field with appropriate techniques to facilitate location and identification by the Contractor and/or its agents.

If additional monuments are subsequently discovered by the Contractor within or adjacent to the project site, the Contractor shall immediately report them to the Engineer. All additional monuments subsequently discovered, by any party, within or adjacent to the project site, will promptly be identified by the Port Land Surveyor and their condition and locations reviewed by the same. The Contractor will be notified of all such additional monuments. Upon Contractor's receipt of such notification, those monuments will also be considered as being under the Contractor's care and responsibility.

Upon proper notification by the Contractor to the Engineer, of an upcoming required or possible destruction or disturbance of a monument under the Contractor's care (see section 1.03.B.6 herein below), the Port Land Surveyor will determine if said monument should be reset or relocated. Any such resetting or relocation will be performed at the expense of the Port. If the monument is determined to be of no further value to the Port, the Port Land Surveyor will notify the Engineer in writing.

The Port Land Surveyor will, upon discovery or notification of the loss or disturbance of a Primary or Secondary monument under the Contractor's care and responsibility, determine whether or not the Contractor had given the required notice of such destruction or disturbance to the Engineer prior to its loss or disturbance. If no such notice was given, the Contractor shall compensate the Port for the lost or disturbed monument in accordance with Paragraph 1.03.B.6 herein below. The Port Land Surveyor will, at his/her sole discretion, determine if and when a lost or disturbed monument will be reset or replaced. Disturbance of a monument is defined as the physical movement or injury to the monument disk, post and/or pin to the extent that it no longer occupies its original position, that it becomes unstable, and/or that it is no longer usable or accessible.

4. Pursuant to Section 8762, California State Business and Professions Code, the Port Land Surveyor will prepare a Record of Survey map showing permanent monuments installed as part of this project.

B. CONTRACTOR

1. The Contractor shall employ or engage a Professional Land Surveyor, licensed to practice land surveying in the State of California, Competent to Practice in the endeavor in which he/she will be engaged, to be in Responsible Charge of all surveying and related layout work which the Contractor is required to perform in order to construct the intended improvements in conformance with design.

Responsible Charge Requirements, Pursuant to:

Code of Regulations, TITLE 16, Chapter 5, State of California

404.2. Definition of Responsible Charge for Land Surveyors, and

415. Practice Within Area of Competence.

The Contractor shall submit a letter from the Professional Land Surveyor or engineer Licensed to practice Land Surveying, indicating his/her employment by the Contractor in Responsible Charge. This letter shall be signed and bear the professional seal of the individual (not the company) engaged in that capacity. This letter shall be submitted to the Engineer prior to commencement of work along with a copy to the Port Land Surveyor.

2. The Contractor, having engaged or employed a Professional Land Surveyor and related support staff, is responsible for survey layout work, defined herein as Contractors Line and Grade. Line and Grade points shall be set from the Construction Control points provided by the Port Land Surveyor (under the direction of the Engineer), and shall also serve as the Contractor's preservation and/or perpetuation of that control. These points shall be set with precision and methods commensurate with the tolerances required by the intended construction.
3. The Contractor shall check and verify the internal integrity of the Construction Control to its own satisfaction and shall notify the Engineer of any apparent discrepancy prior to use for layout of line and grade points.
4. One set of Construction Control will be provided to the Contractor for each phase of construction, as directed by the Engineer as appropriate. The Contractor shall preserve or perpetuate the control for the duration of that phase of construction. Any re-survey of Construction Control during that phase of construction will be performed by the Port Land Surveyor at the Contractor's expense, at the direction of the Engineer. This charge will be deducted from any monies due or to become due to the Contractor.

The Contractor shall submit written requests at least two working days in advance of the time when Port surveying services are desired to commence. The Contractor will be provided with a Survey Request Form (electronic) by the Engineer and shall use this form when submitting the survey requests. The requests shall be as complete as possible and include the types of services needed, locations, details of the work (offsets, layout, etc.) and the date each survey task is requested to be completed. It is recommended, but not required, that the Project Surveyor review these requests to assure their completeness.

5. The Contractor shall temporarily suspend work at such points and for such reasonable times as the Port Land Surveyor may require to set primary, secondary, or construction control and the Contractor shall not be entitled to any additional compensation or extension of time. The Contractor is responsible for the removal of all obstructions that would interfere with the installation of such control. The Contractor shall consult with the Engineer to determine how much notice will be required prior to the installation of each phase of construction control.

6. The Contractor and the Project Surveyor shall review the Project Site, the Plans, and any additional information and familiarize themselves with the location and character of any Primary or Secondary monuments as well as the Project Control. Any discrepancies, omissions, or errors observed shall be promptly reported to the Engineer.

The Contractor shall be responsible for preserving and protecting such monuments and benchmarks from damage during the construction work or any related activity.

In the event that it becomes necessary to destroy or disturb any Primary or Secondary monument during the course of construction, it shall be the Contractor's responsibility to notify BOTH the Engineer and the Port Land Surveyor of this. Such notification shall be made in writing, not more than 14 working days nor less than three working days prior to the anticipated destruction or disturbance.

If the Port Land Surveyor determines that such a monument may be destroyed, the Contractor shall, at the time of such destruction, salvage the disk and any casting and cover and shall deliver them to the Engineer. In the event that an existing casting (frame and cover) is NOT salvaged, the Contractor shall provide a replacement to the Engineer in accordance with the Port Monument Standard Drawing at no cost to the Port.

If, after 15 working days from the date of notification of destruction or disturbance, the monument remains undamaged and/or undisturbed, it shall be deemed that the contractor's projected activity did not affect the monument and the Contractor shall be required to re-submit notification when future activities again threaten the monument.

In the event that a monument under the Contractor's responsibility and care (See Paragraph 1.03 A.3 herein above), is destroyed or disturbed and the Contractor failed to notify the Engineer of its destruction or disturbance, then the Contractor shall compensate the Port for such destroyed or disturbed monument. This also applies to reset monuments (if any). For the purpose of this contract, the compensation for each of such destroyed or disturbed monuments shall be Four Thousand Dollars (\$4,000.00). This charge will be deducted from any monies due or to become due to the Contractor.

1.04 PROCEDURES

A. PORT OF OAKLAND

1. Construction control will be provided by the Port Land Surveyor under the direction of the Engineer. These points will be set at selected major design horizontal alignment points as described below. The horizontal construction control will not be elevated, meaning no vertical data will be supplied for those points. Vertical control will also be provided, but in the

form of two or more benchmarks located for better survivability than the horizontal control. Construction Control will generally include the following:

- Buildings: At least three building corners or major grid line intersections set, one set for rough grade and one set for final construction.
 - Roads: Centerline stakes at BC, EC, and angle point locations, one set before rough grade and one set before finish grade.
 - Curb & Gutter: Face of curb at BC, EC, and angle point locations, one set.
 - Storm and Sanitary Pipelines: Center of manholes and/or other changes in horizontal alignment, one set.
 - Underground Utilities (Gas, Electric, Water, Communications): Main line angle points and/or other changes in horizontal alignment, one set.
 - Track Alignments: Centerline of track at PC, PT, PS, and at special features such as point of switch and point of frog, one set.
 - Wharf: Back of wharf at ends and midpoint, one set.
 - Other major Improvements: As directed by the Engineer.
2. The following elements of construction control or layout will NOT be provided:
- Painted line markings, including but not limited to the following: Parking stripes or bars, limit lines, lead-in lines (for aircraft), and traffic indicators (such as stop signs, center lines, etc.).
 - Irrigation control systems.
 - Electric pull boxes.
 - Water valves.
 - Laterals. Sewer, water, gas, and electrical service lines (non-main systems).
 - Street signs and other signs.

This list is not all-inclusive. The intent is to show that the Port will only field establish the MAJOR elements of the construction process.

B. CONTRACTOR

1. This Section does not dictate methods or technologies to be used by the Contractor or the Contractor's surveyor in setting Contractor's line and grade. However, the Contractor, or the Contractor's surveyor, shall use whatever methods or technologies are necessary to set line and grade points, or any other reference points set for construction, to the accuracy in alignment, position, and elevation required to perform construction of improvements in conformance with design.
2. The Contractor shall notify the Engineer if primary or secondary monument needs to be moved due to construction requirements (see Paragraph 1.03.B.6 herein above). The monument will be referenced and moved by the Port Land Surveyor at no charge to the Contractor.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

END OF SECTION

SECTION 01725

PRESERVATION OF PROPERTY

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Work under this Section includes protecting existing improvements and facilities that are not to be removed from injury or damage, including providing suitable safeguards during construction.

1.02 REFERENCE STANDARDS AND SPECIFICATIONS

- A. State of California, Department of Transportation, Standard Specifications, 1992 edition (State Specifications)

PART 2 - PRODUCTS

(Not Used)

PART 3 - EXECUTION

3.01 PRESERVATION OF PROPERTY

- A. The Contractor shall protect existing structures, pavements, monitoring wells, light standards, utilities, trees, fences, and appurtenances that are not scheduled for removal. The Contractor shall promptly restore, at Contractor's cost, all damage to facilities not scheduled for removal. Damage shall be corrected to the satisfaction of the Engineer. All damage, including pavement damage, shall be promptly repaired by the Contractor.
- B. In performing the work, the Contractor shall exercise due care and caution necessary to avoid damage to or impairment of the use of any existing utility lines to remain in service. Any damage inflicted on existing utility lines resulting from the Contractor's operations shall be immediately repaired to original condition and appearance at the Contractor's expense.
- C. Access to the site is over public and private roads. Exercise care in the use of such roads and repair any damage to the satisfaction of the Engineer and agency having jurisdiction over the road. Do not track mud onto roads.
- D. Existing trees, shrubs and other plants, that are not to be removed and are injured or damaged by reason of the Contractor's operations, in irrigated or non-irrigated areas, shall be replaced by the Contractor. The Contractor shall place all replacement plant material in irrigated areas. The minimum size of tree replacement shall be 24-inch box and the minimum size of shrub replacement shall be 15-gallon. Replacement ground cover plants shall be from flats and shall be planted 12 inches on center. Replacement of Carpobrotus, ground cover plants shall be from cuttings, and shall be planted 12 inches on center.

Replacement planting shall be in accordance with the requirements in Section 20-4.07, "Replacement," of the State Specifications.

- E. Damaged or injured plants shall be removed and disposed of outside the project limits in accordance with the provisions in Section 7-1.13 of the State Specifications. At the option of the Contractor, removed trees and shrubs may be reduced to chips. Such chipped material shall be spread within the project limits at locations designated by the Engineer.
- F. Replacement planting of injured or damaged trees, shrubs and other plants shall be completed not less than 28 calendar days prior to acceptance of the contract. Replacement plants shall be watered as necessary to maintain the plants in a healthy condition.

- END OF SECTION -

SECTION 01730

**SPECIAL REQUIREMENTS FOR THE PORT'S RAILROAD SYSTEM RAIL AND CRANE
RAIL TRACK WORK**

PART 1 – GENERAL:

1.01 SCOPE:

- A. All work within ten feet of the Port's railroad tracks shall be in compliance with the rules and procedures outlined in the Port of Oakland Road Worker Protection Plan. Any work to be performed in that space must be approved by the Port Engineer before the work is begun. The Port Engineer must also be notified when work is finished, and s/he must inspect the job before the working limits are removed.

1.02 REFERENCES:

Attachment A: Port of Oakland Roadway Worker Protection Plan

PART 2—PRODUCTS: Not Used

PART 3—EXECUTION:

- A. The Contractor shall comply with the rules and regulations of the Port's railroad system, or the instructions of the Port Engineer in relation to the proper manner of protecting the tracks and property of the Port's railroad system, its tenants or licensees, at and in the vicinity of the work during the period of construction.
- B. The Contractor shall perform his work in such manner and at such times as shall not endanger, or interfere, with the safe operation of the tracks and property of the Port's railroad system, and traffic moving on such tracks, as well as wires, signals and other property of the Port's railroad system, its tenants or licensees, at or in the vicinity of the work.
- C. The Contractor shall notify the Port's Engineer at least 48 hours prior to any work on or over the Port's railroad system fouling space. When any personnel, equipment or materials are within 10 feet, measured horizontally from the closest rail on which train may operate, such a condition is considered fouling. Contractor shall also schedule track closures at least 48 hours in advance.
- D. The Contractor shall take protective measures necessary to keep the Port's railroad system facilities, including track ballast, free of sand, or debris, resulting from his operations.
- E. Any damage to the Port's railroad facilities resulting from Contractor's operations will be repaired or replaced by the Contractor at Contractor's expense. If such work is not completed in a timely manner, the Port may elect to do the work itself and the cost of such repairs or replacement shall be deducted from the Contractor's payment.

If working on active track, such repairs must be completed and approved by the Engineer before the end of the day.

- F. The Contractor shall not pile or store any materials, nor park any equipment when not in use, closer to the center of the nearest track, than permitted by the following permanent clearances:

15'-0" Horizontally from centerline of track
22'-0" Vertically above the top of any rail

- G. Above the top of any rail, the placement of falsework, forms, bracing or other construction supports, or the placement or driving of piles, shall not be closer to the center of the nearest of the Port's railroad system track than that allowed by the following temporary construction clearances:

10'-0" Horizontally
22'-0" Vertically

- END OF SECTION -

SECTION 01730 – ATTACHMENT A

Port of Oakland Roadway Worker Protection Plan

The purpose of this plan is to prevent accidents and casualties caused by moving railroad cars, locomotives or roadway maintenance machines striking roadway workers or other roadway maintenance machines. This plan has been developed in response to the regulations in 49CFR214, Subpart C.

This Roadway Worker Protection Plan will be maintained and readily available to all roadway workers. Each Employee-in-Charge of the roadway safety of others (EIC), and each lone worker, will be provided with and must maintain a copy of this plan on the jobsite at the time of fouling the track.

Roles and Responsibilities

Responsibilities of the Port of Oakland

The Port of Oakland is responsible to ensure that its employees and contractors working within ten feet of Port of Oakland railway, or within twenty-five feet of other agencies' track, understand and comply with the rules and procedures outlined in this plan. Any work to be performed in that space must be approved by the Road Master or his Assistant before work is begun. The Road Master must also be notified when work is finished, and s/he must inspect the job before working limits are removed.

Every employee has the absolute right to challenge the work procedures on a roadway worksite in good faith if s/he believes they do not meet the rules set forth in this plan. If an employee does challenge the work procedures, s/he has the right to remain clear of the track until the challenge is resolved. In order to quickly and fairly resolve these challenges, this plan sets forth the following procedure:

The job foreman or EIC of crews may check with the Road Master to determine if there are new or altered on-track safety procedures. The Road Master will resolve any safety issue that comes up, with the input of the EH&SC Safety Unit. In the case of new or previously unrecognized hazards, the Road Master may consult with the Federal Railroad Administration staff for guidance. Written challenges to roadway safety issues will be resolved through existing procedures, such as grievances.

Responsibilities of Individual Roadway Workers

Each roadway worker is responsible for following the on-track safety rules of the railroad upon which s/he is located. Roadway workers may not foul a track except when necessary for the performance of the maintenance work they are undertaking. All roadway workers have the right to refuse to violate an on-track safety rule, and must inform their employer whenever they determine in good faith that the track safety provisions do not comply with the on-track safety rules of the railroad.

Supervisors' Responsibilities

Supervisors (including Foremen) who assign work that calls for an employee to foul a track must ensure that employee(s) are provided with a job briefing that includes information on the means by which on-track safety is to be provided, and instruction on the on-track safety procedures to be followed. The job briefing for on-track work is only considered complete when the employee(s) acknowledge understanding of the information presented.

Every roadway work group whose duties require fouling a track will have one EIC designated to provide on-track safety for all members of the group. The EIC will be qualified under the rules of the Port of Oakland to provide the protection necessary for the on-track safety of each individual in the group. The EIC may be designated generally, or specifically for a particular work situation.

Before any new members of a roadway work group foul a track, the designated person providing on-track safety for the group must hold a job briefing to inform them of the on-track safety procedures to be used. The EIC must also inform each worker any time the on-track safety procedures change during the work period. This notification must precede the change in procedures, except in case of emergency. If there is an emergency that does not allow for all employees to be notified prior to a change in safety procedures, each worker must immediately leave the track area. The employees may not return to the track area until on-track safety is restored.

On-Track Safety Procedures

Working limits, generally.

Working limits established on non-controlled track shall conform to the provision of § 214.327 inaccessible track. Working limits established under any procedure shall, in addition, conform to the following provisions:

214.319(a)

(a) Only a roadway worker who is qualified in accordance with § 214.353 of this part shall establish or have control over working limits for the purpose of establishing on-track safety.

214.319(b)

(b) Only one roadway worker shall have control over working limits on any one segment of track.

214.319(c)

(c) All affected roadway workers shall be notified before working limits are released for the operation of trains. Working limits shall not be released until all affected roadway workers have either left the track or have been afforded on-track safety through train approach warning in accordance with § 214.329 of this subpart.

Working Limits on Non-Controlled Track

All of the Port of Oakland's railroad tracks are non-controlled. For work within ten feet of this type of track, working limits must be established by rendering the track within working limits physically inaccessible to trains at each possible point of entry by one of the following features:

- a) A watchman/lookout with instructions and capability to hold all trains and equipment clear of the working limits;
- b) A switch or derail aligned to prevent access to the working limits and secured with an effective securing device by the roadway worker in charge of the working limits; and/or
- c) A discontinuity in the rail that precludes passage of trains or engines into the working limits.

On-Track Safety Procedures for Roadway Work Groups

No roadway worker who is a member of a roadway work group may foul a track without having been informed by the EIC that on-track safety is provided. The EIC must also notify the Road Master of such work prior to fouling the track or taking the track out of service for maintenance or repairs.

On-Track Safety Procedures for Lone Workers

A lone worker who fouls a track while performing routine inspection or minor correction may use individual train detection to establish on-track safety only when permitted by the Road Master. Each lone worker retains an absolute right to use on-track safety procedures other than individual train detection if s/he deems it necessary, and to occupy a place of safety until such other form of on-track safety can be established.

Individual train detection may be used to establish on-track safety only:

- a) By a lone worker who has been trained, qualified, and designated to do so by the employer in accordance with the procedures outlined below;
- b) While performing routine inspection and minor correction work;

- c) Where the lone worker is able to visually detect the approach of a train from 200 feet moving at the maximum speed authorized on that track (10 mph for Class 1 track), and move to a previously determined place of safety, not less than 15 seconds before the train would arrive at the location of the lone worker; and
- d) Where the ability of the lone worker to see and hear approaching trains and other on-track equipment is not impaired by background noise, lights, precipitation, fog, passing trains, or any other physical condition.

The place of safety to be occupied by a lone worker upon the approach of a train may not be on a track, unless working limits are established on that track.

A lone worker using individual train detection for on-track safety while fouling a track may not occupy a position or engage in any activity that would interfere with that worker's ability to maintain a vigilant lookout for, and detect the approach of, a train moving in either direction as prescribed in this section. The lone worker using individual train detection for on-track safety must first complete a written Statement of On-Track Safety. The statement must designate the limits of the track for which it is prepared and the date and time for which it is valid. The statement must show the maximum authorized speed of trains within the limits for which it is prepared, and the sight distance that provides the required warning of approaching trains. The Statement of On-Track Safety must be produced by the lone worker for inspection when requested to do so by a representative of the Federal Railroad Administration.

Blank Statement of On-Track Safety forms are available from the Road Master. All completed forms must be returned to the Road Master within 2 days of filling out. Completed Statements of On-Track Safety will be on file for a minimum of three years after the completion of the work referenced. These records will be available for Federal Railroad Administration inspecting during regular business hours.

Audible Warning from Trains

The locomotive whistle must be sounded, and the locomotive bell be rung, by trains approaching roadway workers on or about the track. Such audible warning shall not substitute for other required on-track safety procedures.

Operation of On-Track Machines and Equipment

On-Track Safety for employees who operate or work near roadway machines shall comply with the following instructions in:

- a) On-Track Safety procedures outlined in this manual, and
- b) Rules governing on-track machines and equipment. These rules include:
- c) Speed requirements
 1. Movement over grade crossings
 2. Following cars or trains
 3. Signal to stop
 4. Passing trains
 5. Operating over switches, frogs, and derails

Instruction for Safe Operations

Any employee who operates on-track machines must be assured that On-Track Safety has been provided. The type of On-Track Safety to be used will be determined by the Employee In Charge of the work group, as discussed in job briefings.

Operators must make a running test of brakes immediately upon movement of work equipment.

The type of On-Track Safety will comply with the provisions of this manual.

***Training and Qualification for Operators of On-Track Machines and Equipment**

The training and qualifications as a roadway worker for operating on-track equipment shall include, as a minimum:

- a) Procedures to prevent a person from being struck by the machine when working around equipment.
- b) Procedures to prevent any part of the machine from being struck by a train or other equipment on another track.
- c) Procedures to provide for stopping the machine short of other machines and/or
- d) Methods to determine safe operating procedures for each machine which the operator is expected to operate.

Note: An initial and annual performance evaluation for the qualification of operator or roadway maintenance machines must be tested by demonstrated proficiency.

Procedures to Prevent Being Struck by Maintenance of Way Machine or Roadway Equipment

Job Briefing/Communication

Machine operator will attend a job briefing conducted by the Employee in Charge (EIC), that will include:

- a) Responsibilities of operators,
- b) Responsibilities of ground employees,
- c) Passing of trains,
- d) Unattended or tying up of equipment
- e) Knowledge and understanding of signaling devices, and
- f) Hand signals to be used.

Responsibilities of Ground Employees

Know and understand the work and safety zones around equipment:

Work Zone – extends from a point at least 15 feet in front of the machine to a point at least 15 feet behind the machine.

Safety Zone – all employees on the track as well as self-propelled machines and equipment have a 15-foot safety zone. This zone will not be entered without a job briefing, and without a notification to and understanding by operators that employees are near the machine.

Ground employees must know and understand the signaling devices that may be used:

- a) Police whistle
- b) Air horn
- c) White disk
- d) Locomotive whistle/horn
- e) On-track equipment whistle/horn

Responsibilities of Operators

Operators of track machines, roadway machines or equipment are charged with the responsibility of knowing that their machines or equipment are in safe operative condition before starting the day's work.

Operators must assure themselves that proper protection is being afforded their operation.

- a) The operator's manual must be kept with each machine. This manual must include instructions for the safe operation of the machine.
- b) Operators must not approach within 15 feet of employees fouling the tracks without first communicating with them.
- c) Machines such as cranes and ballast regulators require lateral and side clearance to ensure the safety of the employee. Operator must notify employees working in the vicinity of these machines before they are operated.
- d) Pre-arranged signals to move must be decided upon. Suggested signals are:
 - Train approaching: Siren or many long blasts until train is seen by everyone.

- Forward movement: Two short blasts at least one second apart.
 - Reverse movement: Three short blasts at least one second apart.
- e) Maintain proper clearance at all times between power lines and booms. When in doubt of safe clearances between power poles and machines, the operator will notify the EIC before beginning work.
 - f) Locomotive cranes, hi-rails with booms or other on-track equipment will not be turned or swung when moving, unless it is determined the boom angle and load weight will permit safe operation. Special care must be taken when operating on curves or other location where the track is super elevated.
 - g) While working, a minimum distance of at least 50 feet must be maintained between machines, unless specified in a job briefing.
 - h) Machines shall keep at least 200 feet apart while traveling.
Exception: When necessary to "bunch" up to move over road crossings at grade, a distance of at least 50 feet between machines will be maintained.
 - i) When two or more machines are moving together, the operators will hold a job briefing and agree on the signal that will be used when stopping.

Passing of Trains

Pile drivers, wrecking cranes, wrecking derricks, on-track machines or other equipment must not be operated when trains or other moving equipment are passing on an adjacent tracks.

When unloading ballast or other material from a train, work must be stopped when trains or engines or passing on an adjacent track.

Unattended or Tying-Up of Equipment

When leaving or tying-up equipment, observe the following requirements:

- a) Set brake and secure booms or other extensions to prevent fouling adjacent tracks.
- b) Lower devices attached to booms, such as clam shells, so they rest on the ground, idler car, or work bed, as applicable.
- c) Stop motor.
- d) Lock ignition.
- e) Machine operators will dismount machine on the field side of the track, away from traffic. Operators will stand beside the machine and direct the next piece of equipment to a stop. Each operator will do the same in turn.
- f) Operators and employees will remain next to their equipment and not go between machines until all machines have come to a stop and brakes are set.
- g) When the EIC gives the all-clear sign, the operator will secure equipment with lock and chain.
- h) All vandalism protective covers and devices must be locked (if equipped).
- i) On grades, wheels must be securely blocked and chained to the rail.
- j) Keys must be in possession of operator or other authorized employee.
- k) When leaving equipment on the track, properly line, lock and tag switches to prevent movement onto the occupied track.

Training and Qualification of Port Roadway Workers

The Port will not assign an employee to perform the duties of a roadway worker unless that employee has received training in the on-track safety procedures associated with the assignment; and has demonstrated the ability to fulfill the required on-track safety procedures.

Initial and Recurrent Training

The Port, through its Road Master, in coordination with the EH&SC Safety Unit, will provide all roadway workers with initial training on this plan and on on-track safety rules and procedures. Refresher training will be provided to all roadway workers at least annually.

Training Contents

All training for roadway workers will include, as a minimum, the following:

- a) Recognition of railroad tracks and understanding of the space around them within which on-track safety is required;
- b) The functions and responsibilities of various persons involved with on-track safety procedures;
- c) Proper compliance with on-track safety instructions given by persons performing or responsible for on-track safety functions;
- d) Signals given by watchmen/lookouts, and the proper procedures upon receiving a train approach warning from a lookout;
- e) The hazards associated with working on or near railroad tracks, including review of the Port's on-track safety rules and procedures.

Training and Qualification for Lone Workers

Each lone worker will be trained and qualified to establish on-track safety in accordance with the requirements of this Plan. The training and qualification will include, as a minimum, consideration of the following factors:

- a) Detection of approaching trains and prompt movement to a place of safety;
- b) Determination of the distance along the track at which the trains must be visible in order to provide the prescribed warning time.

Initial and periodic qualification of a lone worker shall be evidenced by demonstrated proficiency, through a testing procedure or on-site evaluation of work practices. This evaluation will be carried out by the Road Master in coordination with the EH&SC Safety Unit.

Train approach warning provided by watchmen/lookouts.

Roadway workers in a roadway work group who foul any track outside of working limits shall be given warning of approaching trains by one or more watchmen/lookouts in accordance with the following provisions:

214.329(a)

(a) Train approach warning shall be given in sufficient time to enable each roadway worker to move to and occupy a previously arranged place of safety not less than 15 seconds before a train moving at the maximum speed authorized on that track can pass the location of the roadway worker.

214.329(b)

(b) Watchmen/lookouts assigned to provide train approach warning shall devote full attention to detecting the approach of trains and communicating a warning thereof, and shall not be assigned any other duties while functioning as watchmen/lookouts.

214.329(c)

(c) The means used by a watchman/lookout to communicate a train approach warning shall be distinctive and shall clearly signify to all recipients of the warning that a train or other on-track equipment is approaching.

214.329(d)

(d) Every roadway worker who depends upon train approach warning for on-track safety shall maintain a position that will enable him or her to receive a train approach warning communicated by a watchman/lookout at any time while on-track safety is provided by train approach warning.

214.329(e)

(e) Watchmen/lookouts shall communicate train approach warnings by a means that does not require a warned employee to be looking in any particular direction at the time of the warning, and that can be detected by the warned employee regardless of noise or distraction of work.

214.329(f)

(f) Every roadway worker who is assigned the duties of a watchman/lookout shall first be trained, qualified and designated in writing by the employer to do so in accordance with the provisions of § 214.349.

214.329(g)

(g) Every watchman/lookout shall be provided by the employer with the equipment necessary for compliance with the on-track safety duties which the watchman/lookout will perform.

Training and Qualification for Watchmen/Lookouts

The training and qualification for roadway workers assigned the duties of watchmen/lookouts will include, as a minimum, consideration of the following factors:

- a) Detection and recognition of approaching trains;
- b) Effective warning of roadway workers of the approach of trains;
- c) Determination of the distance along the track at which trains must be visible in order to provide the prescribed warning time;
- d) Rules and procedures of the Port of Oakland for working on non-controlled tracks.

Initial and annual qualification for a watchman/lookout will be evidenced by demonstrated proficiency.

Training and Qualification of Employees-in-Charge (EIC) who Provide On-Track Safety for Roadway Work Groups

The training and qualification of roadway workers who provide for the on-track safety of groups of roadway workers through the establishment of working limits, or through the assignment and supervision of watchmen/lookouts, shall include, as a minimum:

- a) All the on-track safety training and qualification required of the roadway workers to be supervised and protected;
- b) The content and application of the Port of Oakland roadway rules pertaining to the establishment of working limits;
- c) The relevant physical characteristics of the territory of the Port upon which the roadway worker is qualified.

Initial and annual qualification for a roadway worker to provide on-track safety of groups will be evidenced by a recorded examination.

Training Records

Training records will be maintained by the EH&SC Safety Unit for a minimum of three years. These records will be available for inspection and photocopying as requested by the Federal Railroad Administration.

Qualifications of Contractor Roadway Workers

Before work begins, Contractor Roadway Workers must provide to the Roadmaster documentation on the qualifications and training of:

- a) Employee-in-Charge
- b) Watchmen/Lookouts
- c) Lone Workers

Evaluation of Roadway Worker Protection Plan

This Roadway Worker Protection Plan will be reviewed annually by the Principal Port Safety Administrator, and any accidents, near misses, and the nature of roadway work will be investigated to determine whether changes to the Plan are necessary. Any changes to the Plan will be promptly disseminated with roadway workers and other involved individuals.

Definitions

Adjacent Tracks: Two or more tracks with track centers spaced less than 25 feet apart.

Controlled Track: Track upon which all movements of trains must be authorized by a control operator.

Employee-in-Charge: A Roadway Worker designated, trained, and qualified to provide on-track safety for members of a Roadway Work Group.

Exclusive Track: A method of establishing working limits on controlled track in which movement occupancy authority of trains and other equipment is withheld by the control operator or restricted by flagmen.

Fouling a Track: Placement of an individual or a piece of equipment in such a proximity to a track that the individual or equipment could be struck by a moving train or on-track equipment, or in any case is within ten feet of the field side of the near running rail.

Fouling Space: The fouling space includes the track itself and the area surrounding the track, to a distance of ten feet out from the rail on each side.

Inaccessible Track: A method of establishing working limits on non-controlled track by physically preventing entry and movement of trains and equipment.

Individual Train Detection (ITD): Procedure by which a lone worker acquires On-Track Safety by seeing approaching trains and leaving the track before they arrive.

Lone Worker: An individual Roadway Worker who is not being afforded On-Track Safety by another Roadway Worker, who is not a member of a Roadway Work Group, and who is not engaged in a common task with another Roadway Worker.

Non-Controlled Track: Track upon which trains are permitted by railroad rule or special instruction to move without receiving authorization from a Train Dispatcher or Control Operator. Typical examples include yard tracks and industrial side tracks.

On-Track Safety: A state of freedom from the danger of being struck by a moving train or equipment, provided by operating and safety rules that govern track occupancy by personnel, trains, and on-track equipment.

Roadway Work Group: Two or more Roadway Workers organized to work together on a common task.

Roadway Worker: Any employee of a railroad, or of a contractor to a railroad, whose duties include inspection, construction, maintenance or repair of railroad track, bridges, roadway, signal and communication systems, electric traction systems, roadway facilities or roadway machinery on or near track or with the potential of fouling a track.

Train Approach Warning: A method of establishing On-Track Safety by warning workers of the approach of trains in ample time for them to move to or remain in a place of safety.

Watchman/Lookout: An employee who has been annually trained and qualified to provide warning to Roadway Workers of approaching trains or on-track equipment. Watchmen/Lookouts shall be properly equipped to provide visual and auditory warning such as a whistle, air horn, red flag, or lantern. A Watchman/Lookout's sole duty is to look out for approaching trains/on-track equipment and provide at least 15 seconds warning to employees before the equipment's arrival.

Working Limits: A segment of track with definite boundaries upon which trains and engines may move only as authorized by the roadway worker having control over that defined segment of track. Working limits may be established through exclusive track occupancy, foul time, or inaccessible track.

Speed/Distance Table

15 Second Travel Distance

Train speed (m.p.h.)	Distance in feet
10	220
20	440
30	660
40	880
50	2200
60	1320
70	1540
80	1760
90	1980
100	2200
110	2420
120	2640

- END OF ATTACHMENT A -

SECTION 01770

CONTRACT CLOSEOUT

PART 1 GENERAL

1.01 SUMMARY

This section describes contract closeout procedures including:

1. Removal of temporary construction facilities
2. Substantial completion
3. Final completion
4. Final cleaning
5. Material, equipment and finish data
6. Miscellaneous project record submittals
7. Project guarantee
8. Warranties
9. Turn-in
10. Release of claims
11. Fire inspection coordination

1.02 REMOVAL OF TEMPORARY CONSTRUCTION FACILITIES

- A. Remove temporary materials, equipment, services, and construction prior to Substantial Completion Inspection.
- B. Clean and repair damage caused by installation or use of temporary facilities.
- C. Restore permanent facilities used during construction to specified condition.

1.03 SUBSTANTIAL COMPLETION

- A. When the Contractor considers Work or designated portion thereof as substantially complete, submit written notice, with list of items to be completed or corrected. The term "Substantial Completion" is defined in Section 01420.
- B. Within reasonable time, the Port will inspect to determine status of completion.
- C. Should the Port determine that Work is not substantially complete, Port will promptly notify the Contractor in writing, listing all defects and omissions.
- D. Remedy deficiencies and send a second written notice of substantial completion. The Port will reinspect the Work. If deficiencies previously noted are not corrected on reinspection, then the Contractor shall pay the cost of the reinspection.
- E. When the Port concludes that Work is substantially complete, the Port will issue a Certificate of Substantial Completion, accompanied by the Contractor's list of items to be complete or corrected as verified by the Port.

- F. Manufactured units, equipment and systems which require startup must have been started up and run for periods prescribed by the Port before a Certificate of Substantial Completion will be issued. The term "Substantial Completion" is defined in Section 01420.

1.04 FINAL COMPLETION

- A. Final Completion is defined in Section 01420. Final Completion occurs when Work meets requirements for Port's Final Acceptance. When the Contractor considers Work is finally complete, it shall submit written certification that:
 - 1. The Contractor has inspected Work for compliance with the Contract Documents, and all requirements for Final Acceptance have been met.
 - 2. The Work, except for Contractor maintenance after Final Acceptance, has been completed in accordance with the Contract Documents and deficiencies listed with the Certificate of Substantial Completion have been corrected. Equipment and systems have been tested in the presence of the Port's representative, and are operative.
 - 3. The Work is complete and ready for final inspection.
- B. In addition to submittals required by conditions of the Contract Documents, the Contractor shall provide submittals required by governing authorities and submit final statement of accounting giving total adjusted Contract Sum, previous payments, and sum remaining due.
- C. When the Port finds the Work is acceptable and final submittal is complete, the Port will issue final change order reflecting approved adjustments to Contract Sum not previously made by Change Order.
 - 1. Should the Port determines that the Work is incomplete or defective:
 - a. The Port promptly will so notify the Contractor, in writing, listing the incomplete or defective items.
 - b. The Contractor shall promptly remedy the deficiencies and notify the Port when the Work is ready for reinspection.
 - c. When the Port determines that the Work is acceptable under the Contract Documents, the Port will request the Contractor to make closeout submittals.
- D. Final adjustments of accounts:
 - 1. Submit a final statement of accounting to the Port, showing all adjustments to the Contract Sum. Complete and execute Document 00650.

2. If so required, the Contractor shall prepare a final Change Order for submittal to the Port showing adjustment to the Contract Sum which were not previously made into Change Orders.
- E. Contractor shall submit original completed permit cards with approval signatures, or other original verification of approval.

1.05 FINAL CLEANING

- A. Execute final cleaning prior to final inspection.
- B. Clean interior and exterior surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.
 1. Clean equipment and fixtures to a sanitary condition, clean or replace filters of mechanical equipment operated during construction, clean ducts, blowers and coils of units operated without filters during construction.
 2. Employ skilled workers for final cleaning.
- C. Clean Site; mechanically sweep paved areas.
- D. Remove waste and surplus materials, rubbish, and construction facilities from Site.

1.06 MATERIAL, EQUIPMENT AND FINISH DATA

Submit two sets of data for primary materials, equipment and finishes as required under each specification section prior to final inspection, bound in 8-1/2 inches by 11 inches three-ring binders with durable plastic covers to the Port for its records.

1.07 MISCELLANEOUS PROJECT RECORD SUBMITTALS

Refer to other Specification Sections for miscellaneous record keeping requirements and submittals in connection with various construction activities. Immediately prior to Substantial Completion, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for use and reference. Submit to the Port for its records.

1.08 PROJECT GUARANTEE

- A. Requirements for the Contractor's guarantee of completed Work are included in Document 00700 General Conditions, Article 9. The Contractor shall guarantee Work done under Contract against failures, leaks or breaks or other unsatisfactory conditions due to defective equipment, materials or workmanship, and perform repair work or replacement required, at the Contractor's sole expense, for period of one year from date of Final Acceptance.
- B. Neither recordation of final acceptance nor final certificate for payment nor provision of the Contract nor partial or entire use or occupancy of premises by Port shall constitute

acceptance of Work not done in accordance with Contract Documents nor relieve the Contractor of liability in respect to express warranties or responsibility for faulty materials or workmanship.

- C. Port may make repairs to defective work as set forth in paragraph 9.3 of Document 00700 General Conditions, if, within seven (7) calendar days after mailing of written notice of defective work to the Contractor or authorized agent, the Contractor shall neglect to make or undertake repair with due diligence; provided, however, that in case of leak or emergency where, in the opinion of the Port, delay would cause hazard to health or serious loss or damage, repairs may be made without notice being sent to the Contractor, and the Contractor shall pay the cost thereof.
- D. If, after installation, operation or use of materials or equipment to be furnished under the Contract Documents proves to be unsatisfactory to the Port, the Port shall have right to operate and use materials or equipment until it can, without damage to the Port, be taken out of service for correction or replacement. Period of use of defective materials or equipment pending correction or replacement shall in no way decrease guarantee period required for acceptable corrected or replaced items of materials or equipment.
- E. Nothing in this Section shall be construed to limit, relieve or release the Contractor's, subcontractors' and equipment suppliers' liability to Port for damages sustained as result of latent defects in equipment caused by negligence of suppliers' agents, employees or subcontractors. Stated in another manner, warranty contained in the Contract Documents shall not amount to, nor shall it be deemed to be, waiver by Port of any rights or remedies (or time limits in which to enforce such rights or remedies) it may have for defective workmanship or defective materials under laws of this State pertaining to acts of negligence.

1.09 WARRANTIES

- A. Execute the Contractor's submittals and assemble warranty documents, and operations and maintenance manuals, executed or supplied by subcontractors, suppliers, and manufacturers.
 - 1. Provide table of contents and assemble in 8-1/2 inches by 11 inches three-ring binder with durable plastic cover, appropriately separated and organized.
 - 2. Assemble in Specification Section order.
 - 3. Provide two copies of completed warranty binders.
- B. Submit material prior to final application for payment.
 - 1. For equipment put into use with Port's permission during construction, submit within fourteen (14) calendar days after first operation.
 - 2. For items of work delayed materially beyond Date of Substantial Completion, provide updated submittal within fourteen (14) calendar days after acceptance,

listing date of acceptance as start of warranty period.

- C. Warranties are intended to protect Port against failure of work and against deficient, defective and faulty materials and workmanship, regardless of sources.
- D. Limitations: Warranties are not intended to cover failures which result from the following:
 - 1. Unusual or abnormal phenomena of the elements
 - 2. Vandalism after substantial completion
 - 3. Insurrection or acts of aggression including war
- E. Related Damages and Losses: Remove and replace Work which is damaged as result of defective Work, or which must be removed and replaced to provide access for correction of warranted Work.
- F. Warranty Reinstatement: After correction of warranted Work, reinstate warranty for corrected Work to date of original warranty expiration or to a date not less than 365 days after corrected Work was done, whichever is later.
- G. Replacement Cost: Replace or restore failing warranted items without regard to anticipated useful service lives.
- H. Warranty Forms: Submit drafts to Port for approval prior to execution. Forms shall not detract from or confuse requirements or interpretations of the Contract Documents.
 - 1. Warranty shall be countersigned by manufacturers.
 - 2. Where specified, warranty shall be countersigned by subcontractors and installers.
- I. Rejection of Warranties: Port reserves right to reject unsolicited and coincidental product warranties which detract from or confuse requirements or interpretations of Contract Documents.
- J. Term of Warranties: For materials, equipment, systems and workmanship warranty period shall be one (1) year minimum from date of final completion of entire Work except where:
 - 1. Detailed specifications for certain materials, equipment or systems require longer warranty periods.
 - 2. Materials, equipment or systems are put into beneficial use of Port prior to Final Completion as agreed to in writing by the Port.
- K. Warranty of Title: No material, supplies, or equipment for Work under the Contract Documents shall be purchased subject to any chattel mortgage, security agreement, or under a conditional sale or other agreement by which an interest therein or any part thereof is retained by seller or supplier. The Contractor warrants good title to all

material, supplies, and equipment installed or incorporated in Work and agrees upon completion of all work to deliver premises, together with improvements and appurtenances constructed or placed thereon by the Contractor, to Port free from any claim, liens, security interest, or charges, and further agrees that neither the Contractor nor any person, firm, or corporation furnishing any materials or labor for any Work covered by the Contract Documents shall have right to lien upon premises or improvement or appurtenances thereon. Nothing contained in this Paragraph, however, shall defeat or impair right of persons furnishing materials or labor under bond given by the Contractor for their protection or any rights under law permitting persons to look to funds due the Contractor in hands of Port.

1.10 TURN-IN

The Contract Documents will not be closed out and final payment will not be made until all personnel Identification Media, vehicle permits and keys issued to the Contractor during prosecution of Work are turned in to Port.

1.11 RELEASE OF CLAIMS

The Contract Documents will not be closed out and final payment will not be made until Document 00650, Agreement and Release of Any and All Claims, is completed and executed by the Contractor and Port.

1.12 FIRE INSPECTION COORDINATION

The Contractor shall coordinate fire inspection and secure sufficient notice to Port to permit convenient scheduling, if necessary.

PART 2 PRODUCTS

Not applicable to this section.

PART 3 EXECUTION

Not applicable to this section.

END OF SECTION

SECTION 01780

PROJECT RECORD DOCUMENTS

PART 1 GENERAL

1.01 SUMMARY

- A. This section specifies administrative and procedural requirements for Project Record Documents.
- B. Project Record Documents required include:
 - 1. Marked-up copies of Contract Plans
 - 2. Marked-up copies of Shop Drawings
 - 3. Newly prepared Drawings
 - 4. Marked-up copies of Specifications, Addenda and Change Orders
 - 5. Marked-up Project Data submittals
 - 6. Record Samples
 - 7. Field records for variable and concealed conditions
 - 8. Record information on Work that is recorded only schematically
- C. Specific Project Record Documents requirements that expand requirements of this Section are included in the individual Sections of Divisions 2 through 16.
- D. General Project closeout requirements are included in Section 01770, "Project Closeout."
- E. Maintenance of Documents and Samples:
 - 1. Store Project Record Documents and samples in the field office apart from Contract Documents used for construction.
 - 2. Do not permit Project Record Documents to be used for construction purposes.
 - 3. Maintain Project Record Documents in good order, and in a clean, dry, legible condition.
 - 4. Make documents and samples available at all times for inspection by Architect and Port.
- F. Port will provide one set of the construction drawings and one project manual for the Contractor's use for recording as-built conditions.

1.02 PROJECT RECORD DRAWINGS

- A. Mark-up Procedure: During the construction period, maintain a set of Contract Plans and Shop Drawings for Project Record Document purposes. Label each document

(on first sheet or page) "AS-BUILT" in 2 in. high printed letters. Keep record documents current. Note: A reference by number to a Change Order, RFI, RFQ, Field Order or other such document is not acceptable as sufficient record information on any record document. Do not permanently conceal any Work until required information has been recorded.

1. Mark these Drawings to indicate the actual installation where the installation varies appreciably from the installation shown originally. Give particular attention to information on concealed elements which would be difficult to identify or measure and record later. Items required to be marked include but are not limited to:
 - a. Dimensional changes to the Drawings
 - b. Revisions to details shown on the Drawings
 - c. Depths of various elements of foundation in relation to main floor level or survey datum.
 - d. Horizontal and vertical location of underground utilities and appurtenances referenced to permanent surface improvements.
 - e. Location of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure.
 - f. Establish locations of underground work, points of connection with existing utilities, changes in direction, valves, manholes, catch basins, capped stubouts, invert elevations, and similar items.
 - g. Provide actual numbering of each electrical circuit.
 - h. Field changes of dimension and detail.
 - i. Revisions to routing of piping and conduits
 - j. Revisions to electrical circuitry
 - k. Actual equipment locations
 - l. Duct size and routing
 - m. Changes made by Change Order
 - n. Details not on original Contract Plans
2. Mark completely and accurately Project Record Drawing prints of Contract Plans or Shop Drawings, whichever is the most capable of showing actual physical conditions. Where Shop Drawings are marked, show cross-reference on Contract Plans location.
3. Mark Project Record Drawing sets with red erasable colored pencil; use other colors to distinguish between changes for different categories of the Work at the same location.
4. Mark important additional information which was either shown schematically or omitted from original Drawings.
5. Note construction change directive numbers; alternate numbers; Change Order numbers and similar identification.
6. Responsibility for Mark-up: Where feasible, the individual or entity who obtained Project Record Drawing data, whether the individual or entity is the installer,

subcontractor, or similar entity, is required to prepare the mark-up on Project Record Drawings.

- a. Accurately record information in an understandable and legible drawing technique.
 - b. Record data as soon as possible after it has been obtained. In the case of concealed installations, record and check the mark-up prior to concealment.
- B. Preparation of Record Drawings: Immediately prior to inspection for Certification of Substantial Completion, review completed marked-up Project Record Drawings with the Port. When authorized, prepare a full set of correct transparencies of Contract Plans and Shop Drawings.
1. Incorporate changes and additional information previously marked on print sets. Erase, redraw, and add details and notations where applicable. Identify and date each Drawing; include the printed designation "AS-BUILT DRAWINGS" in a prominent location on each Drawing.
 2. Refer instances of uncertainty to the Port for resolution.
 3. Distribution: Whether or not changes and additional information were recorded, organize and bind original marked-up set of prints that were maintained during the construction period into manageable sets. Bind the set with durable paper cover sheets, with appropriate identification, including titles, dates and other information on cover sheets.
- C. DISTRIBUTION OF MARKED-UP DRAWINGS
- Submit the marked-up Project Record Drawings set to the Engineer.
- D. Shop Drawings and Samples: Maintain as record documents; legibly annotate Shop Drawings and Samples to record changes made after review.
- E. In addition to requirements of this Section, comply with supplemental requirements of Divisions 15 and 16.
1. Division 15 and 16 of the specifications require the preparation of large scale, detailed Layout Drawings of the work of those divisions. These Layout Drawings are not shop drawings as defined by the General Conditions, but together with shop drawing or Layout Drawings of all other affected sections are used, check, coordinate and integrate the work of the various sections
 2. Include these Layout Drawings as part of the As Built Documents.

1.03 PROJECT RECORD SPECIFICATIONS

During the construction period, maintain one copy of the Project Specifications, including addenda and modifications issued, for Project Record Document purposes.

1. Mark the Project Record Specifications to indicate the actual installation where the installation varies substantially from that indicated in Specifications and Modifications issued. Note related Project Record Drawing information, where applicable. Give particular attention to substitutions, selection of product options, change order work, and information on concealed installation that would be difficult to identify or measure and record later.
 - a. In each Specification Section where products, materials or units of equipment are specified or scheduled, mark the copy with the proprietary name and model number of the product furnished.
 - b. Record the name of the manufacturer, catalog number, supplier and installer, and other information necessary to provide a record of selections made and to document coordination with Project Record Product Data submittals and maintenance manuals.
 - c. Note related Project Record Product Data, where applicable, for each principal product specified, indicate whether Project Record Product Data has been submitted in maintenance manual instead of submitted as Project Record Product Data.
2. Upon completion of mark-up, submit Project Record Specifications to the Port for Port's records.

1.04 PROJECT RECORD PRODUCT DATA

- A. During the construction period, maintain one copy of each Project Record Product Data submittal for Project Record Document purposes.
 1. Mark Project Record Product Data to indicate the actual product installation where the installation varies substantially from that indicated in Project Record Product Data submitted. Include significant changes in the product delivered to the site, and changes in manufacturer's instructions and recommendations for installation.
 2. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 3. Note related Change Orders and mark-up of Project Record Drawings, where applicable.
 4. Upon completion of mark-up, submit a complete set of Project Record Product Data to the Port for Port's records.

5. Where Project Record Product Data is required as part of maintenance manuals, submit marked-up Project Record Product Data as an insert in the manual, instead of submittal as Project Record Product Data.
6. The prime Contractor is responsible for mark-up and submittal of record Project Record Product Data for its own Work.

B. MATERIAL, EQUIPMENT AND FINISH DATA

1. Provide data for primary materials, equipment and finishes as required under each specification section.
2. Submit two sets prior to final inspection, bound in 8-1/2 inches by 11 inches three-ring binders with durable plastic covers; provide typewritten table of contents for each volume.
3. Arrange by Specification division and give names, addresses, and telephone numbers of subcontractors and suppliers. List:
 - a. Trade names.
 - b. Model or type numbers.
 - c. Assembly diagrams.
 - d. Operating instructions.
 - e. Cleaning instructions.
 - f. Maintenance instructions.
 - g. Recommended spare parts.
 - h. Product data.

1.05 MISCELLANEOUS PROJECT RECORD SUBMITTALS

Refer to other Specification Sections for miscellaneous record keeping requirements and submittals in connection with various construction activities. Immediately prior to Substantial Completion, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for use and reference. Submit to the Engineer for Port's records. Categories of requirements resulting in miscellaneous records include, but are not limited to the following:

- a. Field records on excavations and foundations
- b. Field records on underground construction and similar work
- c. Survey showing locations and elevations of underground lines
- d. Invert elevations of drainage piping
- e. Authorized measurements utilizing unit prices or allowances
- f. Ambient and substrate condition tests
- g. Batch mixing and bulk delivery records
- h. Documented qualification of installation firms
- i. Load and performance testing
- j. Inspections and certifications by governing authorities
- k. Final inspection and correction procedures

PART 2 PRODUCTS

Not applicable to this section.

PART 3 EXECUTION

3.01 RECORDING

Post changes and modifications to the Documents as they occur. Do not wait until the end of the Project. Port may periodically review Project Record Documents to assure compliance with this requirement.

3.02 SUBMITTAL

- A. At completion of Project, deliver record documents to the Port.
- B. Accompany submittal with transmittal letter containing:

- Date

- Project title and number

- Contractor's name and address

- Number and title of each record documents

- Certification that each document as submitted is complete and accurate, and signature of Contractor, or his authorized representative.

END OF SECTION

SECTION 02111

HANDLING OF POTENTIALLY CONTAMINATED MATERIAL

PART 1 - GENERAL

1.01 SUMMARY

- A. The work under this Section includes furnishing all labor, materials, appliances, tools, equipment, transportation, services and supervision required for handling of potentially contaminated materials encountered while drilling holes for bollards and fence posts. The work may include, but not be limited to, the following:
 - 1. Stockpiling material from on-site excavations.
 - 2. Management of water generated during on-site excavation.
 - 3. Documentation of excavated materials and water management.
- B. All stockpiled material shall be tested on site by the Port before it can be transported off site.
- C. Stockpiled material will be disposed of by others as directed by the Engineer.

1.02 REFERENCES

- A. Information that must be considered in the development of the Health and Safety Plan and in the performance of the work under this Section is described in the documents listed in Section 00340, Hazardous Material Surveys and are hereafter referred to as the Reports.
- B. The Contractor shall coordinate the work of this Section with related work specified under other Sections, including
 - 1. Section 01340 - Safety and Environmental Submittals
 - 2. Section 01563 - Dust and Air Pollution Control
 - 3. Section 02315 – Excavation, Fill, and Subgrade Preparation

1.03 PERMITS AND LICENSES

- A. The Port shall obtain the USEPA Generator Identification Number for off-site disposal of hazardous wastes.

1.04 GOVERNING AGENCIES AND APPLICABLE REGULATIONS

- A. The Contractor shall handle and transport contaminated soil in accordance with the applicable regulations, including, but not limited to the following:

1. United States Department of Transportation (USDOT)
2. United States Environmental Protection Agency (USEPA)
3. Occupational Safety and Health Administration (OSHA)
4. California Environmental Protection Agency (Cal-EPA)
5. Department of Toxic Substance Control (DTSC)
6. California Integrated Waste Management Board (CIWMB)
7. California Regional Water Quality Control Board (CRWQCB)
8. State Air Resources Board
9. Bay Area Air Quality Management District (BAAQMD)
10. East Bay Municipal Utility District (EBMUD)
11. Alameda County Health Care Services Agency (ACHCSA)
12. City of Oakland Fire Department Office of Emergency Services (Local Certified Unified Program Agency (CUPA))
13. Code of Federal Regulations (CFR): 29 CFR Section 1910, 49 CFR Parts 171-178, 40 CFR Parts 262 and 263
14. California Code of Regulations (CCR) Title 8, Sections 1532.1 and 5192, and Title 22
15. California Environmental Quality Act (CEQA) of 1970 (Chapter 1433, Stat. 1970)

1.05 DEFINITIONS

- A. RCRA hazardous waste: Hazardous waste that exceeds the toxicity characteristics (TC) for federal hazardous wastes, 40 Code of Federal Regulation (CFR), Part 262 and Title 22 of CCR.
- B. California hazardous waste: Hazardous waste that exceeds the criteria established by Title 22 of CCR in terms of Total Threshold Limit Concentrations (TTLC) and Soluble Threshold Limit Concentrations (STLC).
- C. Decontamination Zone: Enclosed area adjacent and connected to the exclusion zone; the area is used for the decontamination of workers, materials, and equipment.
- D. Support Zone: The area outside of the decontamination zone. Equipment and personnel are not expected to become contaminated in this area. This is the area where resources are assembled to support the hazardous materials operation.

- E. Generator's Identification Number: An identification number issued by either Environmental Protection Agency (EPA) or California EPA to the generator of hazardous materials.

1.06 SUBMITTALS

- A. Contractor shall prepare Daily Field Reports summarizing daily stockpile management information, as applicable. The reports shall be submitted to the Engineer on a weekly basis, on Friday, or at the Engineer's request. Any corrections to information that was submitted on Friday shall be made no later than the Friday of the following week.
 - 1. A description of activities performed for all stockpile-related activities, including stockpile management and water management.
 - 2. Holding tanks used for water management, by number, that are filled to $\frac{3}{4}$ capacity or more. Refer to Section 02240 for dewatering and other water management requirements.
 - 3. Description (type and size) and locations of holding tanks used for water management, estimates of wastewater volumes pumped into holding tanks, discharge rate and volume estimates, and discharge locations.
 - 4. The Daily Field Report shall also include a summary of historical or archeological resources found at the site and a map documenting the location in accordance with the Emergency Plan of Action for Discoveries of Unknown Historic or Archaeological Resources (Port of Oakland, June 2002).

1.07 CONTRACTOR/SUBCONTRACTOR(S) QUALIFICATIONS

- A. Contractor performing work under this Section shall manage the work directly. Contractor and/or Subcontractor shall employ personnel well qualified to perform their work in a hazardous environment and shall have experience in performing work in hazardous environments requiring 40 hours of OSHA HAZWOPER certification. All subcontractors shall have locally available, competent, trained personnel under his supervision readily available for emergency and other work assignments.

1.08 HEALTH AND SAFETY

- A. The Contractor shall conduct operations in accordance with the H&SP and other plans submitted to and approved by the Engineer as required under Specification 01340 – Safety and Environmental Submittals.
- B. The Contractor shall establish exclusion zones, decontamination zones, and support zones in accordance with Specification 01340 – Safety and Environmental Submittals.
- C. Removal and handling of soils shall be performed by trained personnel under Contractor's oversight in accordance with OSHA requirements. Prior to performing

any excavation work, all personnel performing excavation work, and all Port Personnel involved in the work, shall complete a safety training program which meets 29 CFR 1910, 8 CCR 1532.1, and 8 CCR 5192 covering the potential hazards as identified in the H&SP.

1. The Contractor shall appoint a qualified Site Safety Officer for the duration of the contract.
2. The Contractor shall provide certification of completion of the Safety Training Program for all Contractor personnel.
3. Any personal protective equipment required by the Contractor's H&SP for personnel working within the exclusion zone shall be supplied by the Contractor.
4. The Contractor shall provide all necessary safety gear and equipment.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Liner for the stockpiles shall be made of cross-linked polyethylene or high-density polyethylene.
 1. The bottom liner shall have a minimum of 40-mil thickness and must be able to resist point-penetration by gravel and have sufficient mechanical strength to handle the ground pressure of at least 10 feet of soil.
 2. The cover shall have a minimum of 10-mil thickness.
- B. Signs: Lined stockpile areas shall clearly be identified as potentially contaminated areas with clear signage in compliance with all applicable regulations. Both lined and unlined stockpiles shall clearly be signed with the assigned identifiers (i.e. L-1).

2.02 EQUIPMENT

- A. The Contractor shall provide necessary equipment for water management.
- B. The Contractor shall provide pumps and draining pipes to collect drainage from the stockpile areas. Rainwater shall not be captured or pumped through the stockpile drainage system.
- C. The Contractor shall provide holding tanks for potentially contaminated water from stockpiles. The Port will provide testing of this water.

PART 3 - EXECUTION

3.01 STOCKPILE OPERATIONS

- A. All stockpiles are to be constructed by the Contractor such that a berm surrounds each stockpile, and that the bottom liner will not allow water to escape at the seams. All stockpile runoff will be contained within the berm for pumping into holding tanks. The bottom liner shall extend to cover the berm. All stockpiles shall be covered. The cover shall extend to cover the berm, and shall be secured to the ground outside of the berm, in order to prevent rainwater from collecting in the bermed area and being pumped into the holding tanks. The Contractor shall provide a stockpile construction diagram as part of the Stockpile Management Plan submittal. The diagram shall include details on how the stockpile will be lined, drained, and covered.
- B. Stockpiles will be tested by the Port. The Port will mobilize a sampling crew after the Contractor gives notice to the Port that excavation activities have been completed or sooner. The Contractor shall notify the Engineer when the stockpile is constructed and ready for sampling. After this notification, the soil in the stockpile cannot be relocated within the stockpile area or anywhere else on the site, nor can soil be added to the stockpile.

3.02 OFF-SITE DISPOSAL

- A. The Port will contract separately for transportation and off-site disposal of contaminated soil and dewatering water.

3.03 WATER MANAGEMENT

- A. The Contractor shall collect accumulated water from the lined stockpile areas and pump it into holding tanks. Sediment laden standing water, which can not be pumped, shall be collected using absorbent materials. Absorbent materials shall be stored in a closed container on site and labeled appropriately. Materials shall be disposed as directed by the Engineer.
- B. Should the holding tanks be transported to other areas within the site, the Contractor shall implement appropriate techniques to prevent spillage.

3.04 DUST CONTROL MONITORING

- A. The Contractor shall implement the Dust and Air Pollution Control Plan approved by the Engineer. At a minimum, exposed surfaces shall be wetted down with water to minimize fugitive dust emission during soil excavation and transporting of excavated materials to the stockpile areas.
- B. Erosion and dust control measures, such as suppressants, may not be used without prior approval by the Engineer.

- C. Dust control monitoring shall be implemented according to the Dust and Air Pollution Control Plan.

END OF SECTION

SECTION 02315

EXCAVATION, FILL, AND SUBGRADE PREPARATION

PART 1 GENERAL

1.01 SUMMARY

- A. The work under this Section includes furnishing all labor, materials, appliances, tools, equipment, transportation, services, and supervision required for excavating, filling, grading, and furnishing and installing drain rock as shown on the Drawings and as specified herein. This work is primarily due to the installation of bollards and fence posts, but will also include any work necessary to prepare the existing aggregate base for the placement of asphalt concrete pavement under this contract, due to the actions of the Contractor.

1.02 REFERENCES

- A. Section 01330 – Submittals
- B. Section 01340 – Safety and Environmental Submittals
- C. Section 02111 – Handling of Potentially Contaminated Material

1.03 APPLICABLE STANDARDS AND SPECIFICATIONS

- A. AASHTO Specifications – The Standard Specifications of the American Association of State Highway and Transportation Officials, latest (English system) edition
- B. State Specifications – The Standard Specifications of the State of California, Business and Transportation Agency, Department of Transportation, latest edition.
- C. Materials Manual – Materials Manual of Testing and Control Procedures, State of California, Business and Transportation Agency, Department of Transportation, latest (English system) edition.
- D. American Society for Testing and Materials (ASTM)

1.04 DEFINITION OF TERMS

- A. On-Site Material: Material obtained from the required excavation work on the site.
- B. Finish Grade: The elevation of the top surface of uppermost material shown on the drawings.
- C. Pavement: The uppermost layer of material placed over the aggregate base course.

- D. Aggregate Base Course: The layer of specified material of planned thickness placed immediately below pavement and above subgrade soils.
- E. Drain Rock: The layer of specified material of planned thickness placed immediately below subsurface structures and above subgrade soils.
- F. Dry Density: the weight of soil solids per unit of total volume of soil mass, as determined by ASTM D 1557.
- G. Maximum Dry Density: The maximum dry density of the material shall be as determined by ASTM D 1557.
- H. Moisture Content: The ratio, expressed as a percentage, of the weight of water in a given soil mass to the weight of solid particles, as determined by ASTM D 1557.
- I. Optimum Moisture Content: The water content at which a soil can be compacted to the maximum dry density by a given compactive effort.
- J. Degree of Compaction or Relative Compaction: The ratio, expressed as a percentage, of the in-place dry density of the compacted fill material to the maximum dry density of the same material as determined by ASTM Test Designation D 1557.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Engineered Fill:
 - 1. A soil/rock mixture, free from organic matter contamination, or other deleterious substances, with a suitable particle size gradation so that it can be placed to give a dense compact non-yielding fill or backfill, and a minimum R-value of 50 as determined by California Test Method No. 301.
 - a. Neither rock or rock fragments larger than three inches in greatest dimension; not more than 15 percent of which shall be larger than 1 inch in greatest dimension; shall be used as Engineered Fill.
 - 2. Where on-site material is intended for reuse as Engineered Fill, Contractor shall obtain Port certification that intended material is suitable for intended use.
 - 3. Contractor shall collect representative samples of excavated on-site material for R-value and gradation testing at an approved geotechnical laboratory. Excavated on-site material conforming to the above requirements and approved by the Engineer may be certified for use as Engineered Fill.

- B. Backfill: Backfill shall conform to the requirements for Engineered Fill.
- C. Drain Rock: Drain rock shall be clean 3/4-inch maximum, hard, sound, durable, uniform in quality, and free of any detrimental quantity of soft, friable, thin elongated, or laminated pieces, disintegrated material, organic material, oil, alkali, or other deleterious substance. Drain Rock shall meet the following gradation requirements.

<u>Sieve Size</u>	<u>Percentage Passing</u>
1 inch	100
3/4 inch	90-100
No. 4	0-10
No. 200	0-2

PART 3 EXECUTION

3.01 EXCAVATION

- A. Drilled Excavations: Vertical drilled shafts shall be plumb to within 2-1/2 in. for each 20 ft. of depth, and shaft top elevations shall be to plus 1 in., minus 3 in. When drilling operation reaches a point where caving conditions are encountered, Contractor shall stop drilling until construction method is employed which will minimize caving.

3.02 AGGREGATE BASE PLACEMENT

- A. Compact all aggregate base to a minimum density of 98% of the maximum dry density per ASTM D1557. A heavy vibratory roller may be needed to obtain the required compaction.

3.05 TECHNIQUES AND TOLERANCES

- A. Prepared subgrade surfaces and prepared aggregate base surfaces shall not vary more than 0.05 feet above or below the required grade.

- END OF SECTION -

SECTION 02740

ASPHALT CONCRETE PAVEMENT

PART 1 - GENERAL

1.01 SUMMARY

- A. The work under this Section includes furnishing all labor, materials, appliances, tools, equipment, transportation, services, and supervision to provide and install asphalt tack coat and asphalt concrete pavement.

1.02 REFERENCES

- A. Section 02315 – Excavation, Fill, and Subgrade Preparation

1.03 APPLICABLE STANDARDS AND SPECIFICATIONS

- A. State Specifications - The Standard Specifications of the State of California, Business and Transportation Agency, Department of Transportation, latest edition.
- B. Standard Test Methods - The Standard Test Methods of the State of California, Business and Transportation Agency, Department of Transportation, latest edition.
- C. American Society for Testing and Materials (ASTM).

1.04 SUBMITTALS

- A. The Contractor shall submit in writing to the Engineer for approval the proposed job mix formula for asphalt concrete, Type A, at least 3 weeks prior to its intended use.
- B. The Port reserves the right to increase or decrease the quantity of asphalt binder prior to or during paving operations. When an increase or decrease of not more than 0.5 percent of the initially approved bitumen ratio is ordered by the Engineer, full compensation for additional costs occasioned by compliance with the Engineer's directive shall be considered as included in the contract unit price per ton for asphalt concrete and no additional compensation will be allowed.
- C. The contractor shall provide certificates for each delivery, showing the approved asphalt concrete mix design number.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Asphalt Concrete:

1. Paint Binder: SS1 or SS1h asphaltic emulsion conforming to Section 94, "Asphaltic Emulsions," of the State Standard Specifications.
2. Asphalt Concrete: Type A asphalt concrete conforming to Section 39 of the State Specifications.
 - a. Bituminous Binders: Performance graded (PG) 70-10 asphalt binder conforming to Section 92 of the State Specifications.
 - b. Aggregate: Type A, 3/4-inch maximum size, medium grading requirement of Section 39 of the State Specifications.
 - c. Aggregate shall be 100 percent the product of crushing operation with no natural sand.
 - d. Type A, 1/2 -inch maximum size, medium grading requirements is allowed for use in the leveling course, isolated pavement repairs and around utility boxes being adjusted (if any).
 - e. Minimum Stabilometer Value shall be 40.
3. Job Mix Formula: Job mix formula shall conform to the provisions in Section 39-3, Storing, Proportioning and Mixing Materials," of the State Standard Specifications and these Special Provisions.
 - a. The Contractor shall establish the bitumen content in accordance with California Test 367, except the recommended range shall be the optimum bitumen content (highest value with at least 4.0 percent air voids) plus 0.3 percent. The selected job mix formula shall produce a compacted mix specimen with air voids between 2.5 and 4.5 percent.
 - b. The job mix formula submitted shall indicate definite percentages for each sieve fraction of aggregate, source of aggregate, percentage of asphalt binder, and temperature of completed mixture when discharged from the mixer. All test data used to develop the job mix formula shall also be submitted.
 - c. The approved job mix formula will be in effect until modified in writing by the Engineer. Should the Contractor change his source of supply, he shall furnish new proportions of job mix formula, as determined by the Engineer to be necessary, at least 2 weeks before their intended use. A change which affects any portion of the total aggregate in the mix will be considered a change in the source and will require a new mix design.
4. The fifth, sixth, seventh, and eight paragraphs of Section 39-3.02, "Proportioning," of the state Standard Specifications will not apply to this contract.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Asphalt Concrete Pavement Subgrade Preparation:
 - 1. Prior to placing asphalt concrete pavement on aggregate base and applying tack coat, prepare aggregate base in conformance with Section 39-4.01, "SUBGRADE", of the State Standard Specifications.

3.02 PAINT BINDER

- A. Paint binder application shall conform to the provisions in Section 39-4.02, "Prime Coat and Paint Binder (Tack Coat)," of the State Standard Specifications and these Special Provisions.
- B. Tack coat shall be applied at a rate of 0.02 to 0.10 gallons per square yard at vaults, manholes, catch basins, pavements, curbs, gutters and construction joints and at a rate of 0.22 to 0.28 gallons per square yard on existing concrete and asphalt concrete pavements against which asphalt concrete pavement overlay will be placed.
- C. The area to which paint binder has been applied shall be closed to public traffic. Care shall be taken to avoid tracking binder material onto existing pavement surfaces beyond the limits of work.

3.03 ASPHALT CONCRETE PAVEMENT

- A. Spreading and compacting of asphalt concrete shall conform to the provisions in Sections 39-5, "Spreading and Compacting Equipment," and 39-6, "Spreading and Compacting," of the State Standard Specifications and these specifications. The Contractor shall construct the asphalt concrete pavement section in 3" lifts.
- B. Production shall not begin without written approval of the Engineer.
- C. Steps shall be taken to ensure that a clean, dirt-free surface exists between lifts. At locations where the dirt cannot be washed or broomed off the surface, a tack coat shall be broomed into the remaining particles. The Engineer shall approve the condition of the surface prior to paving. If the surface between lifts becomes dirty, it shall be given a tack coat even if both lifts are placed the same day.
 - 1. Longitudinal and transverse joints shall be staggered between lifts. At the end of each work shift, the distance between the ends of the layers of asphalt concrete on adjacent lanes shall not be greater than 10 feet nor less than 5 feet. In addition, the distance between the edge of lower lift and the edge of the overlaying lift shall be at least one foot.
 - 2. Longitudinal and transverse joints in asphalt concrete shall be staggered between lifts. The edge of the joint of the lower lift shall be at least one foot from the edge of the joint of the overlying lift.
- D. The vertical surface joints shall be dense, uniform, and well bonded. In the formation of joints, provisions shall be made for proper bonding with the adjacent lift for the entire depth of the lift. A tack coat shall be applied to such joints and the fresh mixture raked against the joint and thoroughly tamped and rolled at required temperatures.

1. Folded or rounded edges are not acceptable as vertical surfaces for joint.
 2. Longitudinal and transverse joints shall be trimmed off vertically to full depth if the exposed joint surface is not dense and uniform and, in the opinion of the Engineer, is in such condition that the quality of the completed joint will be affected. Joints older than 3 hours or not meeting density and uniformity requirements shall be cut back.
- E. The finished asphalt pavement surfaces shall conform to the smoothness tolerance stipulated in Section 39-6.03, "Compacting" of the State Standard Specifications, except that the surface shall not have depressions greater than 1/16-inch when tested with a 12-foot straightedge load transverse to, or in the direction of paving. No portion of the pavement shall retain ponding water.
1. Spreading equipment shall be asphalt pavers conforming to the State Standard Specifications. Pneumatic-tired motor graders or similar equipment shall only be used to spread asphalt concrete in areas inaccessible to pavers.
 2. Edges of leveling coverages shall be feathered. The larger aggregates shall be raked and removed, leaving a dense, well-graded edge.
- F. Compaction: Asphalt concrete shall be compacted in accordance with the requirements specified in Section 39, "Asphalt Concrete" of the State Standard Specifications, as amended herein. The completed pavement shall have an average density equal to or greater than 98 percent of the laboratory density derived from compacting and testing the mixture in accordance with California Test 304 and 308.

Each lift of asphalt concrete pavement shall be tested by the Engineer for density requirements as follows:

1. The mean density of each area shall be determined by averaging the result of 10 randomly selected in-place density tests. In areas surrounding subsurface utility vaults, 2 of the 10 test locations shall be directly adjacent to the subsurface structure. In-place density tests shall be measured by means of a nuclear device in accordance with ASTM D 2950. The results of each test shall be immediately available to the Contractor.
2. If an individual test result should fall below 95 percent of the target value, the Contractor shall further compact that area represented by the test. After further compaction, a new density test shall be taken at the original location and one other location within the recompacted area. The average of the 2 tests shall be included in the mean density for the section. The original test shall not be included in the mean.
3. Areas still represented by test results below 95 percent shall be cored. The density of the cores shall be used in calculating the mean for the section. All holes left by coring shall be backfilled with asphalt concrete.
4. If the mean density for a section does not meet or exceed 98 percent of the target density, the section may be accepted at the option of the Engineer,

upon written request from the Contractor, under the condition that the unit price for material placed in a section that has been accepted with a mean density less than 98 percent of the target shall be adjusted as follows:

Mean Density	Percent Payment
98.0 and greater	100
97.0 to 97.9	98
96.0 to 96.9	90
95.0 to 95.9	75
Less than 95.0	0 (or rejected)

END OF SECTION

SECTION 02764

PAVEMENT MARKINGS

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. The work under this section of the specifications includes furnishing all materials, labor, supervision, equipment and services to provide complete striping and marking of pavement surfaces as indicated on the Plans and specified herein.

1.02 APPLICABLE STANDARDS AND SPECIFICATIONS

- A. State Specifications - The standards Specifications of the State of California, Business and Transportation Agency, Department of Transportation, Latest Edition (English System)
- B. American Society for Testing and Materials (ASTM)

1.03 SUBMITTALS

- A. The following shall be submitted in accordance with Division 1.
 - 1. Product Data: Submit manufacturer's technical information for each material proposed for use.
 - 2. Materials List: Submit a complete materials list, identified by manufacturer's name and product label or stock number.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Paint for pavement lines and graphics shall conform to State Specifications, 84-3, for Rapid Dry Water Borne, Specification No. 8010-91D-30.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Do not apply paint material sooner than 72 hours following completion of the placement of asphalt concrete.
- B. Apply paint materials only to pavement surfaces which are dry and free of dirt, oil or other foreign material which might reduce the bond between paint or thermoplastic material and the pavement.

- C. Clean pavement surfaces appropriately to ensure an acceptable substrate for the paint material.

3.02 INSTALLATION

- A. Lay out all work as shown in the Plans. Do not apply paint material until the layout has been reviewed and approved by the Engineer.
- B. Lettering and graphics shall be in accordance with the Plans.
- C. Applying striping and graphics with consistent cross sections and clean-cut edges.
- D. Paint:
 - 1. Mix, and apply paint in strict conformance with the manufacturer's recommendations. Apply paint at a uniform coverage rate sufficient to completely hide surfaces to which paint is applied.
 - 2. Paint all areas with two coats applied a minimum of 24 hours apart.
 - 3. Maximum application rate is 210 square feet per gallon for each coat.

3.03 APPLICATION

- A. Application shall not be performed with the atmospheric temperature is below 10°C (50°F).
- B. Tolerances:
 - 1. Edges of markings shall not vary from a straight line more than 1/2 -inch in 50 feet and widths of lines shall not deviate more than 1/4-inch from the specified width.
 - 2. Deviations in excess of the stated tolerances shall be obliterated and sand blasting and the painting redone at the Contractor's expense.

3.04 CLEANING

- A. Promptly clean up spilled material. Remove marks not in conformance with the striping plan. Protect all striping and markings from damage until dry.

3.05 PROTECTION

- A. Exercise care to protect adjacent surfaces, vehicles and people from spilled, spattered, and oversprayed paint.

- END OF SECTION -

SECTION 02830

CHAIN LINK FENCE

PART 1 - GENERAL

1.01 SUMMARY

- A. The work under this Section includes furnishing all labor, materials, appliances, tools, equipment, transportation, services and supervision required to furnish and install new fencing and gates.
 - 1. Fencing shall be 8 feet high with an additional 3 strands of barbed wire on top, unless called out otherwise on the Drawings.
 - 2. Fencing mounted on K-rail shall be 6 feet high with an additional 3 strands of barbed wired on top, unless called out otherwise on drawings.

1.02 REFERENCE

- A. Section 03300 – Cast-In-Place Concrete.
- B. Section 03400- Pre-Cast Concrete.

1.03 APPLICABLE STANDARDS AND SPECIFICATIONS

- A. State Specifications – The Standard Specifications of the State of California, Business and Transportation Agency, Department of Transportation, latest edition.
 - 1. Subsection 80 – 4 Chain Link Fence
 - 2. Section 75 – 1.05 Galvanizing
- B. American Society for Testing and Materials (ASTM).
 - 1. ASTM A47 Standard Specification for Ferric Malleable Iron Castings
 - 2. ASTM A90 Standard Test Method for Weight of Coating on Zinc- Coated (Galvanized) Iron or Steel Articles
 - 3. ASTM A121 Standard Specification for Metallic-Coated Carbon Steel Barbed Wire
 - 4. ASTM A153 Standard Specification for Zinc Coating (Hot Dip) on Iron and Steel Hardware

5. ASTM A307 Standard Specification for Carbon Steel Bolts and Studs
60,000-PSI Tensile Strength.
6. ASTM A392 Standard Specification for Zinc-Coated Steel Chain-Link Fence
Fabric
7. ASTM A641 Standard Specification for Zinc-Coated (Galvanized) Carbon
Steel Wire
8. ASTM F669 Standard Specification for Strength Requirements of Metal
Posts and Rails for Industrial Chain-Link Fence

1.04 SUBMITTALS

- A. A complete schedule of materials shall be submitted in accordance with Division
1. Submit as one package. Partial submittals will not be accepted. Submit
manufacturer's names, catalog numbers, brand names, catalog cuts, plans and
other descriptive data and ratings as may be required. Review will be based on
the manufacturer's published ratings. Items included in the submittal shall
include, but may not be limited to, fence fabric, tension wire, fabric ties, fence
ties, posts, gate materials, locking devices, and associated fittings.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Fencing: Chain link fencing shall be constructed of hot-dipped galvanized
materials and conform to Section 80-4, Chain Link Fence, of the State
Specifications, and as shown on the Plans and modified herein.
- B. Steel materials shall have a minimum galvanized coating conforming to Section
75-1.05, Galvanizing, of the State Specifications.

2.02 MATERIALS

- A. Wire Fence Fabric: Wire fence fabric shall be helically wound and interwoven,
2-inch mesh; 9 gauge; knuckled finish on top and bottom. Galvanize material
shall be per ASTM A392, Class 2, galvanized coating after weaving (2 ounces
per square foot).
- B. Tension Wire: Tension wire shall be 7-gage hot-dipped galvanized, coil spring
steel, Class 3 coating per ASTM A641 (0.9 ounces per square foot).
- C. Hog Rings: Hog rings shall be 9-gage, hot-dipped galvanized steel, Class 3
coating per ASTM A641 (0.8 ounces per square foot).
- D. Wire Fabric Ties: Ties shall be 9-gage, hot-dipped galvanized steel, Class B3
coating per ASTM A641 (0.8 ounces per square foot).

- E. Truss Rods: Truss rods shall be 3/8-inch diameter, hot-dipped galvanized steel, Class B1 per ASTM A153 (2 ounces per square foot).
- F. Turnbuckles: Turnbuckles for truss rods shall be wrought iron per ASTM A47, galvanized drop forged steel, Class A per ASTM A153 (2 ounces per square foot).
- G. Posts and Gate Frames: Posts, rails, braces, and gate frames shall be cylindrical, no circumferential welds, galvanized steel in accordance with ASTM F669, Group 1A or 1C, and conform to the additional requirements of Subsection 80-4, Chain Link Fence, of the State Specifications.
- H. Gate Hinges: Heavy-duty gate hinges shall be malleable iron per ASTM A47 and galvanized per ASTM A153, Class A (2 ounces per square foot).
- I. Locking Devices: Locking devices shall be galvanized malleable iron per ASTM A47. Drop rods may be tubular or bar steel, galvanized per ASTM A153 (2 ounces per square foot).
- J. Nuts and Bolts: Nuts and bolts shall be steel ASTM A307 with zinc coating per ASTM A153, Class C (1.25 ounces per square foot).
- K. Sleeves: Sleeves for drop rod shall be 1.695-inch I.D. by 0.078-inch wall, drawn tube, 6 inches long. Sleeve shall be self-centering type and galvanized per ASTM A153 (1.8 ounces per square foot).
- L. Post Tops: Post tops shall be permanent mold, sand mold, die castings, malleable iron per ASTM A47 and galvanized per ASTM A153, Class A (2 ounces per square foot).
- M. Barbed Wire: Barbed wire shall conform to ASTM A121 and consist of three strands of galvanized 13.5-gage wire, twisted with 2 point barbs.
- N. Fence Post Foundation Concrete: Shall conform to Section 03300, Cast-In-Place Concrete, of the Project Specifications.
- O. The Engineer reserves the right to take samples to confirm that materials provided by the Contractor meet the requirements of this Specification.

PART 3 - EXECUTION

3.01 POST FOUNDATION

- A. Post Holes: Post holes shall be cylindrically shaped, having the dimensions shown in the Plans.
- B. Post Foundation Concrete: Fence and gate posts shall be imbedded in concrete with a minimum compressive strength on 2,500 psi. Post foundations shall be domed to shed water. Concrete shall extend at least 3 inches below end of post. Fence fabric shall not be pulled until concrete has cured a minimum of 7-days.

3.02 FENCE INSTALLATION

- A. Rails: Fasten rails to posts by means of rail ends and brace bands.
- B. Braces: Provide braces at end and corner posts. Fasten braces to the posts by rail ends and brace bands.
- C. Truss Rods: Install diagonal truss rods from the brace end on the line post back to the end and corner post and fasten it by a brace band.
- D. Wire Fence Fabric: Furnish wire fence fabric in 50-foot continuous lengths. The fabric may be either right-hand or left-hand weave, but not both. Install fabric 2 inches above ground level and fastened to the line post ties at a maximum of 24-inch intervals. Tighten fabric to provide a smooth uniform appearance.
- E. Tension Wire: Install tension wire between posts and pull taut.
- F. Barbed Wire: Where indicated on the Plans, fence posts shall be equipped with extension arms for stringing barbed wire. Barbed wire shall be stretched and secured to the extension arms.

3.03 GATE CONSTRUCTION AND INSTALLATION

- A. Gate Frame: Provide gate frames to produce panels matching the dimensions shown on the Plans.
- B. Bracing: Brace each gate panel by means of a diagonal truss rod equipped with turnbuckles.
- C. Gate Fittings: Furnish each gate with fittings, including hinges, latches and locking devices. Furnish each leaf 6 feet or wider with one keeper or other device for holding gate open. One drop bar locking assembly shall be furnished on double gates. Single gates shall have fork latch with provisions for padlock. Furnish locking and catch fittings on gates.
- D. Gate Installation: Install gates plumb to operate with freedom through an arc of a minimum 180 degrees.

3.04 BOLTED CONNECTIONS

- A. All Bolted connections shall be pinned, double bolted or secured by cotter pins to prevent nuts from working loose.

3.05 FENCE ON K-RAIL

- A. The concrete K-Rail shall have a chain link fence mounted with galvanized extension arms with three strands of four-point barbed wire where indicated on the plans. The concrete K-Rail shall be placed at the locations and anchored to the pavement as indicated on the plans.

- END OF SECTION -

SECTION 03300

CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.01 SUMMARY

- A. The work under this Section includes furnishing all labor, materials, appliances, tools, equipment, transportation, services and supervision required for installing cast-in-place concrete. The work primarily consists of concrete installation for fence posts and bollards. The work may include, but not be limited to, the following:
 - 1. Mixing, furnishing, conveying, placing and curing of concrete.
 - 2. Installing miscellaneous steel, and embedded items.

1.02 REFERENCE

- A. Section 02315 - Excavation, Fill, and Subgrade Preparation
- B. Section 05050 – Metal Materials and Methods

1.03 APPLICABLE STANDARDS AND SPECIFICATIONS

- A. U. S. Army Corps of Engineers' Specifications.
- B. State Specifications – The Standard Specifications of the State of California, Business and Transportation Agency, Department of Transportation, latest edition.
- C. American Concrete Institute (ACI).
- D. American Society for Testing and Materials (ASTM).
- E. Concrete Reinforcing Steel Institute (CRSI).

1.04 SUBMITTALS

- A. Refer to Section 01330, Submittals, for general submittal requirements and procedures.
- B. Evidence of conformance to the referenced standards and requirements shall be submitted for the following.

1. Proposed concrete mix design for each class of concrete. Provide for review by the Engineer prior to commencement of work.
 2. Certificates for each delivery, showing slump, weight of cement and pozzolan per cubic yard of concrete, water/cement ratio, and weights of admixtures, if used.
- C. Shop fabrication details and placement drawings shall also be submitted. Any fabrication undertaken before approval of shop details shall be entirely at the Contractor's risk.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Cement: shall be "Type II Modified," conforming to the State Specifications, Section 90-2.01.
- B. Coarse aggregate: shall conform to ASTM C-33 and shall not exceed 3/4-inch maximum size, unless otherwise shown on the Drawings.
- C. Fine aggregate: shall conform to ASTM C-33, and shall be clean, washed natural sand or crushed rock. It shall be uniformly graded between the No. 4 and No. 200 sizes, with at least 95 percent passing the No. 4 sieve, and not more than five percent passing the No. 200.
- D. Mixing, curing and washing water: shall conform to the State Specifications, Section 90-2.03.
- E. Pozzolan/Fly ash: Pozzolan shall be a Type F or Type N natural pozzolan or a fly ash, conforming to ASTM C-618.
- F. Water reducing admixture, or super-plasticizer: shall conform to ASTM C-494, Types A or D.
- G. Air-entraining admixture: shall meet the requirements of ASTM C-260.
- H. No calcium chlorides or admixtures containing chlorides shall be used.
- I. Non-shrink grout: shall be cement-based, suitable for use in a salt water attack area and conforming to the Corps of Engineers' Specification CRD-C621. It shall have an initial setting time of not less than 60 minutes.
- J. Epoxy bonding agent: shall be a two-component formulation conforming to ASTM C881.
- K. Concrete bonding adhesive shall be Concrete Liquid LPL as manufactured by Master Builders Technology: Sikadur 32, Hi-Mod LPL, as manufactured by the

Sika Corporation; or Burkepoxy MV as manufacture by Burke; or an approved equal.

- L. Drilled-In Anchors: if used, shall comply with Section 05050 "Metal Materials and Methods".

2.02 MIX DESIGN

- A. Weight of concrete at the time of strength tests shall not be less than 145 pcf. Concrete shall have a minimum 28-day compressive strength of 2,500 psi, as defined by ASTM C-39. The water-cementitious materials ratio shall be 0.45 as a minimum
- B. Pozzolan or fly ash may be used to replace 15 percent of the total cement that would otherwise be used.
- C. Concrete shall be designed, proportioned, mixed, and delivered in accordance with ASTM C-94.
- D. Prior to starting work, a design of each proposed concrete mix shall be submitted, accompanied by three 7-day and three 28-day test reports made by an approved testing laboratory. The design shall indicate the brand of cement, type and source of aggregate, pozzolan, admixtures if used, the water-cement ratio, and the weights of all ingredients per cubic yard.
- E. The maximum concrete slump shall be four (4) inches.

PART 3 - EXECUTION

3.01 SUBGRADE PREPARATION

- A. The subgrade upon which concrete is to be placed shall be firm and cleared of loose material. Where indicated on the Plans, the subgrade shall be compacted to the requirements of Section 02315 – Excavation, Fill, and Subgrade Preparation. The subgrade shall be moistened prior to placing concrete so that the soil will not absorb excessive moisture from the fresh concrete.
- B. Aggregate base, where shown on the Drawings, shall be placed and compacted to the requirements of Section 02315 – Excavation, Fill, and Subgrade Preparation.
- C. All cast-in-drilled-hole pier excavations shall be clean and free of excess water before placing concrete.

3.02 EMBEDDED ITEMS

- A. Items to be embedded in concrete shall be installed prior to concrete placement. The Contractor shall notify the Engineer at least 24 hours in advance of concrete placement when all items are in place, ready for his inspection.
- B. Embedded items shall be positioned accurately and rigidly secured against movement during concrete placement. Tolerances shall be + 1/2 inch in location and + 1/4 inch in depth from face of concrete, unless a more stringent tolerance is established elsewhere in these specifications.

3.03 PLACING CONCRETE

- A. Placing shall conform to Section 51-1.09 of the State Specifications and to ACI 304.
- B. The Contractor shall schedule concrete placement to be continuous between construction joints. Once concrete placement has started, every effort shall be made to carry it on as an uninterrupted operation until the scheduled placement has been completed. Prior to concrete placement, forms and reinforcing shall be cleaned by means of compressed air.
- C. Once concrete placement has started, every effort shall be made to carry it on as an uninterrupted operation until the scheduled placement has been completed.
- D. Where concrete is to be placed on grade, it shall not be placed in standing water.
- E. Placement of concrete in cast-in-drilled-hole piers shall be through suitable tremie or other means to prevent segregation of concrete materials and splashing of reinforcing steel cage.
- F. Concrete shall be compacted with suitable mechanical vibrators operating within the concrete. When necessary, vibrating shall be supplemented by hand spading with suitable tools to assure proper and adequate compaction. Vibrators shall be manipulated so as to work the concrete thoroughly around the reinforcement and embedded fixtures and into corners and angles of the forms.

3.04 JOINT AND GROOVES

- A. When the placing of concrete is suspended, necessary provisions shall be made for joining future work before the placed concrete takes its initial set. For the proper bonding of old and new concrete, such provisions shall be made for grooves, steps, keys, dovetails, reinforcing bars or other devices as may be prescribed. Before depositing new concrete on or against concrete which has hardened, the surface of the hardened concrete shall be cleaned by a heavy steel broom, roughened slightly, wetted, and covered with a neat coating of cement paste or grout.

3.05 HOT AND COLD WEATHER CONCRETING

- A. During hot weather, the Contractor shall implement the requirements of ACI 305R, and during cold weather, the requirements of ACI 306R.

3.06 CONCRETE FINISH

- A. All exposed concrete surfaces shall be true, smooth, free from open or rough spaces, depressions, or projections. The concrete in horizontal plane surfaces shall be brought flush with the finished top surface at the proper elevation and shall be struck-off with a straightedge and floated. Mortar finishing shall not be permitted, nor shall dry cement or sand-cement mortar be spread over the concrete during the finishing of horizontal plane surfaces.

3.07 CURING AND PROTECTION

- A. Freshly deposited concrete shall be protected from premature drying and excessively hot or cold temperatures, and shall be maintained with minimal moisture loss at a relatively constant temperature for the time necessary for hydration of the cement and hardening of the concrete.
- B. Curing shall immediately follow the finish operation. Concrete shall be kept continuously moist for a minimum of seven (7) days by absorbent mat or fabric kept continuously wet.
- C. During the curing period, the concrete shall be protected from damaging mechanical disturbances, particularly load stresses, shock and excessive vibration. All finished concrete surfaces shall be protected from damage caused by construction equipment, materials, methods, and by frost, rain or running water.
- D. The Contractor shall be entirely responsible for protecting the concrete from damage, from whatever cause, until its acceptance by the Owner.

3.08 REPAIR OF CONCRETE AND DEFECTIVE WORK

- A. Immediately after curing is completed, surface defects shall be repaired. During repair work, the curing of adjoining surfaces shall not be delayed or interrupted. Repair procedures shall be as follows:
 - 1. Fins and other projections not acceptable to the Engineer shall be removed, and the concrete ground to an even surface. Individual small surface defects such as air bubbles, voids, and fissures will be accepted without repair, if the voids or air bubbles are less than 1/2 inch in diameter and 3/8 inch in depth and if fissures do not penetrate more than 3/8 inch in depth.
 - 2. For cavities exceeding three (3) inches in depth or 1/4 cubic ft in volume, concrete and not dry-pack mortar shall be employed. A coating of the approved epoxy bonding agent shall first be applied to the surface after removal of all loose material. Concrete of the same strength and composition as that in the defective member shall then be well rammed into the cavity and finished flush. It shall be just plastic enough to permit

effective placement. If necessary, a form shall be fixed to prevent concrete sagging.

3. All repair surfaces shall be cured in the same manner as the surrounding concrete.
- B. Areas of structures which are outside the tolerance limits listed in ACI 347, shall be removed to the specified limits if the Engineer so requires. The finished surface shall be ground smooth to a finish comparable to the surrounding area.

3.09 BOLLARDS

- A. Bollards shall be filled with concrete, where shown on the Drawings. Concrete shall be deposited into the bollard pipe, thoroughly consolidated to eliminate voids, and provided with a domed mortar cap.

PART 4 - TESTING

4.01 STRENGTH TESTS

- A. Concrete will be sampled and tested by the Engineer in accordance with Section 90-9 of the State Specifications to determine compressive strength. Samples will be taken as frequently as specified in ACI 318, and more frequently if required by the Engineer. The age of strength tests for acceptance shall be 28 days. Minimum strength for acceptance of the concrete will be as set forth in Section 90-9.
- B. The Contractor may make additional tests at Contractor's expense at earlier ages to obtain advance information on the adequacy of strength development and to determine when forms may be removed.
- C. If strength tests fail to meet the minimum requirements, the concrete represented by such tests will be considered questionable, and will be subjected to additional testing at the direction of the Engineer, and at the expense of the Contractor, as follows:
1. Core samples of the questionable concrete will be taken and tested for compressive strength in accordance with ASTM C42.
 2. If core tests fail to demonstrate strengths adequate for the intended purpose of the member or members in question, as determined by the Engineer, or if failure to meet specified strength requirements occurred in members from which it is impracticable to secure test specimens by the method of ASTM C42, load tests will be conducted and their results evaluated in accordance with Chapter 20 of ACI 318.
 3. If the results of the load tests fail to meet the requirements of Chapter 20 of ACI 318, low-strength portions of the structure shall be demolished and

rebuilt, or adequately reinforced as directed by the Engineer, all at the Contractor's expense.

4.02 QUALITY CONTROL

- A. Samples of fresh concrete shall be collected per ASTM C-172 to perform the following tests.
 - 1. Slump Tests: Performed per ASTM C-143. Take samples during concrete placement. The maximum slump may be increased as specified with the addition of an approved admixture provided that the water-cement ratio is not exceeded. Perform tests at commencement of concrete placement and for each batch (minimum) or every 10 cubic yards (maximum) of concrete.
 - 2. Air Content. Performed per ASTM C-173 or ASTM C-231. Test air-entrained concrete for air content at the same frequency as specified for slump tests.

END OF SECTION

SECTION 03400

PRE-CAST CONCRETE

PART 1 - GENERAL

1.01 SUMMARY

- A. The work under this Section includes furnishing all labor, materials, appliances, tools, equipment, transportation, services, and supervision required to construct and transport pre-cast concrete structures. The work may include, but not be limited to, the following:
 - 1. Construction of concrete barriers (K-rail).
 - 2. Construction of concrete truck wheel stops.

1.02 REFERENCE

- A. Section 03300 – Cast-In-Place Concrete
- B. Section 05050 - Metals Materials and Methods.

1.03 APPLICABLE STANDARDS AND SPECIFICATIONS

- A. State Specifications – The Standard Specifications of the State of California, Business and Transportation Agency, Department of Transportation, latest edition.
- B. AASHTO Specification - The Standard Specification of the American Association of State Highway and Transportation Officials, latest (english system) edition.
- C. U. S. Army Corps of Engineers' Specifications.
- D. American Concrete Institute (ACI).
- E. American Society for Testing and Materials (ASTM).
- F. American National Standards Institute (ANSI).
- G. Occupational Safety and Health Agency (OSHA).

1.04 PERFORMANCE REQUIREMENTS

- A. The Contractor shall verify all controlling field dimensions, points of connection, and the location of all existing utilities before ordering or fabricating any material or installing any material. See related sections of these Specifications for Contractor coordinated work.

1.05 SUBMITTALS

- A. A complete schedule of materials shall be submitted in accordance with Division 1. Submit as one package. Partial submittals will not be accepted. Submit manufacturer's names, catalog numbers, brand names, catalog cuts, plans and other descriptive data and ratings as may be required. Review will be based on the manufacturer's published ratings.
- B. Shop Drawings
 - 1. Submit manufacturer shop drawings for pre-cast structures. Shop drawings shall be reviewed and approved by the Engineer prior to pre-cast concrete structure construction.
- C. Design data and manufacturer's data
 - 1. Submit design data and manufacturer's data, drawings or catalog cuts, for pre-cast concrete structures indicating conformance with all performance requirements.
- D. Certificates of conformance or compliance for the specified products.
- E. Manufacturer's instructions or installation guides
- F. Factory and Field Test Reports
- G. Record Documents: At Contract closeout Contractor shall submit As-Built Drawings of installed pre-cast concrete structures according to Division 1, Section 01780, "Project Record Document."

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Materials shown on the Drawings and specified herein shall be new and of the best grade and quality, free from defects and of the make or quality specified or as accepted and approved by the Engineer.
- B. Cement shall conforming to ASTM C150 for be "Type II" Portland Cement.

2.02 PRODUCTS

- A. Pre-cast concrete structures shall conform to the dimensions shown on the Drawings, and shall be designed to meet the specified performance requirements.
- B. Each structure, or section of structure shall be clearly marked with the date of manufacture and the manufacturer trademark, in accordance with ASTM C-913.

PART 3 - EXECUTION

3.01 DESIGN

- A. The reinforced concrete structure shall be designed in accordance with ACI – 318 Building Code, or an equivalent method, in order to meet the specified performance requirement design loads.
- B. Structural loading calculations shall be in accordance with ASTM C-857 and C-890 for the specified performance requirement design loads.
- C. The design concrete cover for reinforcing bars, wire or fabric shall not be less than 1-inch in accordance with ASTM C-913.
- D. The design of embedded lifting devices shall be in accordance with ASTM C-890, Section 8.4. Lifting device materials shall be in accordance with Section 05050 Metals Materials and Methods.

3.02 CONSTRUCTION

- A. The pre-cast structure shall be constructed in accordance with the tolerances specified in ASTM C-858, ASTM C-913, or as specified on the Drawings, whichever is stricter.
- B. Construction of formwork shall be in accordance with the following:
 - 1. ACI 347 and Section 6.1 of ACI 318.
 - 2. Form surfaces and edges shall produce concrete conforming to the detailed shapes, lines and dimensions, and free from cavities and honeycombing. Exposed concrete surfaces shall be free from protrusions, fins, roughness and other imperfections.
 - 3. Before placing concrete, the forms shall be thoroughly cleaned of all foreign material. Releasing agents applied to the form to aid in breaking the bond between the form and the concrete shall not be injurious to the concrete.
- C. Reinforcing bars shall be free of excess rust, mill scale, or other bond reducing matter at time of placing concrete.
- D. Reinforcing bars shall be securely tied to maintain position during concrete placement and to maintain the design concrete cover as specified.
- E. Pulling iron shall be provided in accordance with Section 05050 Metals Materials and Methods, and installed per the Drawings. The Contractor shall comply with manufacturer's installation instructions and shall furnish mechanical fasteners consistent with the manufacturer's instructions. All work shall be set plumb, true, rigid, and neatly trimmed out.
- F. During the curing period, the concrete shall be protected from damaging mechanical disturbances, particularly load stresses, shock and excessive

vibration. Concrete shall be cured by a method that will develop the specified compressive strength at 28 days or less.

- G. Any defective work disclosed after the forms have been removed shall be immediately removed and replaced in a manner to ensure that the repaired structure will conform to the applicable requirements of ASTM C-858 and C-913.

3.03 TRANSPORTATION

- A. All pre-cast concrete structures shall be carefully handled during hauling and unloading to avoid damage. Cracked, chipped or otherwise damaged units shall be repaired and/or replaced to the satisfaction of the Engineer

3.04 INSTALLATION

- A. Pre-cast K-rails shall be installed to the lines and grades as shown on the plans and equipped with chain link fence and barbed wire also as shown on the plans.
- B. Anchorage of pre-cast K-rails shall be installed as shown on the plans.

END OF SECTION

SECTION 05050

METAL MATERIALS AND METHODS

PART 1 - GENERAL

1.01 SCOPE

The work under this Section includes furnishing all labor, materials, appliances, tools, equipment, transportation, services, and supervision required to furnish and install miscellaneous metal including pipe bollards and miscellaneous metal fittings for fencing not included in Section 02830 CHAIN LINK FENCE.

1.02 REFERENCES

- A. Section 01331 – List of Submittals
- B. Section 03300 – Cast-in-Place Concrete
- C. Section 03400 – Pre-cast Concrete
- D. Section 09900 – Painting of Metal Structures

1.03 APPLICABLE STANDARDS AND SPECIFICATIONS

- A. American Society for Testing and Materials (ASTM)
- B. American Institute of Steel Construction (AISC)
- C. American Welding Society (AWS)

1.04 SUBMITTALS

- A. Refer to Section 01330, Submittals, for general submittal requirements and procedures.
- B. Submit evidence of conformance to the referenced standards for the following in accordance with the requirements of Section 01330, Submittals:
 - 1. Manufacturers product data for all materials/products in this specification.
 - 2. Welding procedures and qualification test records.
 - 3. ICBO Evaluation Reports for drilled-in anchors.
 - 4. Shop drawings for each item or assembly specified. Accurately and clearly show in detail the construction, size, dimensions, methods of assembly, and all other pertinent data. Shop drawings shall be reviewed and approved by the Engineer/Port prior to pre-cast concrete structure construction.

5. Submit calculation, design data and manufacturer's data, drawings or catalog cuts for each item or assembly specified.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Steel Plate: shall conform to ASTM A36.
- B. Steel Shapes: shall conform to ASTM A36
- C. Reinforcing: shall conform to ASTM A706 Grade 60 or A615 Grade 60.
- D. Bollard Pipe: shall conform to ASTM A53, Grade B, Standard (schedule 40) weight class, unless otherwise indicated on the Plans.
- E. Structural Tubing: shall conform to ASTM A500, Grade B. Provide full length members without splices.
- F. Cast Iron: shall conform to ASTM A48, Class 30.
- G. Malleable Iron Castings: shall conform to ASTM A47.
- H. Drilled-In Anchors: shall be "Hilti Kwik Bolt 3", or other approved wedge type, torque-controlled anchor conforming to ASTM A510, unless otherwise indicated on the Plans.
- I. Headed Anchor Studs (HAS): shall be "Nelson" Type S3L or H4L, or other approved make and type of the sizes indicated on the plans. Welds for HAS shall develop the full strength of the anchor and shall be welded in conformance with manufacturer's recommendations.
- J. Bolts: shall be Grade A, ASTM A307, unless otherwise noted. Use nuts compatible with the specified bolts in accordance with ASTM A563. Hardened washers shall conform to ASTM F436, type to match bolt type and finish.
- K. Eye Bolts: shall be alloy steel conforming to ASTM F541.
- L. Welding Electrodes: shall be the type which conforms to the requirements of AWS A5.1 for the manual shielded metal arc (SMA), or submerged arc (SA) welding process. Welding Rods shall be AWS E-70xx
- M. Checkered plate shall be U. S. Steel "Multigrip", or other approved make and type. It shall have a two-way pattern of 1/4 inch high projections. Minimum thickness of checkered plate shall 1/4 inch, unless otherwise specified on the Drawings.
- N. Metal Framing Strut: shall be "Unistrut" channel or other factory fabricated, channel shaped, cold formed sheet steel shape approved as equal. Associated fittings and nuts shall be compatible with the channel material.

- O. Galvanizing: shall be by hot-dip method conforming to ASTM A153 or ASTM A123.
- P. Paint: shall be as specified in Section 09900 – Painting of Metal Structures

2.02 GALVANIZING

- A. All ferrous metal not specifically addressed in other specification sections, other than stainless steel or items to be epoxy coated, shall be galvanized.
- B. Galvanizing of products formed from shapes, bars, or plates shall be performed before shipment and shall be by a hot dip process conforming to ASTM A123. Zinc shall conform to ASTM B6.
- C. Galvanizing of bolts, studs, and associated nuts and washers, shall be performed prior to assembly and shall be by a hot-dip process in accordance with ASTM A153.
- D. Preparation prior to galvanizing shall be by acid pickling. Galvanizing shall be performed the same day as pickling.
- F. Welded assemblies shall be galvanized after welding.
- G. The zinc coating shall adhere tenaciously to the steel surface, shall be free from blisters and excess zinc, and be even, smooth and uniform throughout. All cutting, punching, drilling and other machine work shall be performed as far as possible before galvanizing. Should any such work or any welding be necessary after galvanizing, the areas from which galvanizing has been removed shall be touched up in the manner described for damaged and rusted items.
- H. Galvanized items that have become damaged or rusted shall be thoroughly cleaned by wire brushing or grinding. They shall then receive two-brush coats of one of the following formulations or an approved equal:
 - 1. DuPont No. 67-744, Deluxe Galvanized Metal Primer
 - 2. Glidden No. 5229, Galvanized Iron Primer

The coats shall have a combined dry film thickness of not less than six (6) mils.

Field welds shall be brush-coated in the same manner, after cleaning and the removal of all slag.

2.03 WELDING:

- A. All welding shall conform to the requirements of AWS D1.1.
- B. All welders shall have current AWS certificates for the type of material used and the type of weld to be performed.

2.04 CASTINGS:

- A. Castings, whether Carbon-Steel, Gray Cast Iron, or Ductile Iron shall conform to the shape and dimensions indicated on the Plans and shall be clean substantial castings, free from sand or blowholes or other defects. Surfaces of the castings shall be free from burnt on sand and shall be reasonably smooth. Runners, risers, fins and other cast on pieces shall be removed from the castings and such areas ground smooth. Bearing surfaces between manhole rings and covers or grates and frames shall be cast or machined with such precision that uniform bearing shall be provided throughout the perimeter area of contact.
- B. Steel castings shall conform to ASTM A 27/27M, "Specifications for Steel Castings, Carbon, for General Application". Grade 70-36 (480-250).
- C. Cast iron castings shall conform to ASTM A 48, "Specification for Gray Iron Castings", Class 30.
- D. Ductile Iron castings shall conform to ASTM A 536, "Specification for Ductile Iron Castings". Grade 60-40-18 (415-275-125) shall be used unless otherwise indicated on the Drawings.

PART 3 - EXECUTION

3.01 FABRICATION AND INSTALLATION

- A. The Contractor shall furnish the Engineer with shop drawings for all items, and shall receive his comments before commencing fabrication. Review of these drawings by the Engineer will not relieve the Contractor of responsibility for their accuracy and completeness.
- B. In so far as practical, items shall be fitted and shop assembled ready for installation. Items shall be complete with all necessary anchors, bolts, inserts, angles, fastenings, and other devices.
- C. For items requiring paint, as indicated on the Plans, work shall be performed in accordance with Section 09900 – Painting of Metal Structures.
- D. Workmanship:
 - 1. Make all work square, plumb, straight and true, accurately fitted, with tight joints and intersections. Members shall have sharply defined profiles and be free from twists, bends and defects impairing strength and durability. Items not presenting a finished and workmanlike appearance will be rejected.
 - 2. Clip off projecting edges and corners. Finish and dress surfaces, edges and welds smoothly and neatly by grinding, chipping and wire brushing. Reduce sharp edges by grinding to 1/8th inch radius.
- E. Welding requirements are as follows:

1. Shop welding shall be performed by the manual shielded metal arc (SMA), or submerged arc (SA) welding process.
 2. Welding procedures which conform in all respects to the provisions of Section 2, 3, and 4 of AWS D1.1, Structural Welding Code, will be deemed pre-qualified.
 3. Procedures other than those pre-qualified shall be qualified by tests as specified in Section 5 of AWS D1.1. The written welding procedures and the qualification test records shall be submitted to the Engineer for prior approval.
 4. Welding shall be performed only by welders or operators who have been qualified in accordance with Section 5 of AWS D1.1, and their qualification tests records shall be made available to the Engineer upon request.
 5. Welds shall be of uniform width and size throughout their length. Each layer shall be smooth and free from slag, cracks, and pinholes and undercut, and completely fused to the adjacent weld beads and base metal. The cover pass shall be free from coarse ripples, high crown, deep ridges and valleys between beads, and shall blend smoothly and gradually into the surface of the base metal.
 6. Fillet and groove welds shall be of specified size with full throat and the legs of uniform length.
 7. For all details to be joined by welding, and where other continuous welds are not indicated on Plans, provide continuous 3/16 inch seal welds.
 8. Repair, chipping or grinding of welds shall not gouge, groove or reduce the base metal thickness.
 9. Non-destructive testing, if required, shall conform to Article 6.7 of AWS D1.1.
 10. The manufacturer's recommendations shall be followed for both the oven-storage and reconditioning of electrodes.
 11. Field welded connections, if required, shall be of the type, size and in the locations shown on the Plans, and in accordance with AWS D1.1. Inspection will be visual examination. Non-destructive testing shall not be required, unless otherwise noted or specified elsewhere.
- F. Embedded Channels: where shown on the Plans to be placed in concrete, shall be located to the depths, dimensions, and tolerances indicated. Where shear studs are provided, concrete shall be adequately consolidated to prevent the formation of voids or pockets at the studs.

3.02 SCHEDULE OF METAL FABRICATIONS

- A. Bollards: shall be fabricated from pipe of the length, diameter, and weight shown on the Plans. Bollards shall be filled with concrete in accordance with Section 03300 "Cast-in-Place Concrete".
- B. Drilled-In Concrete Anchors: shall be installed per the procedures and recommendations of the manufacturer. Exercise care in drilling to avoid damage to existing reinforcing and embedded items. Do not drill holes until concrete has achieved full design strength.

- END OF SECTION -

SECTION 09900

PAINTING OF METAL STRUCTURES

PART 1-GENERAL

1.01 SUMMARY

- A. The work under this Section includes furnishing all labor, materials, appliances, tools, equipment, transportation, services, and supervision required to provide and install all painting.
- B. Paint and coating systems for certain manufactured items and special products are specified in other sections. Coordinate all painting systems as required to ensure that proper protective finishes are applied to all surfaces that are specified to be painted.

1.02 REFERENCES

- A. Section 05050 – Metal Materials and Methods

1.03 APPLICABLE STANDARDS AND SPECIFICATIONS

- A. Steel Structures Painting Council (SSPC)
 - 1. SP1: Solvent Cleaning
 - 2. SP2: Hand Tool Cleaning
 - 3. SP3: Power Tool Cleaning
 - 4. SP5: White Metal Blast Cleaning
 - 5. SP6: Commercial Blast Cleaning
 - 6. SP10: Near-White Blast Cleaning

1.04 SUBMITTALS

- A. Refer to Section 01330, Submittals, for general submittal requirements and procedures.
- B. Submit the following in accordance with the applicable submittal requirements of Section 01330, Submittals, and as specified in this Section:
 - 1. Manufacturer Product Data: Submit manufacturer's technical information for each material proposed for use.
 - 2. Schedule of Materials: Submit a complete materials list, identified by manufacturer's name and product label or stock number. List application of each finish.

3. Samples: Provide 12 inches by 12 inches brush-on samples of each color and finish.

1.05 QUALITY ASSURANCE

- A. Provide primers and other undercoat produced by same manufacturer as finish coats. Use only thinners approved by paint manufacturer and use only within recommended limits.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver all materials to the site in the manufacturer's original containers with labels intact and seals unbroken.
- B. Store materials in a locked, well-ventilated room or shed.

1.07 SEQUENCING

- A. Coordinate installation of exterior caulking and sealants with painting to maintain optimum surface adherence and watertight joints.

PART 2-PRODUCTS

2.01 MANUFACTURERS

- A. Sinclair Paint
- B. Sherwin Williams
- C. Carboline Marine Division
- D. Approved equivalent manufacturer

2.02 PAINT FINISH SCHEDULE

- A. EXTERIOR PAINTING
 1. Galvanized Metal, Acrylic Enamel: Colors to be selected by Engineer.
 - a. Surface Preparation: SP-1.
 - b. Coat 1: Galvanized pretreatment (omit if shop-primed).
 - c. Coat 2: Galvanized primer, DFT/coat = 3.0 mils (omit if shop-primed).
 - d. Coat 3: Acrylic enamel semi-gloss, DFT/coat = 2.0 mils.
 - e. Coat 4: Acrylic enamel semi-gloss, DFT/coat 2.0 mils.
 - f. Items and surfaces to receive this system: Galvanized steel surfaces that are part of other ferrous metal assemblies to be

painted; and surfaces to be color coded. Other galvanized steel surfaces will not require painting unless specified in other sections.

PART 3-EXECUTION

3.01 EXAMINATION

- A. Examine surfaces to receive paint and finishes for conditions that will adversely affect execution, permanence, and quality of work.
- B. Do not apply paint or finish until conditions are satisfactory.

3.02 PREPARATION

- A. Follow surface preparation requirements specified herein and as instructed by the paint manufacturer. If specified surface preparation and manufacturer's recommendations differ, the more stringent shall apply.
- B. All mill-applied black varnish shall be removed from pipe and fittings by abrasive blasting before the specified coating is applied. Use care to avoid damaging ductile iron pipe during abrasive blasting.
- C. All surfaces that are prepared by abrasive blasting shall be painted the same day that they are blasted.

3.03 APPLICATION

- A. Application of paint systems shall be in strict accordance with manufacturer's recommendations and specifications.
- B. Provide finish coats compatible with prime paints used.
- C. Apply additional coats when undercoats, stains, or other conditions show through final coat of paint, until paint film is of uniform finish, color, and appearance. Give special attention to ensure that surfaces, including edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.
- D. Sand lightly between each succeeding coat to ensure proper adhesion.
- E. Omit first coat (primer) on metal surfaces that have been shop-primed and touch-up painted, unless otherwise indicated.
- F. Scheduling Painting:
 - 1. Apply first-coat material to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.

2. Allow sufficient time between successive coatings to permit proper drying.
3. Do not re-coat until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure and until application of another coat of paint does not cause lifting or loss of adhesion of the under coat.

G. Film Thickness: Defined as dry film thickness per coats (DFT/coat).

3.04 FIELD QUALITY CONTROL

A. Inspection

1. Contractor shall notify Engineer prior to application of each coat of paint and shall provide the same means of access for his inspection as used by the Contractor.
2. Any work not complying with these Specifications shall be properly corrected.
3. Should defects be discovered in the course of these inspections, Contractor may be required to delay a portion of the painting until repair of the defects have been completed by the Port.
4. Extension of time equal to the actual delay incurred will be granted for any such delays.
5. No additional compensation will be allowed therefore, except that if reparation is required because of the Port's repairs it shall be done as extra work in accordance with the Supplementary General Provisions.

3.05 CLEANING

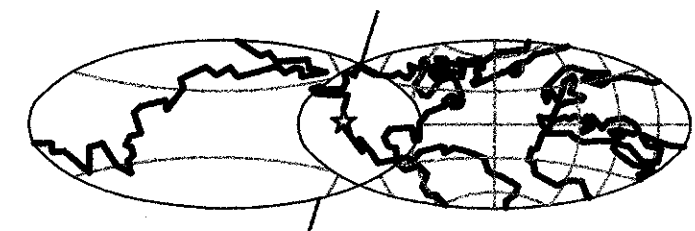
- A. Leave the job site clean and orderly; remove all paint spots, rags and discarded equipment.
- B. Upon completion of painting, clean all paint-splattered areas.

- END OF SECTION -

PAVING A 21-ACRE CONTAINER YARD WITHIN THE MARITIME SUPPORT CENTER AREA OAKLAND, CALIFORNIA

PREPARED FOR

PORT OF OAKLAND



530 WATER ST. OAKLAND, CALIFORNIA

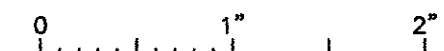
BY

**HPA, INC
YEI ENGINEERS, INC**

PRINT DATE: 04-20-06 10:29:55 P:\Active Projects\UNIVISC--Port of Oakland MSC Development\CADD\paving contract\1-AK-3958-G1.dwg Printed by R.Andrews

W.O.# 104879

CAUTION: THIS PLAN MAY BE REDUCED



ORIGINAL SCALE

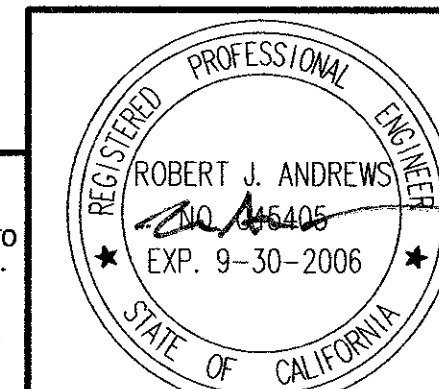
PURSUANT TO SECTION 830.6 OF THE GOVERNMENT CODE, THE PORT APPROVES THESE PLANS AND DESIGNS. IN GRANTING THIS APPROVAL, THE PORT HAS RELIED UPON THE JUDGMENT OF THE PERSON IN RESPONSIBLE CHARGE OF THE WORK TO PROVIDE PLANS AND DESIGNS IN CONFORMANCE WITH THE CONTRACT DOCUMENTS.

APPROVED BY:

Robert J. Andrews

RECOMMENDED BY:

Shamud O. Olu 4/18/06



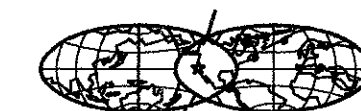
REFERENCES:

PLANS
FIELD BOOKS
"PORT OF OAKLAND DATUM" IS 3.20' BELOW N.G.V.D. '29
CAUTION: CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

DRAWN	STAFF
DESIGNED	RJA C45405 REG. ENGINEER NO.
CHECKED	YY C69701 REG. ENGINEER NO.

PORT OF OAKLAND



530 WATER ST. OAKLAND, CALIFORNIA

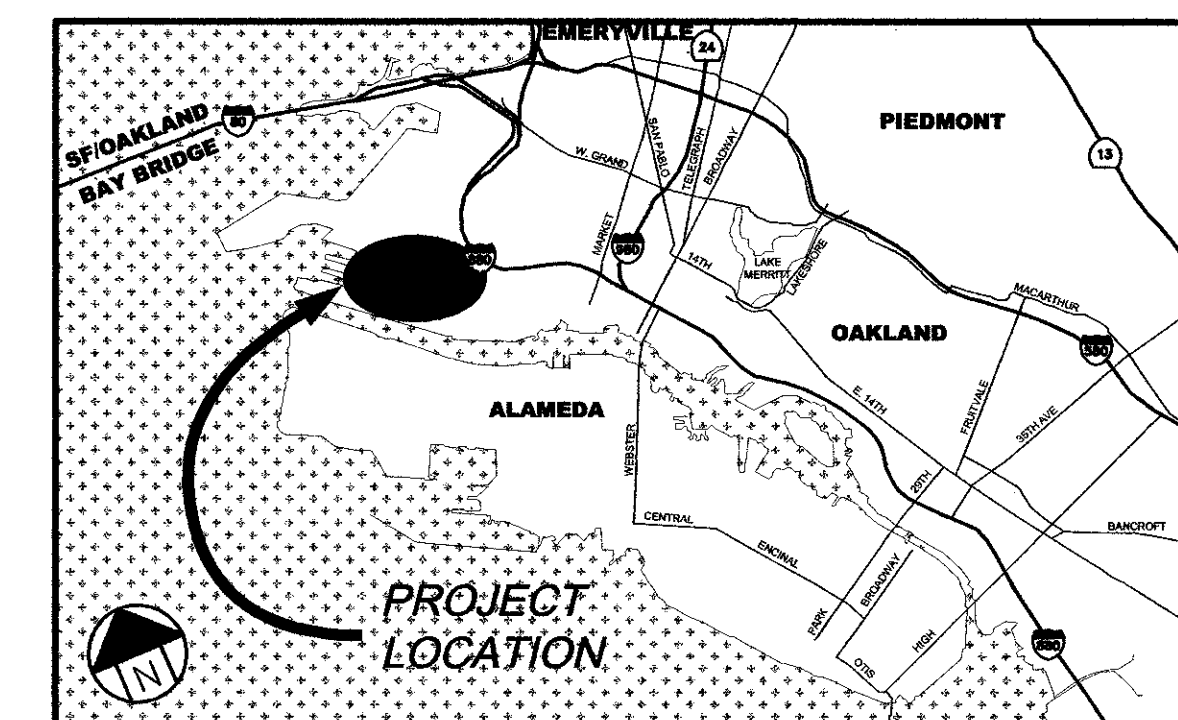
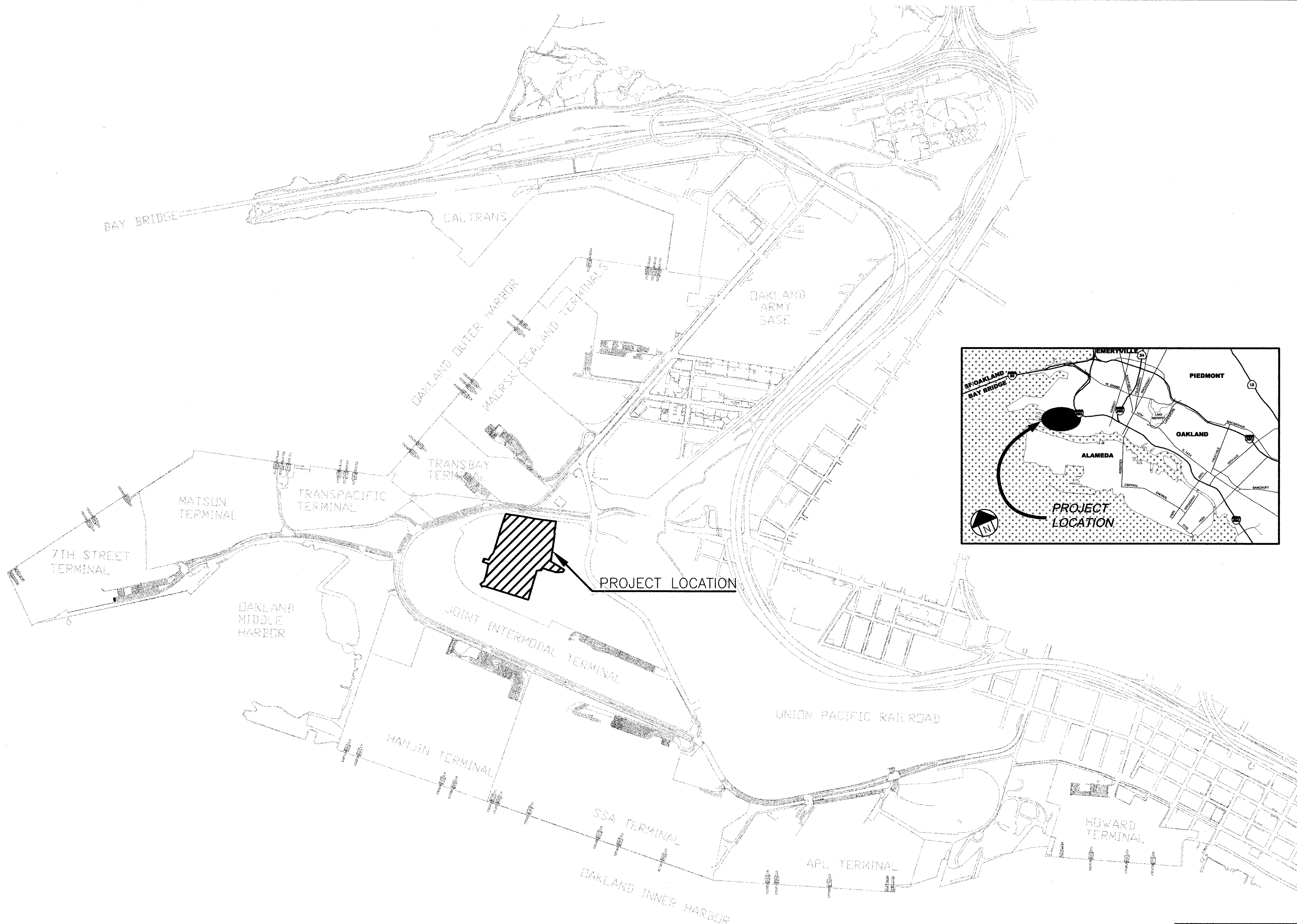
MARITIME SUPPORT CENTER
PAVING A 21-ACRE CONTAINER YARD WITHIN THE MARITIME SUPPORT CENTER AREA
TITLE SHEET

DATE: 4-18-06
SCALE: NO SCALE
SHEET: 1 OF 22 SHEETS
G1 AA-3958

- SHEET NO. GENERAL**
- 1 G1 TITLE SHEET
 - 2 G2 INDEX OF DRAWINGS AND VICINITY/LOCATION PLAN
 - 3 G3 STANDARD GRAPHIC SYMBOLS AND LINETYPES - DESIGN CRITERIA
 - 4 G4 STANDARD ABBREVIATIONS
 - 5 G5 GENERAL NOTES
 - 6 G6 GENERAL SITE PLAN
 - 7 G7 SURVEY CONTROL PLAN

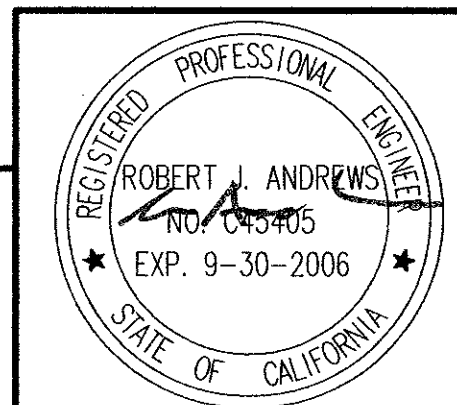
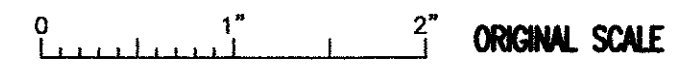
- DEMOLITION**
- 8 D1 DEMOLITION AND SITE PREPARATION SHEET 1 OF 2
 - 9 D2 DEMOLITION AND SITE PREPARATION SHEET 2 OF 2

- CIVIL**
- 10 C1 PAVING PLAN SHEET 1 OF 2
 - 11 C2 PAVING PLAN SHEET 2 OF 2
 - 12 C3 PAVING TYPICAL DETAILS
 - 13 C4 FENCING PLAN SHEET 1 OF 2
 - 14 C5 FENCING PLAN SHEET 2 OF 2
 - 15 C6 FENCING DETAILS SHEET 1 OF 3
 - 16 C7 FENCING DETAILS SHEET 2 OF 3
 - 17 C8 FENCING DETAILS SHEET 3 OF 3
 - 18 C9 STRIPING PLAN SHEET 1 OF 2
 - 19 C10 STRIPING PLAN SHEET 2 OF 2
 - 20 C11 STRIPING TYPICAL DETAILS
 - 21 C12 COMPOSITE UTILITY PLAN SHEET 1 OF 2
 - 22 C13 COMPOSITE UTILITY PLAN SHEET 2 OF 2



VICINITY/LOCATION MAP
1" = 800'

CAUTION: THIS PLAN MAY BE REDUCED



PRINT DATE: 04-20-06 10:14:19 P:\Active Projects\UNION\SC-Port of Oakland MSC Development\CADD\paving contract\2-AA-3958-G2.dwg Printed by R Andrews

W.O.# 104879

REFERENCES:
PLANS
FIELD BOOKS
"PORT OF OAKLAND DATUM"
IS 3.20' BELOW N.G.V.D. '29
CAUTION:
CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

DRAWN	STAFF
DESIGNED	RJA C45405 REG. ENGINEER NO.
CHECKED	YY C69701 REG. ENGINEER NO.

PORT OF OAKLAND
530 WATER ST. OAKLAND, CALIFORNIA

MARITIME SUPPORT CENTER	DATE: 4-18-06
PAVING A 21-ACRE CONTAINER YARD WITHIN THE MARITIME SUPPORT CENTER AREA	SCALE: AS SHOWN
INDEX OF DRAWINGS AND VICINITY/LOCATION PLAN	SHEET: 2 OF 22 SHEETS
G2	AA-3958

LEGEND:

	EXISTING	NEW
BACKFLOW PREVENTER		
BOLLARD		
CATCH BASIN		CB
CLEAN OUT, SANITARY SEWER		
CONCRETE BARRIER		
CONCRETE BARRIER WITH SECURITY FENCE		
CONDENSATION		
CONTOUR (PAVEMENT)	17	15.0
CONTOUR (SUBGRADE)		15.0
ELECTRICAL MANHOLE		
ELECTRICAL PULLBOX		
FENCE, CHAIN LINK		
FIRE ALARM		
FIRE HYDRANT (ABOVE GRD)		
GASOLINE LINE		
GROUNDWATER MONITORING WELL		
HIDDEN		
HIGH VOLTAGE OVERHEAD LINE		
HIGH VOLTAGE UNDERGROUND LINE	UG	
LIGHT POLE, 80'		
LIGHT POLE, 40'		
OVERHEAD POWERLINE		
NATURAL GAS LINE		2" GAS
POWER POLE		
PROJECT LIMIT		
PUMP STATION		
RAIL ALIGNMENT		
REDUCER		
RETAINING WALL		
SANITARY SEWER LINE		
SANITARY SEWER MANHOLE		
SAW CUT		
SPOT ELEVATION	13.99	13.99
STEEL CASING		12" SD
STORM DRAIN LINE		
STORM DRAIN MANHOLE		
TELECOMMUNICATION PULLBOX		
TELECOMMUNICATIONS LINE		
UNDERGROUND LOW VOLTAGE POWER CONDUIT		
UNDERGROUND MEDIUM VOLTAGE POWER CONDUIT		
WATER LINE - FIRE PROTECTION	10" FW	
WATER LINE - POTABLE		
WATER VALVE		

CALLOUTS:

	SECTION IDENTIFICATION LETTER
	DRAWING NUMBER ON WHICH SECTION IS DRAWN
	DRAWING NUMBER(S) FROM WHICH SECTION IS TAKEN
	SECTION IDENTIFICATION LETTER
	SECTION IS TAKEN AND DRAWN ON SAME SHEET
	DETAIL IDENTIFICATION NUMBER
	DRAWING NUMBER ON WHICH DETAIL IS DRAWN
	DRAWING NUMBER(S) FROM WHICH DETAIL IS TAKEN
	DETAIL IDENTIFICATION NUMBER
	DETAIL IS TAKEN AND DRAWN ON SAME SHEET

DESIGN CRITERIA:

AC PAVEMENT:

TRAFFIC DESIGN DATA

AREA	EQUIPMENT	WHEEL LOADS (KIPS)		ANNUAL REPETITIONS
		FRONT	BACK	
TOP PICK CONTAINER YARD	TOP PICK WITH EMPTY SPREADER	55	25	18,000
	TOP PICK WITH LOADED BOX	90	10	
MAIN AISLE	TRUCK EMPTY	4	4	105,000
	TRUCK FULL	6	9	

EQUIPMENT

EQUIPMENT TYPE	GEAR CONFIGURATION	DYNAMIC FACTORS	TIRE PRESSURE (PSI)	WHEEL LOADS (KIPS)	
				FRONT	BACK
TOP PICK	4 TIRES FRONT 2 TIRES BACK	BRAKING CORNERING	120	90/55	10/25
TRUCK	4 TIRES PER SIDE	N/A	120	6/4	9/4

PRINT DATE: 04-20-06 10:14:52 P:\Active Projects\UNO\ISC--Port of Oakland MSC Development\CADD\paving contract\3-AA-3958-03.dwg Printed by Rndrwa

W.O.# 104879

CAUTION: THIS PLAN MAY BE REDUCED

0 1" 2" ORIGINAL SCALE

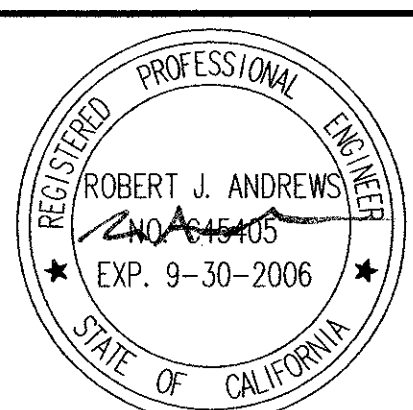
REFERENCES:
PLANS
FIELD BOOKS
"PORT OF OAKLAND DATUM"
IS 3.20' BELOW N.G.V.D. '29
CAUTION:
CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

DRAWN	STAFF
DESIGNED	RJA C45405
CHECKED	YY C69701
	REG. ENGINEER NO.

PORT OF OAKLAND

530 WATER ST. OAKLAND, CALIFORNIA



MARITIME SUPPORT CENTER
PAVING A 21-ACRE CONTAINER YARD
WITHIN THE MARITIME SUPPORT CENTER AREA
STANDARD GRAPHIC SYMBOLS AND LINETYPES
- DESIGN CRITERIA

DATE: 4-18-06
SCALE: NO SCALE
SHEET: 3 OF 22 SHEETS
G3 AA-3958

PRINT DATE: 04-20-06 10:15:31 P:\Active Projects\UNION\SC-Port of Oakland MSC Development\CADD\paving contract\4-AK-3958-04.dwg Printed by Roldreaves

ABBREVIATIONS	DESCRIPTIONS	ABBREVIATIONS	DESCRIPTIONS	ABBREVIATIONS	DESCRIPTIONS	ABBREVIATIONS	DESCRIPTIONS	ABBREVIATIONS	DESCRIPTIONS
ACP	ASBESTOS CEMENT PIPE	DW	DRIVEWAY	INV.	INVERT	ORD.	ORDINANCE	SQ	SQUARE
AB	AGGREGATE BASE	DWG.	DRAWING	IP	IRON PIPE	ORIG.	ORIGINAL	SS	SANITARY SEWER
AC	ASPHALT CONCRETE OR ACRES	DWL	DOWEL	IV	IRRIGATION VALVE			SSD	SUBSURFACE DRAIN
ADD	ADDITIONAL, ADDITION					PB	PULL BOX	STA.	STATION
ADJ	ADJACENT	E	EAST, EASTING	JB	JUNCTION BOX	PC	POINT OF CURVATURE	STD	STANDARD
ALT	ALTERNATE	EA.	EACH	JCT	JUNCTION	PCC	PORTLAND CEMENT CONCRETE,	STL	STEEL
ASB	AGGREGATE SUBBASE	EB	ELECTRICAL BOX	JP	JOINT POWER POLE		POINT OF COMPOUND CURVE	STRUCT.	STRUCTURAL
ASPH	ASPHALT	EBMUD	EAST BAY MUNICIPAL UTILITY DISTRICT	JT	JOINT	PERP.	PERPENDICULAR	SW	STORM WATER
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS	EC	END CURVE			PG&E	PACIFIC GAS & ELECTRIC	SYMM.	SYMMETRICAL
AVE	AVENUE	EL	ELEVATION (HT)	K	KIP OR 1000 POUNDS	PI	POINT OF INTERSECTION		
AVG	AVERAGE	ELEC.	ELECTRICAL			PIV	POST INDICATOR VALVE		
AZ	AZIMUTH	ELEV.	ELEVATOR	LH	LAMP HOLE	PK	PK NAILSURVEY	TAN	TANGENT
		ENGR.	ENGINEER	LIP	LIP OF GUTTER	PL	PROPERTY LINE	TB	TELEPHONE BOX
		EQ.	EQUAL	LP	LOW POINT	PLT	PLATE	T&B	TOP AND BOTTOM
BARTD	BAY AREA RAPID TRANSIT DISTRICT	EP	EDGE OF PAVEMENT	LPP	LIGHT POLE OR ELECTROLIER	POB	POINT OF BEGINNING	TBM	TEMPORARY BENCH MARK
BC	BEGINNING OF CURVE	ESMT	EASEMENT	LT	LEFT	POC	POINT OF CURVE	TC	TOP (FACE) OF CURB
BCDC	BAY CONSERVATION and DEVELOPMENT COMMISSION	ETW	EDGE OF TRAVELED WAY			POF	POINT OF FROG	TP	TURNING POINT
		EVC	END VERTICAL CURVE	MATL	MATERIAL	POS	POSITIVE	TPP	TELEPHONE POLE
BL	BASE LINE	E.W.	EACH WAY	MAX	MAXIMUM	POT	POINT ON TANGENT	TEMP.	TEMPORARY OR TEMPERATURE
BLVD	BOULEVARD	EXP.	EXPANSION	MDL	MIDWAY OR MIDDLE	PP	POWER POLE	TH	TEST HOLE
BLDG	BUILDING	EX.	EXISTING	MEAS.	MEASURE	PRL	PARALLEL	THK.	THICK OR THICKNESS
BNDY	BOUNDARY	EXT.	EXTERIOR	MECH.	MECHANICAL	PROP.	PROPOSED	THD.	THREAD OR THREADED
BM	BENCH MARK			MED.	MEDIAN	PRC	POINT OF REVERSE CURVE	TOC	TOP OF CONCRETE
BRG	BEARING	F	FENCE	MFR.	MANUFACTURER	PT	POINT OF TANGENCY	TOE	TOE OF SLOPE
BRG	BEARING	FAA	FEDERAL AVIATION ADMINISTRATION	MH	MANHOLE	PVC	POLYVINYL CHLORIDE	TOP	TOP OF PAVEMENT
BRM	BERM	FDN	FOUNDATIONS	MIN.	MINIMUM OR MINUTE	PVI	POINT OF VERTICAL INTERSECTION	TOPO	TOPOGRAPHY
BVC	BEGINNING OF VERTICAL CURVE	FF	FINISHED FLOOR	MISC.	MISCELLANEOUS	PVMT	PAVEMENT	TRANSV.	TRANSVERSE
BW	BACK OF WALK	FH	FIRE HYDRANT	MK	MARKED			TOR	TOP OF RAIL
		FIN	FINISH	M.L.	MATCH LINE	QTY	QUANTITY	TOS	TOP OF SLOPE
CALC	CALCULATED, CALCULATIONS	FL	FLOW LINE	MLLW	MEAN LOWER LOW WATER			TW	TOP OF WALL
CALTRANS	CALIFORNIA DEPARTMENT OF TRANSPORTATION	FLR.	FLOOR	MOD	MODIFY	R	RADIUS	TYP.	TYPICAL
		FM	FLIGHT MARKER	MON	MONUMENT	RBR	REBAR		
CB	CATCH BASIN	FND	FOUND	MSL	MEAN SEA LEVEL	RCD	RECORD	UB	UTILITY BOX
CBR	CALIFORNIA BEARING RATIO	FT OR (')	FOOT OR FEET	MW	MONITORING WELL	RCP	REINFORCED CONCRETE PIPE	U.O.N.	UNLESS OTHERWISE NOTED
CCS	CALIFORNIA COORDINATE SYSTEM	FTG	FOOTING			RD	ROAD		
CHX	CHISELED CROSS			N	NORTH, NORTHING	RDWY	ROADWAY	VC	VERTICAL CURVE
CHD	CHORD	G	GAS	NAD83	NORTH AMERICAN DATUM of 1983	REINF.	REINFORCED OR REINFORCING	VCP	VITRIFIED CLAY PIPE
CI	CURB INLET	GA	GAGE	NEG	NEGATIVE	REF	REFERENCE	VERT.	VERTICAL
CIP	CAST IRON PIPE	GALV	GALVANIZED	N.I.C	NOT IN CONTRACT	REQD.	REQUIRED		
CIPP	CAST-IN-PLACE PIPE	GM	GAS METER	NGVD29	NATIONAL GEODETIC VERTICAL	RET. WALL	RETAINING WALL	W	WEST, WIDE OR WIDTH
CLR.	CLEAR OR CLEARANCE	GV	GAS VALVE		DATUM of 1929	REV.	REVISION	WB	WATER BOX
CJ	CONSTRUCTION JOINT	GATE	GATE POST	NO.	NUMBER	RM	REFERENCE MARK	WM	WATER METER
☉ or CL	CENTERLINE	GENL	GENERAL	NS	NAIL AND SHINER	RP	RADIUS POINT	WP	WORK POINT
CMP	CORRUGATED METAL PIPE	GRT	GRATE	N.T.S.	NOT TO SCALE	RR	RAILROAD	WV	WATER VALVE
CO	CLEAN OUT	GB	GRADE BREAK			RR1	RAIL #1	WW	WING WALL
COE	ARMY CORPS OF ENGINEERS	GRV	GRAVEL	O.C.	ON CENTER	RT	RIGHT		
CONC.	CONCRETE	GND	GROUND	O.D.	OUTSIDE DIAMETER	RW	RIGHT OF WAY	XFMR	TRANSFORMER
CONST.	CONSTRUCTION	GR	GROUND ROD	OPNG	OPENING			X-SECT	CROSS SECTION
CONT.	CONTINUED, CONTINUOUS	GP	GUARD POST			S	SOUTH		
CONTR.	CONTRACTION	GUT	GUTTER			SCHED.	SCHEDULE	∅	DIAMETER
CORR.	CORRUGATED	GUY	GUY WIRE			SD	STORM DRAIN	∅	SQUARE
CR	CRANE RAIL	GW	GROUND WATER			SDW	SIDEWALK	△	ANGLE/DELTA
CT.	COURT					SECT.	SECTION	#	POUND, NUMBER
CTR	CENTER	HORZ.	HORIZONTAL			SF	SQUARE FOOT	⊕	CENTER LINE
CULV	CULVERT	HCR	HANDICAP RAMP			SHT.	SHEET	⊙	AT
X-SECT	CROSS SECTION	HH	HAND HOLE			SIG	SIGNAL	±	PLUS OR MINUS (APPROXIMATE)
		HP	HIGH POINT			SIM.	SIMILAR	'	FEET (OR MINUTES FOR ANGLES)
D	DIRT	HS	HIGH STRENGTH			SP	SIGNPOST	"	INCHES (OR SECONDS FOR ANGLES)
DEG. OR (°)	DEGREE	HT	HEIGHT			SPECS.	SPECIFICATIONS	&	AND
DET.	DETAIL	HWY	HIGHWAY						
DI	DRAINAGE INLET								
DIA.	DIAMETER	I.D.	INSIDE DIAMETER						
DIM.	DIMENSION	ID.	IDENTIFICATION						
DIP	DUCTILE IRON PIPE	IN OR (")	INCHES						
DR	DOOR OR DRIVE	INT.	INTERSECTION						

W.O.# 104879

CAUTION: THIS PLAN MAY BE REDUCED

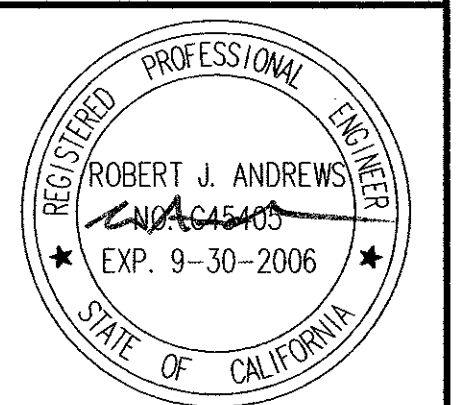
0 1" 2" ORIGINAL SCALE

REFERENCES:	NO.	REVISIONS	DATE	REV'D	APP'D
PLANS					
FIELD BOOKS					
*PORT OF OAKLAND DATUM IS 3.20' BELOW N.G.V.D. '29					
CAUTION: CHECK TRACING FOR LATEST REVISIONS					

DRAWN	STAFF
DESIGNED	RJA C45405
CHECKED	YY C69701
	REG. ENGINEER NO.
	REG. ENGINEER NO.

PORT OF OAKLAND

530 WATER ST. OAKLAND, CALIFORNIA



MARITIME SUPPORT CENTER	DATE: 4-18-06
PAVING A 21-ACRE CONTAINER YARD WITHIN THE MARITIME SUPPORT CENTER AREA	SCALE: AS SHOWN
STANDARD ABBREVIATIONS	SHEET: 4 OF 22 SHEETS

G4	AA-3958
----	---------

GENERAL NOTES:

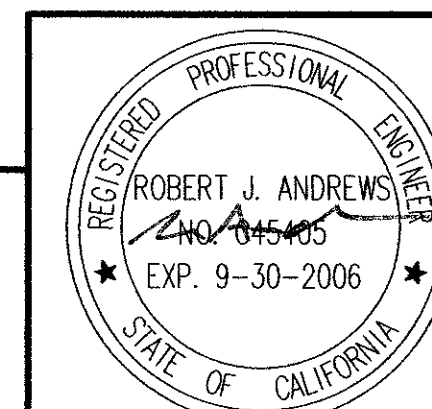
1. INSPECTION SHALL BE PERFORMED BY THE PORT OF OAKLAND. REQUEST FOR INSPECTION SHALL BE GIVEN A MINIMUM OF 24 HOURS IN ADVANCE OR AS OTHERWISE REQUIRED IN THE SPECIFICATIONS.
2. ATTENTION IS DIRECTED TO THE SPECIFICATIONS WHERE BIDDERS ARE REQUIRED TO EXAMINE AND JUDGE, AS THEIR OWN RESPONSIBILITY, THE LOCATION, PHYSICAL CONDITIONS, AND SURROUNDINGS OF THE PROPOSED WORK.
3. CONTRACTOR SHALL VERIFY ALL FIELD DIMENSIONS AND ELEVATIONS SHOWN ON THE PLANS AND SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES FOR CORRECTIVE ACTION PRIOR TO PROCEEDING WITH WORK.
4. HORIZONTAL DATUM IS BASED UPON CALIFORNIA COORDINATE SYSTEM OF 1983 ZONE III. ALL DISTANCES DERIVED FROM DATA SHOWN ARE GRID DISTANCES. TO OBTAIN GROUND DISTANCES MULTIPLY GRID DISTANCES BY 1.000707. ALL ELEVATIONS SHOWN IN THIS PLAN SET ARE BASED UPON PORT OF OAKLAND VERTICAL DATUM. PORT OF OAKLAND VERTICAL DATUM IS 3.2 FEET BELOW N.G.V.D. OF 1929.
5. VERIFY LOCATIONS AND ELEVATIONS OF EXISTING FACILITIES TO WHICH NEW FACILITIES WOULD CONNECT PRIOR TO COMMENCING WORK SO THAT IF NECESSARY ADJUSTMENTS MAY BE MADE TO PROVIDE FOR SMOOTH CONFORMS AND TRANSITIONS.
6. SURFACE GRADES SHOWN ARE TO BE FINISHED GRADES.
7. POWER, ELECTRICAL, TELECOMMUNICATIONS AND FIRE PROTECTION WATER SHOWN ON COMPOSITE UTILITY PLANS ARE FOR ILLUSTRATING THE GENERAL ALIGNMENT COORDINATION AND FOR SPECIFIC LOCATION OF LIGHTPOLES. REFER TO PLAN FILE AA-3956 FOR UTILITY LOCATIONS AND DETAILS.
8. MAINTAIN SERVICES DURING DEMOLITION AND CONSTRUCTION OPERATIONS SUCH AS TO MAINTAIN CONTINUOUS PUBLIC SAFETY, ACCESS, DRAINAGE, AND UTILITY SERVICES TO EXISTING FACILITIES REQUIRING THESE SERVICES. NOTIFY THE ENGINEER AT LEAST SEVEN (7) DAYS IN ADVANCE, UNLESS OTHERWISE APPROVED, OF INTERRUPTION OF THESE SERVICES.
9. CONTRACTOR SHALL SEQUENCE WORK SUCH THAT ACCESS TO THE SHIPPERS TRANSPORT EXPRESS (STE) TERMINAL SITE SHALL BE MAINTAINED AT ALL TIMES DURING DEMOLITION AND CONSTRUCTION.
10. AS-BUILTS OF THIS AREA AND CONSTRUCTION DOCUMENTS OF ADJACENT PROJECTS MAY BE REVIEWED IN THE PORT OF OAKLAND OFFICE LOCATED AT 530 WATER STREET, OAKLAND, CALIFORNIA.
11. THE CONTRACTOR SHALL COMPLY WITH ALL OSHA AND OTHER APPLICABLE SAFETY REGULATIONS. A COPY OF THE SOILS REPORT, COMMENTS ON SHORING AND TEST BORINGS IS AVAILABLE AT THE PORT OF OAKLAND, 530 WATER STREET, OAKLAND, CA 94607.
12. THE CONTRACTOR SHALL NOTE THE PRESENCE OF PG&E POLES AND OVERHEAD POWER LINES WITHIN AND ADJACENT TO THE PROJECT SITE AND SHALL COMPLY WITH ALL OSHA AND OTHER APPLICABLE SAFETY REGULATIONS WHEN WORKING IN THE VICINITY.
13. TRAFFIC DISRUPTION SHALL BE KEPT TO A MINIMUM BY THE CONTRACTOR DURING CONSTRUCTION. ALL LANE CLOSINGS AT ROAD CROSSINGS SHALL BE COORDINATED BEFOREHAND WITH THE ENGINEER.
14. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO INFORM APPLICABLE POLICE, FIRE AND EMERGENCY SERVICE AGENCIES 48 HOURS IN ADVANCE OF PROPOSED LANE OR STREET CLOSURES. TRAFFIC CONTROL SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE "CALTRANS MANUAL OF TRAFFIC CONTROLS".
15. THE CONTRACTOR SHALL SCHEDULE AND COORDINATE WITH THE PORT OF OAKLAND, THE VARIOUS COMPANIES, AND AGENCIES LISTED IN THE SPECIFICATIONS AND IDENTIFIED BY THE ENGINEER DURING CONSTRUCTION WHO MAY BE AFFECTED BY THIS PROJECT. THE CONTRACTOR SHALL OBTAIN ANY NEEDED ENCROACHMENT PERMITS.
16. ANY MONUMENT OR BENCHMARK WHICH IS DISTURBED OR DESTROYED BY THE CONTRACTOR OR HIS SUBCONTRACTORS OR SUPPLIERS, SHALL BE REESTABLISHED AND REPLACED BY A REGISTERED CIVIL ENGINEER OR LICENSED LAND SURVEYOR AT CONTRACTOR'S EXPENSE.

PRINT DATE: 04-20-06 10:16:06 P:\Active Projects\DN0055--Port of Oakland MSC Development\CADD\paving contract\5-A-3958-05.dwg Printed by R.Andrews

W.O.# 104879

CAUTION: THIS PLAN MAY BE REDUCED

0 1" 2" ORIGINAL SCALE



REFERENCES:
PLANS
FIELD BOOKS
"PORT OF OAKLAND DATUM" IS 3.20' BELOW N.G.V.D. '29
CAUTION: CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

DRAWN	STAFF
DESIGNED	RJA C45405 REG. ENGINEER NO.
CHECKED	YY C69701 REG. ENGINEER NO.

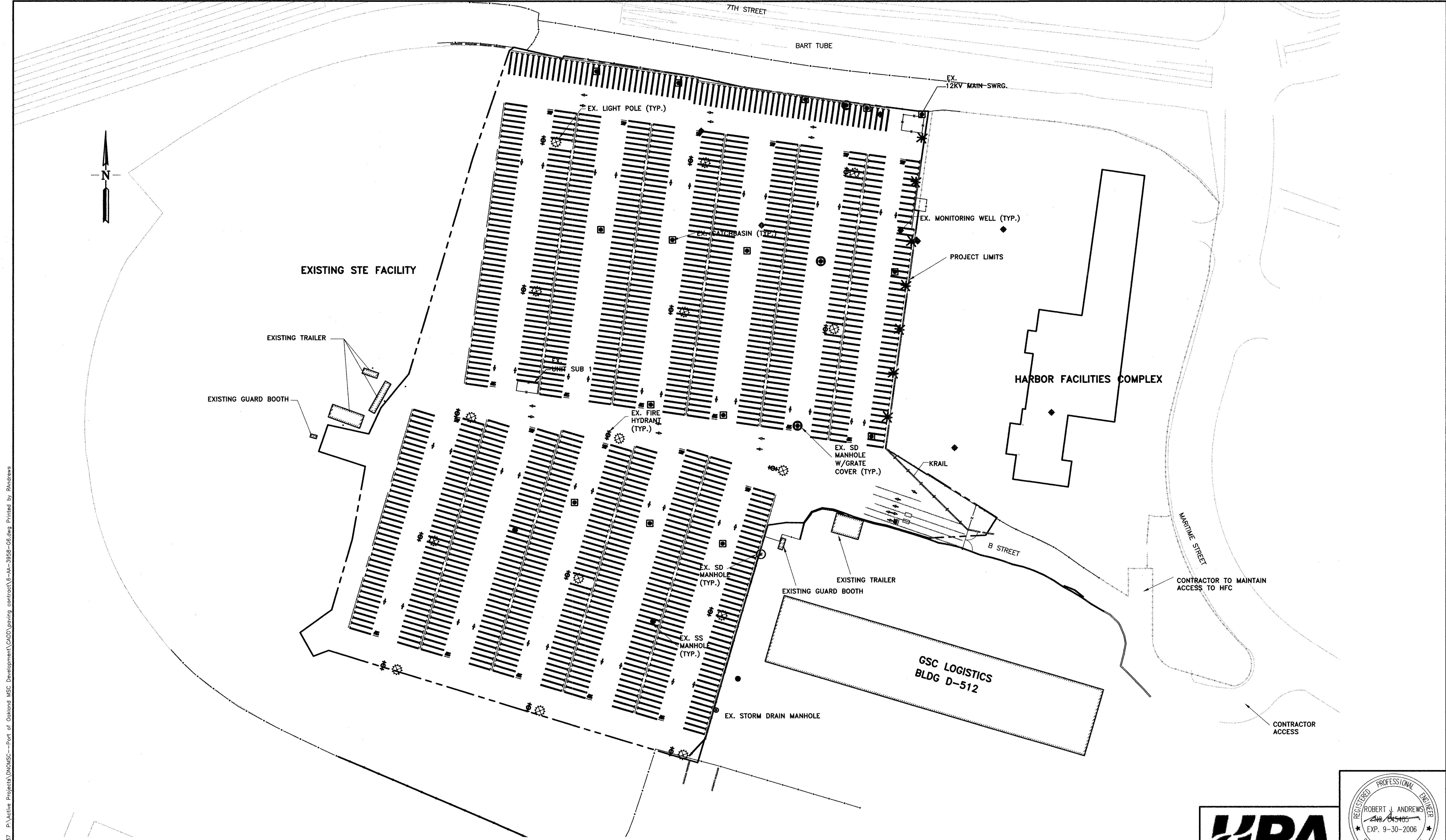
PORT OF OAKLAND

530 WATER ST. OAKLAND, CALIFORNIA

MARITIME SUPPORT CENTER	DATE: 4-18-06
PAVING A 21-ACRE CONTAINER YARD WITHIN THE MARITIME SUPPORT CENTER AREA	SCALE: NO SCALE
GENERAL NOTES	SHEET: 5 OF 22 SHEETS

G5	AA-3958
----	---------

PRINT DATE: 04-20-06 10:16:37 P:\Active Projects\DNOMISC--Port of Oakland MSC Development\CADD\paving_contract\6-AA-3958-06.dwg Printed by Andrews



W.O.# 104879

CAUTION: THIS PLAN MAY BE REDUCED 0 1" 2" ORIGINAL SCALE

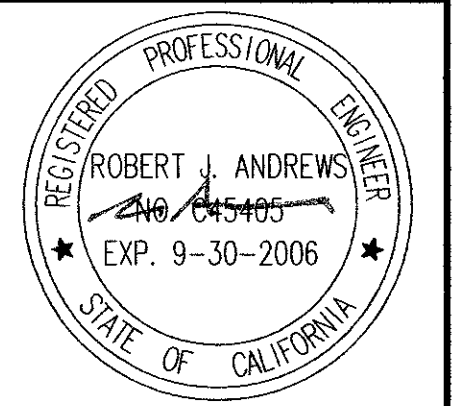
REFERENCES:
 PLANS
 FIELD BOOKS

 "PORT OF OAKLAND DATUM"
 IS 3.20' BELOW N.G.V.D. '29
CAUTION:
 CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

DRAWN _____ STAFF
 DESIGNED _____
 CHECKED _____
 REG. ENGINEER NO. _____
 REG. ENGINEER NO. _____

PORT OF OAKLAND
 530 WATER ST. OAKLAND, CALIFORNIA

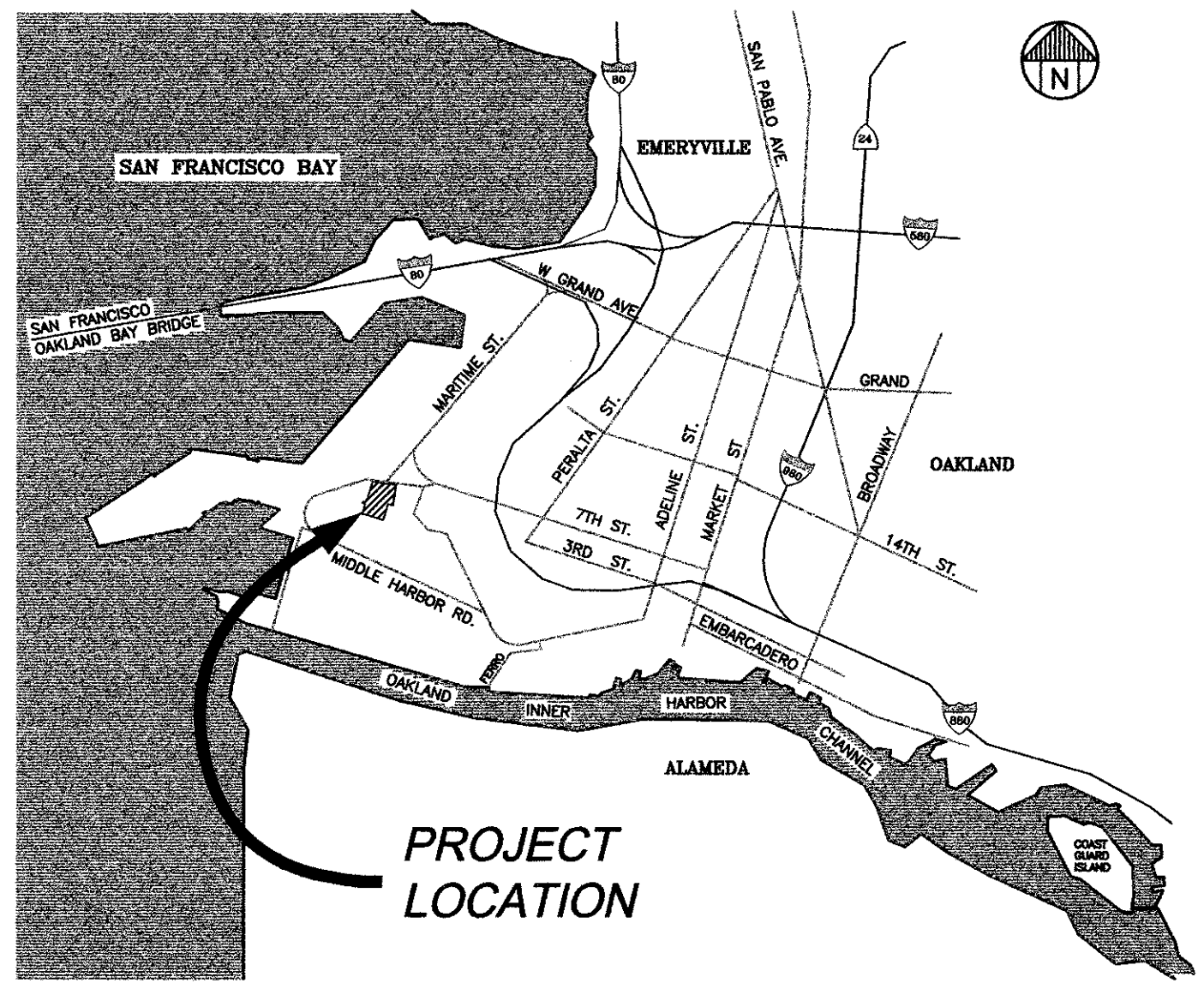
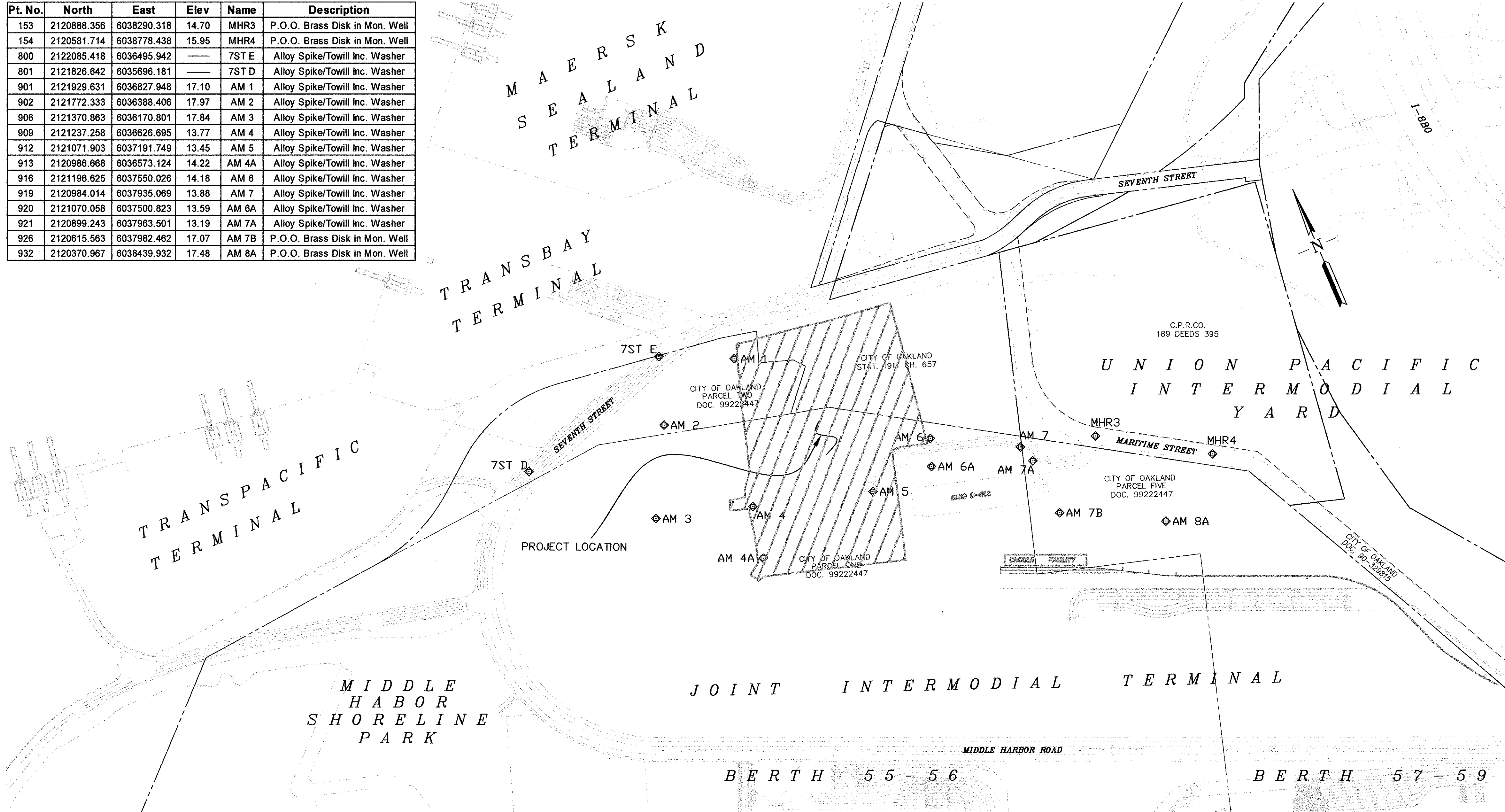


MARITIME SUPPORT CENTER
**PAVING A 21-ACRE CONTAINER YARD
 WITHIN THE MARITIME SUPPORT CENTER AREA**
 GENERAL SITE PLAN

DATE: 4-18-06
 SCALE: 1" = 80'
 SHEET: 6 OF 22 SHEETS
G6 AA-3958

Project Survey Control

Pt. No.	North	East	Elev	Name	Description
153	2120888.356	6038290.318	14.70	MHR3	P.O.O. Brass Disk in Mon. Well
154	2120581.714	6038778.438	15.95	MHR4	P.O.O. Brass Disk in Mon. Well
800	2122085.418	6036495.942	—	7ST E	Alloy Spike/Towill Inc. Washer
801	2121826.642	6035696.181	—	7STD	Alloy Spike/Towill Inc. Washer
901	2121929.631	6036827.948	17.10	AM 1	Alloy Spike/Towill Inc. Washer
902	2121772.333	6036388.406	17.97	AM 2	Alloy Spike/Towill Inc. Washer
906	2121370.863	6036170.801	17.84	AM 3	Alloy Spike/Towill Inc. Washer
909	2121237.258	6036626.695	13.77	AM 4	Alloy Spike/Towill Inc. Washer
912	2121071.903	6037191.749	13.45	AM 5	Alloy Spike/Towill Inc. Washer
913	2120986.668	6036573.124	14.22	AM 4A	Alloy Spike/Towill Inc. Washer
916	2121196.625	6037550.026	14.18	AM 6	Alloy Spike/Towill Inc. Washer
919	2120984.014	6037935.069	13.88	AM 7	Alloy Spike/Towill Inc. Washer
920	2121070.058	6037500.823	13.59	AM 6A	Alloy Spike/Towill Inc. Washer
921	2120899.243	6037963.501	13.19	AM 7A	Alloy Spike/Towill Inc. Washer
926	2120615.563	6037982.462	17.07	AM 7B	P.O.O. Brass Disk in Mon. Well
932	2120370.967	6038439.932	17.48	AM 8A	P.O.O. Brass Disk in Mon. Well



- Legend**
- ◆ PROJECT CONTROL MONUMENT
 - PROPERTY/PARCEL BOUNDARY
 - FACILITY BOUNDARY/PROJECT LIMIT
 - (VESTED OWNER) GRANTEE OF RECORD
 - DOCUMENT REFERENCES:
 - XX O.R. XX BOOK/PAGE OF OFFICIAL RECORDS ALAMEDA COUNTY RECORDS
 - RE: XX IN: XX REEL/IMAGE OF OFFICIAL RECORDS ALAMEDA COUNTY RECORDS
 - S.N. XX-XXXXX SERIES NUMBER OF OFFICIAL RECORDS ALAMEDA COUNTY RECORDS

Notes to Contractor

- The contractor shall employ or engage a Professional Land Surveyor, licensed to practice land surveying in the State of California, competent to practice in the endeavor in which he/she will be engaged, to be in Responsible Charge of all surveying and related layout work which the Contractor is required to perform in order to construct the intended improvements in conformance with design. (Responsible charge requirements pursuant to Code of Regulations, Title 16, Chapter 5, State of California, Section 404.2 "Definition of Responsible Charge for Land Surveyors", and Section 415 "Practice within Area of Competence".)
- The Contractor shall submit a letter from the Professional Land Surveyor or engineer licensed to practice Land Surveying, indicating his/her employment by the Contractor in Responsible Charge. This letter shall be signed by and bear the professional seal of the individual (not the company) engaged in that capacity. This letter shall be submitted to the Engineer prior to the commencement of work along with a copy to the Port Land Surveyor.
- The Contractor, having engaged or employed a Professional Land Surveyor and related support staff, is responsible for survey layout work, defined herein as Contractors Line and Grade. Line and Grade points shall be set from the Construction Control points provided by the Port Land Surveyor (under the direction of the Engineer), and shall also serve as the Contractor's preservation and/or perpetuation of that control. These points shall be set with precision and methods commensurate with the tolerances required by the intended construction.
- The Contractor shall check and verify the internal integrity of the Construction Control to its own satisfaction and shall notify the Engineer of any apparent discrepancy prior to use for layout of line and grade points.
- For other matters relating to Field Survey, see section 01720 of the Project Manual.

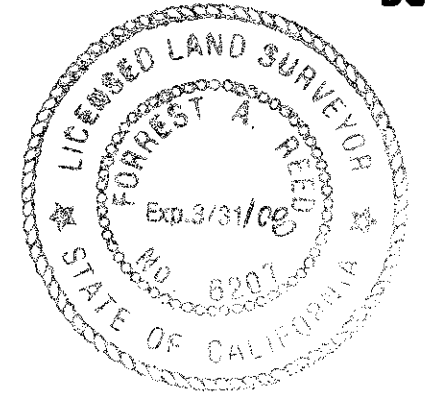
Notes

- THIS PLAN REFLECTS MONUMENTATION DESIGNATED BY THE PORT OF OAKLAND LAND SURVEYS AND MAPPING GROUP TO CONTROL CONSTRUCTION SURVEYS ANTICIPATED IN CONNECTION WITH THIS PROJECT.
- COORDINATES, BEARINGS, AND DISTANCES SHOWN ON THIS PLAN ARE BASED UPON CALIFORNIA COORDINATE SYSTEM OF 1983, ZONE III "1988 ADJUSTMENT" AS SHOWN UPON RECORD OF SURVEY 990, FILED IN BOOK 18 OF RECORD OF SURVEYS, PAGES 50-60, ALAMEDA COUNTY RECORDS. ALL DISTANCES SHOWN ON THIS PLAN ARE GRID DISTANCES, GIVEN IN U.S. SURVEY FEET. MULTIPLY DISTANCES SHOWN BY 1.0000705 TO OBTAIN GROUND LEVEL DISTANCES.
- ALL ELEVATIONS SHOWN ON THIS PLAN ARE BASED UPON PORT OF OAKLAND VERTICAL DATUM, GIVEN IN U.S. SURVEY FEET.

Port Land Surveyor's Statement

This Survey Control Diagram has been examined by me, or by a Professional Land Surveyor under my direction, pursuant to sec. 8726 of the Business and Professions Code of the State of California. I hereby state that the information shown hereon has been geospatially corrected to the Port Control System, that the existing monumentation shown hereon is a sufficient basis from which the construction lines and grades can be set, and that the monument descriptions are sufficient to allow for recovery and identification by someone who is unfamiliar with the area. I have also examined the associated electronic files for this survey control plan and, to the best of my knowledge, these files accurately represent the same information shown hereon.

Forrest A. Reed
 Forrest A. Reed, L.S. 6297
 Port Land Surveyor
 License expires 3/31/2008



04/21/06
 Date

CAUTION: THIS PLAN MAY BE REDUCED
 0 1" 2" ORIGINAL SCALE

REFERENCES:

PLANS	
FIELD BOOKS	
"PORT OF OAKLAND DATUM" IS 3.20' BELOW MEAN SEA LEVEL	
CAUTION: CHECK TRACING FOR LATEST REVISIONS	

NO.	REVISIONS	DATE	APP'D

REVIEWED _____
REVIEWED _____
REVIEWED _____

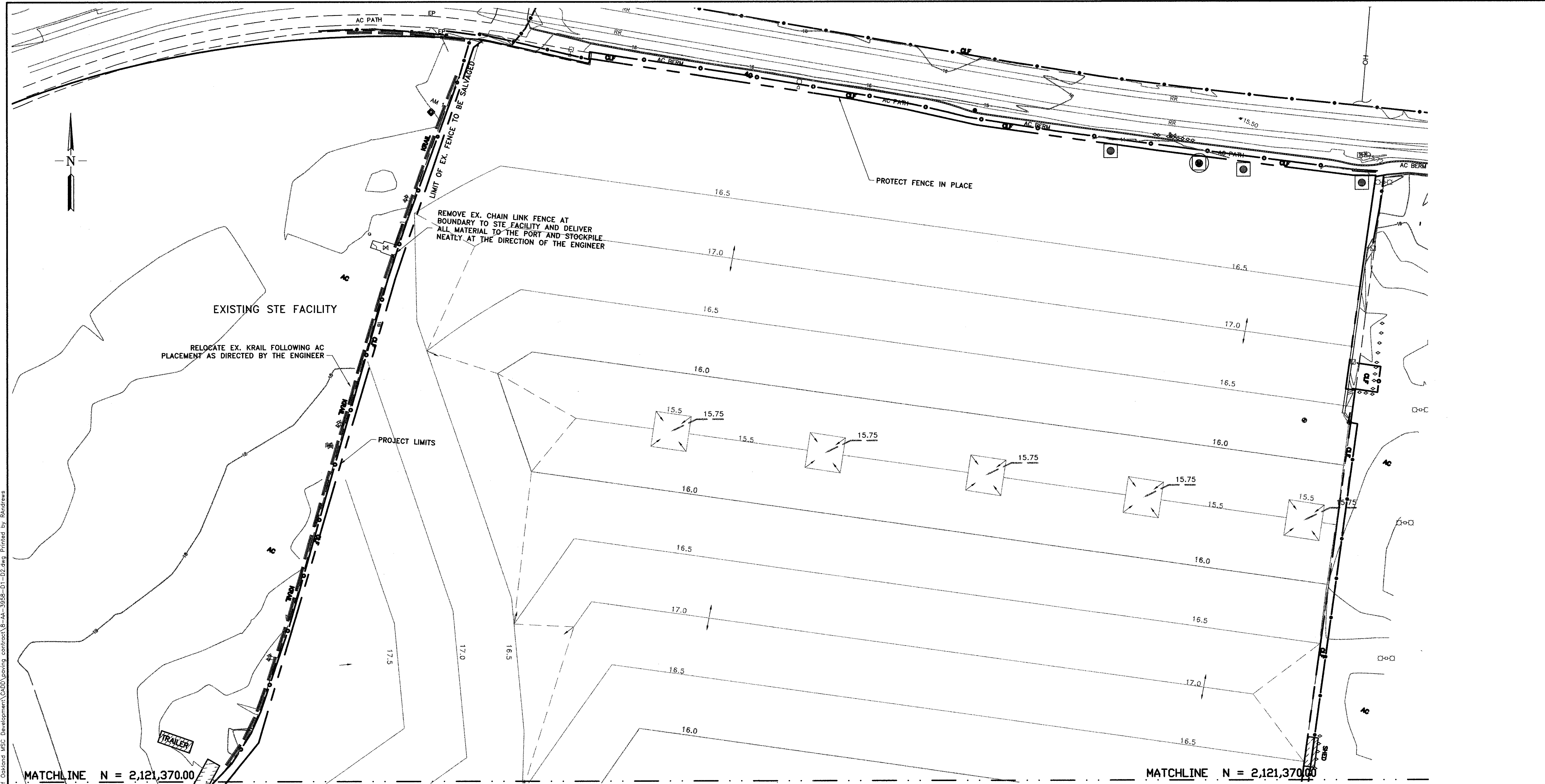
DRAWN _____
DESIGNED _____
CHECKED _____
REG. ENGINEER NO. _____
REG. ENGINEER NO. _____
REG. ENGINEER NO. _____

PORT OF OAKLAND
 530 WATER ST. OAKLAND, CALIFORNIA

MARITIME SUPPORT CENTER
 PAVING A 21-ACRE CONTAINER YARD
 WITHIN THE MARITIME SUPPORT CENTER AREA
 SURVEY CONTROL PLAN

DATE: 4-18-06
 SCALE: 1" = 300'
 SHEET: 7 OF 22 SHEETS
 G7 AA-3958

W.O.#104879



PRINT DATE: 04-20-06 10:17:57 P:\active_projects\0101\050-Port of Oakland_MSC_Development\CADD\paving_contract\8-A4-3958-D1-D2.dwg Printed by RAndrews

W.O.# 104879

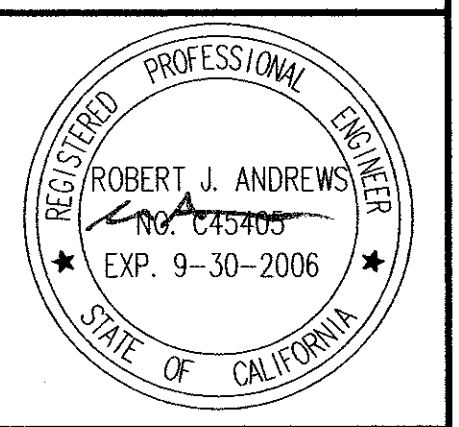
REFERENCES:
 PLANS
 FIELD BOOKS
 "PORT OF OAKLAND DATUM"
 IS 3.20' BELOW N.G.V.D. '29
CAUTION:
 CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

DRAWN _____ STAFF
 DESIGNED RJA C45405 REG. ENGINEER NO.
 CHECKED YY C69701 REG. ENGINEER NO.

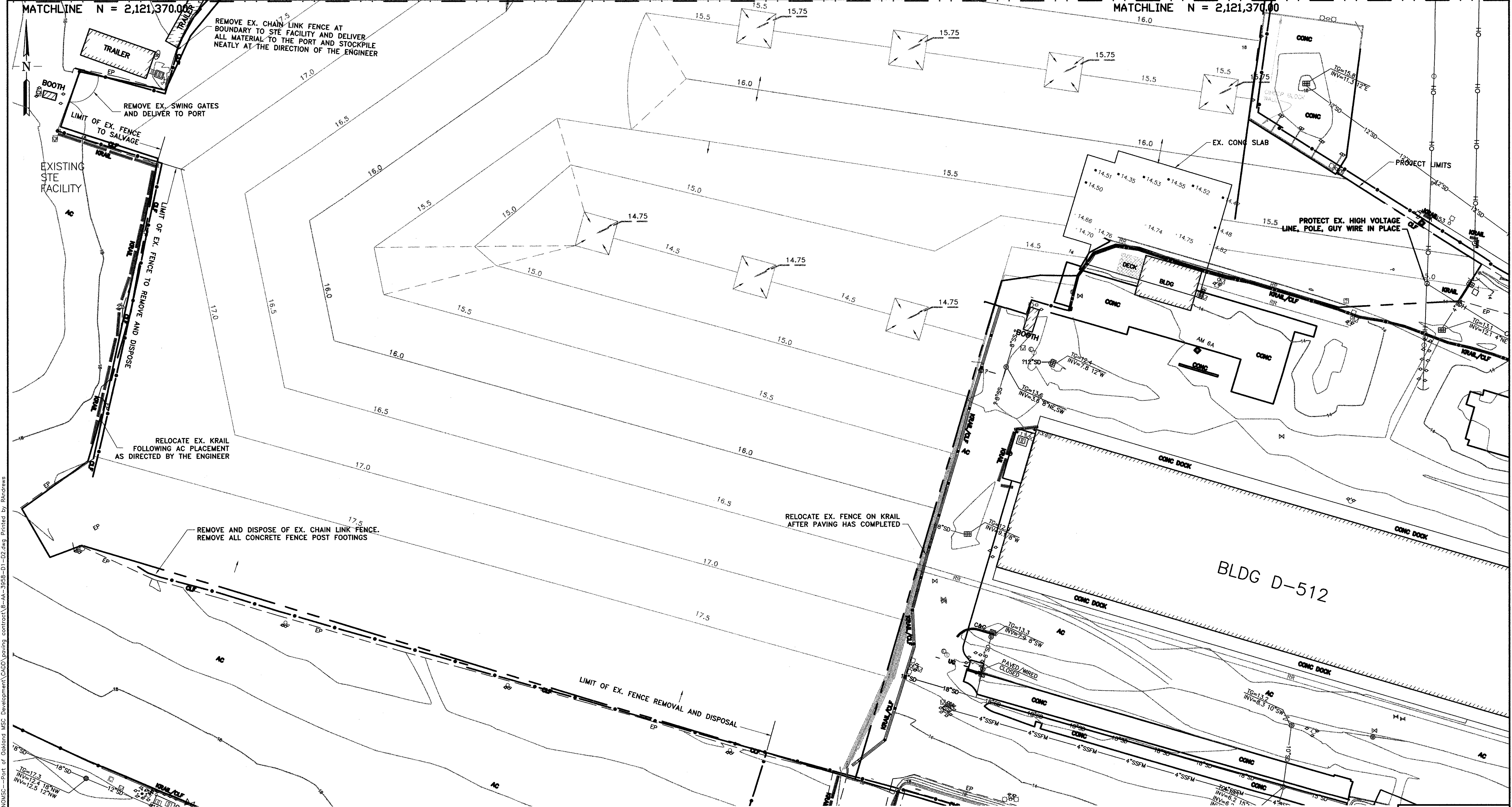
PORT OF OAKLAND
 530 WATER ST. OAKLAND, CALIFORNIA

CAUTION: THIS PLAN MAY BE REDUCED ORIGINAL SCALE



MARITIME SUPPORT CENTER
 PAVING A 21-ACRE CONTAINER YARD
 WITHIN THE MARITIME SUPPORT CENTER AREA
 DEMO & SITE PREPARATION PLAN SHEET 1 OF 2

DATE: 4-18-06
 SCALE: 1" = 40'
 SHEET: 8 OF 22 SHEETS
 D1 AA-3958



MATCHLINE N = 2,121,370.00

MATCHLINE N = 2,121,370.00

PRINT DATE: 04-20-06 10:18:14 P:\active_projects\DN01050--Port of Oakland MSC Development\CADD\paving_contract\8-AA-3958-D1-D2.dwg Printed by R.Andrews

W.O.# 104879

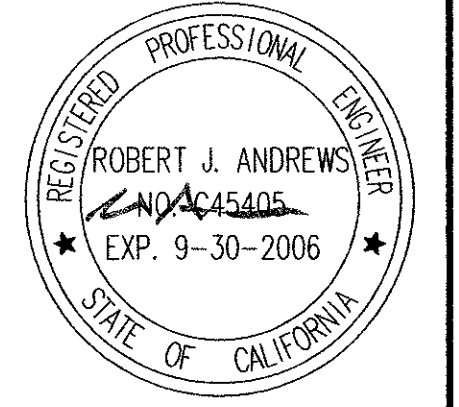
CAUTION: THIS PLAN MAY BE REDUCED 0 1" 2" ORIGINAL SCALE

REFERENCES:
 PLANS
 FIELD BOOKS
 "PORT OF OAKLAND DATUM"
 IS 3.20' BELOW N.G.V.D. '29
 CAUTION:
 CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

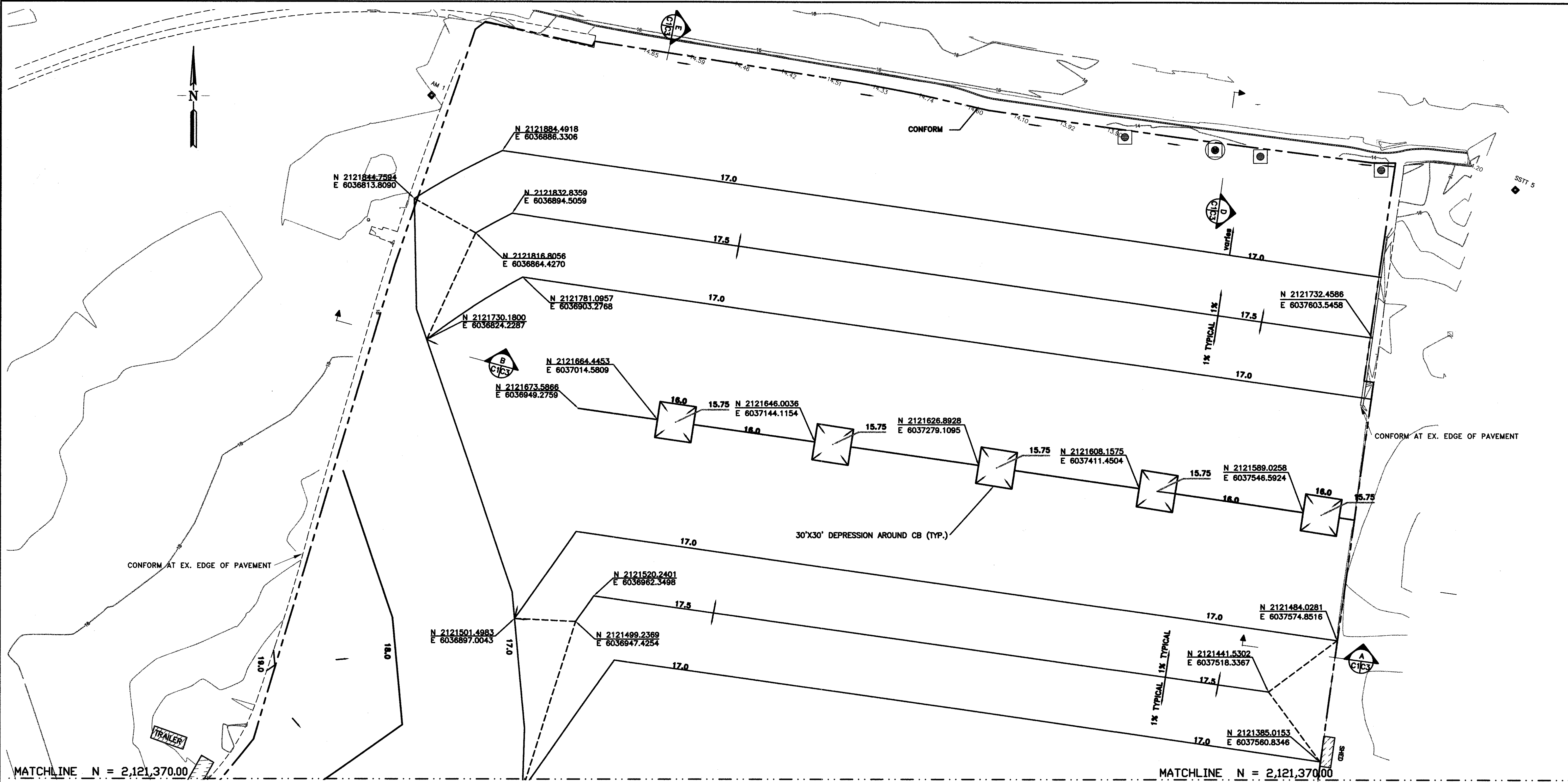
DRAWN	STAFF
DESIGNED	RJA C45405 REG. ENGINEER NO.
CHECKED	YY C69701 REG. ENGINEER NO.

PORT OF OAKLAND
 530 WATER ST. OAKLAND, CALIFORNIA



MARITIME SUPPORT CENTER		DATE: 4-18-06
PAVING A 21-ACRE CONTAINER YARD WITHIN THE MARITIME SUPPORT CENTER AREA		SCALE: 1" = 40'
DEMO & SITE PREPARATION PLAN SHEET 2 OF 2		SHEET: 9 OF 22 SHEETS
D2	AA-3958	

PRINT DATE: 04-20-06 10:18:37 P:\Active Projects\UNION\SC-Port of Oakland MSC Development\CADD\paving contract\10-AA-3958-C1-C2.dwg Printed by: R. Andrews



MATCHLINE N = 2,121,370.00

W.O.# 104879

REFERENCES:

NO.	REVISIONS	DATE	REV'D	APP'D

PLANS
FIELD BOOKS

"PORT OF OAKLAND DATUM"
IS 3.20' BELOW N.G.V.D. '29

CAUTION:
CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

DRAWN	STAFF
DESIGNED	RJA C45405 REG. ENGINEER NO.
CHECKED	YY C69701 REG. ENGINEER NO.

CAUTION: THIS PLAN MAY BE REDUCED

0 1" 2" ORIGINAL SCALE

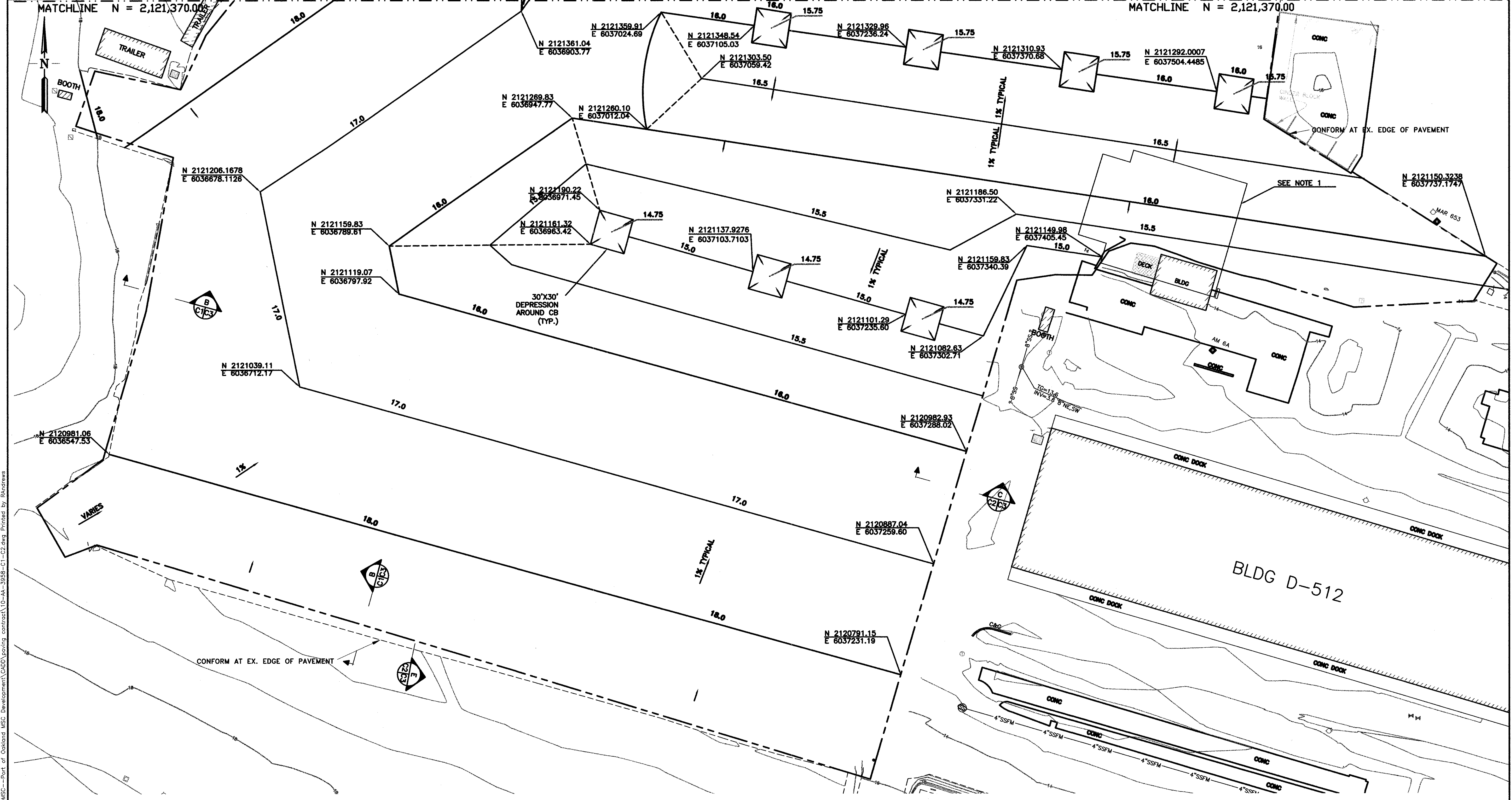
PORT OF OAKLAND
530 WATER ST. OAKLAND, CALIFORNIA

MARITIME SUPPORT CENTER
PAVING A 21-ACRE CONTAINER YARD WITHIN THE MARITIME SUPPORT CENTER AREA
PAVING PLAN SHEET 1 OF 2

DATE: 4-18-06
SCALE: 1" = 40'
SHEET: 10 OF 22 SHEETS

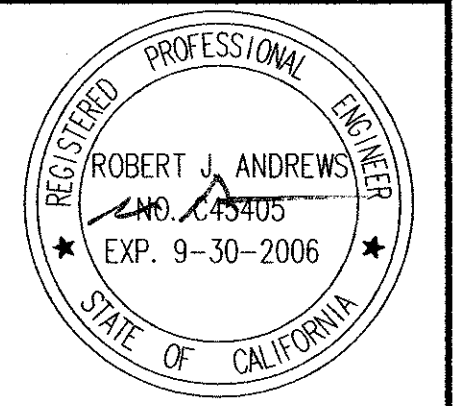
C1 AA-3958





NOTES:
 1. PLACE FULL DEPTH ASPHALT OVER EX. BUILDING PAD. DEPTH VARIES, SEE SHEET D2 FOR EXISTING PAD ELEVATION.

CAUTION: THIS PLAN MAY BE REDUCED ORIGINAL SCALE



W.O.# 104879

REFERENCES:
 PLANS
 FIELD BOOKS
 "PORT OF OAKLAND DATUM" IS 3.20' BELOW N.G.V.D. '29
 CAUTION: CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

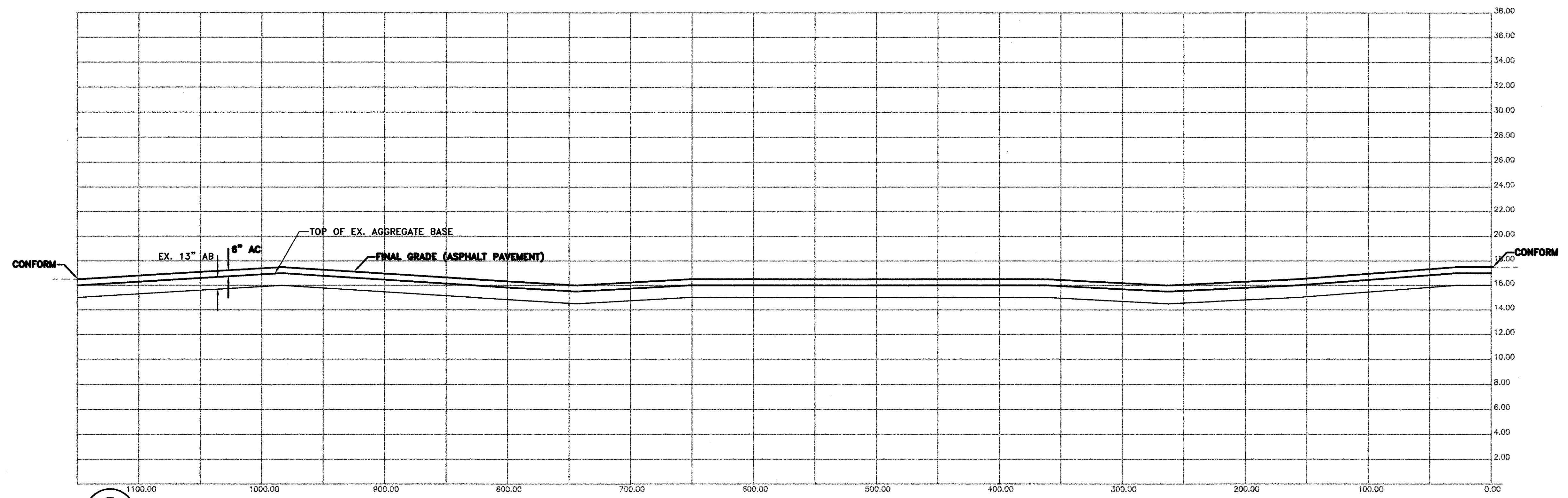
DRAWN _____ STAFF
 DESIGNED RJA C45405 REG. ENGINEER NO.
 CHECKED YY C69701 REG. ENGINEER NO.

PORT OF OAKLAND
 530 WATER ST. OAKLAND, CALIFORNIA

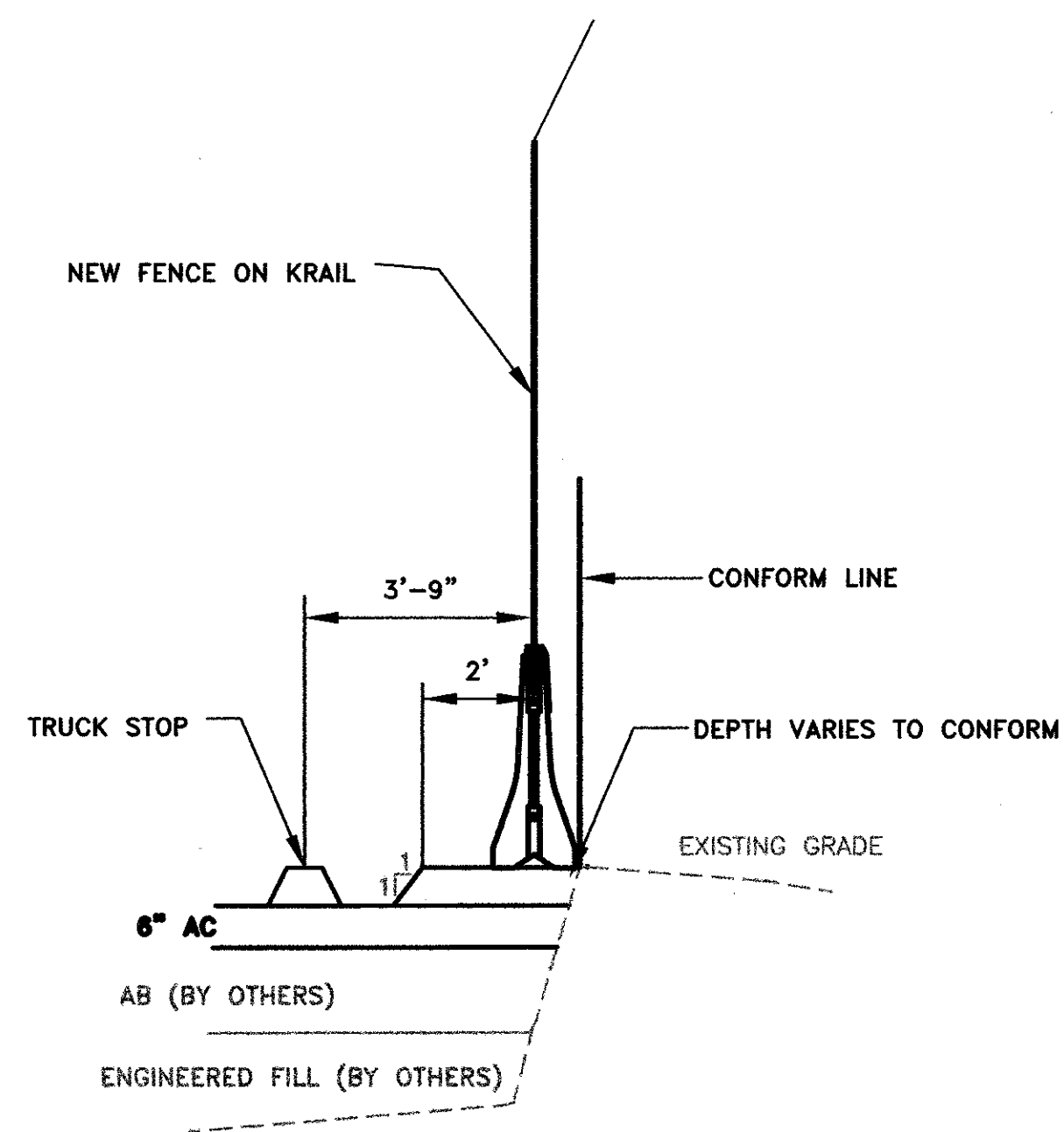
MARITIME SUPPORT FACILITIES
 PAVING A 21-ACRE CONTAINER YARD WITHIN THE MARITIME SUPPORT CENTER AREA
 PAVING PLAN SHEET 2 OF 2

DATE: 4-18-06
 SCALE: 1" = 40'
 SHEET: 18 OF 22 SHEETS
 C2 AA-3958

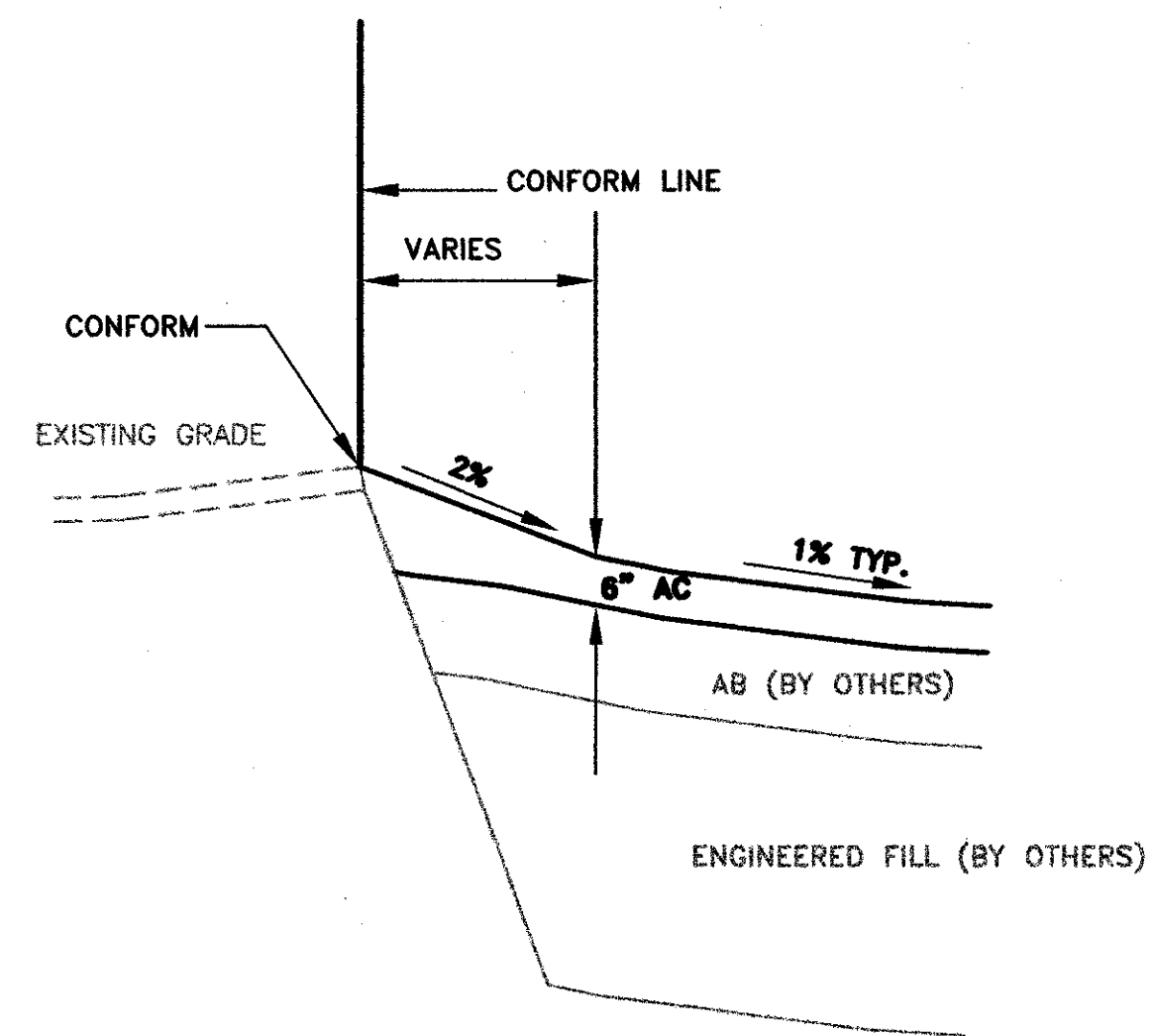
PRINT DATE: 04-20-06 10:18:49 P:\active_projects\UNIVERSITY-Port of Oakland MSC Development\CADD\paving_contract\0-AA-3958-C1-C2.dwg Printed by RAndrews



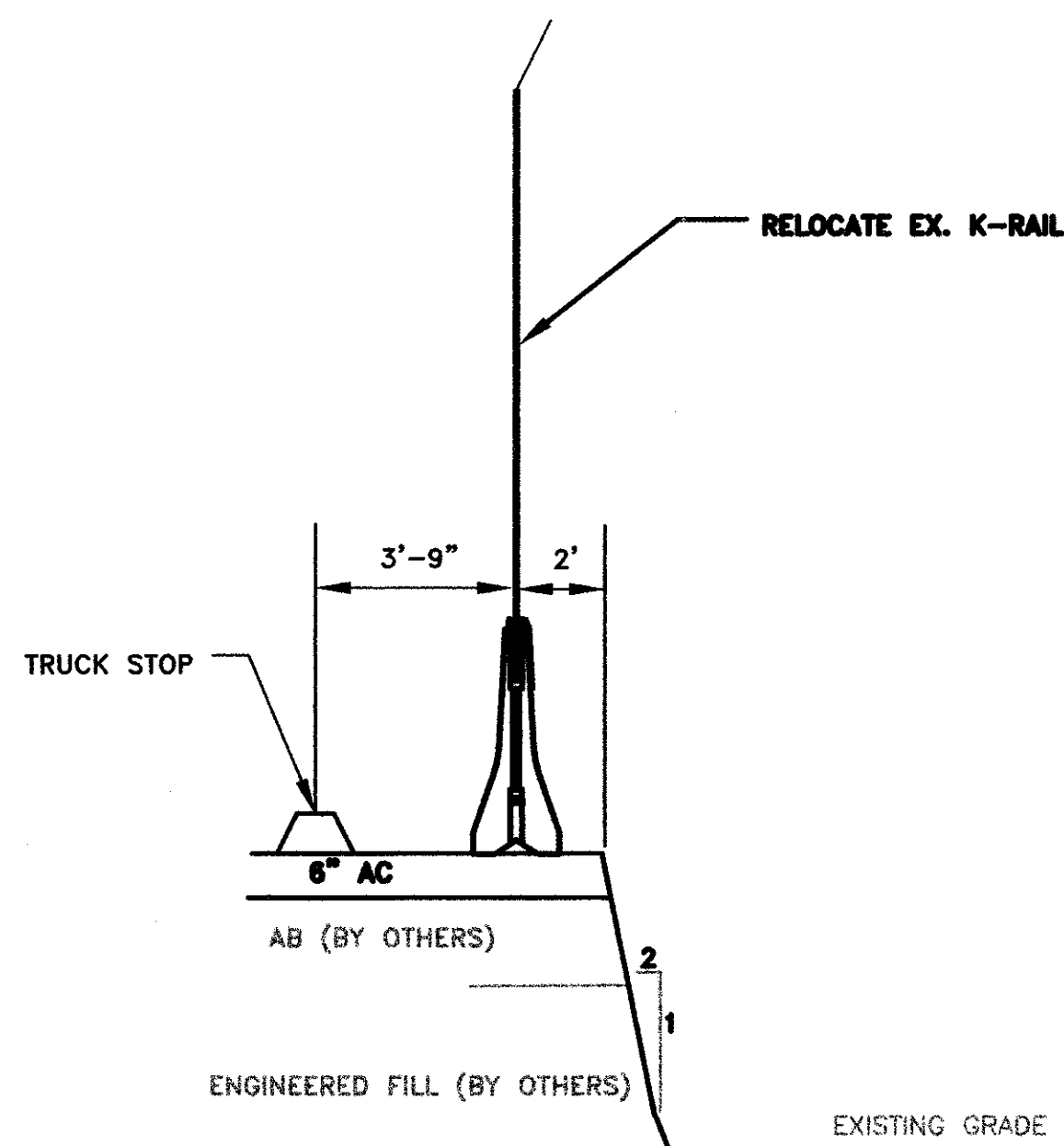
E TYPICAL YARD GRADING SECTION
 C1-C2C3 SCALE: 1"=50'H; 1"=5'V



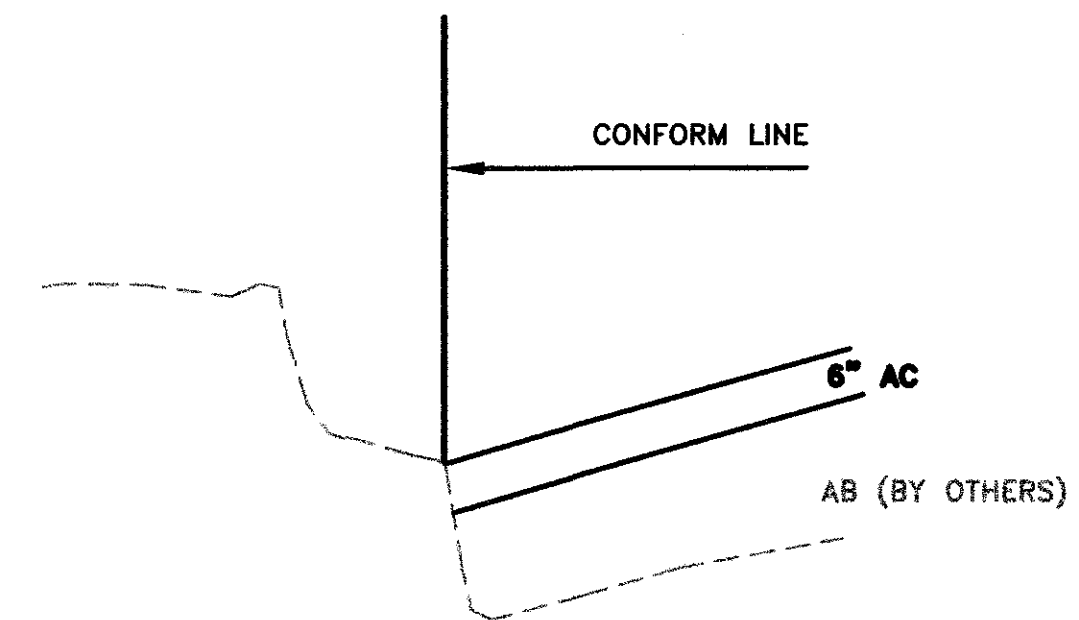
A TYPICAL EAST NORTH
 EDGE SECTION
 C1C3 NTS



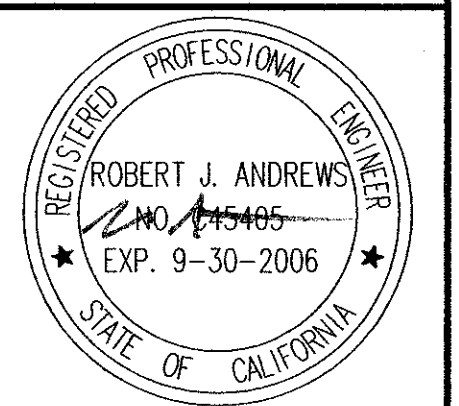
B TYPICAL EDGE SECTION
 C1-C2C3 NTS



C TYPICAL EAST-SOUTH
 EDGE SECTION
 C2C3 NTS



D TYPICAL NORTHEAST
 EDGE SECTION
 C1C3 NTS



CAUTION: THIS PLAN MAY BE REDUCED ORIGINAL SCALE

W.O.# 104879

REFERENCES:
 PLANS
 FIELD BOOKS
 "PORT OF OAKLAND DATUM"
 IS 3.20' BELOW N.G.V.D. '29
 CAUTION:
 CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

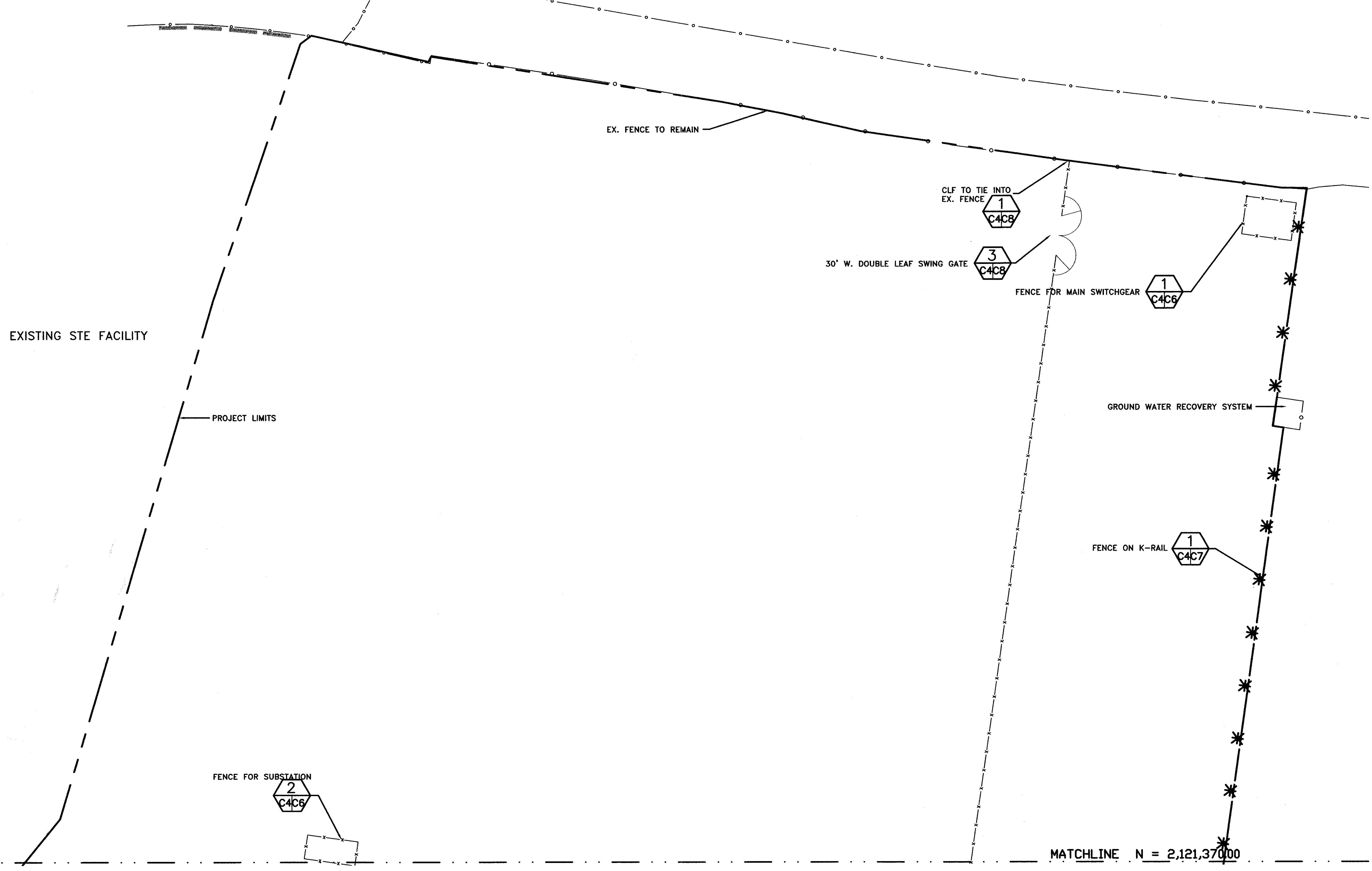
DRAWN	STAFF
DESIGNED	RJA C45405 REG. ENGINEER NO.
CHECKED	YY C69701 REG. ENGINEER NO.

PORT OF OAKLAND

530 WATER ST. OAKLAND, CALIFORNIA

MARITIME SUPPORT CENTER	DATE: 4-18-06
PAVING A 21-ACRE CONTAINER YARD WITHIN THE MARITIME SUPPORT CENTER AREA	SCALE: AS SHOWN
PAVING TYPICAL DETAILS	SHEET: 12 OF 22 SHEETS
C3	AA-3958

PRINT DATE: 04-20-06 10:19:13 P:\Active Projects\010101SC--Port of Oakland MSC Development\CADD\paving contract\12-AA-3958-C3.dwg Printed by R.Andrews



PRINT DATE: 04-24-06 10:45:57 P:\Active Projects\DMQ\SC-Port of Oakland MSC Development\CADD\paving contract\13-AA-3958-C4-C5.dwg Printed by R.Andrews

W.O.# 104879

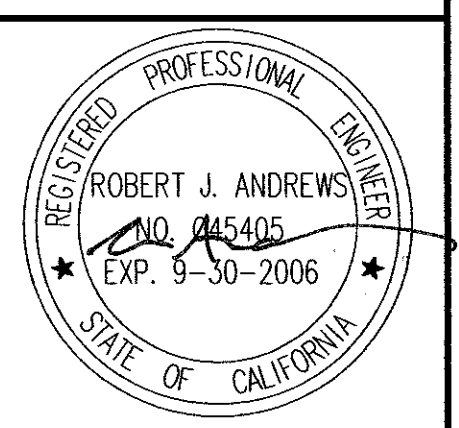
REFERENCES:
 PLANS
 FIELD BOOKS
 "PORT OF OAKLAND DATUM"
 IS 3.20' BELOW N.G.V.D. '29
CAUTION:
 CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

DRAWN _____ STAFF
 DESIGNED RJA C45405 REG. ENGINEER NO.
 CHECKED YY C69701 REG. ENGINEER NO.

CAUTION: THIS PLAN MAY BE REDUCED ORIGINAL SCALE

PORT OF OAKLAND
 530 WATER ST. OAKLAND, CALIFORNIA

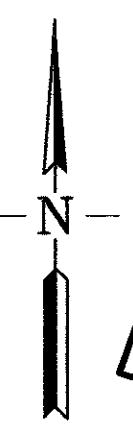


MARITIME SUPPORT CENTER
 PAVING A 21-ACRE CONTAINER YARD
 WITHIN THE MARITIME SUPPORT CENTER AREA
 FENCING PLAN SHEET 1 OF 2

DATE: 4-18-06
 SCALE: 1" = 40'
 SHEET: 13 OF 22 SHEETS
C4 AA-3958

MATCHLINE N = 2,121,370.00

MATCHLINE N = 2,121,370.00



EXISTING STE FACILITY

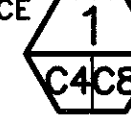
FENCE FOR SUBSTATION



LIMIT OF NEW FENCE ON KRAIL



CLF TO TIE INTO EX. FENCE

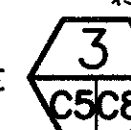


EX. FENCE

CLF TO TIE INTO EX. FENCE



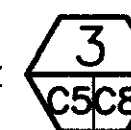
30' W. DOUBLE LEAF SWING GATE



RELOCATED K-RAIL

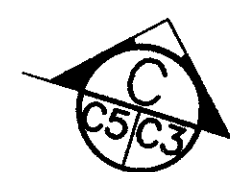
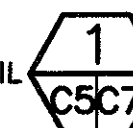
EX. FENCE ON KRAIL

30' W. DOUBLE LEAF SWING GATE



LIMIT OF RELOCATED FENCE ON K-RAIL

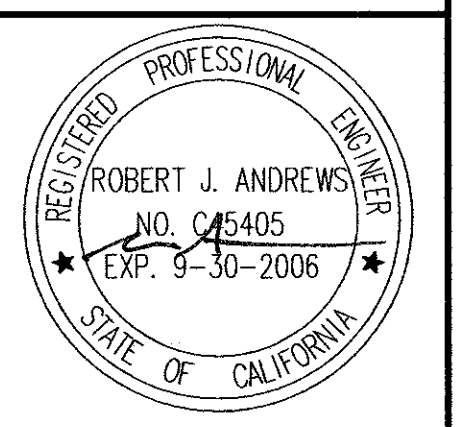
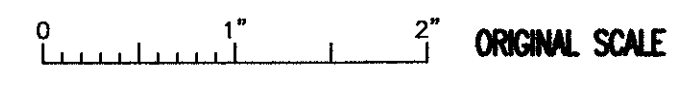
RELOCATED FENCE ON K-RAIL



TIE RELOCATED FENCE ON K-RAIL TO EX. CHAIN LINK FENCE

EX. FENCE

CAUTION: THIS PLAN MAY BE REDUCED



PRINT DATE 04-24-06 10:15:08 P:\active_projects\DM\DMSC--Port of Oakland MSC Development\CADD\paving contract\13-aa-3958-04-c5.dwg Printed by: R Andrews

W.O.# 104879

REFERENCES:
PLANS
FIELD BOOKS
"PORT OF OAKLAND DATUM"
IS 3.20' BELOW N.G.V.D. '29
CAUTION:
CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

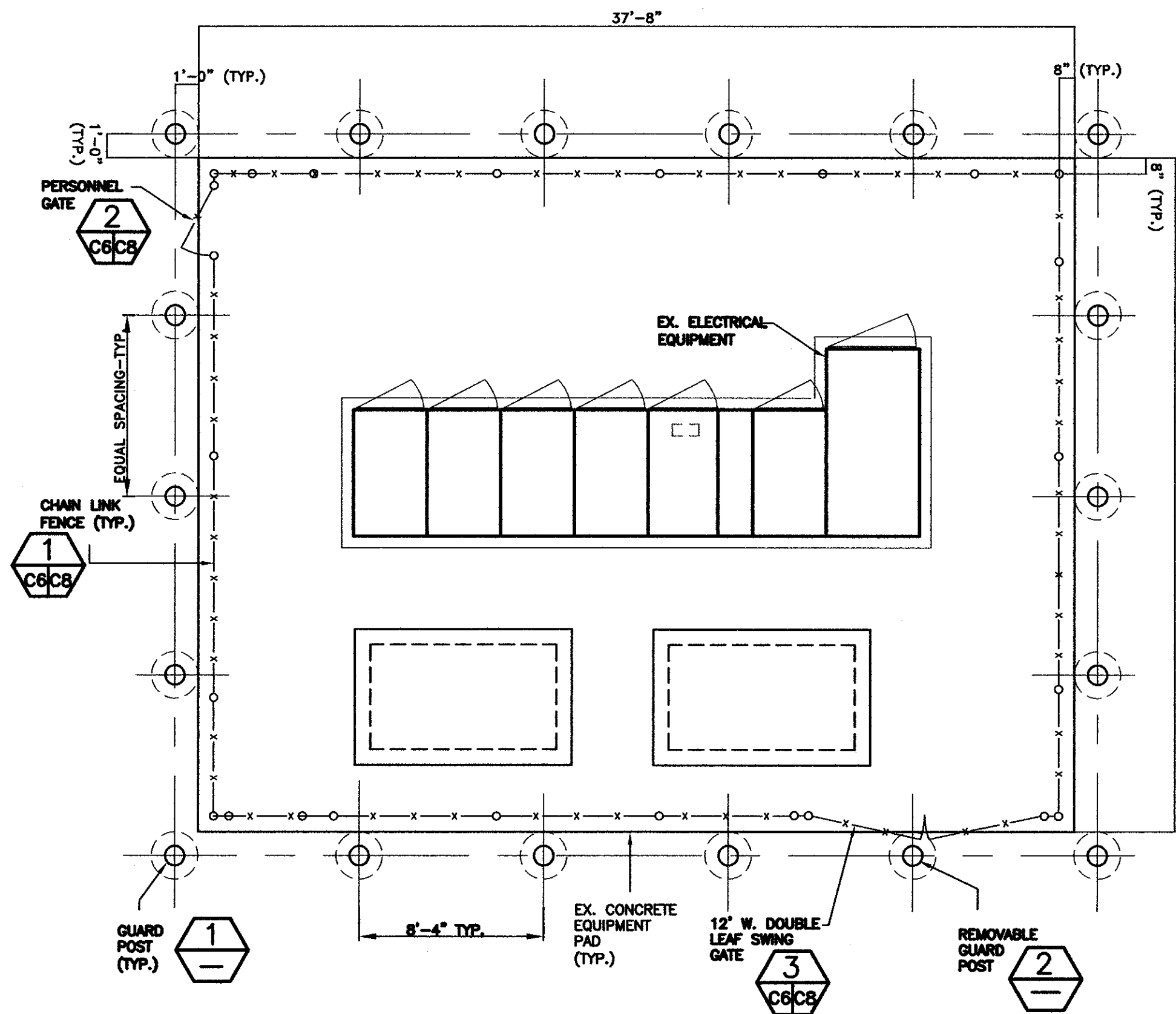
DRAWN STAFF
DESIGNED RJA C45405 REG. ENGINEER NO.
CHECKED YY C69701 REG. ENGINEER NO.

PORT OF OAKLAND

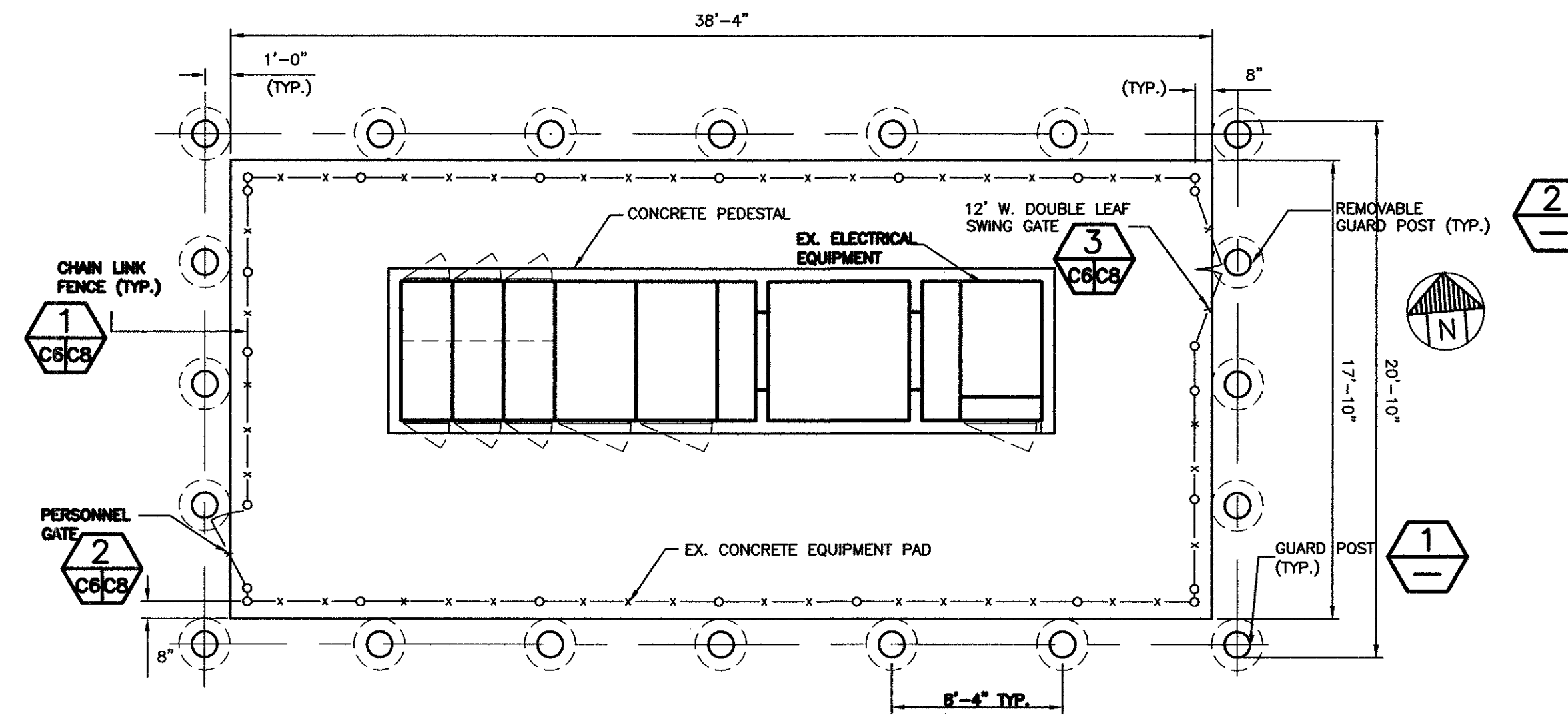
530 WATER ST. OAKLAND, CALIFORNIA

MARITIME SUPPORT CENTER
PAVING A 21-ACRE CONTAINER YARD
WITHIN THE MARITIME SUPPORT CENTER AREA
FENCING PLAN SHEET 2 OF 2

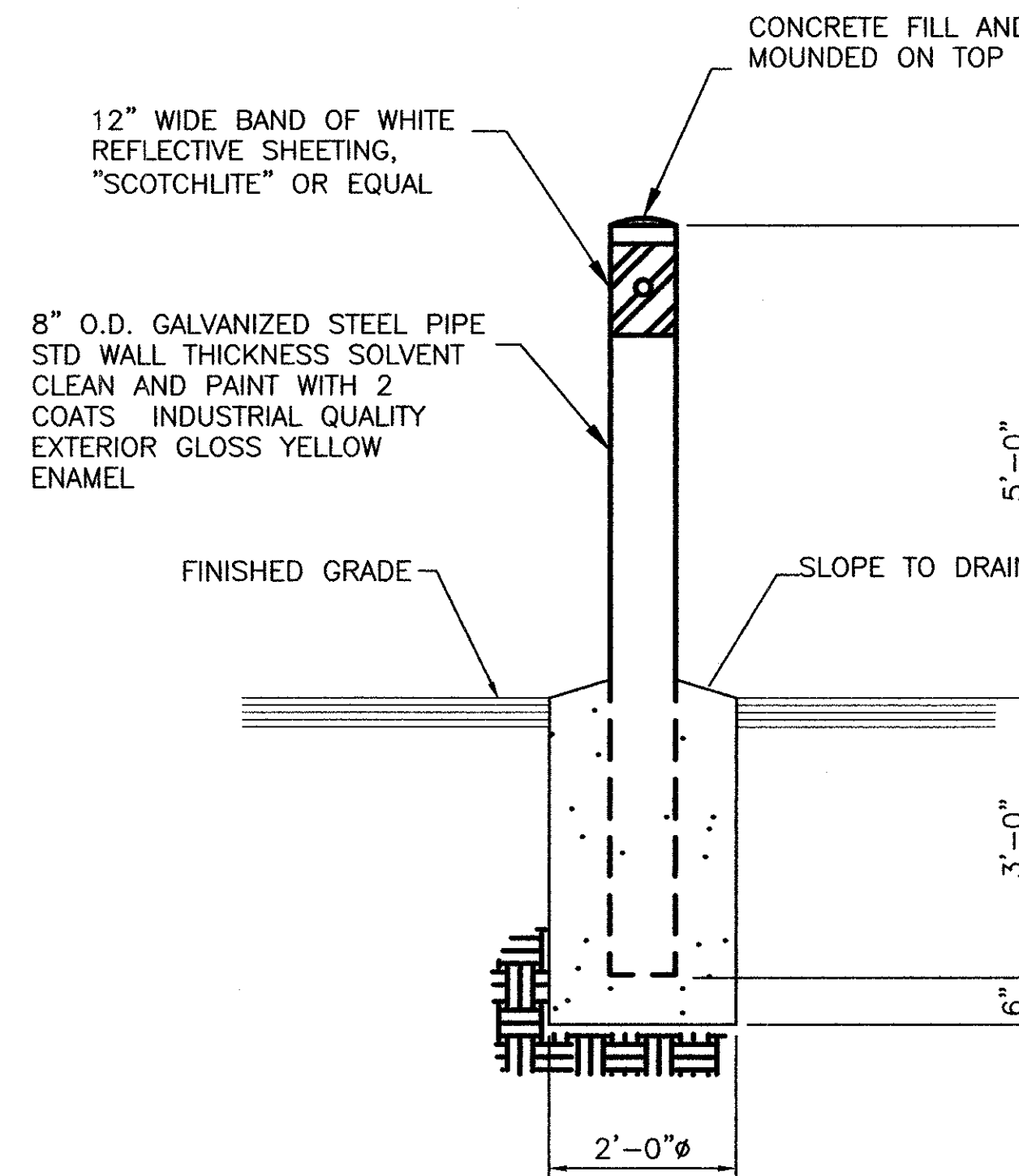
DATE: 4-18-06
SCALE: 1" = 40'
SHEET: 14 OF 22 SHEETS
C5 AA-3958



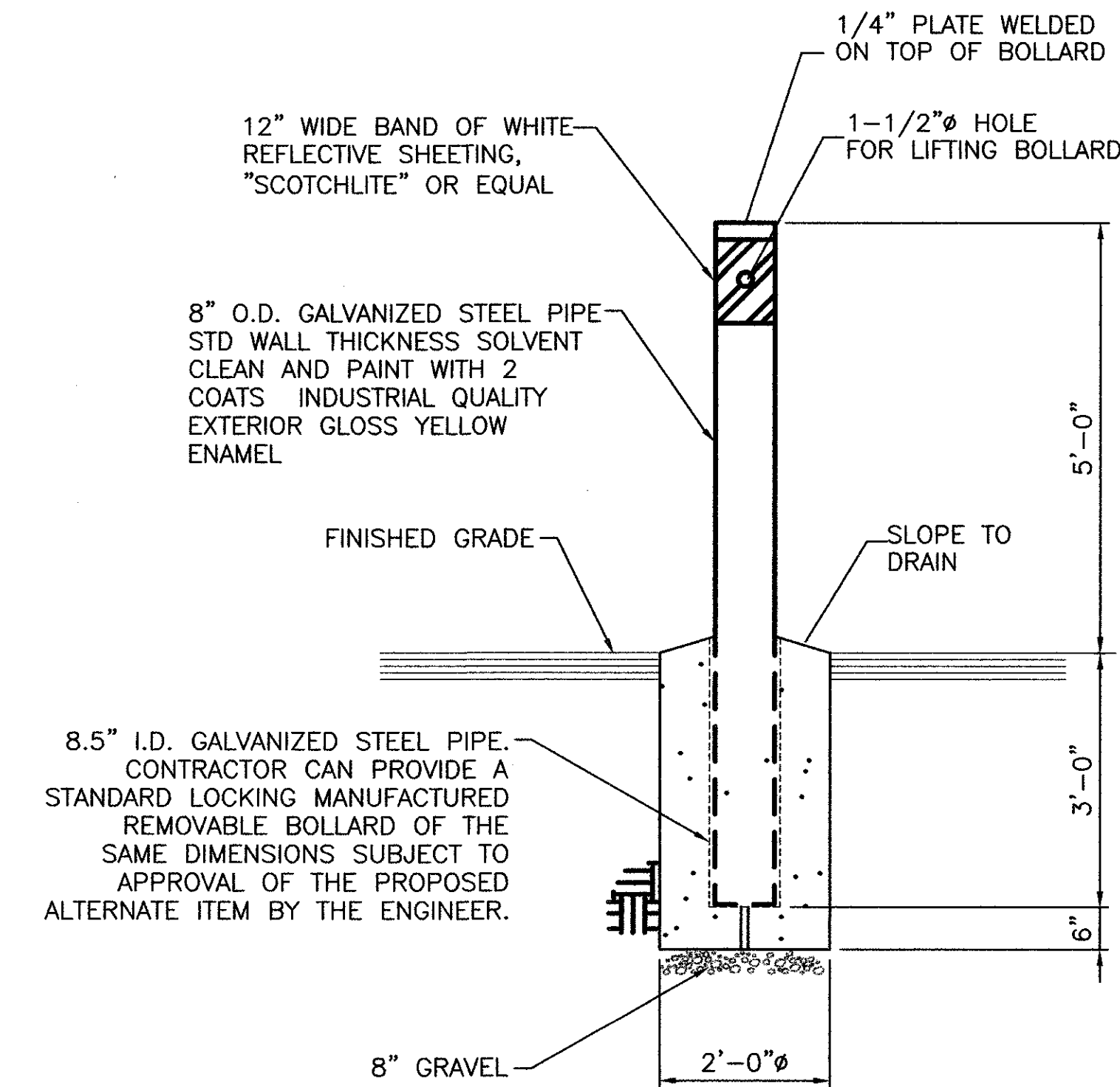
1 MAIN SWITCHGEAR BOLLARD AND FENCE PLAN
1" = 5'



2 UNIT SUBSTATION BOLLARD AND FENCE PLAN
1" = 5'



1 TYPICAL BOLLARD DETAIL
NO SCALE



2 TYPICAL REMOVABLE BOLLARD DETAIL
NO SCALE

CAUTION: THIS PLAN MAY BE REDUCED

0 1" 2" ORIGINAL SCALE

W.O.# 104879

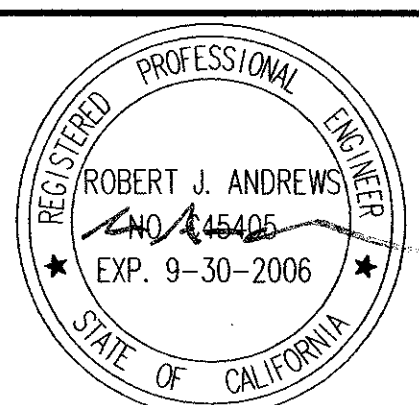
REFERENCES:
PLANS
FIELD BOOKS
"PORT OF OAKLAND DATUM"
IS 3.20' BELOW N.G.V.D. '29
CAUTION:
CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

DRAWN STAFF
DESIGNED RJA C45405
CHECKED YY C69701

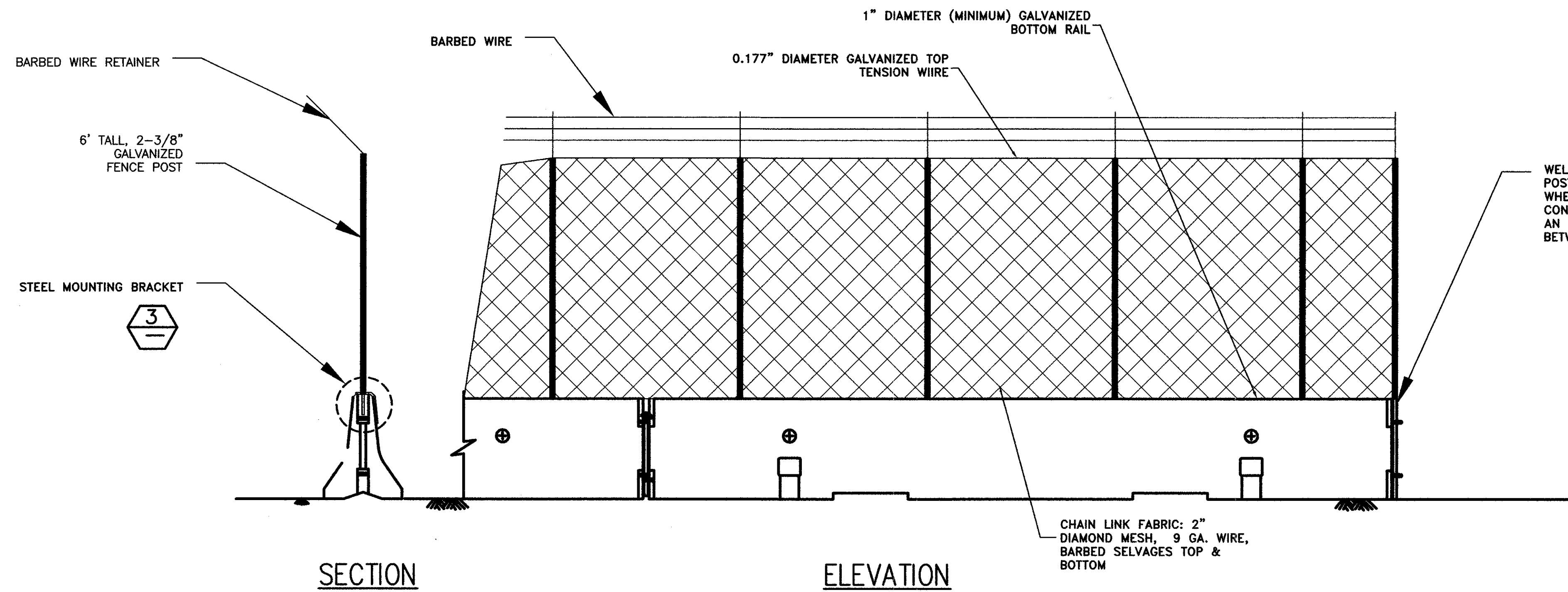
PORT OF OAKLAND
530 WATER ST. OAKLAND, CALIFORNIA

MARITIME SUPPORT CENTER
PAVING A 21-ACRE CONTAINER YARD
WITHIN THE MARITIME SUPPORT CENTER AREA
FENCING DETAILS SHEET 1 OF 3



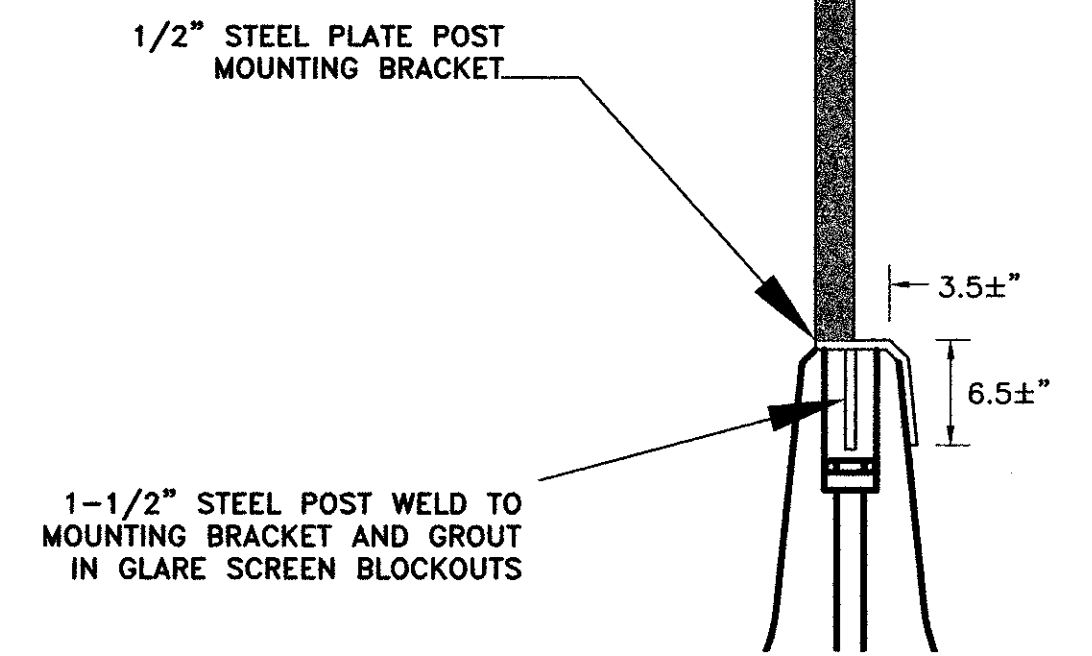
DATE: 4-18-06
SCALE: AS SHOWN
SHEET: 15 OF 22 SHEETS
C6 AA-3958

PRINT DATE: 04-20-06 10:20:38 P:\Active Projects\DMU\SC - Port of Oakland MSC Development\CADD\ paving contract\15-AA-3958-06-07-03.dwg Printed by R.Andrews

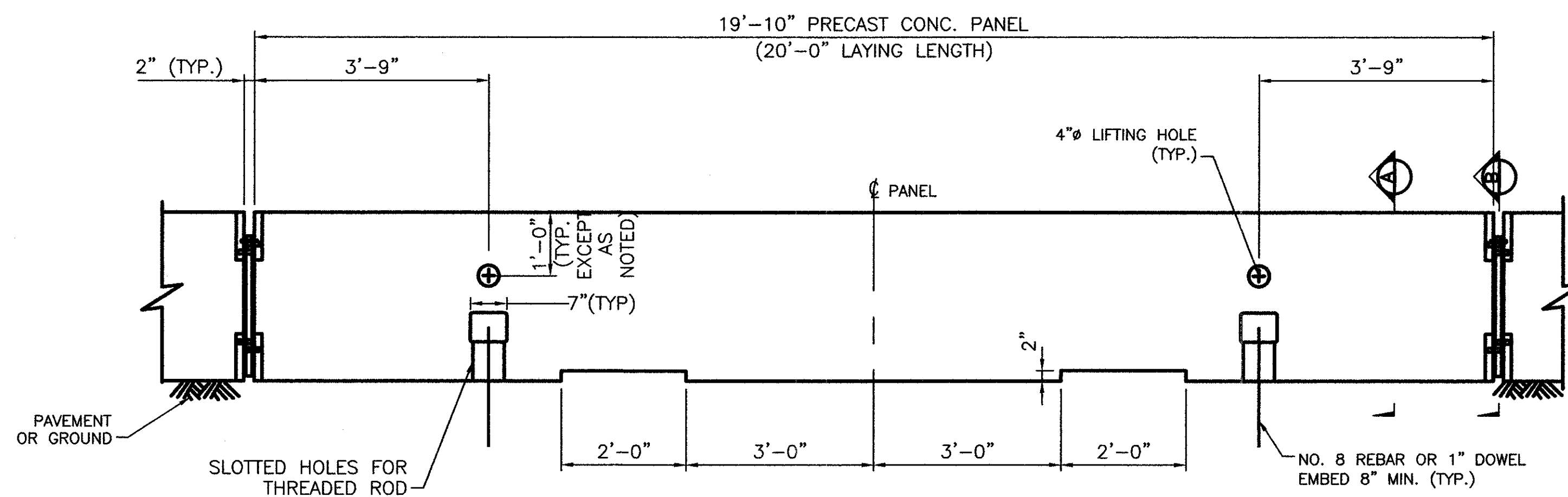


1 FENCE ON K-RAIL DETAIL
1" = 2'

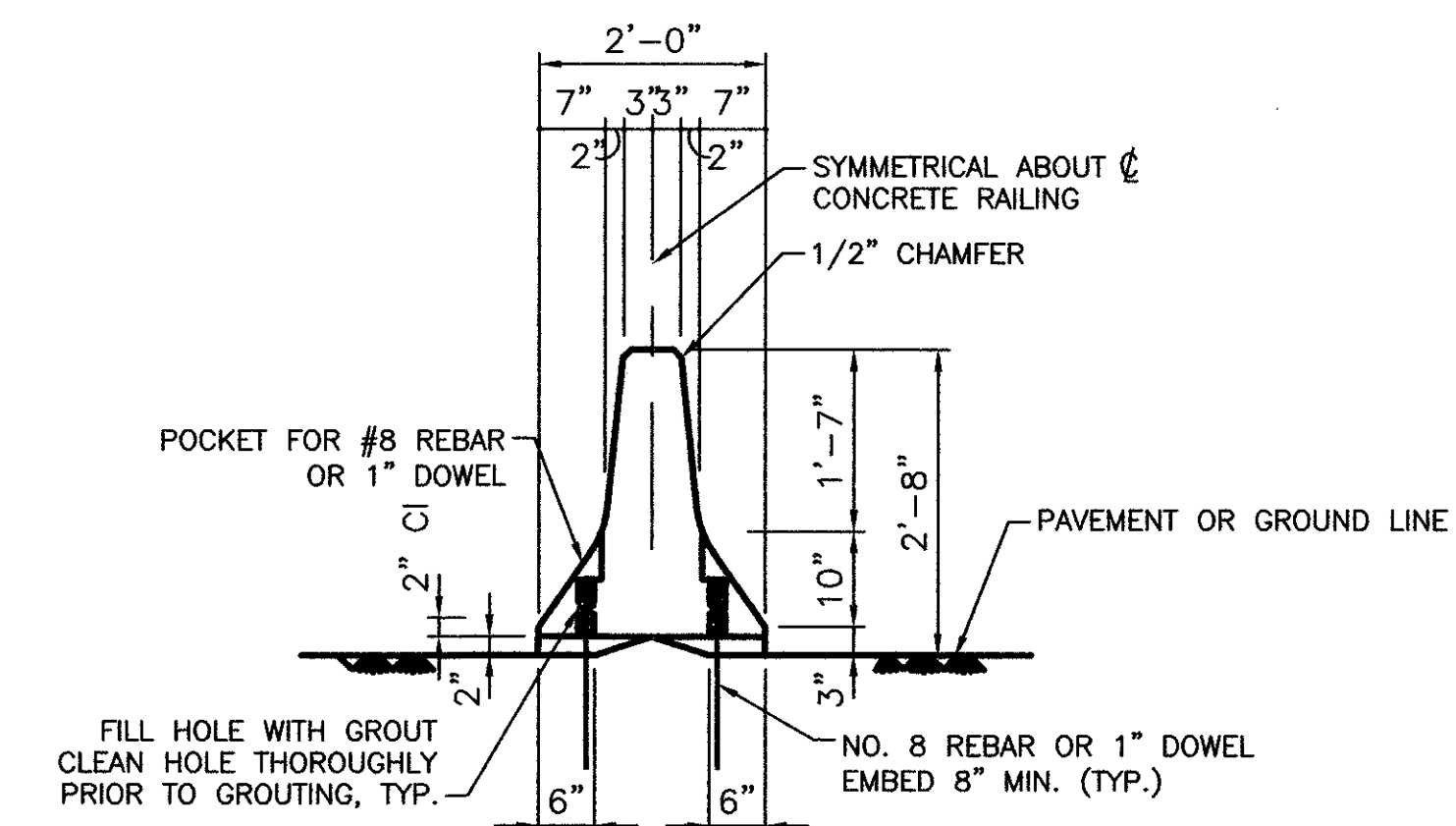
WELD 1-1/2" PIPE TO 2-3/8" FENCE POST AT END OF K-RAIL OR AT ANGLES WHERE FENCE FABRIC WILL NOT BE CONTINUED IN A LINE RESULTING IN AN OFFSET OF LESS THAN 1 FOOT BETWEEN SUCCESSIVE K-RAIL ELEMENTS



3 MOUNTING BRACKET DETAIL
1" = 1'



2 K-RAIL DETAIL
1" = 5'



(A) SECTION THROUGH K-RAIL
1/2" = 1'-0"

(B) SECTION AT BOLT
1/2" = 1'-0"

NOTE
1. SEE CALTRANS STANDARD PLAN T3 FOR REINFORCING AND OTHER REQUIREMENTS.

PRINT DATE: 04-20-06 10:20:56 P:\Active Projects\DNV\SSC-Port of Oakland\MSC_Development\CADD\paving_contract\15-AA-3958-C6-C7-C8.dwg Printed by: R.Andrews

W.O.# 104879

CAUTION: THIS PLAN MAY BE REDUCED

0 1 2 ORIGINAL SCALE

REFERENCES:
PLANS
FIELD BOOKS

"PORT OF OAKLAND DATUM" IS 3.20' BELOW N.G.V.D. '29

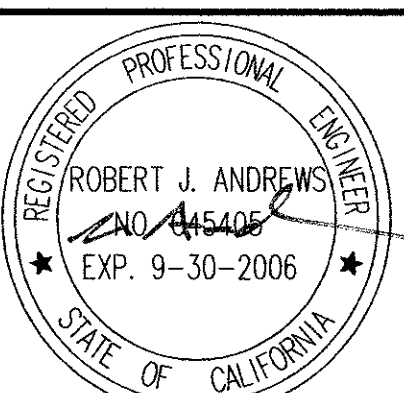
CAUTION:
CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

DRAWN	STAFF
DESIGNED	RJA C45405 REG. ENGINEER NO.
CHECKED	YY C69701 REG. ENGINEER NO.

PORT OF OAKLAND

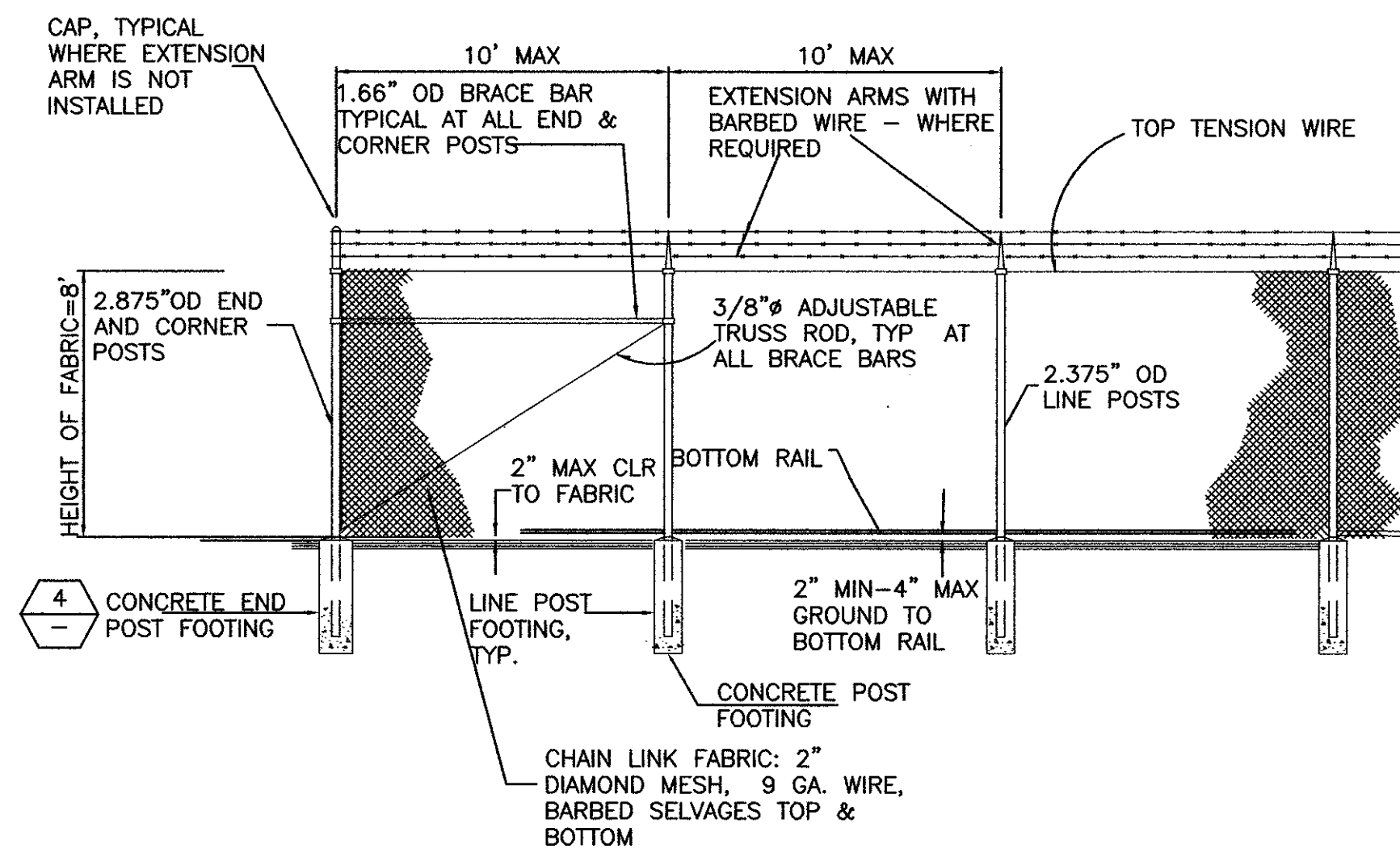
530 WATER ST. OAKLAND, CALIFORNIA



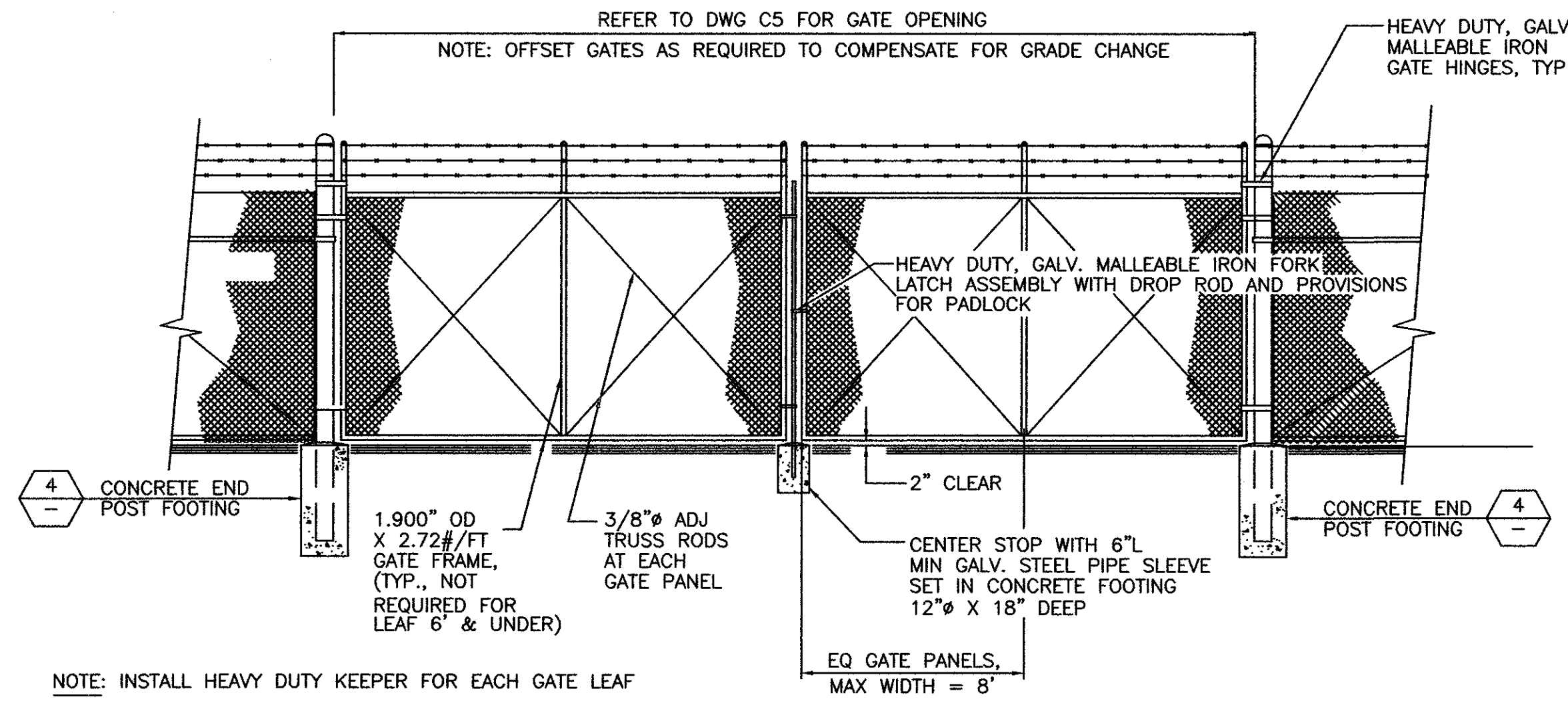
MARITIME SUPPORT CENTER	DATE: 4-18-06
PAVING A 21-ACRE CONTAINER YARD WITHIN THE MARITIME SUPPORT CENTER AREA	SCALE: AS NOTED
FENCING DETAILS SHEET 2 OF 3	SHEET: 16 OF 22 SHEETS
C7	AA-3958

NOTES:

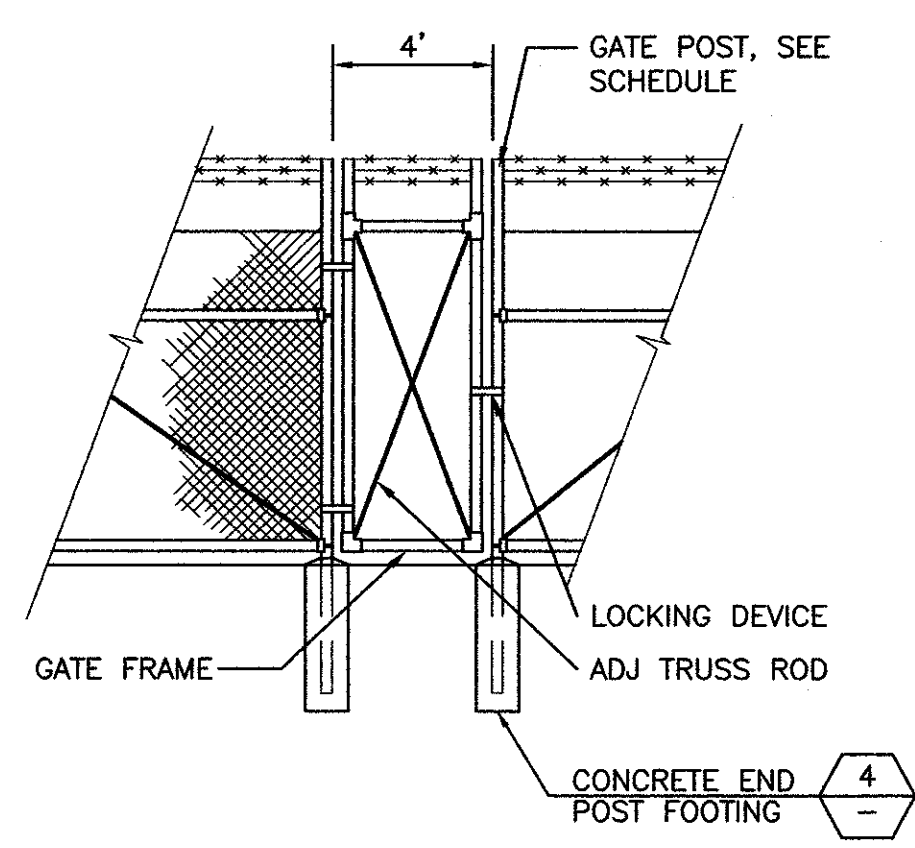
FENCE POST FOOTINGS SHOWN FOR FENCES IN PAVED OR SOIL AREAS. FOR FENCES AND GATES AT ELECTRICAL SUBSTATIONS, CORE DRILL SLAB FOR FENCE AND GATE POSTS TO DEPTH OF 16" AND DIAMETER OF GATE OR FENCE POSTS PLUS 1/2" MIN TOLERANCE EACH SIDE AND EPOXY INTO PLACE. CONTRACTOR MAY SUBMIT ALTERNATIVE ATTACHMENT METHOD FOR REVIEW AND APPROVAL OF THE ENGINEER.



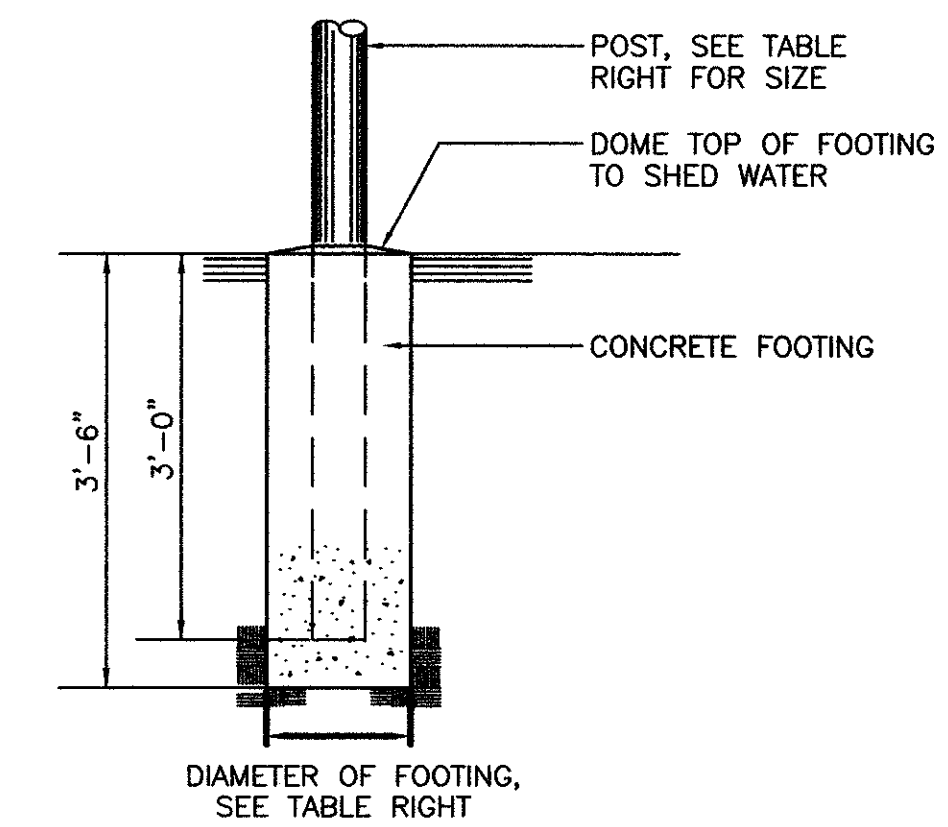
1 CHAIN LINK FENCE
NO SCALE
C5, 56 C8



3 DOUBLE LEAF SWING GATE
NO SCALE
C5, 66 C8



2 PERSONNEL GATE
NO SCALE
C6 C8



4 FENCE POST FOOTING
NO SCALE

POST OR GATE	DIAMETER OF POST (INCHES)	WEIGHT OF GALVANIZED STEEL (LB/FT)	DIAMETER OF FOOTING (INCHES)
4' & 8' LINE	2.375	3.65	8
END, CORNER, OR TRACK	2.875	5.79	12
UNDER 24' DOUBLE LEAF	5.562	14.62	15
24' - 36' DOUBLE LEAF	6.625	18.97	18
OVER 36' DOUBLE LEAF	8.625	28.55	24
3' - 6' SINGLE LEAF	2.875	5.79	8

PRINT DATE: 04-20-06 10:21:11 P:\Active Projects\DN0505-Part of Oakland MSC Development\CADD\working contract\15-A4-3958-C8-C7-C8.dwg Printed by R.Andrews

W.O.# 104879

REFERENCES:
PLANS
FIELD BOOKS
"PORT OF OAKLAND DATUM" IS 3.20' BELOW N.G.V.D. '29
CAUTION: CHECK TRACING FOR LATEST REVISIONS

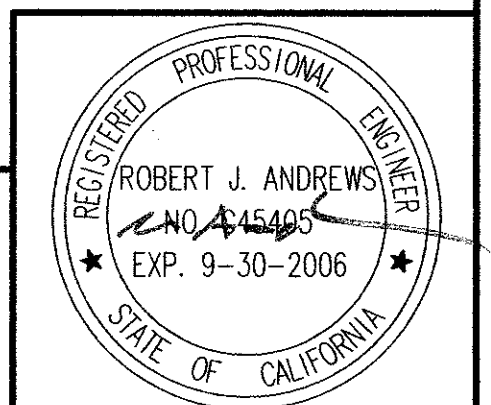
NO.	REVISIONS	DATE	REV'D	APP'D

DRAWN _____ STAFF
DESIGNED RJA C45405 REG. ENGINEER NO.
CHECKED YY C69701 REG. ENGINEER NO.

CAUTION: THIS PLAN MAY BE REDUCED

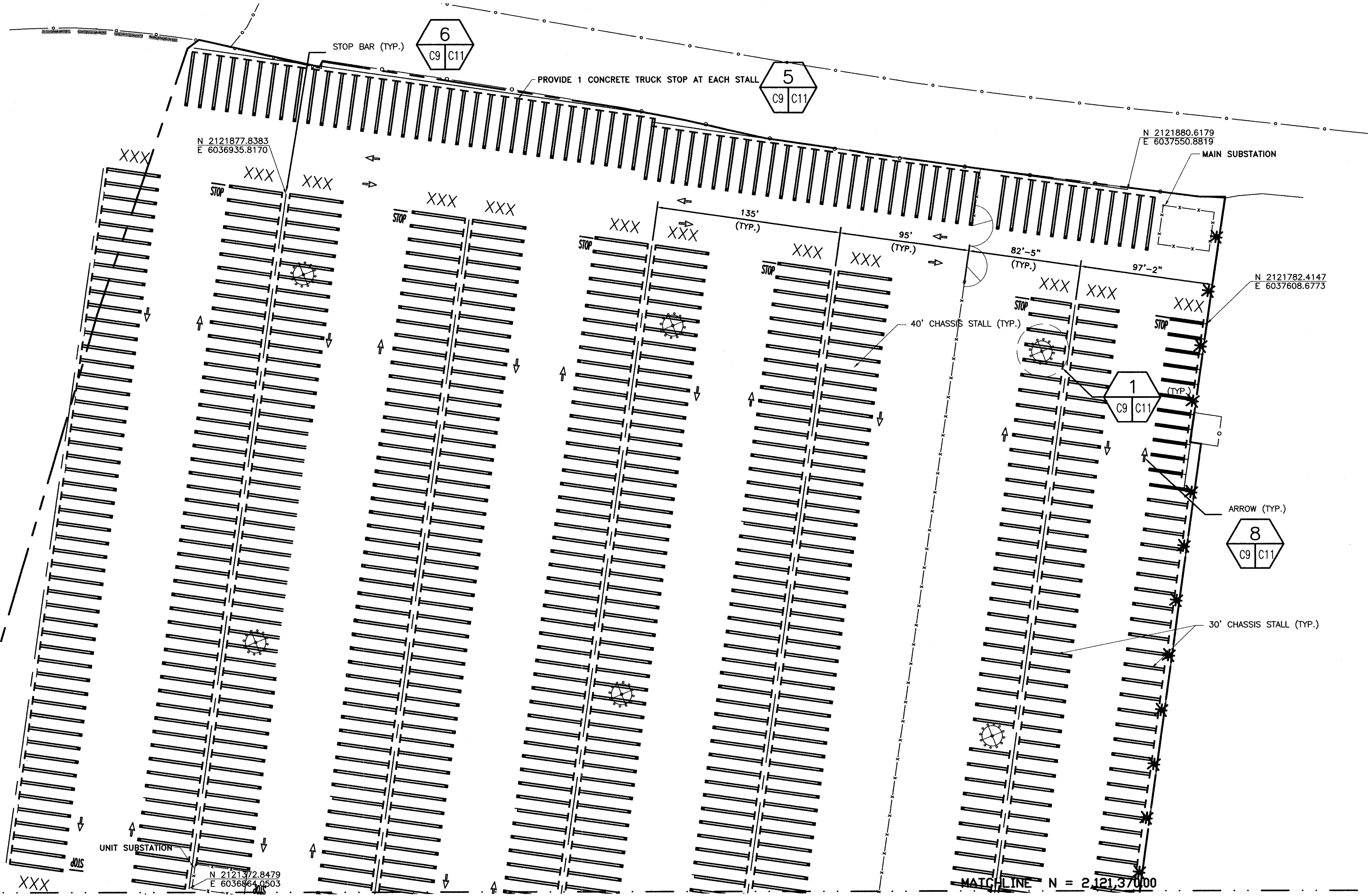
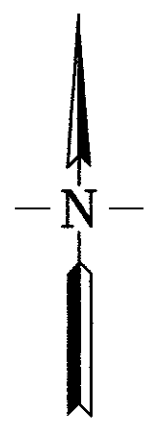
0 1" 2" ORIGINAL SCALE

PORT OF OAKLAND
530 WATER ST. OAKLAND, CALIFORNIA



MARITIME SUPPORT CENTER
PAVING A 21-ACRE CONTAINER YARD WITHIN THE MARITIME SUPPORT CENTER AREA
FENCING DETAILS SHEET 3 OF 3

DATE: 4-18-06
SCALE: AS SHOWN
SHEET: 17 OF 22 SHEETS
C8 AA-3958



MATCHLINE N = 2,121,370.00

MATCHLINE N = 2,121,370.00

PRINT DATE: 04-24-06 10:08:42 P:\Active Projects\DMV\SC-Port of Oakland MSC Development\CADD\paving contract\B-AA-3958-C9-C10.dwg Printed by: RAndrews

W.O.# 104879

REFERENCES:
PLANS
FIELD BOOKS

"PORT OF OAKLAND DATUM"
IS 3.20' BELOW N.G.V.D. '29
CAUTION:
CHECK TRACING FOR LATEST REVISIONS

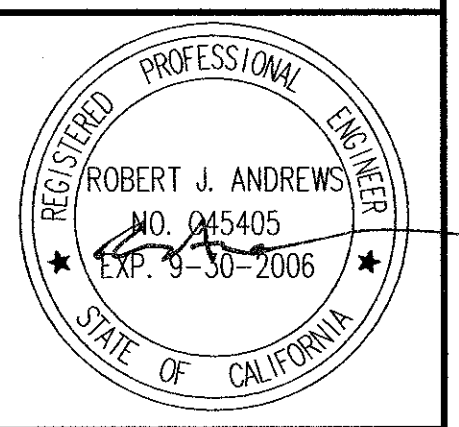
NO.	REVISIONS	DATE	REV'D	APP'D

DRAWN _____ STAFF
DESIGNED RJA C45405 REG. ENGINEER NO.
CHECKED YY C69701 REG. ENGINEER NO.

PORT OF OAKLAND

530 WATER ST. OAKLAND, CALIFORNIA

CAUTION: THIS PLAN MAY BE REDUCED ORIGINAL SCALE



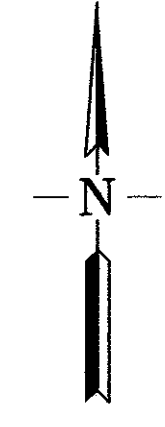
MARITIME SUPPORT CENTER
PAVING A 21-ACRE CONTAINER YARD
WITHIN THE MARITIME SUPPORT CENTER AREA
STRIPING PLAN SHEET 1 OF 2

DATE: 4-18-06
SCALE: 1" = 40'
SHEET: 18 OF 22 SHEETS
C9 AA-3958

MATCHLINE N = 2,121,370.00

N 2121338.1811
E 6036687.8119

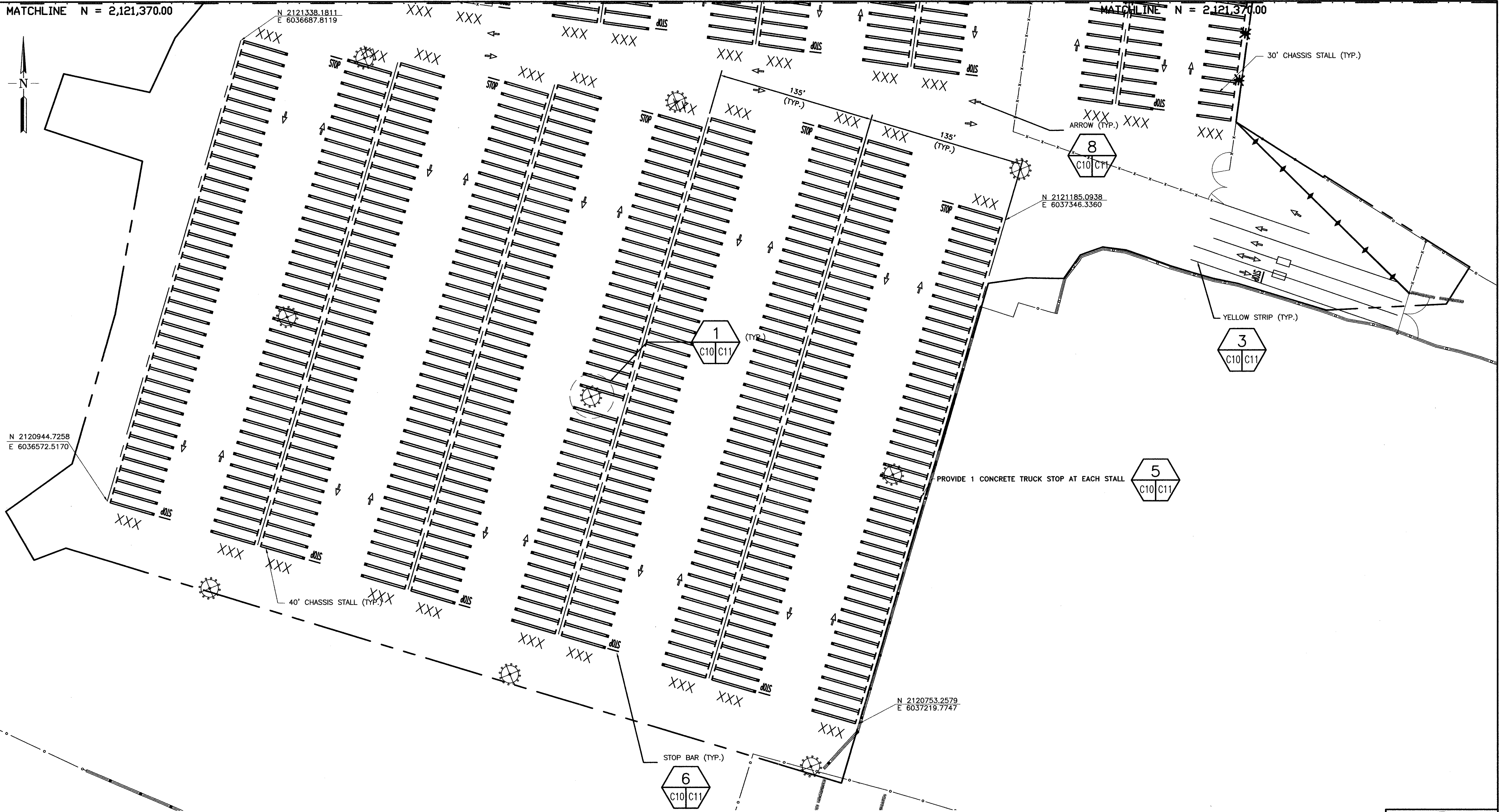
MATCHLINE N = 2,121,370.00



N 2120944.7258
E 6036572.5170

N 2121185.0938
E 6037346.3360

N 2120753.2579
E 6037219.7747



PRINT DATE: 04-24-06 10:09:00 P:\Active Projects\OAKMSC-Port of Oakland MSC Development\CADD\paving contract\18-44-3958-09-C10.dwg Printed by R.Andrews

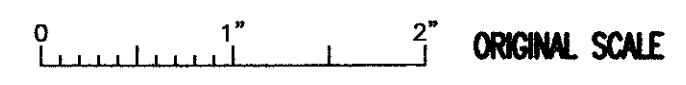
W.O.# 104879

REFERENCES:
PLANS
FIELD BOOKS
"PORT OF OAKLAND DATUM"
IS 3.20' BELOW N.G.V.D. '29
CAUTION:
CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

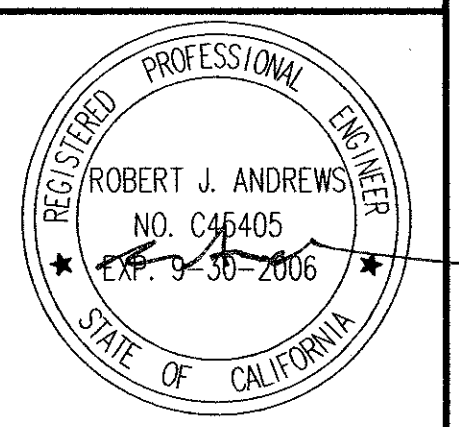
DRAWN STAFF
 DESIGNED RJA C45405 REG. ENGINEER NO.
 CHECKED YY C69701 REG. ENGINEER NO.

CAUTION: THIS PLAN MAY BE REDUCED



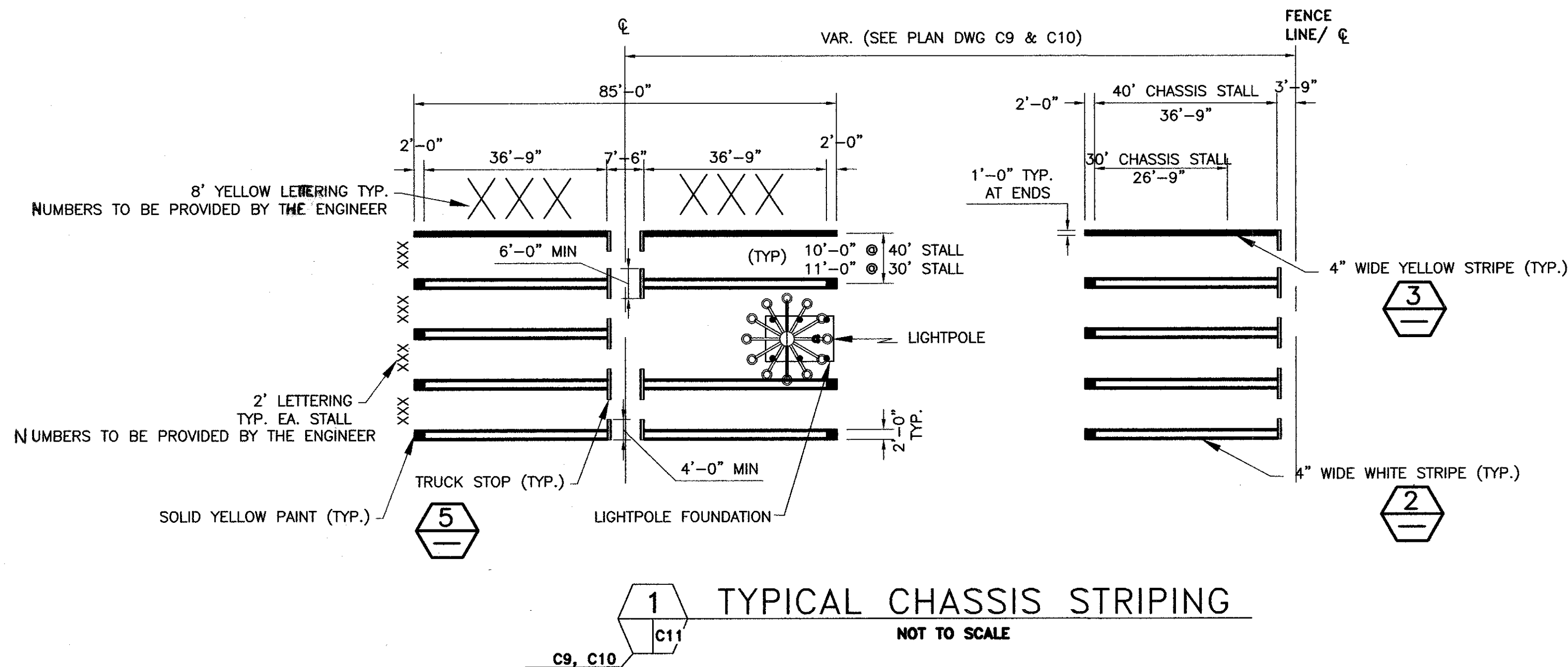
PORT OF OAKLAND

530 WATER ST. OAKLAND, CALIFORNIA

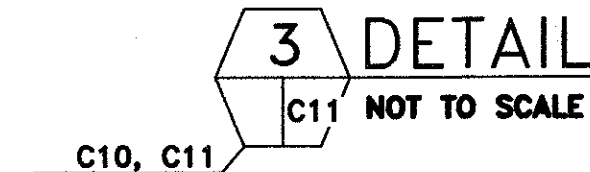


MARITIME SUPPORT CENTER
 PAVING A 21-ACRE CONTAINER YARD
 WITHIN THE MARITIME SUPPORT CENTER AREA
 STRIPING PLAN SHEET 2 OF 2

DATE: 4-18-06
 SCALE: 1" = 40'
 SHEET: 19 OF 22 SHEETS
 C10 AA-3958



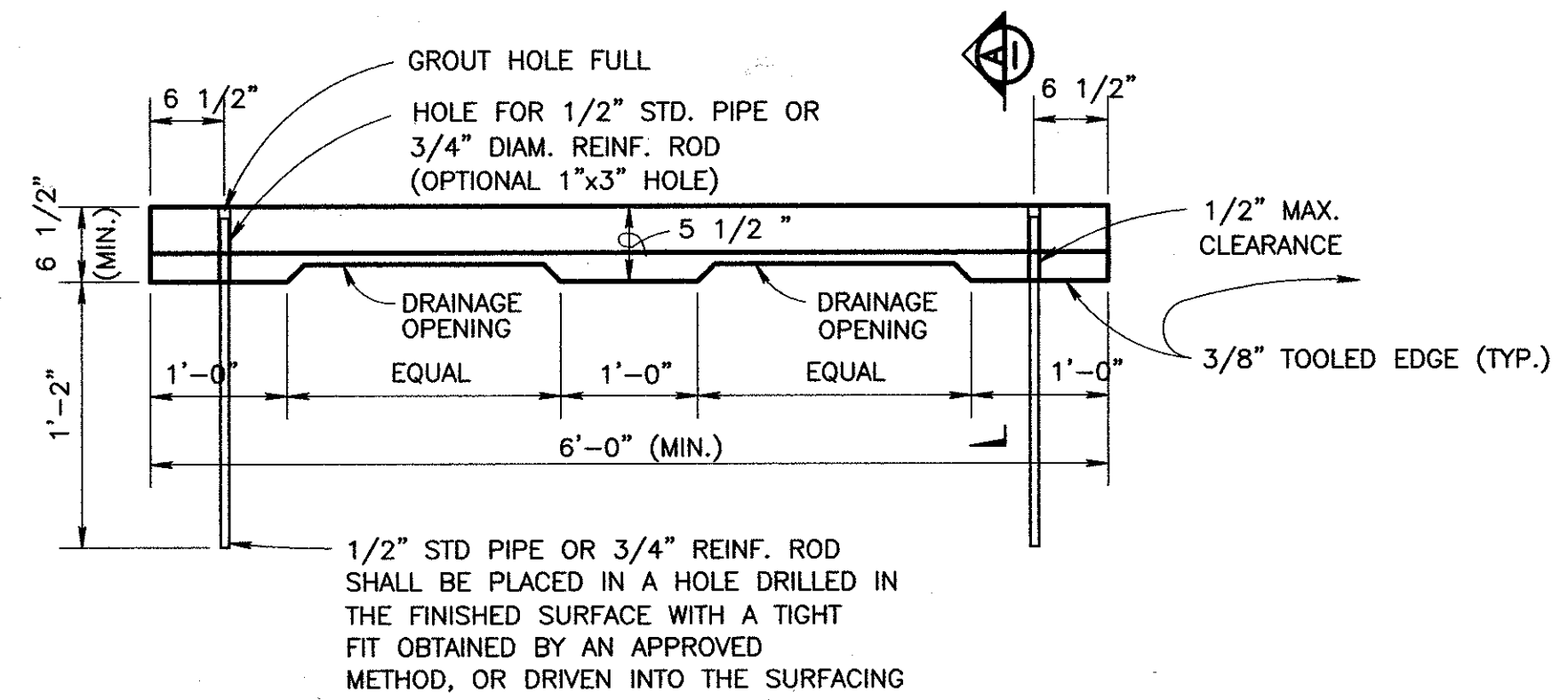
4" SOLID WHITE LINE



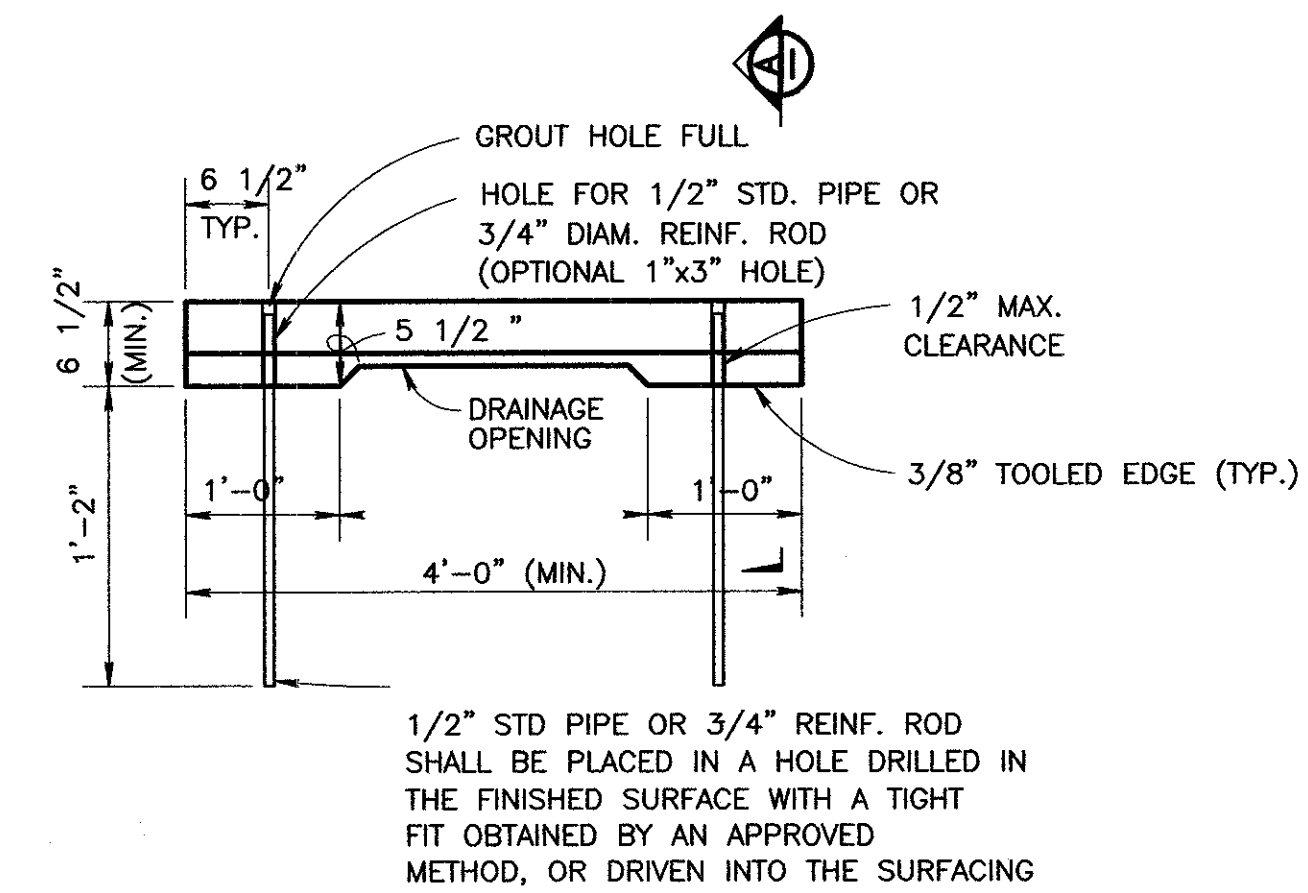
4" SOLID YELLOW LINE



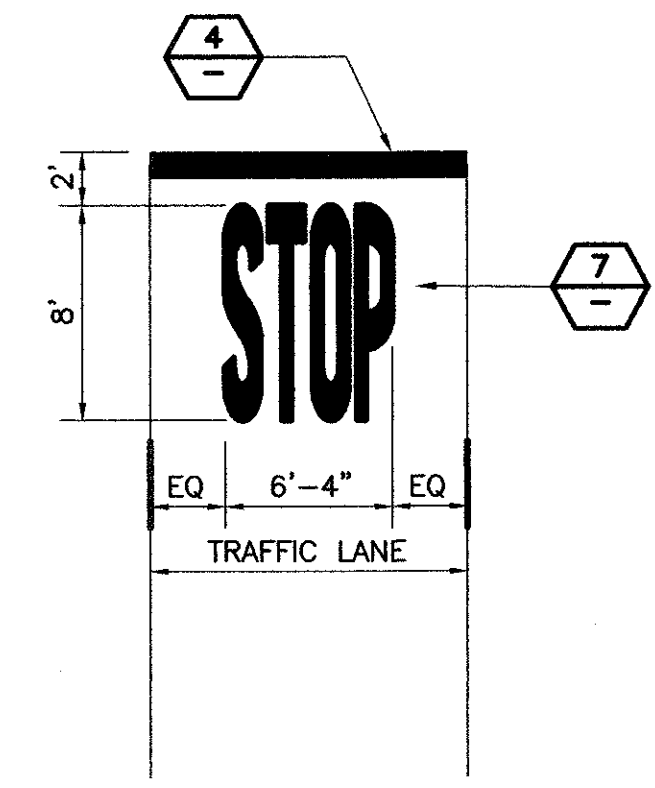
12" SOLID WHITE LINE



ELEVATION - TYPICAL TRUCK STOP

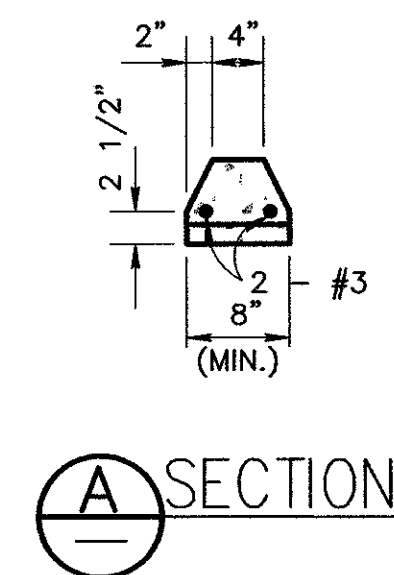
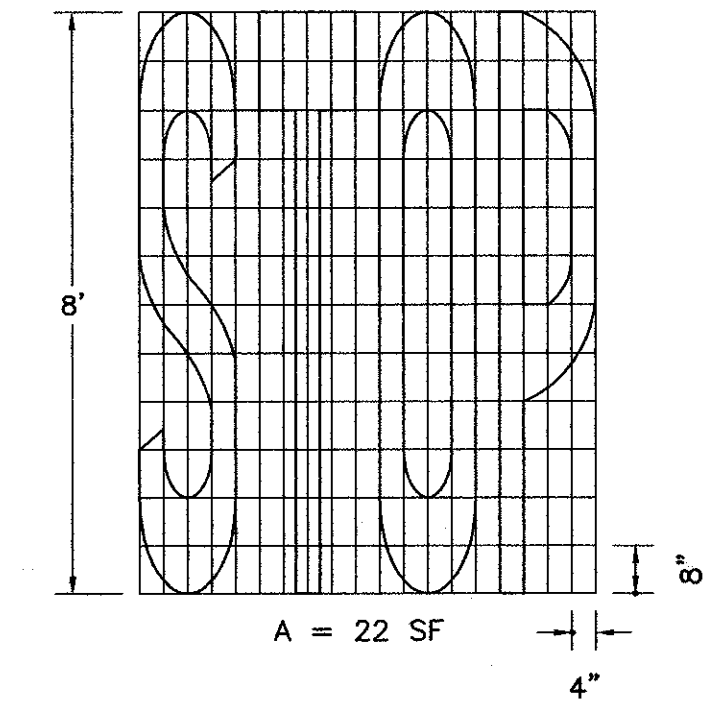


ELEVATION - END TRUCK STOP

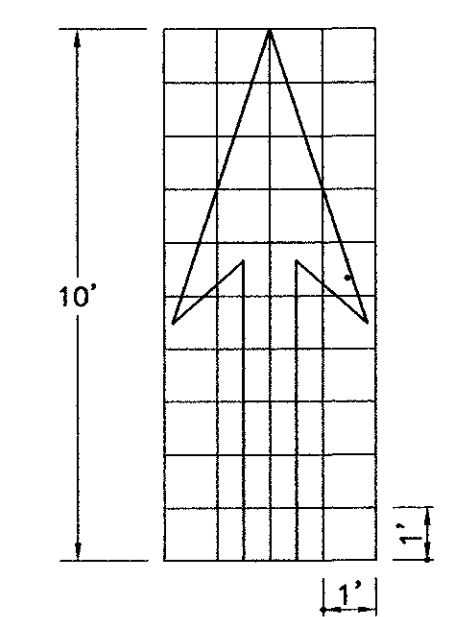


NOTE: ALL MARKINGS WHITE

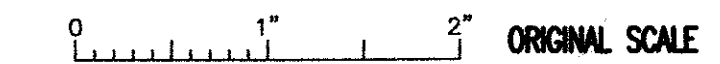
6 STOP BAR C9, C10 C11 NO SCALE



5 PRECAST CONCRETE TRUCK STOP C9, C10 C11 NOT TO SCALE



CAUTION: THIS PLAN MAY BE REDUCED



W.O.# 104879

REFERENCES:
PLANS
FIELD BOOKS

"PORT OF OAKLAND DATUM" IS 3.20' BELOW N.G.V.D. '29

CAUTION: CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

DRAWN STAFF

DESIGNED RJA C45405 REG. ENGINEER NO.

CHECKED YY C69701 REG. ENGINEER NO.

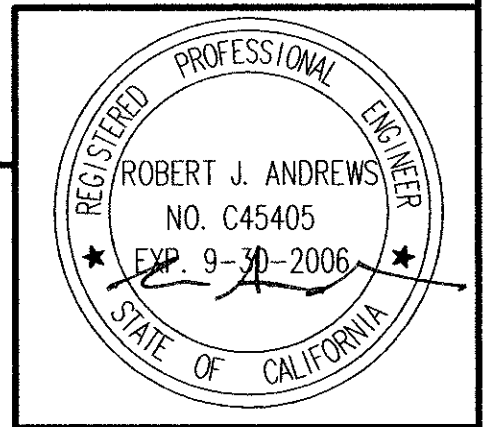
PORT OF OAKLAND

530 WATER ST. OAKLAND, CALIFORNIA

MARITIME SUPPORT CENTER

PAVING A 21-ACRE CONTAINER YARD WITHIN THE MARITIME SUPPORT CENTER AREA

STRIPING TYPICAL DETAILS



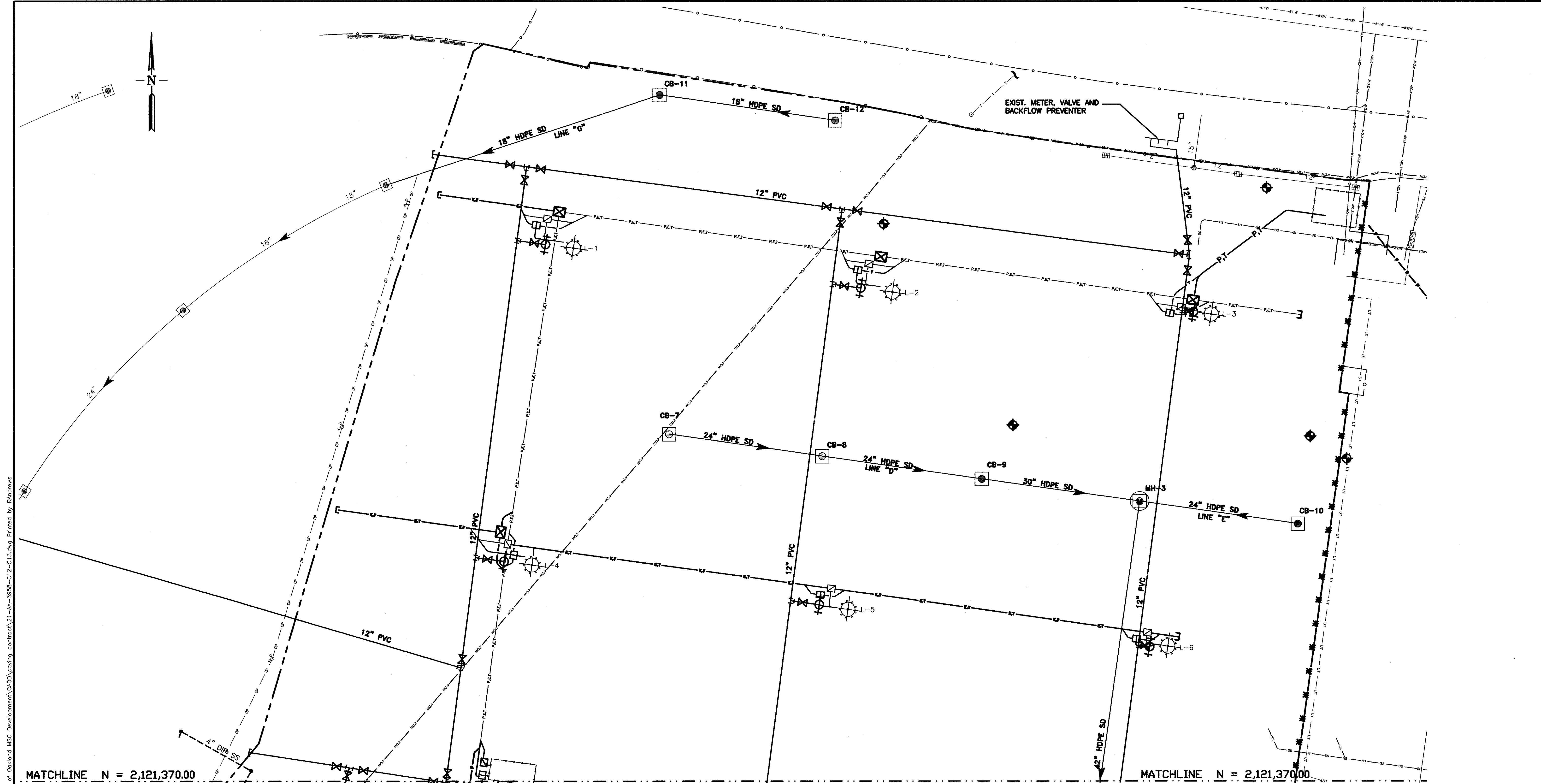
DATE: 4-18-06

SCALE: AS SHOWN

SHEET: 20 OF 22 SHEETS

C11 AA-3958

PRINT DATE: 04-24-06 10:11:17 P:\Active Projects\DN0055-Port of Oakland MSC Development\CADD\paving contract\20-44-3958-C11.dwg Printed by: RAndrews



PRINT DATE: 04-20-06 10:23:07 P:\Active Projects\DNOMISC--Port of Oakland MSC Development\CADD\paving contract\21-aa-3858-C12-C13.dwg Printed by Renews

W.O.# 104879

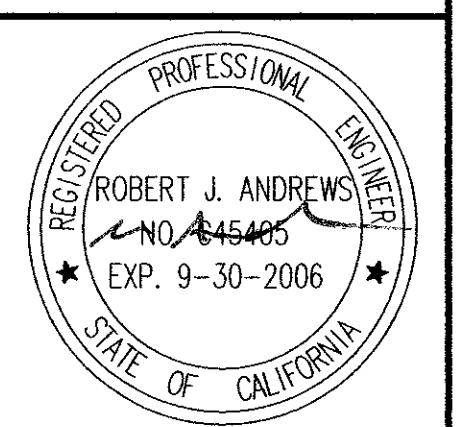
REFERENCES:
 PLANS
 FIELD BOOKS
 "PORT OF OAKLAND DATUM"
 IS 3.20' BELOW N.G.V.D. '29
CAUTION:
 CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

DRAWN _____ STAFF
 DESIGNED RJA C45405 REG. ENGINEER NO.
 CHECKED YY C69701 REG. ENGINEER NO.

CAUTION: THIS PLAN MAY BE REDUCED ORIGINAL SCALE

PORT OF OAKLAND
 530 WATER ST. OAKLAND, CALIFORNIA

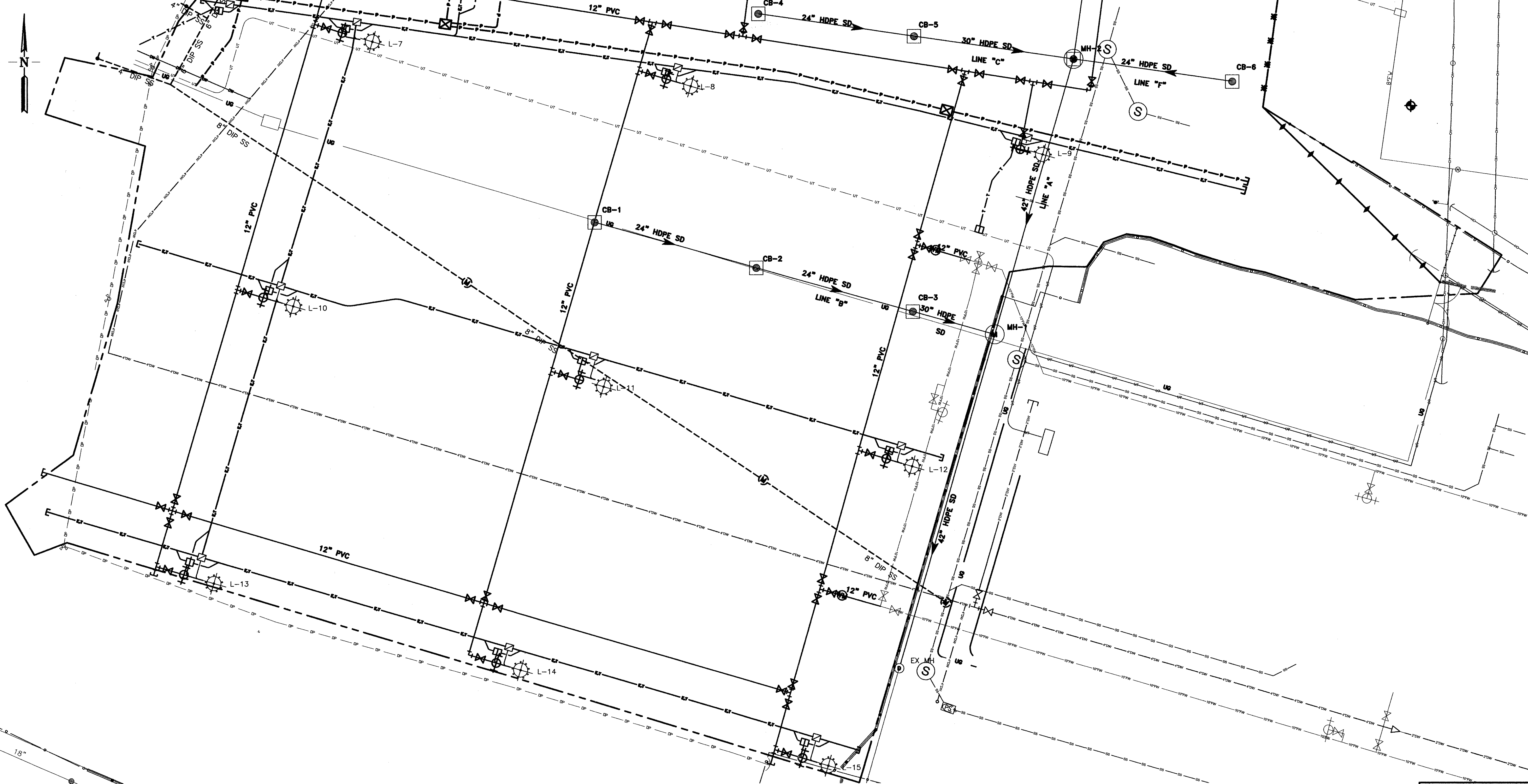


MARITIME SUPPORT CENTER
 PAVING A 21-ACRE CONTAINER YARD
 WITHIN THE MARITIME SUPPORT CENTER AREA
 COMPOSITE UTILITY PLAN SHEET 1 OF 2

DATE: 4-18-06
 SCALE: 1" = 40'
 SHEET: 21 OF 22 SHEETS
C12 AA-3958

MATCHLINE N = 2,121,370.00

MATCHLINE N = 2,121,374.00



PRINT DATE: 04-20-06 10:23:24 P:\Active Projects\UNION\SC-Port of Oakland MSC Development\CADD\paving contract\21-AA-3958-C12-C13.dwg Printed by: RAndrews

W.O.# 104879

REFERENCES:
 PLANS
 FIELD BOOKS

"PORT OF OAKLAND DATUM"
 IS 3.20' BELOW N.G.V.D. '29

CAUTION:
 CHECK TRACING FOR LATEST REVISIONS

NO.	REVISIONS	DATE	REV'D	APP'D

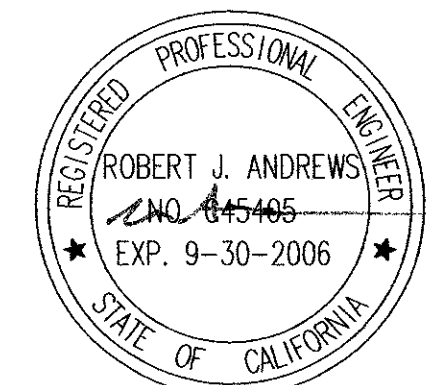
DRAWN	STAFF
DESIGNED	RJA C45405 REG. ENGINEER NO.
CHECKED	YY C69701 REG. ENGINEER NO.

CAUTION: THIS PLAN MAY BE REDUCED

0 1 2 ORIGINAL SCALE

PORT OF OAKLAND

530 WATER ST. OAKLAND, CALIFORNIA



MARITIME SUPPORT CENTER		DATE: 4-18-06
PAVING A 21-ACRE CONTAINER YARD WITHIN THE MARITIME SUPPORT CENTER AREA		SCALE: 1" = 40'
COMPOSITE UTILITY PLAN SHEET 2 OF 2		SHEET: 22 OF 22 SHEETS
C13	AA-3958	