Oyster Point Marina West Basin Access Improvements (Contract 2024-04)

ADDENDUM NO. 1
RESPONSE TO QUESTIONS

TO: ALL HOLDERS OF THE Plans and Specifications for the San Mateo County Harbor District's **"OYSTER POINT MARINA WEST BASIN ACCESS IMPROVEMENTS (CONTRACT 2024-04)"**

FROM: San Mateo County Harbor District
This ADDENDUM provides responses from the District to questions about the Invitation For Bids for Contract 2024-04, submitted by a prospective bidder.

Question 1:Please provide copies of the permits to contractors to accurately determine environmental requirements.

District response: Permits will be uploaded to the Harbor District website and will also be provided to potential bidders in a separate email.

Question 2: For the installation of new steel pipe piles are contractors restricted by in-water work windows?

District response: Yes, steel pipe piles are restricted by the in-water work window. Note: all in-water work is subject to the in-water work window.

Question 3: What is the Engineers estimate for this project?

District response: The EE will not be provided as part of the Invitation for Bid, but the Harbor District can provide an expected project cost range from $1.8M to $2.6M.

Question 4: It was communicated during the Job Walk that the crane pad design is the responsibility of the contractor. Has there been any effort made to estimate the bearing capacity of the ground at the three pads? Placing gravel (Note 11 Dwg C-003) over unsuitable ground will not support heavy cranes. Should the contractor estimate the project based on the assumption that the pads would provide sufficient support for a construction crane of sufficient size to build the project?

District response: No estimate of bearing capacity of the existing shoreline has been performed. The gravel pad shown on the Drawings are intended to be the base for supporting crane pads. For ground bearing pressures, see Appendix A – 2007 Treadwell & Rollo Geotechnical Investigation, Section 8.1.4.

Question 5: Are contractors allowed to track heavy equipment, such as cranes, along the bay trail?

District response: Contractor's equipment may use the Bay Trail but any damage caused to existing facilities due to Contractor operations must be repaired by the Contractor at Contractor expense to the Harbor District's satisfaction. Note that the Bay Trail shall remain open during construction. Contractor's use of the Bay Trail will require flagging for trail user safety.

Question 6: Special Provisions 3.4 states that the project will be completed in 100 working days after receiving NTP. Does this include the design, approval, and fabrication of project elements that require design by the contractor? Currently in the plans the contractor is responsible to design aluminum gangways, floating docks, and precast panels. The process of design, approval, and fabrication for these elements poses significant lead times upwards of 20+ weeks. This leaves very little time for the installation of these components, creating a tight deadline for the work to be completed within the 100 working days.

District response: The project Working Days have been extended to 150 Working Days.

Question 7: Section 055100 Aluminum Fabrications, Section 3.2 Finishing, Paragraph A. says "All exposed surfaces of the gangways and ramps, except handrails, shall be sandblasted..." . Please confirm that sandblasting the structures is a requirement.

District response: A sandblasted finish is required as specified.

Question 8: What is the utility load per linear foot for the ramps and gangways?

District response: Assume 20 plf for electrical and 60 plf for water/fire utilities on the ramps and gangways.

Question 9: Drawing S-006 Security Gate Details, Note 1 says that "All structural members and hardware shall be ss316." The gate specifications are listed in Section 055100 of the Aluminum Fabrication specifications. Is the security gate structure stainless steel or aluminum?

District response: The security gate structure shall be SS316. Specification Section 055100 has been renamed and revised for clarity. See related comment #12 below.

Question 10: The drawings give a clear width dimension for the ramps and gangways. Is the "clear width" dimension clear inside guardrails or clear inside internal handrails? Please specify.

District response: The clear width is the clear unobstructed distance between the handrails.

Question 11: Is this a Build America / Buy America project?

District response: No.

Question 12: Confirm Security Gate material. Note 1 on S-006 states all structural members and hardware shall be 316 SS. But the security gate specification falls under 055100 Aluminum Fabrications. The spec section states that the security gate fabricator shall have “previous project experience on marine-grade aluminum gate/fence..” Please confirm which components of the gate are SS and which are Aluminum.
Per Spec section 055100 Aluminum Fabrications, the panel shall be powder coated aluminum. Sheet S-006 says “Recessed HDPE sign panel.” Please confirm the material of the sign panel.

District response: The security gate shall be SS316. Security Gate fabricator experience has been revised to include either aluminum or stainless steel marine-grade security gates. The sign panel shall be HDPE per sheet S-006. Paragraph 2.6 has been revised accordingly. Note: Spec section 055100 has been renamed “Aluminum and Steel Fabrications.”

Question 13: Demolition (sheet C-003, note 5): Confirm type and size of piles to be demolished at docks 1/2, 3/4 and 5/6.

District response: For bidding purposes, assume the existing piles are 12” (nominal) square precast prestressed concrete.

Question 14: The plans call for the gangway landing floats to be concrete floats. Spec Section 024800-7 Part 2 provides a list of acceptable floats to be used for various types of floats such as concrete, timber, and aluminum. Please clarify if these gangway landing floats are to be concrete floats.

District response: The gangway landing floats may be concrete, timber, or aluminum as specified. Plan view callouts on sheets C-12 and C-13 will be revised from “concrete landing float” to “gangway landing float.”

Question 15: What are the estimated lengths of the existing piles that are to be removed? What are the estimated depths of the footings/foundations along the existing ramps? Are there As-Builts for these areas?

District response: or the purpose s of pile removal as part of this project, assume the existing piles are 50-ft long. There are no as-built plans available.

Question 16: Please provide a pile length schedule to confirm exact pile lengths at each location, to ensure bidders price the same quantities.

District response: Piles are 125’ long. The pile tip elevation has been raised from -115’ to -114’.

Question 17: Spec section 316216 Steel Pipe Piles (section 3.1.A), states that work shall be done using land-based equipment. Please confirm if the Harbor District will allow this work to be completed by barge, to minimize potential damage to the new site improvements. Furthermore, driving piles from land may require a sheet pile cofferdam to support the crane at the temporary crane pad limits, as shown on sheet C-003. Please confirm if sheet piles may be driven at the temporary crane pad limit locations.
If work may be completed by barge, confirm the distance between the existing finger floats (between floats 1 & 2, floats 3 & 4, and 5 & 6).

District response: Work shall be performed using land-based equipment. Work shall not be completed by barge. Sheet piles are not allowed under the permits

Question 18: The bid docs qualification questionnaire (item #6) asks for the contractor’s EPA Generator Number to dispose of any hazardous waste. Please confirm if (and what type of) hazardous waste is expected to be encountered and/or disposed of. Please also confirm if the contractor may provide a temporary EPA generator number only when awarded the project and if hazardous waste is encountered.

District response: For bidding purposes, assume no hazardous waste is expected to be generated by the demolition of the existing access piers and gangways. The contractor may provide a temporary EPA generator number if hazardous material is encountered.

Question 19: Do the permits allow for temporary piles to be driven for the template that is required Per spec 316216-5 Section 3.2B?

District response: The driving template is not mentioned in the permits. Specification Section 316216 paragraph 3.2 has been revised to state that the pile driving template is optional.

Question 20: Please provide boring reports so that contractor can run drivability reports to determine what size hammer is needed to reach required tip elevation.

District response: Boring data will be provided on the Harbor District website and will also be included in Addendum 1, Appendix A.

Question 21: Spec 316216-7 Section 3.4A states “Install and remove piles with a vibratory hammer.” Please confirm that the engineer has determined that a vibratory hammer with be capable of driving the new piles to required tip elevation and that an impact hammer will not be needed.

District response: A pile drivability analysis has not been performed. The material has been characterized as primarily Bay mud, underlain by sand. The pile lengths were determined based on extending into the sand layer below the Bay mud layer.

Question 22: Does the San Mateo Harbor County District have a Geotechnical Soils report to provide to all the bidders?

District response: No Geotechnical Soils report was prepared for this project. However, previous Geotechnical Investigations were performed for projects in the vicinity. Boring Logs will be provided on the Harbor District website and included as part of Addendum 1, Appendix A.

Question 23: Does the San Mateo Harbor County District have all regulatory permits in place to perform the work?

District response: Yes.

Question 24: Sheet C-020, Fire Protection Notes, 5 States-
PIPING MATERIAL & FIREWATER SYSTEM SHALL BE IN COMPLIANCE WITH NFPA 14, NFPA 303, LOS ANGELES COUNTY FIRE CODE, AND REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION. ALL MATERIALS SHALL BE UL LISTED WHERE AVAILABLE.
Is this correct? Should this be in compliance with Los Angeles County Fire Code?

District response: Note 5 has been revised to remove the reference to Los Angeles County Fire Code. See Addendum 1, Revisions to Project Drawings.

Question 25: Sheet C-020, Fire Protection Notes, 6
THE FLOATING DOCK FIRE PROTECTION SYSTEM SHALL BE A CLASS II WET STANDPIPE SYSTEM, PER NFPA 14. THE PRE-FABRICATED FLOATING BUILDINGS WILL HAVE A SEPARATE FIRE SYSTEM AND SHALL BE A WET SPRINKLER SYSTEM. THE WET SPRINKLER SYSTEM TO BE PERMITTED SEPARATELY UNDER THE STATEOF

CALIFORNIA DIVISION OF STATE ARCHITECT (DSA) AND STATE DEPARTMENT OF HOUSING COMMUNITY DEVELOPMENT (HCD).
Where are the “Pre-fabricated floating buildings” on these plans?

District response: Note 6 has been revised to delete the last two sentences. See Addendum 1, Revisions to Project Drawings.

Question 26: Are there low-voltage systems on the floating docks (ie. telephone, wifi etc…) ?

District response: For bidding purposes, assume there are no existing internet/cable communication system.

Question 27: Plans, Sheet C-024, Detail A Shows an 8” Fire line from abutment going all the way to reducing to a 4” line at beginning of the floating docks.
Please confirm if 8” line in the beginning is required. An 8” line is not typical for a fire suppression line diameter in marina construction. 4” is typical.

District response: The 8” fire line is required to meet the current fire code.

Addendum 1

Revisions to Technical Specifications

Key:

~~Strikethrough~~ text = deleted
Underlined text = added

Specification Section 055100 "Aluminum Fabrications"

Rename Specifications Section 055100 to "Aluminum and Steel Fabrications"

Paragraph 1.1 "Summary" – revise sub paragraph A and add new sub paragraph B:

A. This section describes the requirements to design, furnish, and install aluminum gangways, ramps, ~~security gate assembly,~~ and associated railings and appurtenant structures as shown in the Drawings and as specified herein.

B. This section also includes the stainless steel security gate assembly as shown in the Drawings and as specified herein.

Paragraph 1.5 "Design Requirements – Security Gate System" – revise sub paragraph E:

E. Fabricator shall have a minimum of 5-years of experience designing and fabricating similar security gates for marina docks, and shall submit a minimum of three (3) similar projects demonstrating relevant previous experience, including photographs and previous project contact information (name, phone, email). Previous project experience shall include at a minimum, marine-grade aluminum or stainless steel gate/fence with proximity reader installation.

Paragraph 2.6 "Security Gate" – add sub paragraph A, renumber subsequent paragraphs, and revise sub paragraph C:

A. Security gate structural members and hardware shall be stainless steel Grade 316.

B. Gate handle shall be lever-type.

C. Dock designation sign panel shall be ~~powder-coated aluminum~~ HDPE; color to be determined by the District. Letters shall be etched and ~~painted~~ colored white ~~or fully cut out from the panel~~.

D. The Security Gate Access system shall include a Proximity Reader and Proximity Cards, programmable for up to a minimum of 25,000 users.

1. Acceptable Product: Secura Key RK65K-DT Reader and HID Proximity Cards, or approved equal.

E. Plexiglass shall be marine-grade designed to support the specified loads.

Specification Section 055100, paragraph 3.3 "Installation" – add new sub paragraph D:

D. Contractor shall furnish and install all materials and equipment required for the security gate installation as shown on the Drawings and as specified.

Specification Section 316216 “Steel Pipe Piles

Paragraph 2.4 “Pile Coating System” – add new sub paragraph C:

C. Alternative pile coating system:

1. Anti-corrosion tape, minimum 10 mil thickness, overlap minimum 1-inch.
2. Acceptable product: 3M Scotchrap Corrosion Protection 50 with Scotchrap Pipe Primer, or approved equal.

Paragraph 2.6 “Sleeve Filler Material” – add new sub paragraph B:

B. Alternative filler: Non-shrink, free flowing (low viscosity) cementitious grout.

Paragraph 3.1 “Pile Installation Procedure”, revise sub paragraph A.1:

1. All work shall be done using land-based equipment. All pile driving shall be conducted in compliance with ~~noise and vibration thresholds defined by the~~ permit conditions~~documents~~. The Contractor may provide a temporary template ~~to guide the piles~~ during installation~~. The template shall be constructed~~ to achieve the installation tolerances listed in this specification.

Paragraph 3.2 “Layout and Control”, revise sub paragraph B:

B. The Contractor may provide a template to guide the piles during installation~~. The template shall be constructed~~ to achieve the tolerances listed in Paragraph 3.8.

Paragraph 3.9 “HDPE Sleeve”, revise sub paragraph C.1:

1. Filler shall extend through the full height of the sleeve above the mudline. Ensure filler material fills the annular space by sounding with a rubber mallet or similar means.

Revisions to Project Drawings

See Appendix B for revised Project Drawing sheets

Drawing sheet C-003 “Demolition & Temporary Facilities Plan”:

1. Plan View:
    a. Add temporary access float between docks 4 and 5, and related note 12.
    b. Delete proposed security gate and piles.
    c. Revise callouts to reference correct notes.
    d. Revise note 9.
2. Elevation View: Call out existing 12” concrete piles.

Drawing sheet C-010 “Dock Access Plan”:

1. Plan View:
    a. Add temporary access float between docks 4 and 5.
    b. Revise “temporary access dock” to “temporary access float.”

Drawing sheet C-012 “Docks 3 & 4 – Dock Access Plan & Elevation”:

1. Plan View:
    a. Revise callout from “9’ x 16’ concrete landing float” to “9’ x 16’ gangway landing float (see note 3).”

Drawing sheet C-013 “Docks 3 & 4 – Dock Access Plan & Elevation”:

1. Plan View:
    a. Revise callout from “9’ x 16’ concrete landing float” to “9’ x 16’ gangway landing float (see note 3).”

Drawing sheet C-020 “Mechanical General Notes, Legend & Abbreviations”:

1. Fire Protection Notes:
    a. Note 5 – Delete “Los Angeles County Fire Code”

        5. PIPING MATERIAL & FIREWATER SYSTEM SHALL BE IN COMPLIANCE WITH NFPA 14, NFPA 303~~, LOS ANGELES COUNTY FIRE CODE,~~ AND REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION. ALL MATERIALS SHALL BE UL LISTED WHERE AVAILABLE.

    b. Note 6 – Delete the last two sentences.

        6. THE FLOATING DOCK FIRE PROTECTION SYSTEM SHALL BE A CLASS II WET STANDPIPE SYSTEM, PER NFPA 14. ~~THE PRE-FABRICATED FLOATING BUILDINGS WILL HAVE A SEPARATE FIRE SYSTEM AND SHALL BE A WET SPRINKLER SYSTEM. THE WET SPRINKLER SYSTEM TO BE PERMITTED SEPARATELY UNDER THE STATE OF CALIFORNIA DIVISION OF STATE ARCHITECT (DSA) AND STATE DEPARTMENT OF HOUSING COMMUNITY DEVELOPMENT (HCD).~~

c. Note 7 – Added “SS316” as shown.

7. FLEXIBLE HOSE CONNECTIONS AT GANGWAY SHALL BE FACTORY ASSEMBLED LENGTHS OF ANNUFLEX OR APPROVED EQUAL, 34" DYNAMIC MIN BEND RADIUS ON A 8" HOSE, 250 PSI MIN WORKING PRESSURE WITH MARINE **(SS316)** STAINLESS STEEL COUPLINGS EACH END.

d. Abbreviations – Changed “UNO – Unless noted otherwise” to “UON – Unless otherwise noted”

Drawing sheet S-004 “Access Platform Pile Details”:

1. Detail 1 “16 INCH DIA STEEL PIPE PILE ELEVATION”:
   a. Revise callout from “PILE TIP EL -115” to “PILE TIP EL -114”

Appendix A

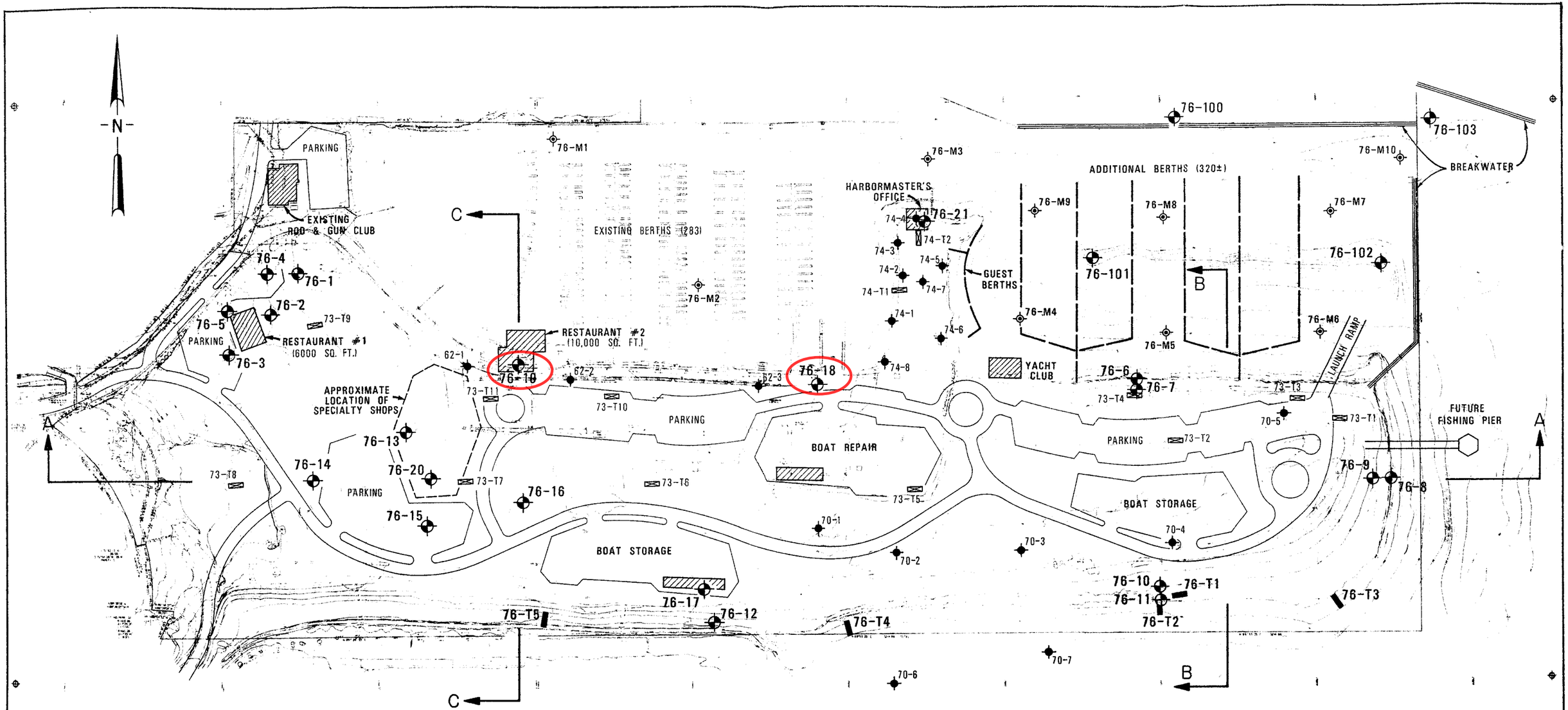
Available Geotechnical Information

Excerpts from 1976 Woodward-Clyde Consultants Geotechnical Investigation

Excerpts from 1980 DMJM As-Built Site Improvement Drawings

Excerpts from 2007 Treadwell & Rollo Geotechnical Investigation

2012 Treadwell & Rollo Geotechnical Study



NOTES:

1) BASE MAP REDUCED FROM "HYDROGRAPHIC/TOPOGRAPHIC MAP OF OYSTER POINT MARINA" PREPARED BY TOWILL, INC. FOR BRIAN-KANGAS-FOULK & ASSOCIATES DATED MARCH 11, 1976

2) SITE DEVELOPMENT PLANS TAKEN FROM "PRELIMINARY MASTER PLAN – OYSTER POINT MARINA" BY ROYSTON, HANAMOTO, BECK, & ABEY DATED JUNE 15, 1976.

LEGEND:

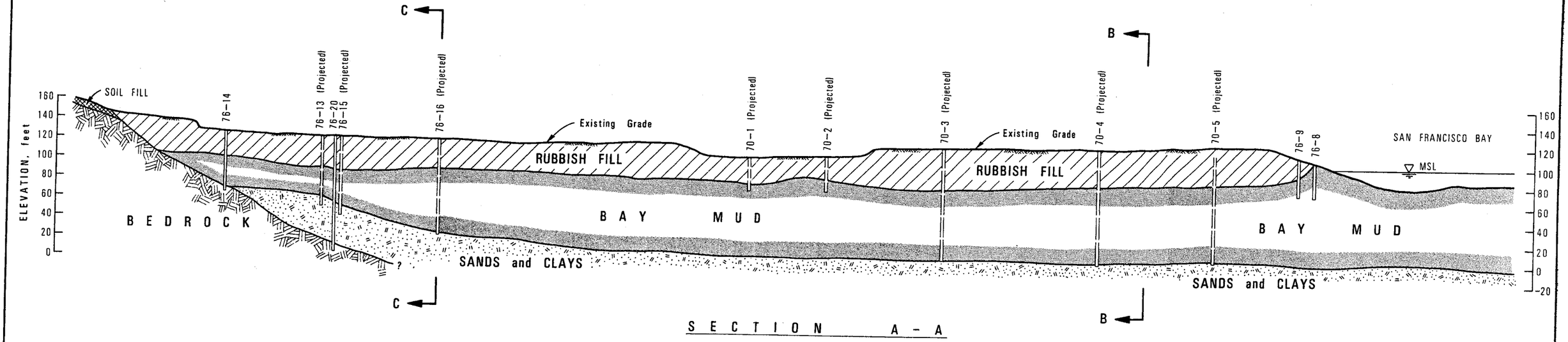
76-1	1976 BORINGS BY WOODWARD-CLYDE CONSULTANTS FOR PRESENT STUDY (25)
76-T1	1976 TEST TRENCHES BY WOODWARD-CLYDE CONSULTANTS FOR PRESENT STUDY (5)
76-M1	1976 MUDLINE SAMPLES BY WOODWARD-CLYDE CONSULTANTS FOR PRESENT STUDY (10)
74-1	1974 BORINGS BY HARLAN ENGINEERS
70-1	1970 BORINGS BY GRIBALDO, JONES & ASSOCIATES
62-1	1962 BORINGS BY JOHN A. BLUME & ASSOCIATES, ENGINEERS
74-T1	1974 TEST TRENCHES BY HARLAN ENGINEERS
73-T1	1973 TEST TRENCHES BY BERLOGAR, LONG & ASSOCIATES

0 100 200 300 400 500 600
Scale in Feet

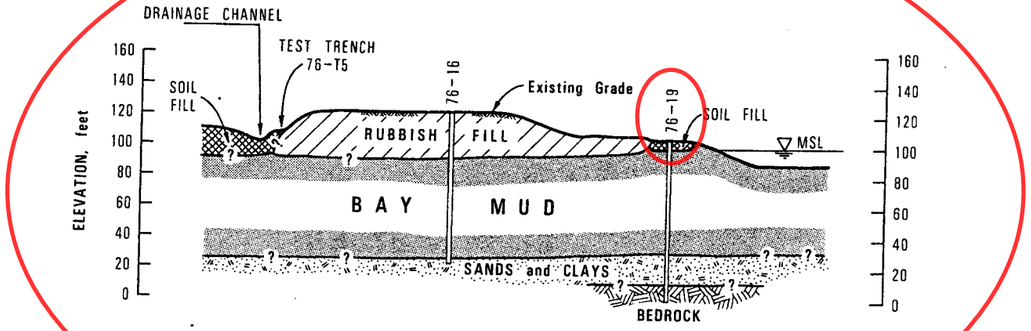
SITE EXPLORATION PLAN
AND PROPOSED DEVELOPMENT
OYSTER POINT MARINA
South San Francisco, California

Project No. 13609A
WOODWARD-CLYDE CONSULTANTS

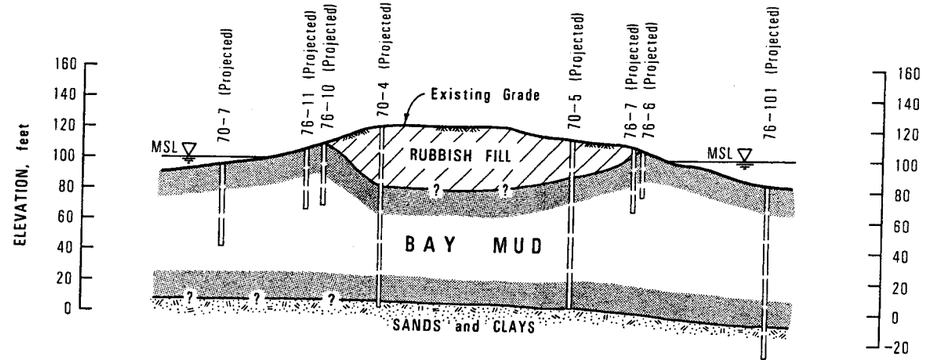
Figure 1



SECTION A - A



SECTION C - C



SECTION B - B

NOTES:

1) REFER TO FIGURE 1 FOR LOCATION AND ORIENTATION OF SECTIONS.

2) VERTICAL EXAGGERATION = 100 / 40 = 2.5x

3) THE RUBBISH FILL IS OVERLAIN BY A SOIL CAP OF VARYING THICKNESS, QUALITY AND COMPOSITION.

4) EXISTING SURFACE ELEVATIONS TAKEN FROM THE "HYDROGRAPHIC/TOPOGRAPHIC MAP OF OYSTER POINT MARINA" PREPARED BY TOWILL, INC. FOR BRIAN-KANGAS-FOULK & ASSOCIATES DATED MARCH 11, 1976.

5) THE IDEALIZED SOIL PROFILES ARE CONSTRUCTED BY DIRECT INTERPOLATION BETWEEN TEST BORINGS DRILLED AT VARYING SPACINGS. THE LINES DELINEATING THE VARIOUS SOIL AND ROCK TYPES WERE DONE FOR SCHEMATIC ILLUSTRATION PURPOSES ONLY. THE PROFILES SHOULD NOT BE CONSTRUED AS ACCURATE REPRESENTATIONS OF ACTUAL FIELD CONDITIONS.

LEGEND:

RUBBISH FILL
POORLY COMPACTED DOMESTIC AND LIGHT INDUSTRIAL SOLID WASTE INCLUDING NEWSPAPERS, CARDBOARD, CANS, ETC.

BAY MUD
SOFT, DARK GRAY SILTY CLAY

SANDS and CLAYS
MEDIUM DENSE TO DENSE SANDS AND SILTS AND MEDIUM STIFF TO HARD CLAYS

BEDROCK
SOFT TO MEDIUM HARD SHALE AND SANDSTONE

SOIL FILL
MODERATELY COMPACTED CLAYEY AND SILTY SANDS

0 100 200 300 400 500 600
Scale in Feet

IDEALIZED SOIL PROFILES
SECTIONS A-A, B-B, and C-C
OYSTER POINT MARINA
South San Francisco, California

Project No. 13609A
WOODWARD-CLYDE CONSULTANTS

Figure 4

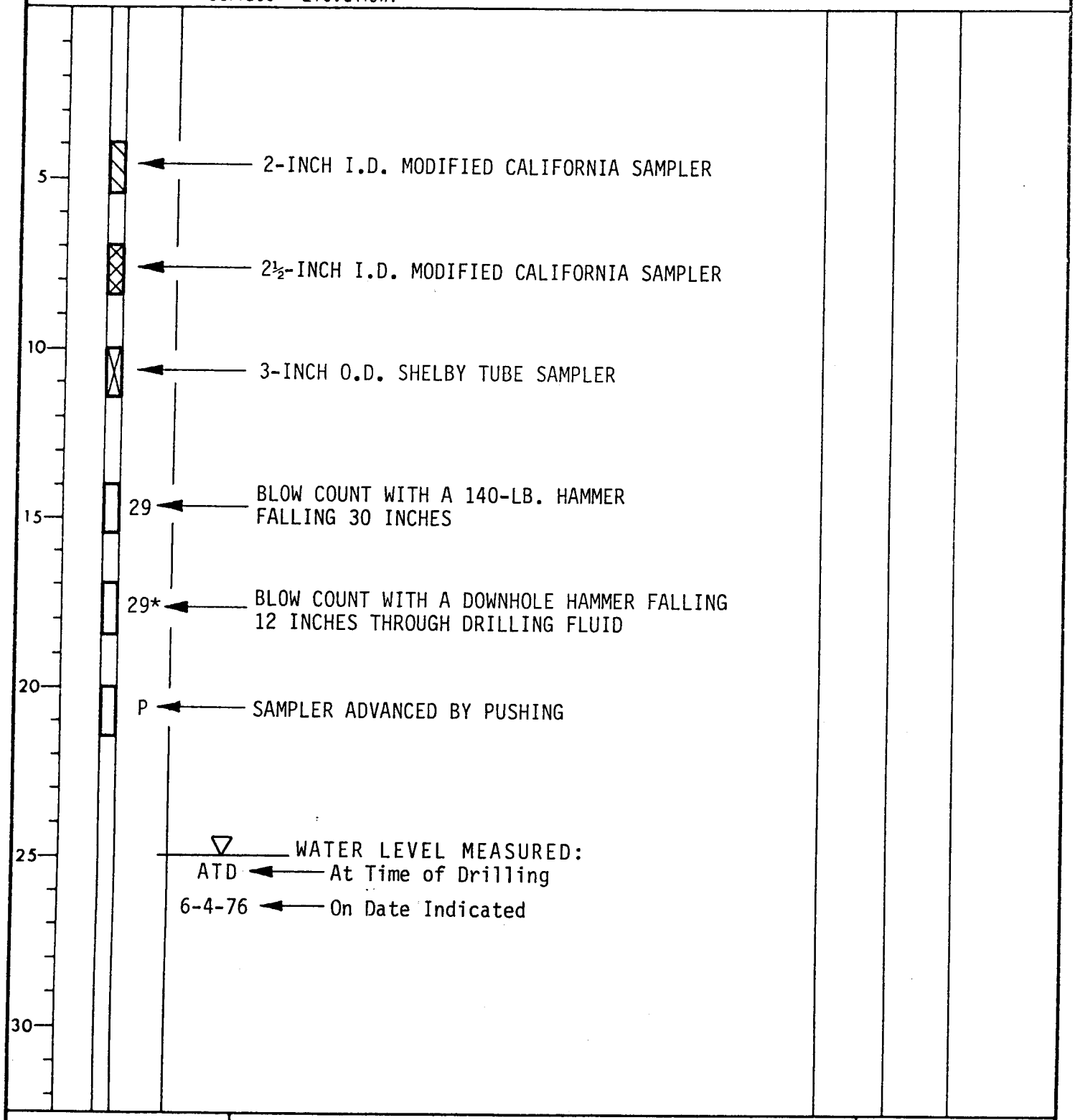
Project: OYSTER POINT MARINA
South San Francisco, California

BORING LOG LEGEND SHEET

Date Drilled: _____ Hammer Weight: _____

Type of Boring: _____ Remarks: _____

Depth, Ft	Samples	Blows/Ft	DESCRIPTION	Moisture Content, %	Dry Density pcf	Unconfined Compressive Strength, psf
			Surface Elevation:			



Job No. 13609A | WOODWARD-CLYDE CONSULTANTS | Figure A-1

Log of Boring No. 76-17

Project: OYSTER POINT MARINA
South San Francisco, California

Date Drilled: June 15, 1976
Type of Boring: 6" Auger
Hammer Weight:
Remarks:

Depth, Ft.	Samples	Blows/Ft.	DESCRIPTION	Moisture Content, %	Dry Density pcf	Unconfined Compressive Strength, psf
			Surface Elevation: 122			
			CLAYEY SILT FILL: Poorly compacted, dry, brown			
5			RUBBISH FILL			
10						
15						
20						
25						
30			Rubbish mixed with soft clay			
35			(FILL)			
40						
45						
50			SILTY CLAY (CH) Soft, saturated, dark gray			
55						
60						
65						
70						
75						
80						
85						
90			With stringers of dark brown peat			
95						
100						
105						
110			(BAY MUD)			
115			CLAYEY SAND (SC) Loose to medium dense, black			
			SAND (SP) Medium dense, greenish-gray			
120			Dense, clayey			
			BOTTOM OF HOLE @ 122'			
125						

Log of Boring No. 76-18

Project: OYSTER POINT MARINA
South San Francisco, California

Date Drilled: June 16, 1976
Type of Boring: 6" Auger
Hammer Weight:
Remarks:

Depth, Ft.	Samples	Blows/Ft.	DESCRIPTION	Moisture Content, %	Dry Density pcf	Unconfined Compressive Strength, psf
			Surface Elevation: 104			
			1" Asphalt Over 8" Rock Base			
			SAND FILL: Poorly compacted			
5			RUBBISH FILL			
10			(FILL)			
15						
20			SILTY CLAY (CH) Soft, saturated, dark gray			
25						
30						
35						
40			(BAY MUD)			
45						
50						
55						
60						
65						
70						
75						
80						
85						
90						
95			Soft to medium stiff			
100						
105			Medium stiff (BAY MUD)			
110			SILTY CLAY (CL) Medium stiff, black, with lenses of sand			
			CLAYEY SAND (SC) Medium dense, light green-gray			
115			BOTTOM OF HOLE @ 112'			

Proj. No. 13609A

WOODWARD-CLYDE CONSULTANTS

Figure A-15

Log of Boring No. 76-19

Project: OYSTER POINT MARINA, South San Francisco, California
Date Drilled: June 10, 1976
Type of Boring: 6" Auger
Hammer Weight: 140 lbs.
Remarks:

Surface Elevation: 105

Depth, Ft.	Samples	Blows/Ft.	DESCRIPTION	Moisture Content, %	Dry Density pcf	Unconfined Compressive Strength, psf
			2" Asphalt Over 5" Rock Base			
0	1	21	CLAYEY SAND FILL Moderately compacted, moist, dark gray, with rock fragments and some rubbish	-	-	-
5	2	12	(FILL) } Soft clay and rubbish	-	-	-
10	3	1		69	58	-
15	4	2*	SILTY CLAY (CH) Very soft to soft, saturated, dark gray	58	64	200
30	5	2	(BAY MUD)	59	61	500
45	6	2*	LL = 67%, PI = 40%	60	60	380
60	7	4*		52	64	570
75	8	18*	Medium stiff (BAY MUD) SILTY CLAY (CH) Stiff, saturated, green UU TRIAXIAL TEST $\frac{1}{2}(\sigma_1-\sigma_3)$ = 800 psf	21	106	-
80	9	32	SILTY CLAY (CL) Very stiff, saturated, brown	19	111	6870
85	10	19	Grades with depth to Fine Sandy Clay UU TRIAXIAL TEST $\frac{1}{2}(\sigma_1-\sigma_3)_f$ = 1350 psf	23	103	-
90	11	32	SAND (SP) Medium dense, saturated, brown With lenses of silty sand and sandy silt	-	-	-
95	12	68	Grades with depth to sandy silt (ML) SHALE Soft, saturated, dark gray Soft to medium hard Medium hard Medium hard to hard BOTTOM OF HOLE @ 105'	-	-	-

Log of Boring No. 76-20

Project: OYSTER POINT MARINA, South San Francisco, California
Date Drilled: June 11, 1976
Type of Boring: 4-3/4" Rotary
Hammer Weight: 140 lbs.
Remarks:

Surface Elevation: 123

Depth, Ft.	Samples	Blows/Ft.	DESCRIPTION	Moisture Content, %	Dry Density pcf	Unconfined Compressive Strength, psf
0	1	43	CLAYEY SAND FILL Moderately compacted, dry, brown	-	-	-
5	2	16/9"		-	-	-
10			RUBBISH FILL			
30			Rubbish fill mixed with soft clay and wood (FILL)			
40	3	6		-	-	-
45	4	1	SILTY CLAY (CH) Soft, saturated, dark gray			No Recovery
50	5	3	LL = 72%, PI = 46%	54	64	590
60	6	6		51	66	470
65			(BAY MUD)			
70	7	29	FINE CLAYEY SAND (SC)			
			SILTY CLAY (CL) Very stiff, saturated, green	22	104	5390
75	8	78	SAND (SP) Very dense, saturated, dark green-gray	-	-	-
80	9	41	FINE SANDY CLAY (CL) Very stiff, saturated, brown UU TRIAXIAL TEST $\frac{1}{2}(\sigma_1-\sigma_3)_f$ = 1910 psf	16	119	-
85	10	80	UU TRIAXIAL TEST $\frac{1}{2}(\sigma_1-\sigma_3)$ = 4830 psf	16	117	-
90	11	80	SILTY CLAY (CL) Hard, saturated, gray-brown	15	118	11,600
95	12	40	Very stiff, more plastic (CL-CH) with some sand UU TRIAXIAL TEST $\frac{1}{2}(\sigma_1-\sigma_3)_f$ = 2330 psf	18	113	-
100			SILTY SAND (SM) Dense, saturated, brown			
105	13	73/9"	SANDY CLAY (CL-SC) Very stiff, saturated, mottled gray-brown, with rock fragments, probably highly weathered bedrock	-	-	-
110			SANDSTONE Hard, damp, reddish-brown, with claystone inclusions			
115	14	90/6"	BOTTOM OF HOLE @ 117'	-	-	-

Proj. No. 13609A | WOODWARD-CLYDE CONSULTANTS | Figure A-16

△ Electrical Components deleted and/or changed per C.O. #1: 1/16/80

△ As BUILT 12/15/80

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PREPARED FOR

OYSTER POINT MARINA / PARK
SAN MATEO COUNTY HARBOR DISTRICT
CITY OF SOUTH SAN FRANCISCO

JOB TITLE: SITE IMPROVEMENTS AND ASSOCIATED WORK - STAGE 1

SHEET TITLE: UTILITY PLAN - CENTRAL & MOLE SECTIONS & DETAILS

DRAWN BY	HDH
CHECKED BY	WB
APPROVED BY	WCC
JOB NO.	6226-1-1
SHEET NO.	7 of 20
DATE	SEPTEMBER 10, 1979

GEOTECHNICAL INVESTIGATION
SOUTH SAN FRANCISCO FERRY TERMINAL
OYSTER POINT MARINA
South San Francisco, California

San Mateo Harbor County Harbor District
South San Francisco, California

10 October 2007
Project No. 4177.03

Treadwell&Rollo
Environmental and Geotechnical Consultants

6.2.1 Liquefaction, Lateral Spreading, and Differential Compaction

Saturated, cohesionless soil can liquefy as it experiences a temporary loss of shear strength created by a transient rise in excess pore pressure generated by strong ground motion. We conclude the sand layers present beneath the groundwater at the site are sufficiently dense and/or cohesive so that the potential for liquefaction and lateral spreading is low.

Cyclic densification of non-saturated loose to medium dense sand by earthquake vibrations can cause ground surface settlement (differential compaction). On the basis of a review of the Woodward-Clyde 1976 borings, it appears the sand above the groundwater within the proposed landside development area at the site, where explored, is sufficiently dense and/or cohesive so that the potential for cyclic densification and associated settlement is low.

6.2.2 Ground Rupture

Historically, ground surface ruptures closely follow the trace of geologically young faults. The site is not within an Earthquake Fault Zone, as defined by the Alquist-Priolo Earthquake Fault Zoning Act and no known active or potentially active faults exist on the site. Therefore, we conclude the risk of fault offset at the site from a known active fault is low. In a seismically active area, the remote possibility exists for future faulting in areas where no faults previously existed; however, we conclude the risk of surface faulting and consequent secondary ground failure is low.

7.0 DISCUSSION AND CONCLUSIONS

From a geotechnical standpoint, we conclude the site can be developed as planned, provided the recommendations presented in this report are incorporated into the project plans and specifications and implemented during construction. The primary geotechnical issues to be addressed for the project are settlement of the Bay Mud under the weight of existing fill and refuse material adjacent to the site (former Oyster Point landfill) and satisfactory foundation support for the proposed pier structure. Our conclusions regarding these and other issues are discussed in the remainder of this section.

7.1 Settlement

The results of our analyses indicate the Bay Mud is still consolidating under the weight of the existing fill and refuse material, which terminate at the shoreline. These results are consistent with the thickness of

the Bay Mud and the length of time the fill has been in place. Consequently, even if no new fill is added to the site, settlement will continue to occur due to on-going primary consolidation and secondary compression (strain-related movements) of the Bay Mud. Where new fill is placed, a new cycle of primary consolidation will begin and additional settlement will occur. However, we understand only minor onshore fills in the vicinity of the ramp will be placed; the settlement associated with this additional fill is expected to be minor relative to the remaining settlement. Our estimates of the predicted future settlement versus time along the shoreline at the site over the next 50 years are shown on Figure 6. Differential settlement between the pile-supported pier structure and the shoreline should be anticipated. Exterior slabs and ramps attached to the pile-supported pier should be hinged to accommodate the anticipated differential settlement between the pier and shoreline. We understand asphalt or gravel pathways will extend perpendicularly from the ramp. Regular maintenance, such as the addition of fill or asphalt overlays should be anticipated for the pathways as the hinged slab rotates to reduce differential settlement between the ramp and pathway.

Although there is no fill directly over the Bay Mud within the proposed pier structure area, we anticipate settlement of the Bay Mud will occur near the shoreline due to the influence of the fill loads at the shoreline. We conclude the Bay Mud within approximately 50 feet of the shoreline is undergoing consolidation settlement due to the influence of the fill. Because of the anticipated settlement of the Bay Mud, we conclude that piles placed within 50 feet of the shoreline will experience downdrag loads. Downdrag is the additional load transferred to the piles when the Bay Mud surrounding the pile is consolidating. The downward movement of the compressible soil layer and the soil above it with respect to the pile imposes negative frictional stresses on the pile. These loads are discussed in Section 7.2.

7.2 Foundations

We anticipate excessive settlement would occur in the Bay Mud beneath the new pier loads if supported on a shallow foundation system. Therefore, we conclude a deep foundation system, consisting of driven piles primarily gaining support in the sand below the Bay Mud, is the most appropriate method for support of the pier. On the basis of discussions with Moffatt & Nichol, the project structural engineer, we understand two different sized steel pipe piles will be used to provide vertical and lateral support for the pier structure: 1) 36-inch-diameter pile with 3/4-inch-thick wall and 2) 42-inch-diameter with 1-inch-thick wall. We judge piles will gain support through a combination of friction between the soil and the pile shaft and end-bearing in the sand layer below the Bay Mud.

As discussed in Section 7.1, the fill and refuse from the Oyster Point landfill are consolidating the Bay Mud and causing ground surface settlement. The estimated settlement decreases with distance from the landfill. Piles located within 50 feet of the shoreline should be designed to support downdrag loads, in addition to the structural loads.

The settlement of properly installed driven piles, designed based on the recommendations presented herein, should be less than 1/2 inch. Differential settlement between adjacent pile caps should be less than 1/4 inch.

As discussed in Section 7.1, a hinged slab may be used to connect the pier to the shoreline; the hinged slab may be supported on a continuous footing bearing on the existing fill. The hinged slab should be designed to rotate and settle with the ground. The estimated settlement over the next 50 years along the shoreline is shown on Figure 6. The footing should be located outside the landfill, the approximate limits of which are shown on Figure 2. The landfill is covered with a clay cap; the bottom of the footing should not be located within 12 inches of the surface of the clay cap to prevent the excavation from disturbing the clay cap.

8.0 RECOMMENDATIONS

Our recommendations regarding foundation design, site preparation and grading, flexible pavement design, seismic design, and other geotechnical aspects of this project are presented in this section.

8.1 Foundations

The pier structure may be supported on 36-inch and 42-inch-diameter steel pipe piles with 3/4-inch and 1-inch-thick walls, respectively. Axial and lateral capacities for piles, as well as construction considerations are presented in Sections 8.1.1 through 8.1.3. Recommendations for footings are presented in Section 8.1.4.

8.1.1 Axial Load Resistance

The piles should gain support from friction between the sides of the pile and the soil and end-bearing in the sand below the Bay Mud. Piles should be driven a minimum of 10 feet into the sand below the Bay

Mud. The depth to the sand layer varies across the pier footprint; we estimate pile lengths will be on the order of about 100 to 105 feet (as measured from the mudline).

Recommended net allowable dead plus live load pile capacities for steel pipe pile driven a minimum of 10 feet into the sand below the Bay Mud are presented in Table 4. As discussed in Section 7.1, piles within 50 feet of the shoreline may be subjected to downdrag forces. We understand several of the 36-inch-diameter piles will be within this zone. We estimate the downdrag load on the 36-inch-diameter piles will be approximately 145 kips.

TABLE 4
Recommended Single Pile Capacity
Steel Pipe Piles
(10 feet embedment into sand below Bay Mud)

Pile Diameter/ Wall Thickness (inches, inches)	Downdrag Load[1] (kips)	NET $Q_{allowable}$[2,3] Dead plus Live (kips)
36/0.75	No Downdrag (beyond 50 feet from shoreline)	550
42/1.0	No Downdrag (beyond 50 feet from shoreline)	690
36/0.75	145	345

1 Downdrag load applies to piles located within 50 feet of the shoreline.
2 Net $Q_{allowable}$ includes downdrag load.
3 Loads on pile should not exceed ultimate structural capacity of pile. Check by multiplying load on pile by appropriate load factor and adding downdrag load.

For short term compressive axial loading conditions such as wind or seismic, the capacities shown on Table 3 may be increased by 1/3. The seismic uplift capacity should be considered to be equal to the allowable compressive axial capacity. To avoid capacity reduction due to group effects, piles should be spaced no closer than four pile widths, center to center.

8.1.2 Lateral Load Resistance

The piles should develop lateral resistance from the passive pressure acting on the upper portion of the piles and their structural rigidity. The allowable lateral capacity of the piles depends on:

- the pile stiffness
- the strength of the surrounding soil
- axial load on the pile
- the allowable deflection at the pile top and the ground surface
- the allowable moment capacity of the pile.

We developed deflection and moment profiles based on 0.5 and 1 inch of lateral deflection for both fixed- and free-head conditions for 36-inch- and 42-inch-diameter steel pipe piles. These curves are presented on Figures 7 through 10. These lateral capacities are for single piles only and assume the piles are coated to reduce corrosion potential in the upper 25 to 30 feet. If piles are placed within a spacing of six pile diameters, group reduction factors may apply and we should be consulted to provide the appropriate reduction factors. The moment profile for a single pile with an unfactored load should be used to check the design of individual piles in a group.

8.1.3 Pile Installation

Selection of driving equipment for this project should take into account the "matching" of the pile hammer with the pile size and length. The piles have large cross-sections, and special consideration should be given to selecting a hammer that can deliver enough energy to the tip of the piles to drive them efficiently without damaging them. If the pile cannot be driven to the desired tip elevation, pile jetting may be performed; however, jetting should only be allowed when approved by the geotechnical engineer. Alternatively, a vibratory hammer may be used to install the piles. The diesel or vibratory hammer specifications and proposed installation procedures should be submitted to both the structural and geotechnical engineer for review.

8.1.4 Footings

The hinged slab may be supported on a shallow continuous footing bottomed in fill. The footing may be designed for an allowable bearing pressure of 2,000 psf for dead plus live loads. The allowable bearing

pressure may be increased by one-third for total loads, including wind or seismic forces. These values include factors of safety of at least 2.0 and 1.5 for dead plus live loads and total loads, respectively. Footings should be at least 18 inches wide and bottomed at least 18 inches below the lowest adjacent soil subgrade.

Lateral loads can be resisted by a combination of passive pressure acting on the vertical faces of the footings and friction along the base of the footings. Passive resistance may be calculated using an equivalent fluid weight of 250 pounds per cubic foot (pcf). The upper one foot of soil should be ignored unless it is confined by a slab or pavement. Frictional resistance should be computed using a base friction coefficient of 0.3. The passive resistance and base friction coefficient values include a factor of safety of at least 1.5.

8.2 Site Grading and Fill Placement

Prior to grading operations, any existing asphalt pavement, concrete slabs, and other improvements should be demolished and removed from areas to receive improvements. If acceptable from an environmental standpoint, existing asphalt pavement and concrete may be ground up and used in the fill. The asphalt and concrete should be broken into fragments smaller than three inches in least dimension and mixed with sufficient fine-grained material to reduce the size of voids. Where vegetation exists in areas to receive improvements, the upper few inches of soil containing roots and organic matter should be stripped. The stripped material can be stockpiled for future use in landscaping, if approved by the project architect.

The surface exposed by stripping and /or excavation should be:

- scarified to a minimum depth of six inches
- moisture conditioned to near optimum
- compacted to at least 90 percent relative compaction[9]

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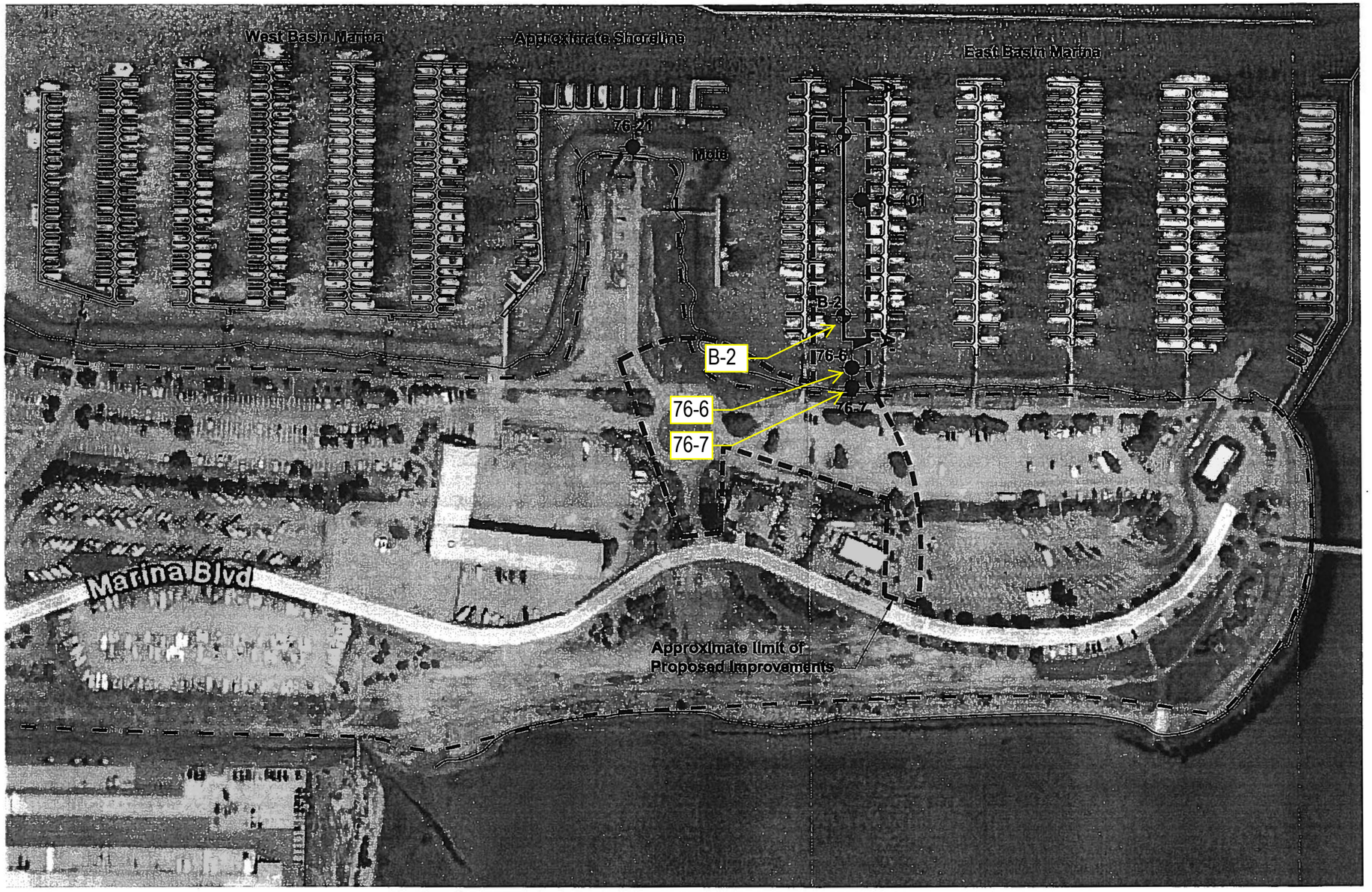
9 Relative compaction refers to the in-place dry density of soil expressed as a percentage of the maximum dry density of the same material, as determined by the ASTM D1557 laboratory compaction procedure.



N

0 200 Feet

Approximate scale

EXPLANATION

B-1 — Approximate location of boring by Treadwell & Rollo, Inc., March 2007

76-101 — Approximate location of boring by Woodward-Clyde Consultants, 1976

A — A' — Approximate location of idealized subsurface profile

— — — Approximate limits of landfill

References:
1. Base map from Google Earth, 2007.
2. Oyster Point Marina, Breakwater Entrance, Reconfiguration, Existing Plan, by U.S. Army Corps of Engineers, San Francisco District, dated 23 February 2007.
3. Site Plan, Figure 2, Joint Technical Document, Oyster Point Landfill, South San Francisco, California, by PES Environmental, Inc., for Gabewell, dated March 2000.

SOUTH SAN FRANCISCO FERRY TERMINAL
OYSTER POINT MARINA
South San Francisco, California

SITE PLAN

Date 03/29/07	Project No. 4177.03	Figure 2

Treadwell&Rollo

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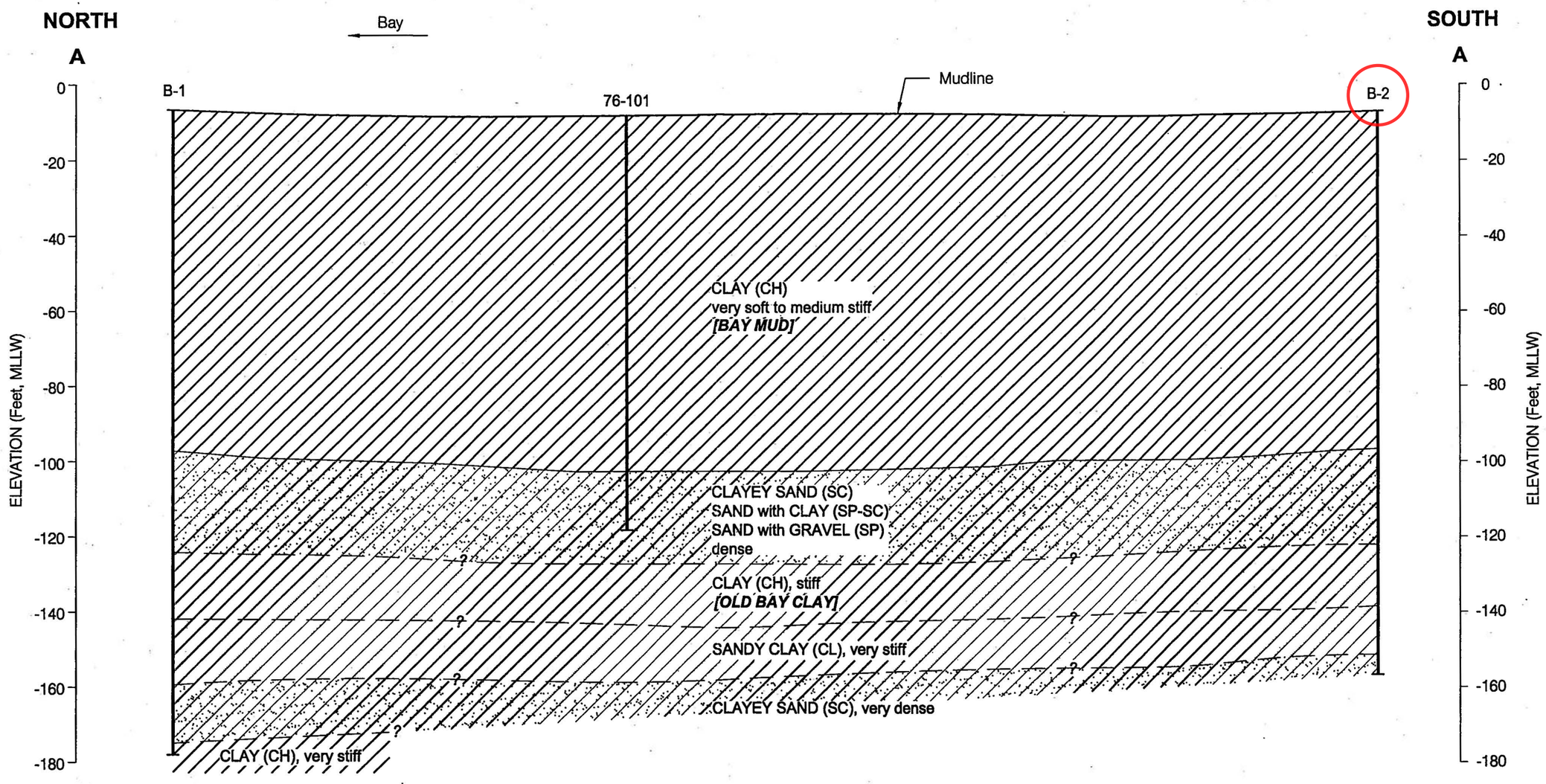

Notes:
1. The above profile represents a generalized soil cross section interpreted from widely spaced borings. Soil deposits may vary in type, strength, and other important properties between points of exploration.

30 Feet
0
0
30 Feet
Approximate Scale

SOUTH SAN FRANCISCO FERRY TERMINAL
OYSTER POINT MARINA
South San Francisco, California

IDEALIZED SUBSURFACE PROFILE A-A'

Date 09/13/07	Project No. 4177.03	Figure 3

Treadwell&Rollo

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APPENDIX A

Boring Logs and Classification Chart

PROJECT:	SOUTH SAN FRANCISCO FERRY TERMINAL OYSTER POINT MARINA South San Francisco, California	Log of Boring B-2 PAGE 1 OF 5

Boring location: See Site Plan, Figure 2 | Logged by: A. Scavullo

Date started: 3/12/07 | Date finished: 3/13/07

Drilling method: Rotary Wash

Hammer weight/drop: 140 lbs./30 inches | Hammer type: Automatic Hammer

Sampler: Standard Penetration Test (SPT), Shelby Tube (ST)

DEPTH (feet)	SAMPLES: Sampler Type	SAMPLES: Sample	SAMPLES: SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA: Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
					Ground Surface Elevation: -6.8/ -6.5 feet[2](MLLW)						
1–5	ST		0 psi	CH	CLAY (CH) dark gray, very soft, wet, with shell fragments	TxUU	120	70		70.1	58
6–10	ST		25 psi			TxUU	300	120		66.4	59
11–15	ST		25 psi			TxUU	490	210		67.6	60
16–20	ST		40 psi		grades soft	TxUU	680	300		61.6	63
21–25	ST		<25 psi			TxUU	860	430		64.8	61
26–30	ST		200 psi		BAY MUD	TxUU	1,050	430		77.0	55

Treadwell&Rollo

Project No.: 4177.03 | Figure: A-2a

TEST GEOTECH LOG 417703.GPJ TR.GDT 10/11/07

PROJECT: **SOUTH SAN FRANCISCO FERRY TERMINAL**
OYSTER POINT MARINA
South San Francisco, California

Log of Boring B-2

DEPTH (feet)	SAMPLES: Sampler Type	SAMPLES: Sample	SAMPLES: SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA: Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
31	ST				CLAY (CH) (continued)						
32											
33											
34	ST		<25 psi			TxUU	1,430	420		76.1	55
35											
36											
37											
38											
39	ST		<25 psi			TxUU	1,630	440		61.2	64
40											
41											
42											
43											
44											
45				CH	grades mediums stiff						
46											
47											
48											
49											
50	ST		<25 psi			TxUU	1,180	670		58.7	65
51											
52											
53											
54											
55											
56											
57											
58											
59	ST		<25 psi								
60											

BAY MUD

Treadwell&Rollo

Project No.: 4177.03

Figure: A-2b

TEST GEOTECH LOG 417703.GPJ TR.GDT 10/11/07

PROJECT: SOUTH SAN FRANCISCO FERRY TERMINAL
OYSTER POINT MARINA
South San Francisco, California

Log of Boring B-2

DEPTH (feet)	SAMPLES: Sampler Type	SAMPLES: Sample	SAMPLES: SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA: Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
61	ST		<25 psi		CLAY (CH) (continued)						
62											
63											
64											
65											
66											
67											
68											
69											
70	ST		25 psi			TxUU	2,590	800		56.1	67
71											
72											
73											
74											
75				CH	BAY MUD						
76											
77											
78											
79											
80	ST		25 psi			TxUU	2,970	870		52.5	69
81											
82											
83											
84											
85											
86											
87											
88											
89											
90											

Treadwell&Rollo

Project No.: 4177.03

Figure: A-2c

TEST GEOTECH LOG 417703.GPJ TR.GDT 10/11/07

PROJECT: SOUTH SAN FRANCISCO FERRY TERMINAL
OYSTER POINT MARINA
South San Francisco, California

Log of Boring B-2

DEPTH (feet)	SAMPLES: Sampler Type	SAMPLES: Sample	SAMPLES: SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA: Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
91					CLAY (CH) (continued)						
92					CLAYEY SAND (SC)						
93					olive-gray, medium dense, wet						
94											
95	ST	●	150-250 psi								
96											
97											
98											
99											
100	SPT		29						37.8		
101											
102											
103				SC							
104											
105											
106											
107											
108											
109											
110	SPT		27						14.4		
111											
112											
113											
114											
115											
116					CLAY (CH)						
117					gray, stiff, wet, with shall fragments						
118				CH	[OLD BAY CLAY]						
119											
120	SPT		13								

OLD BAY CLAY

TEST GEOTECH LOG 417703.GPJ TR.GDT 10/11/07

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Project No.: 4177.03

Figure: A-2d

PROJECT: SOUTH SAN FRANCISCO FERRY TERMINAL
OYSTER POINT MARINA
South San Francisco, California

Log of Boring B-2

DEPTH (feet)	SAMPLES: Sampler Type	SAMPLES: Sample	SAMPLES: SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA: Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
121	SPT		13	CH	CLAY (CH) (continued)						
122											
123											
124											
125											
126											
127											
128											
129											
130											
131											
132					OLD BAY CLAY						
133				CL	SANDY CLAY (CL) yellow-brown and gray-brown, very stiff, wet Consolidation Test, see Figure B-1						
134											
135	ST		250 psi			TxUU	6,060	3,720	53.9	17.3	113
136											
137											
138											
139											
140											
141											
142											
143											
144				SC	CLAYEY SAND(SC) brown, very dense, wet, with gravel						
145											
146											
147	ST		600 psi			TxUU	6,970	5,260	13.8	18.8	110
148											
149											
150											

Boring was terminated at a depth of 148.5 feet.
Boring backfilled with cement grout.
Boring was performed over water.

[1] S&H and SPT blow counts verted to SPT-N values using factors of 0.8 and 1.33, respectively
[2] Elevation based on field measurements and published tide tables for Oyster Point Marina and survey data plus estimated silt accumulation

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Project No.: 4177.03
Figure: A-2e

TEST GEOTECH LOG 417703.GPJ TR.GDT 10/11/07

UNIFIED SOIL CLASSIFICATION SYSTEM

Major Divisions		Symbols	Typical Names
Coarse-Grained Soils (more than half of soil > no. 200 sieve size	Gravels (More than half of coarse fraction > no. 4 sieve size)	GW	Well-graded gravels or gravel-sand mixtures, little or no fines
		GP	Poorly-graded gravels or gravel-sand mixtures, little or no fines
		GM	Silty gravels, gravel-sand-silt mixtures
		GC	Clayey gravels, gravel-sand-clay mixtures
	Sands (More than half of coarse fraction < no. 4 sieve size)	SW	Well-graded sands or gravelly sands, little or no fines
		SP	Poorly-graded sands or gravelly sands, little or no fines
		SM	Silty sands, sand-silt mixtures
		SC	Clayey sands, sand-clay mixtures
Fine -Grained Soils (more than half of soil < no. 200 sieve size)	Silts and Clays LL = < 50	ML	Inorganic silts and clayey silts of low plasticity, sandy silts, gravelly silts
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, lean clays
		OL	Organic silts and organic silt-clays of low plasticity
	Silts and Clays LL = > 50	MH	Inorganic silts of high plasticity
		CH	Inorganic clays of high plasticity, fat clays
		OH	Organic silts and clays of high plasticity
Highly Organic Soils		PT	Peat and other highly organic soils

GRAIN SIZE CHART

Classification	Range of Grain Sizes	
	U.S. Standard Sieve Size	Grain Size in Millimeters
Boulders	Above 12"	Above 305
Cobbles	12" to 3"	305 to 76.2
Gravel	3" to No. 4	76.2 to 4.76
coarse	3" to 3/4"	76.2 to 19.1
fine	3/4" to No. 4	19.1 to 4.76
Sand	No. 4 to No. 200	4.76 to 0.074
coarse	No. 4 to No. 10	4.76 to 2.00
medium	No. 10 to No. 40	2.00 to 0.420
fine	No. 40 to No. 200	0.420 to 0.074
Silt and Clay	Below No. 200	Below 0.074

Unstabilized groundwater level

Stabilized groundwater level

SAMPLE DESIGNATIONS/SYMBOLS

Sample taken with Sprague & Henwood split-barrel sampler with a 3.0-inch outside diameter and a 2.43-inch inside diameter. Darkened area indicates soil recovered

Classification sample taken with Standard Penetration Test sampler

Undisturbed sample taken with thin-walled tube

Disturbed sample

Sampling attempted with no recovery

Core sample

Analytical laboratory sample

Sample taken with Direct Push sampler

SAMPLER TYPE

C Core barrel

CA California split-barrel sampler with 2.5-inch outside diameter and a 1.93-inch inside diameter

D&M Dames & Moore piston sampler using 2.5-inch outside diameter, thin-walled tube

O Osterberg piston sampler using 3.0-inch outside diameter, thin-walled Shelby tube

PT Pitcher tube sampler using 3.0-inch outside diameter, thin-walled Shelby tube

S&H Sprague & Henwood split-barrel sampler with a 3.0-inch outside diameter and a 2.43-inch inside diameter

SPT Standard Penetration Test (SPT) split-barrel sampler with a 2.0-inch outside diameter and a 1.5-inch inside diameter

ST Shelby Tube (3.0-inch outside diameter, thin-walled tube) advanced with hydraulic pressure

SOUTH SAN FRANCISCO FERRY TERMINAL
OYSTER POINT MARINA
South San Francisco, California

Treadwell&Rollo

CLASSIFICATION CHART

Date 03/28/07 | Project No. 4177.03 | Figure A-3

APPENDIX C

Boring Logs by Others

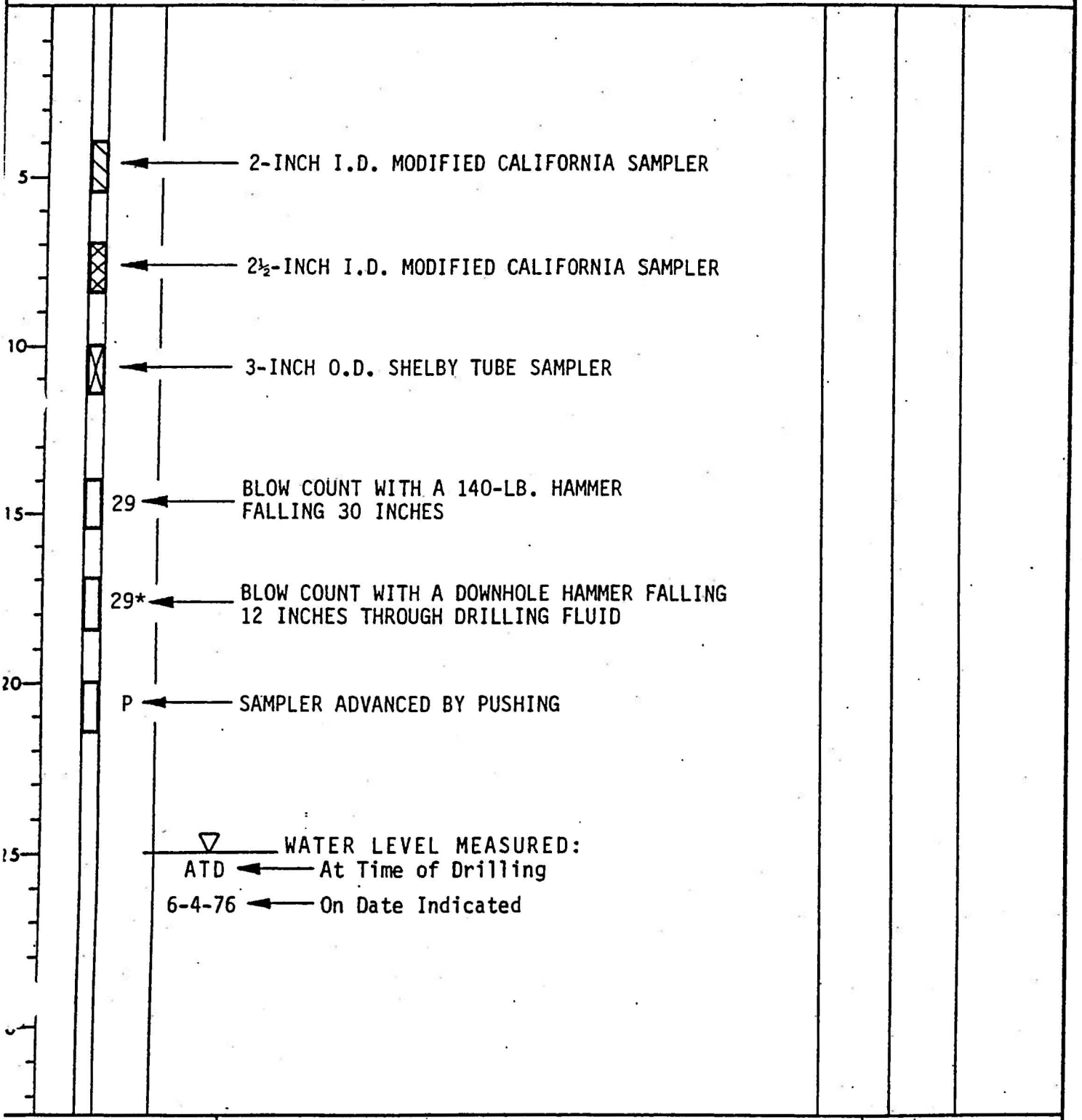
Project: OYSTER POINT MARINA
South San Francisco, California

BORING LOG LEGEND SHEET

:e Drilled: _____ Hammer Weight: _____

Type of Boring: _____ Remarks: _____

Depth, Ft	Samples	Blows/Ft.	DESCRIPTION	Moisture Content, %	Dry Density pcf	Unconfined Compressive Strength, psf
			Surface Elevation:			



Job No. 13609A | WOODWARD-CLYDE CONSULTANTS | Figure A-1

Woodward-Lyde Consultants

Project: OYSTER POINT MARINA
South San Francisco, California

Log of Boring No. 76-6

Date Drilled: April 9, 1976 — Hammer Weight:

Type of Boring: 6" Auger — Remarks:

Depth, Ft.	Samples	Blows/Ft.	DESCRIPTION	Moisture Content, %	Dry Density pcf	Unc Comp Strength, psf
			Surface Elevation: 107			
			CLAYEY GRAVEL FILL: Poorly compacted, contains large rock fragments			
			S I L T Y C L A Y F I L L Poorly compacted, wet, dark gray, with trace of rock fragments			
			▽ 5-28-76 } Large rock fragments with clay			
			(F I L L)			
			S I L T Y C L A Y (CH) Soft, saturated, dark gray			
			(B A Y M U D)			
			BOTTOM OF HOLE @ 30'			

5 10 20 25 30 40

Woodward-Clyde Consultants

Project: OYSTER POINT MARINA
South San Francisco, California

Log of Boring No. 76-7

Date Drilled: April 9, 1976 — Hammer Weight: 140 lbs.

Type of Boring: 6" Auger — Remarks:

Surface Elevation: 111

Depth, Ft.	Samples	Blows/Ft.	DESCRIPTION	Moisture Content, %	Dry Density pcf	Unc. Comp Strength, psf
			SILTY CLAY FILL: Moderately compacted, moist, dark gray, with trace of rock fragments			
	1	7	RUBBISH FILL	-	-	-
5						
	2	11/9"	← Metal spring	-	-	-
			▽ 5-28-76			
10						
	3	6		-	-	-
			SANDY CLAY (CL-CH) Medium stiff, saturated, gray, with rock fragments (FILL)			
	4	2		No Recovery		
20						
	5	2	SILTY CLAY (CH) Soft, saturated, dark gray	-	-	-
25						
	6	2		No Recovery		
30			(BAY MUD)			
	7	2		-	-	-
40	8	6		-	-	-
			BOTTOM OF HOLE @ 42'			

Treadwell&Rollo
A LANGAN COMPANY

Note: Dock 8 and Dock 11 include Guide Piles only.

24 July 2012
Project 731556802

Mr. Christopher Devick
Moffatt & Nichol
2185 N. California Boulevard, Suite 500
Walnut Creek, California 94596

Subject: Geotechnical Studies
Oyster Point Marina
Docks 8 and 11 Modifications
South San Francisco, California

Dear Mr. Devick:

Treadwell & Rollo is pleased to present the results of our geotechnical studies for the proposed modifications to the existing Docks 8 and 11 at the Oyster Point Marina in South San Francisco, California. Our services were performed in general accordance with our proposal, dated 6 June 2012. We previously performed a geotechnical investigation for the recently opened South San Francisco Ferry Terminal; the results of that investigation are presented in our report dated 10 October 2007 (Revised 8 August 2008).

The site is east of U.S. Highway 101 (Bayshore Freeway) at the east half of Oyster Point Marina, as shown on Figure 1. The approximate location of Docks 8 and 11 are shown on Figure 2. We understand the modifications that are being made to Dock 8 (Guest Dock) do not require new piles; the existing piles are 12-inch square prestressed concrete piles. New 16-inch square prestressed concrete piles will be installed for the Dock 11 modifications. On the basis of information provided to us by Moffatt & Nichol, we understand the highest predicted tide will be at Elevation 9 feet[1] and the mudline in the vicinity of Docks 8 and 11 varies from Elevation -5 to -8 feet.

SCOPE OF SERVICES

The purpose of our studies was to evaluate subsurface conditions using available subsurface data from the site vicinity and develop geotechnical design criteria for the piles at Docks 8 and 11. No new subsurface investigation was performed for this phase of work.

We used the results of the previous subsurface exploration to develop conclusions and recommendations regarding:

- lateral deformation characteristics for new 16-inch square prestressed concrete piles for a free-head condition for Dock 11
- lateral deformation characteristics for the existing 12-inch square prestressed concrete piles for a free-head condition for Dock 8
- construction considerations.

[1] All elevations are referenced to Mean Lower Low Water (MLLW) Datum.

SUBSURFACE CONDITIONS

We used the results of our previous subsurface investigation at Oyster Point Marina in our current studies. The locations of the borings performed for that investigation are shown on Figure 2. Corresponding boring logs are presented in Appendix A.

The mudline varied from about Elevation -6 to -8 feet in the vicinity of Docks 8 and 11 at the time of our investigation. The results of our field investigation indicate the site is underlain by 88 to 98 feet of very soft to medium stiff compressible clay, locally referred to as Bay Mud. A medium dense to dense sand layer with varying amounts of fines and gravel was encountered below the underconsolidated[2] Bay Mud and extends to depths of about 115 to 118 feet below the mudline, corresponding to Elevations -122 to -125, respectively. Stiff clay (referred to as Old Bay Clay) was encountered below the sand layers. The thickness of this layer is about 17 to 18 feet. The Old Bay Clay is moderately compressible, but is overconsolidated. Beneath the Old Bay Clay are layers of very stiff sandy clay and very dense clayey sand that extend to the maximum depths explored of 148.5 and 171.5 feet in the two borings performed for the Ferry Terminal.

CONCLUSIONS AND RECOMMENDATIONS

We conclude Docks 8 and 11 may be supported by the existing 12-inch and new 16-inch square prestressed precast concrete piles, respectively, provided the anticipated pile deflection, induced moment, and shear are acceptable for the given loading conditions. Conclusions and recommendations regarding the lateral deformation characteristics and bending moments for piles and construction considerations are presented in the remainder of this section.

Lateral Load Resistance

The piles should develop lateral resistance from the soil passive pressure acting on the upper portion of the piles and their structural rigidity. The allowable lateral capacity of the piles depends on:

- the pile stiffness and fixity
- amount of free stand
- the strength of the surrounding soil
- axial load on the pile
- the allowable deflection at the pile top and the ground surface
- the allowable moment capacity of the pile.

We developed deflection, moment, and shear diagrams for the two pile types for a free-head condition. The analyses were performed using the highest predicted tide level provided by Moffatt & Nichol (Elevation 9 feet), as the point of lateral load application. We used the lowest mudline elevation

[2] An underconsolidated clay has not yet achieved equilibrium under the existing load; a normally consolidated clay has completed consolidation under the existing load; and an overconsolidated clay has experienced a load greater than it is currently under.

(Elevation -8 feet) for our analyses, corresponding to approximately 17 feet of unsupported pile length (free stand). Moffatt & Nichol provided the estimated lateral loads and moments at the tops of the piles (at the high water line) for each dock. In our analyses, we used a lateral load of 3.6 kips and a moment of 90 kip-feet at Dock 8 and, a lateral load of 3.2 kips and a moment of 86.4 kip-feet at Dock 11. There were no additional axial loads applied except the self-weight of the pile. For our analyses, we used the software "LPile Plus 5.0.39 for Networks" by Ensoft and the input parameters presented in Table 1. The program linearly interpolates the input parameters from the top to the bottom of the layer.

TABLE 1
LPile Input Parameters

Soil Type	Elevation (feet, MLLW)	Effective Unit Weight (pounds per cubic foot, pcf)	Undrained Cohesion, c (pounds per square foot, psf)	Strain Factor (ε_{50})
Bay Mud (top)	-8	38	70	0.02
Bay Mud (bottom)	-98	38	1040	0.01

The results or our analyses for the 12-inch piles in terms of deflection, moment and shear are presented on Figures 3 through 5; similar plots are presented on Figures 6 through 8 for new 16-inch square concrete piles. The lateral capacities presented on these figures are for single piles only. If piles are placed within a spacing of six pile diameters, group reduction factors may apply and we should be consulted to provide the appropriate reduction factors. The moment profile for a single pile with an unfactored load should be used to check the design of individual piles in a group.

For the piles to achieve fixity, new piles should be embedded a minimum of 35 feet below the existing mud line for the 16-inch square precast prestressed concrete pile, corresponding to a tip elevation of approximately -43 feet.

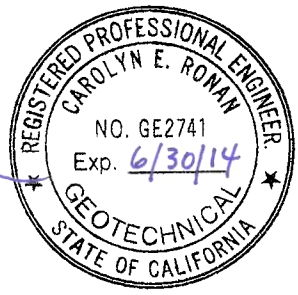
Construction Considerations

If interbedded sand layers are encountered, it may be necessary to drive the piles. Selection of driving equipment for this project should take into account the "matching" of the pile hammer with the pile size, length, and potential for tension waves. The hammer specifications and proposed installation procedures should be submitted to both the structural and geotechnical engineer for review.

Because the piles will be embedded in Bay Mud, they may slide into the ground under their self-weight or under the combination of self-weight plus the weight of the hammer. If this is the case, the contractor should be prepared to "catch" the pile to stop it at the desired cutoff elevation. The pile should be held in place until the soil regains strength and can hold the pile; this may take several hours.

We trust the foregoing is sufficient for your needs. If you have any questions, please call.

Sincerely yours,
TREADWELL & ROLLO



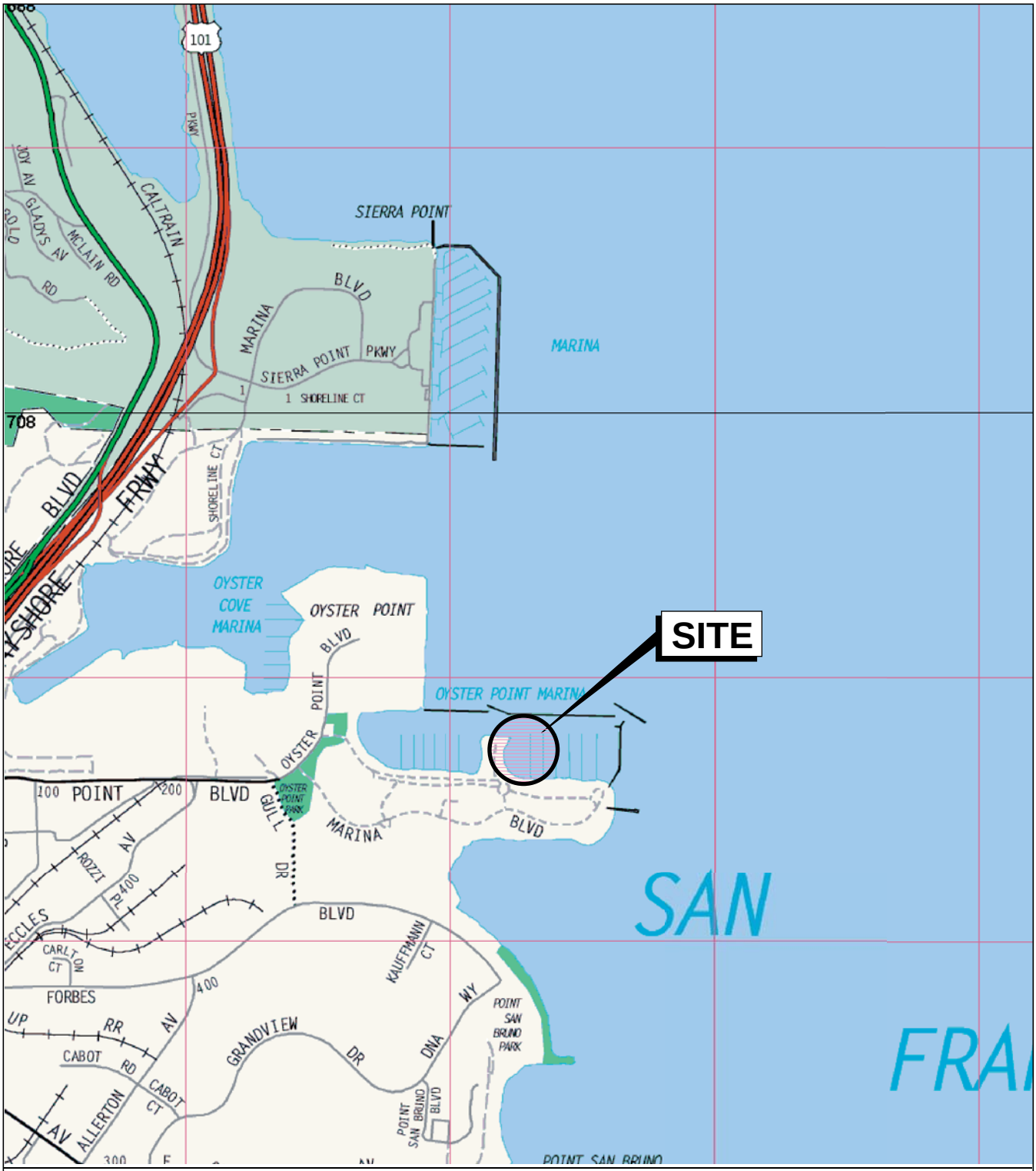
Cary E. Ronan, G.E.
Senior Project Manager

John Gouchon, G.E.
Senior Associate

731556802.01_CER_OP Breakwater Docks 8 and 11

Attachments: Figure 1 – Site Location Map
Figure 2 – Site Plan
Figures 3 through 8 – Deflection, Moment, and Shear Diagrams for12-inch and 16-inch square prestressed concrete piles
Appendix A – Boring Logs from Previous Investigation

FIGURES



Base map: The Thomas Guide
San Francisco County
1999

0 1/4 1/2 Mile

Approximate scale

OYSTER POINT MARINA
DOCKS 8 AND 11 MODIFICATIONS
South San Francisco, California

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SITE LOCATION MAP

Date 06/20/12	Project No. 731556802	Figure 1

EXPLANATION

B-1 ⊕ Approximate location of boring by Treadwell & Rollo, Inc., March 2007

N

0 200 Feet

Approximate scale

Reference: Base map from Google Earth, 2007.

OYSTER POINT MARINA
DOCKS 8 AND 11 MODIFICATIONS
South San Francisco, California

SITE PLAN

Date 06/20/12	Project No. 731556802	Figure 2

Treadwell&Rollo
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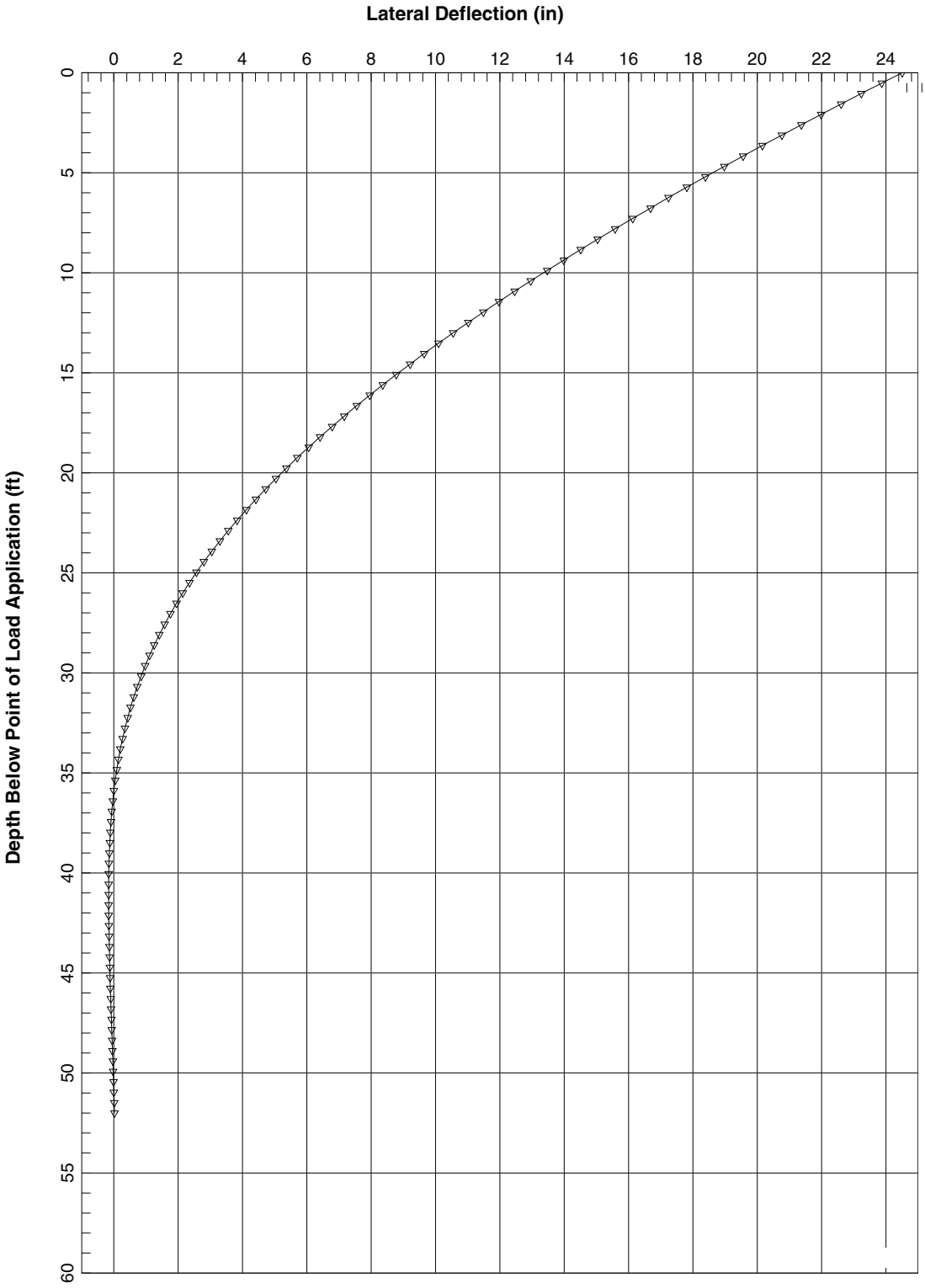
\\langan.com\data\SF\data8\731556802\Cadd Data - 731556802\2D-DesignFiles\Geotech\731556802-B-SP0101.dwg 6/21/12



Notes:

1. The profiles shown are for a single 12-inch diameter, 52 foot long prestressed precast concrete pile with an applied lateral load of 3.6 kips and moment of 90 kip-feet. The only axial compressive load is the self-weight of the pile.
2. The loads and moment are applied at Elevation 9 feet (MLLW).

OYSTER POINT MARINA
DOCKS 8 AND 11 MODIFICATIONS
South San Francisco, California

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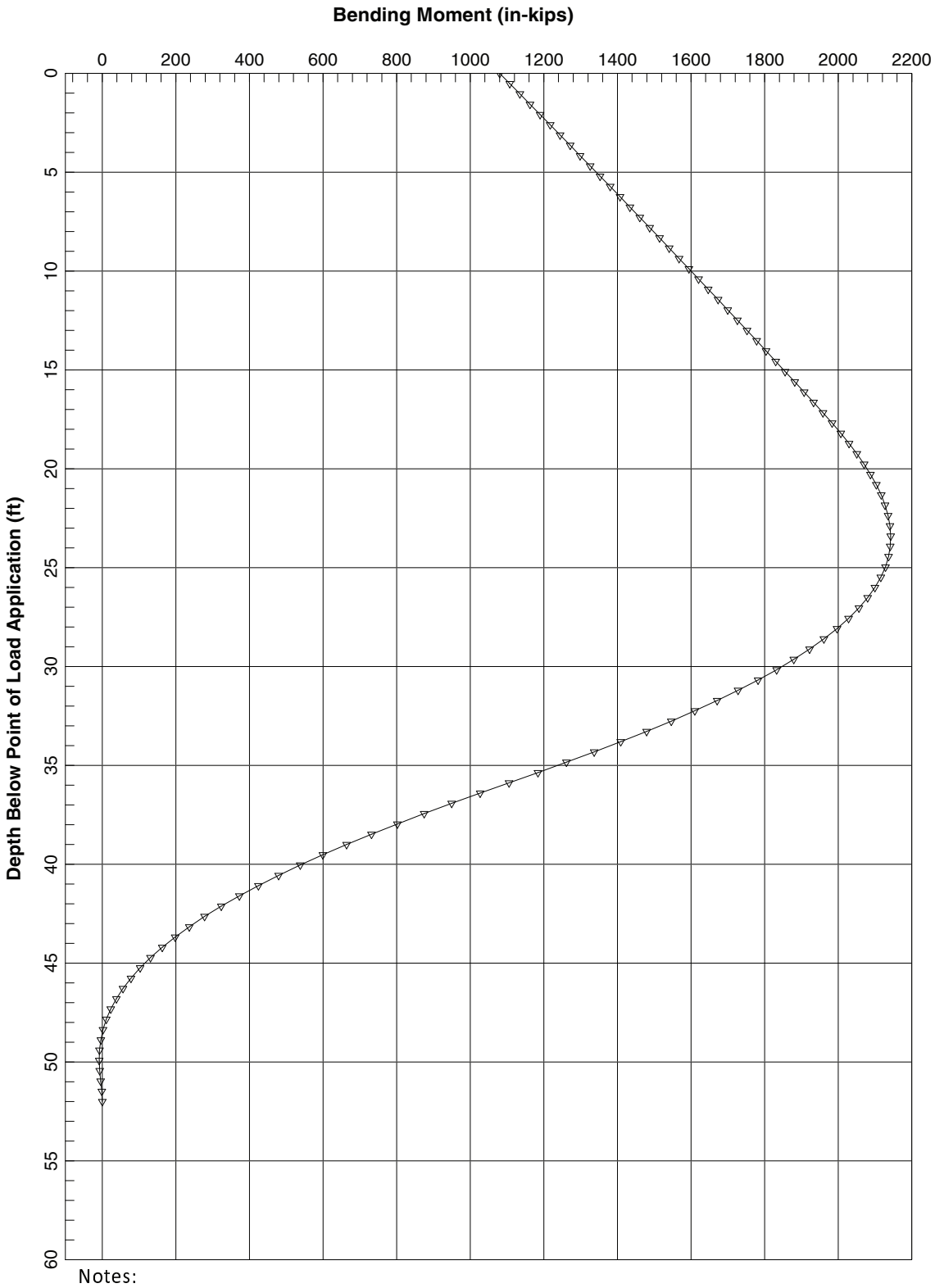
LATERAL DEFLECTION
12-INCH SQUARE CONCRETE PILE
FREE HEAD - DOCK 8

Date 06/20/12	Project No. 731556802	Figure 3



Notes:

1. The profiles shown are for a single 12-inch diameter, 52 foot long prestressed precast concrete pile with an applied lateral load of 3.6 kips and moment of 90 kip-feet. The only axial compressive load is the self-weight of the pile.
2. The loads and moment are applied at Elevation 9 feet (MLLW).

OYSTER POINT MARINA
DOCKS 8 AND 11 MODIFICATIONS
South San Francisco, California

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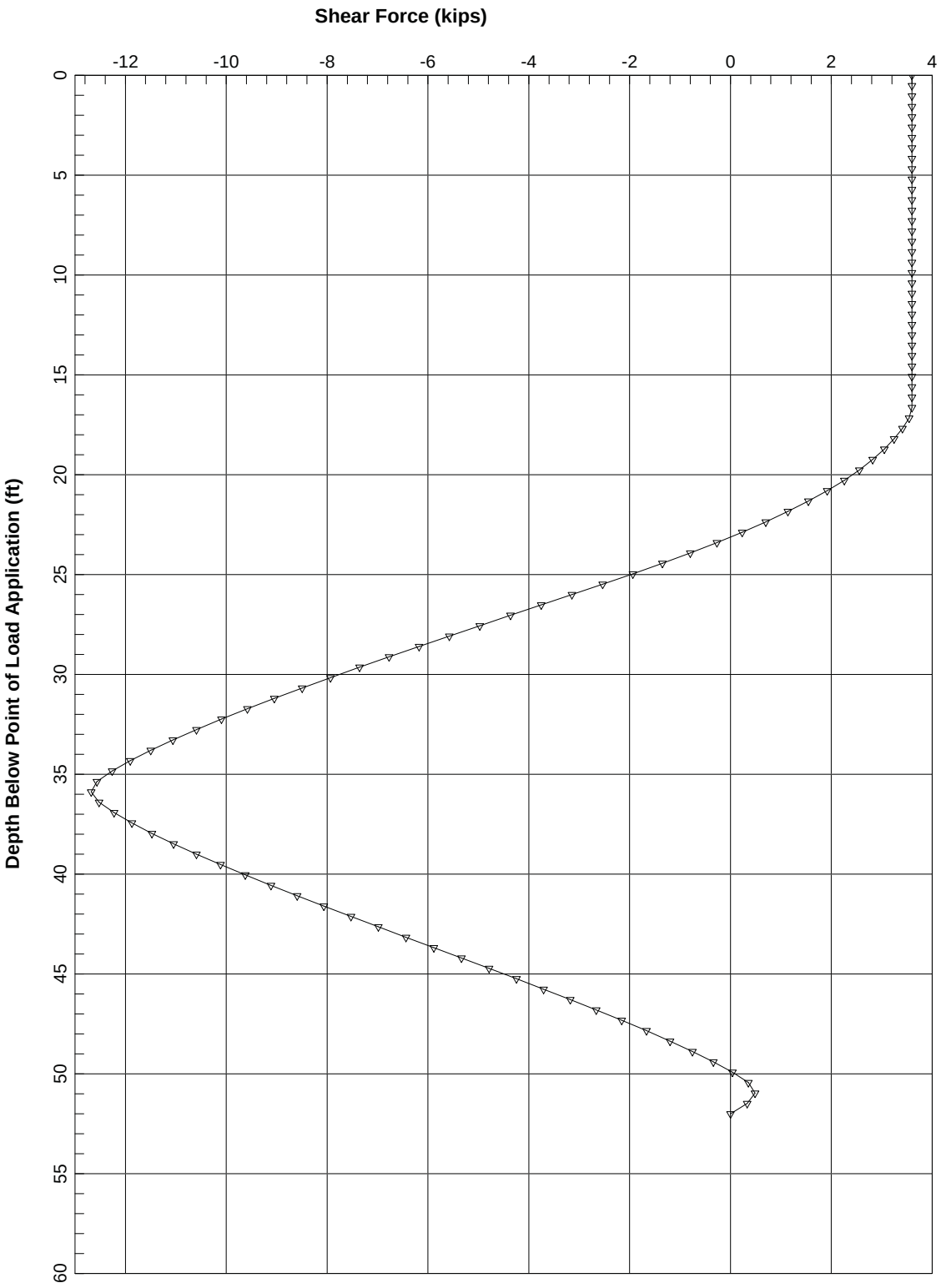
BENDING MOMENT
12-INCH SQUARE CONCRETE PILE
FREE HEAD - DOCK 8

Date 06/20/12	Project No. 731556802	Figure 4



Notes:

1. The profiles shown are for a single 12-inch diameter, 52 foot long prestressed precast concrete pile with an applied lateral load of 3.6 kips and moment of 90 kip-feet. The only axial compressive load is the self-weight of the pile.
2. The loads and moment are applied at Elevation 9 feet (MLLW).

OYSTER POINT MARINA
DOCKS 8 AND 11 MODIFICATIONS
South San Francisco, California

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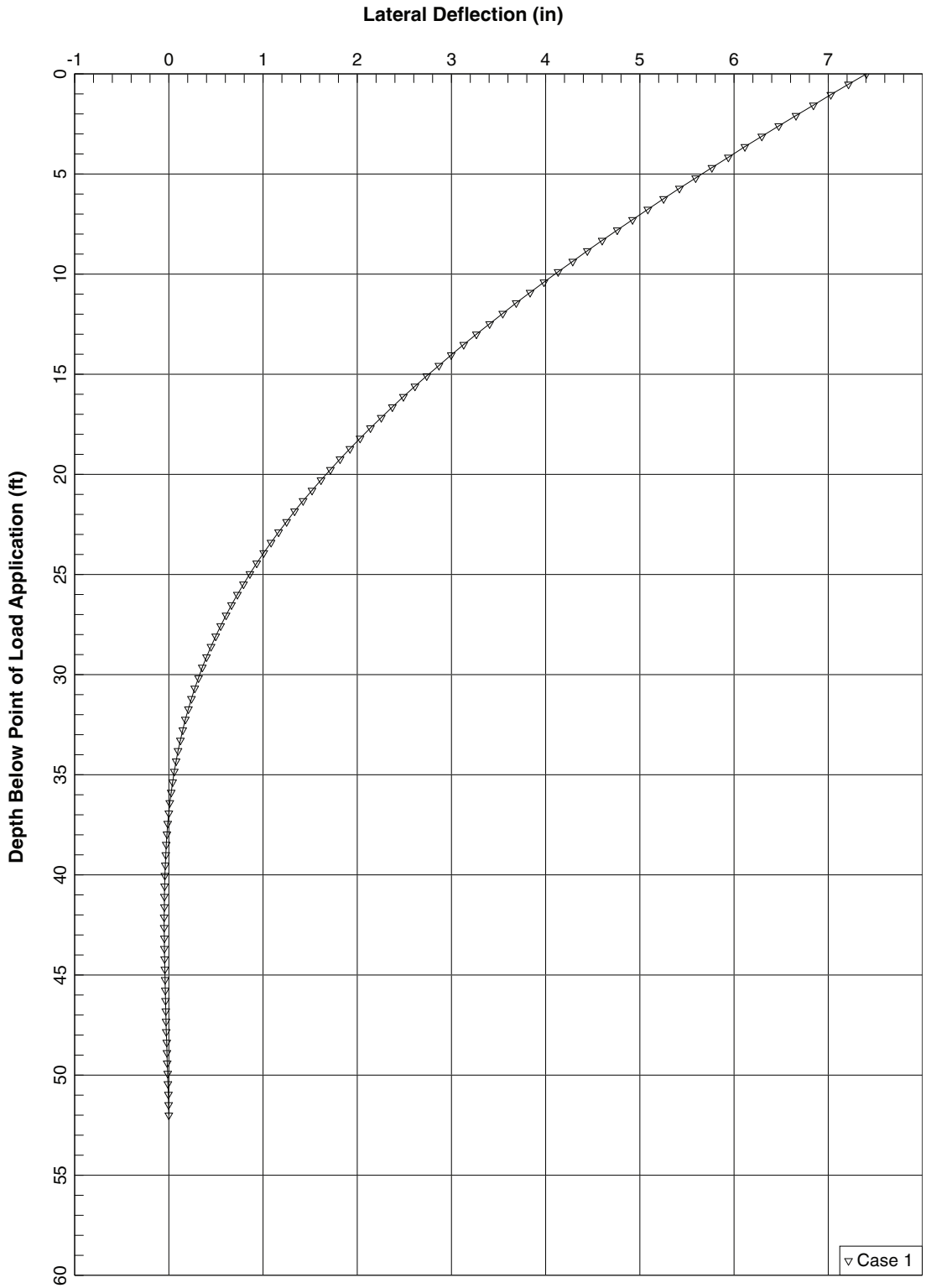
SHEAR FORCE
12-INCH SQUARE CONCRETE PILE
FREE HEAD - DOCK 8

Date 06/20/12	Project No. 731556802	Figure 5



1. The profiles shown are for a single 16-inch diameter prestressed precast concrete pile with an applied lateral load of 3.2 kips and moment of 86.4 kip-feet. The pile should be embedded at least 35 feet below the mudline for fixity. The only axial compressive load is the self-weight of the pile.
2. The loads and moment are applied at Elevation 9 feet (MLLW).

OYSTER POINT MARINA
DOCKS 8 AND 11 MODIFICATIONS
South San Francisco, California

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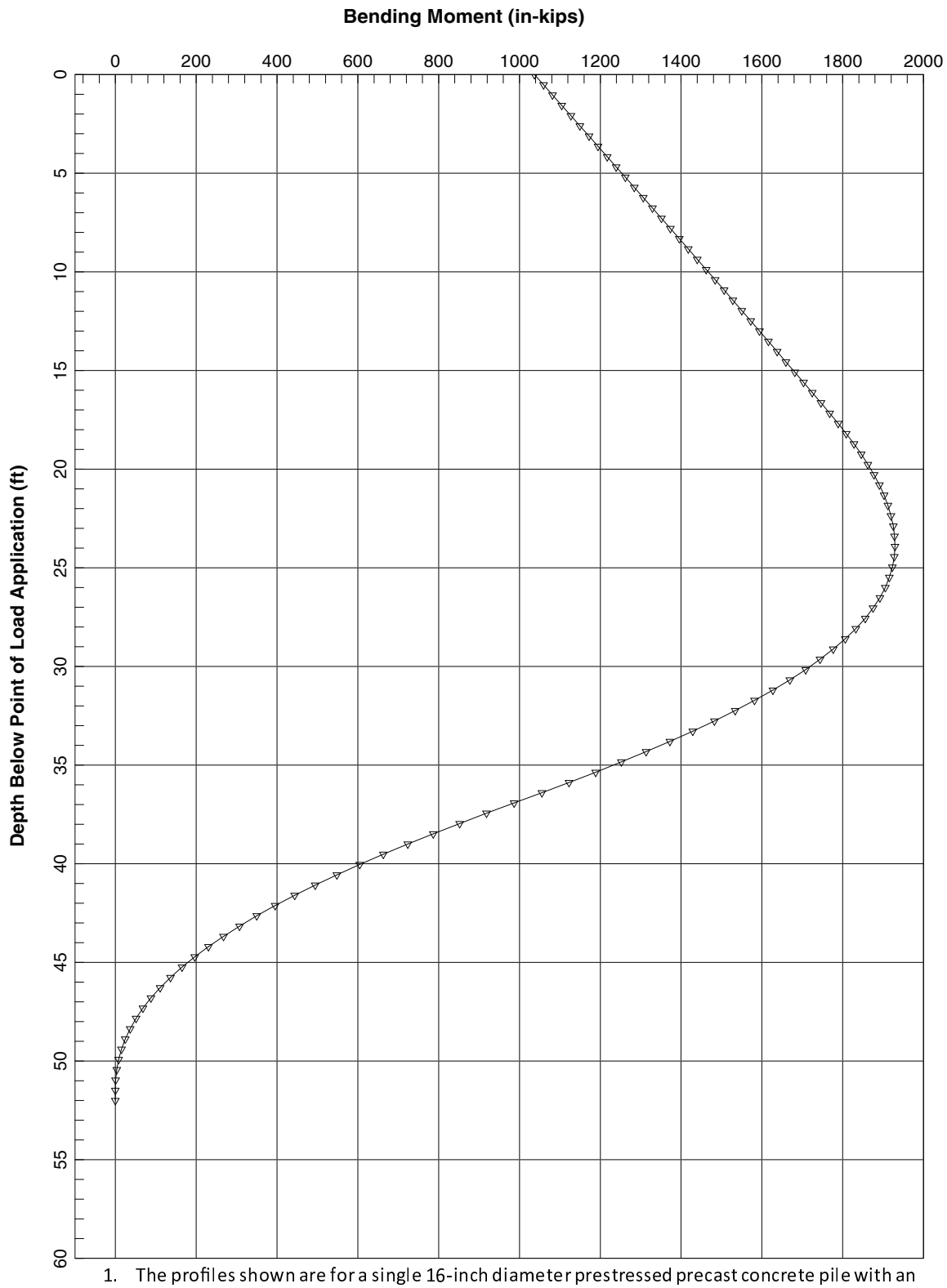
LATERAL DEFLECTION
16-INCH SQUARE CONCRETE PILE
FREE HEAD - DOCK 11

Date 06/20/12	Project No. 731556802	Figure 6



1. The profiles shown are for a single 16-inch diameter prestressed precast concrete pile with an applied lateral load of 3.2 kips and moment of 86.4 kip-feet. The pile should be embedded at least 35 feet below the mudline for fixity. The only axial compressive load is the self-weight of the pile.
2. The loads and moment are applied at Elevation 9 feet (MLLW).

OYSTER POINT MARINA
DOCKS 8 AND 11 MODIFICATIONS
South San Francisco, California

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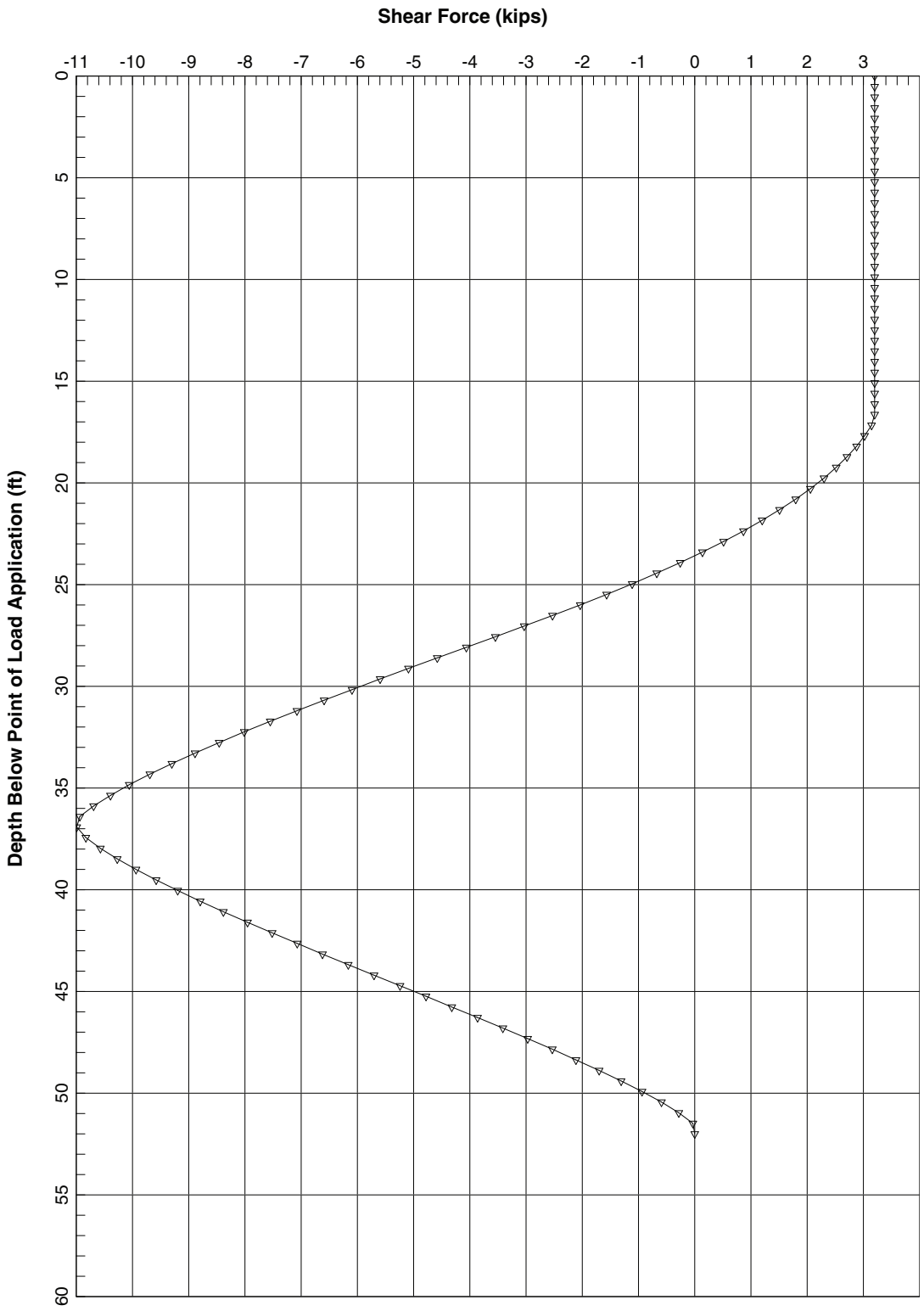
BENDING MOMENT
16-INCH SQUARE CONCRETE PILE
FREE HEAD - DOCK 11

Date 06/20/12	Project No. 731556802	Figure 7



1. The profiles shown are for a single 16-inch diameter prestressed precast concrete pile with an applied lateral load of 3.2 kips and moment of 86.4 kip-feet. The pile should be embedded at least 35 feet below the mudline for fixity. The only axial compressive load is the self-weight of the pile.
2. The loads and moment are applied at Elevation 9 feet (MLLW).

OYSTER POINT MARINA
DOCKS 8 AND 11 MODIFICATIONS
South San Francisco, California

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SHEAR FORCE
16-INCH SQUARE CONCRETE PILE
FREE HEAD - DOCK 11

Date 06/20/12	Project No. 731556802	Figure 8

APPENDIX A

Boring Logs from Previous Investigation

PROJECT: **SOUTH SAN FRANCISCO FERRY TERMINAL**
OYSTER POINT MARINA
South San Francisco, California

Log of Boring B-1

Boring location: See Site Plan, Figure 2
Logged by: J. Nicoletto
Date started: 3/3/07 Date finished: 3/3/07
Drilling method: Rotary Wash
Hammer weight/drop: 140 lbs./30 inches Hammer type: Automatic Hammer
Sampler: Sprague & Henwood (S&H), Standard Penetration Test (SPT), Shelby Tube (ST)

Ground Surface Elevation: -6.6/ -7.5 foot[1]

DEPTH (feet)	SAMPLES: Sampler Type	SAMPLES: Sample	SAMPLES: Blows/ 6"	SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA: Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
1						CLAY (CH) dark gray, very soft, wet, with shell fragments [BAY MUD]						
2												
3												
4												
5												
6												
7	ST			<25 psi			TxUU	220	160		71.0	58
8												
9												
10												
11												
12	ST			<25 psi			TxUU	400	190		72.5	54
13						grades soft						
14												
15					CH							
16												
17	ST			<25 psi			TxUU	600	310		70.8	58
18												
19												
20												
21												
22	ST			<25 psi			TxUU	790	310		69.5	59
23												
24												
25												
26												
27	ST			<25 psi			TxUU	980	250		80.8	53
28												
29												
30												

BAY MUD

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Project No.: 4177.03
Figure: A-1a

TEST GEOTECH LOG 417703.GPJ TR.GDT 4/7/11

PROJECT: **SOUTH SAN FRANCISCO FERRY TERMINAL**
OYSTER POINT MARINA
South San Francisco, California

Log of Boring B-1

DEPTH (feet)	SAMPLES: Sampler Type	SAMPLES: Sample	SAMPLES: Blows/ 6"	SAMPLES: SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA: Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
31						CLAY (CH) (continued)						
32	ST			<25 psi			TxUU	1,170	420		80.1	53
33												
34												
35												
36						No recovery						
37	ST			<25 psi								
38												
39						grades medium stiff						
40												
41												
42	ST			<25 psi			TxUU	1,540	550		59.4	65
43												
44												
45					CH	BAY MUD						
46												
47												
48												
49												
50												
51												
52	ST			<25 psi								
53												
54												
55												
56												
57												
58												
59												
60												

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Project No.: 4177.03

Figure: A-1b

PROJECT: **SOUTH SAN FRANCISCO FERRY TERMINAL**
OYSTER POINT MARINA
South San Francisco, California

Log of Boring B-1

DEPTH (feet)	SAMPLES: Sampler Type	SAMPLES: Sample	SAMPLES: Blows/ 6"	SAMPLES: SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA: Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
61						CLAY (CH) (continued)						
62	ST			<25 psi			TxUU	2,290	700		56.1	67
63												
64												
65												
66												
67												
68												
69												
70												
71												
72	ST			<25 psi								
73												
74												
75					CH	BAY MUD						
76												
77												
78												
79												
80												
81												
82												
83	ST			<25 psi								
84												
85												
86												
87												
88												
89												
90												

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Project No.: 4177.03

Figure: A-1c

PROJECT: **SOUTH SAN FRANCISCO FERRY TERMINAL**
OYSTER POINT MARINA
South San Francisco, California

Log of Boring B-1

DEPTH (feet)	SAMPLES: Sampler Type	SAMPLES: Sample	SAMPLES: Blows/ 6"	SAMPLES: SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA: Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
91					CH	CLAY (CH) (continued)						
92						CLAYEY SAND (SC) gray, dense, wet						
93	ST			<25 psi			TxUU	3,460	1,210		16.2	117
94												
95												
96	SPT			33						34.2		
97												
98												
99												
100												
101					SC							
102						color change to olive-brown						
103												
104	SPT			43						21.5		
105												
106												
107												
108												
109												
110												
111												
112						SAND with GRAVEL (SP) olive-gray, dense, wet						
113												
114						Particle Size Analysis, see Figure B-27						
115	SPT			45	SP					4.1		
116												
117												
118												
119					CH	CLAY (CH) gray, stiff, wet, with shell fragments high silt content [OLD BAY CLAY]						
120												

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Project No.: 4177.03

Figure: A-1d

TEST GEOTECH LOG 417703.GPJ TR.GDT 4/7/11

PROJECT: **SOUTH SAN FRANCISCO FERRY TERMINAL**
OYSTER POINT MARINA
South San Francisco, California

Log of Boring B-1

DEPTH (feet)	SAMPLES: Sampler Type	SAMPLES: Sample	SAMPLES: Blows/ 6"	SAMPLES: SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA: Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
121						CLAY (CH) (continued)						
122												
123												
124												
125	SPT			13								
126												
127												
128					CH							
129												
130												
131												
132												
133												
134												
135												
136	ST			1,150 psi		SANDY CLAY (CL) yellow-brown and gray-brown, very stiff, wet	TxUU	5,850	3,250		22.2	106
137												
138	S&H			27								
139												
140												
141												
142												
143					CL							
144												
145												
146												
147												
148												
149												
150												

OLD BAY CLAY

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Project No.: 4177.03
Figure: A-1e

TEST GEOTECH LOG 417703.GPJ TR.GDT 4/7/11

PROJECT: **SOUTH SAN FRANCISCO FERRY TERMINAL**
OYSTER POINT MARINA
South San Francisco, California

Log of Boring B-1

DEPTH (feet)	SAMPLES: Sampler Type	SAMPLES: Sample	SAMPLES: Blows/ 6"	SAMPLES: SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA: Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
151					CL	SANDY CLAY (CL) (continued)						
152						CLAYEY SAND (SC) brown, very dense, wet						
153												
154												
155												
156	ST			1,750 psi			TxUU	7,400	7,700	28.2	16.6	115
157												
158												
159												
160					SC							
161												
162												
163						grades with gravel from 163 to 169 feet						
164												
165												
166												
167												
168												
169						CLAY (CH) gray, very stiff, wet						
170					CH							
171	S&H			27			TxUU	8,340	3,340		22.6	105
172												
173												
174												
175												
176												
177												
178												
179												
180												

Boring was terminated at a depth of 171.5 feet.
Boring backfilled with cement grout.
Boring was performed over water.

[1] S&H and SPT blow counts verted to SPT-N values using factors of 0.8 and 1.33, respectively
[2] Elevation based on field measurements and published tide tables for Oyster Point Marina and survey data plus estimated silt accumulation

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Project No.: 4177.03
Figure: A-1f

PROJECT: **SOUTH SAN FRANCISCO FERRY TERMINAL**
OYSTER POINT MARINA
South San Francisco, California

Log of Boring B-2

Boring location: See Site Plan, Figure 2
Logged by: A. Scavullo
Date started: 3/12/07 Date finished: 3/13/07
Drilling method: Rotary Wash
Hammer weight/drop: 140 lbs./30 inches Hammer type: Automatic Hammer
Sampler: Standard Penetration Test (SPT), Shelby Tube (ST)

DEPTH (feet)	SAMPLES: Sampler Type	SAMPLES: Sample	SAMPLES: Blows/ 6"	SAMPLES: SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA: Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
						Ground Surface Elevation: -6.8/ -6.5 foot[1]						
1						CLAY (CH) dark gray, very soft, wet, with shell fragments						
2												
3												
4	ST			0 psi			TxUU	120	70		70.1	58
5												
6												
7												
8												
9	ST			25 psi			TxUU	300	120		66.4	59
10												
11												
12												
13												
14	ST			25 psi			TxUU	490	210		67.6	60
15					CH							
16												
17						grades soft						
18												
19	ST			40 psi			TxUU	680	300		61.6	63
20												
21												
22												
23												
24	ST			<25 psi			TxUU	860	430		64.8	61
25												
26												
27												
28												
29	ST			200 psi			TxUU	1,050	430		77.0	55
30												

BAY MUD

Treadwell&Rollo
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Project No.: 4177.03
Figure: A-2a

TEST GEOTECH LOG 417703.GPJ TR.GDT 4/7/11

PROJECT: **SOUTH SAN FRANCISCO FERRY TERMINAL**
OYSTER POINT MARINA
South San Francisco, California

Log of Boring B-2

DEPTH (feet)	SAMPLES: Sampler Type	SAMPLES: Sample	SAMPLES: Blows/ 6"	SAMPLES: SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA: Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
31	ST					CLAY (CH) (continued)						
32												
33												
34	ST			<25 psi			TxUU	1,430	420		76.1	55
35												
36												
37												
38												
39	ST			<25 psi			TxUU	1,630	440		61.2	64
40												
41												
42												
43												
44						grades mediums stiff						
45					CH							
46												
47												
48												
49												
50	ST			<25 psi			TxUU	1,180	670		58.7	65
51												
52												
53												
54												
55												
56												
57												
58												
59	ST			<25 psi								
60												

BAY MUD

Treadwell&Rollo
A LANGAN COMPANY

Project No.: 4177.03
Figure: A-2b

TEST GEOTECH LOG 417703.GPJ TR.GDT 4/7/11

PROJECT: **SOUTH SAN FRANCISCO FERRY TERMINAL**
OYSTER POINT MARINA
South San Francisco, California

Log of Boring B-2

DEPTH (feet)	SAMPLES: Sampler Type	SAMPLES: Sample	SAMPLES: Blows/ 6"	SAMPLES: SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA: Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
61	ST			<25 psi		CLAY (CH) (continued)						
62												
63												
64												
65												
66												
67												
68												
69												
70	ST			25 psi			TxUU	2,590	800		56.1	67
71												
72												
73												
74												
75					CH	BAY MUD						
76												
77												
78												
79												
80	ST			25 psi			TxUU	2,970	870		52.5	69
81												
82												
83												
84												
85												
86												
87												
88												
89												
90												

Treadwell&Rollo
A LANGAN COMPANY

Project No.: 4177.03
Figure: A-2c

TEST GEOTECH LOG 417703.GPJ TR.GDT 4/7/11

PROJECT: **SOUTH SAN FRANCISCO FERRY TERMINAL**
OYSTER POINT MARINA
South San Francisco, California

Log of Boring B-2

DEPTH (feet)	SAMPLES: Sampler Type	SAMPLES: Sample	SAMPLES: Blows/ 6"	SAMPLES: SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA: Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
91						CLAY (CH) (continued)						
92						CLAYEY SAND (SC) olive-gray, medium dense, wet						
93												
94												
95	ST			150-250 psi								
96												
97												
98												
99												
100	SPT			29	SC					37.8		
101												
102												
103												
104												
105												
106												
107												
108												
109												
110	SPT			27						14.4		
111												
112												
113												
114												
115												
116						CLAY (CH) gray, stiff, wet, with shall fragments [OLD BAY CLAY]						
117												
118					CH							
119												
120	SPT			13								

OLD BAY CLAY

Treadwell&Rollo
A LANGAN COMPANY

Project No.: 4177.03

Figure: A-2d

TEST GEOTECH LOG 417703.GPJ TR.GDT 4/7/11

PROJECT: **SOUTH SAN FRANCISCO FERRY TERMINAL**
OYSTER POINT MARINA
South San Francisco, California

Log of Boring B-2

DEPTH (feet)	Sampler Type	Sample	Blows/ 6"	SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
							LABORATORY TEST DATA					
121	SPT			13	CH	CLAY (CH) (continued)						
122												
123												
124												
125												
126												
127												
128												
129												
130												
131												
132						OLD BAY CLAY						
133						SANDY CLAY (CL) yellow-brown and gray-brown, very stiff, wet Consolidation Test, see Figure B-1						
134												
135	ST			250 psi			TxUU	6,060	3,720	53.9	17.3	113
136												
137												
138					CL							
139												
140												
141												
142												
143												
144						CLAYEY SAND(SC) brown, very dense, wet, with gravel						
145												
146					SC							
147	ST			600 psi			TxUU	6,970	5,260	13.8	18.8	110
148												
149												
150												

Boring was terminated at a depth of 148.5 feet.
Boring backfilled with cement grout.
Boring was performed over water.

[1] S&H and SPT blow counts verted to SPT-N values using factors of 0.8 and 1.33, respectively
[2] Elevation based on field measurements and published tide tables for Oyster Point Marina and survey data plus estimated silt accumulation

Treadwell&Rollo
A LANGAN COMPANY

Project No.: 4177.03
Figure: A-2e

TEST GEOTECH LOG 417703.GPJ TR.GDT 4/7/11

Appendix B

Revised Project Drawing Sheets

Sheet C-003

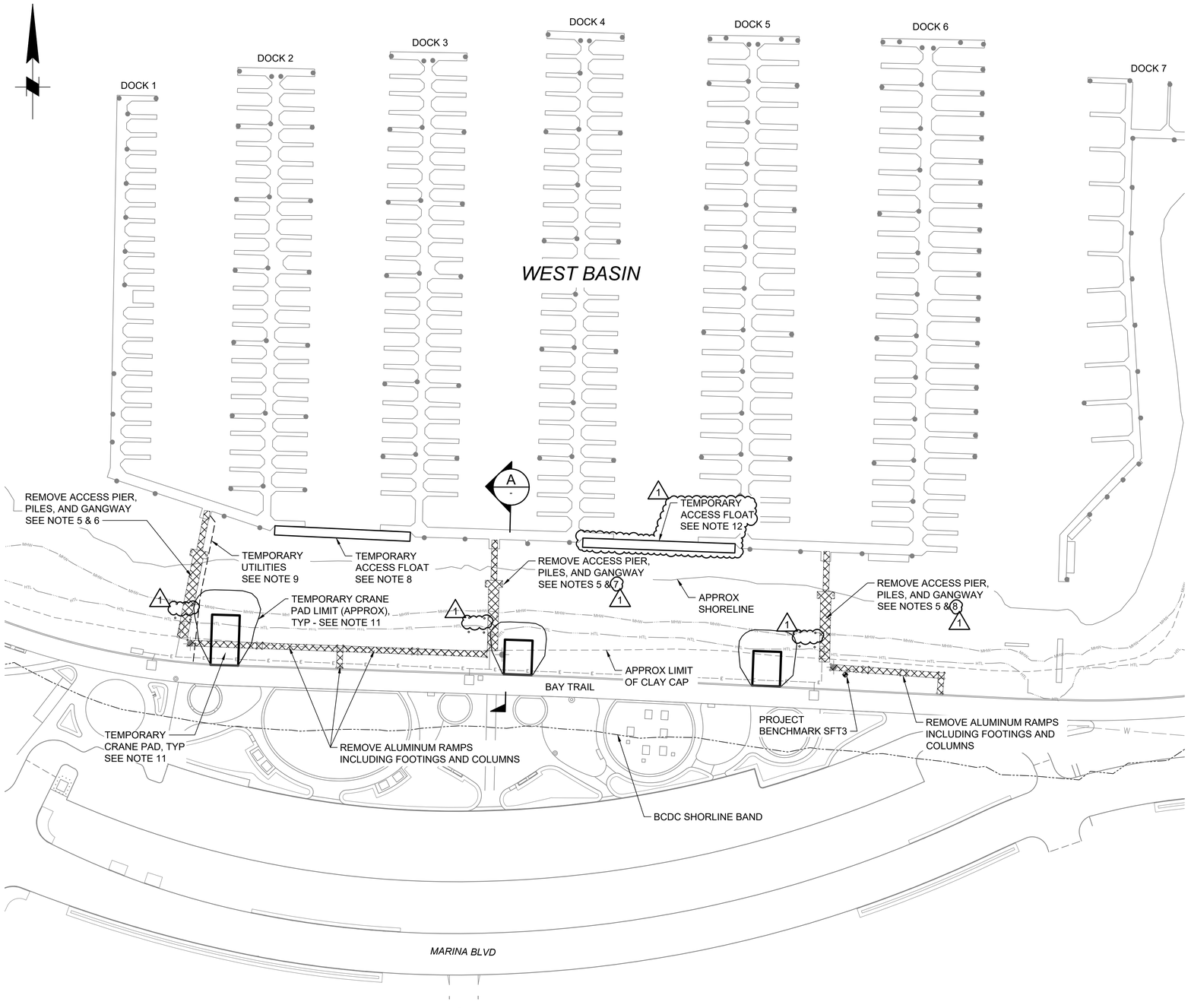
Sheet C-010

Sheet C-012

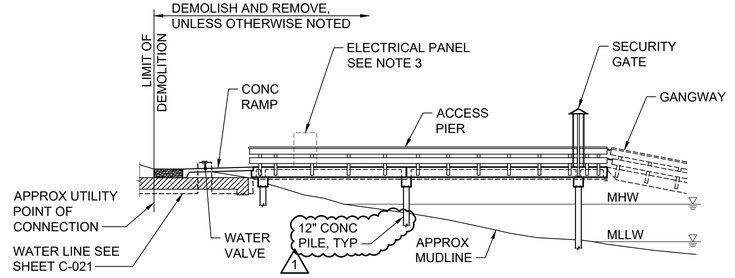
Sheet C-013

Sheet C-020

Sheet S-004



1 - PLAN - DEMOLITION & TEMPORARY FACILITIES
SCALE: 1" = 50'



A - ELEVATION - TYPICAL PIER AND GANGWAY DEMOLITION
SCALE: NTS

LEGEND

- DEMOLISH AND REMOVE (IN PLAN)
- MHW — MHW
- HTL — HTL
- EXISTING FEATURE
- APPROX LIMIT OF CLAY CAP
- EXISTING PILE

NOTES

1. FEATURES SHOWN ON THIS SHEET ARE EXISTING OR TEMPORARY. TEMPORARY FEATURES AND FACILITIES SHALL BE REMOVED AT COMPLETION OF CONSTRUCTION.
2. ALL DIMENSIONS SHOWN ARE APPROXIMATE AND SHALL BE FIELD VERIFIED.
3. DEMOLISH WATER LINE, ELECTRICAL, CTV, AND TELEPHONE UTILITIES TO LANDSIDE AND DOCKSIDE POINTS OF CONNECTION.
4. THE SITE IS UNDERLAIN BY A LANDFILL WITH A CLAY CAP. THE APPROXIMATE LIMIT OF THE CLAY CAP IS SHOWN. DEMOLITION AND CONSTRUCTION OPERATIONS ARE NOT EXPECTED TO IMPACT THE CLAY CAP. IF CONSTRUCTION OPERATIONS ENCOUNTER THE CLAY CAP, THE CONTRACTOR SHALL NOTIFY THE DISTRICT IMMEDIATELY.
5. PILES TO BE REMOVED INCLUDE:

   DOCKS 1/2 - FOUR ACCESS PLATFORM SUPPORT PILES
   DOCKS 3/4 - FOUR ACCESS PLATFORM SUPPORT PILES
   DOCKS 5/6 - FOUR ACCESS PLATFORM SUPPORT PILES

6. DEMOLISH EXISTING ACCESS PLATFORM FOR DOCKS 1/2 BEFORE CONSTRUCTION OF NEW ACCESS PLATFORM FOR DOCKS 1/2.
7. DEMOLISH EXISTING ACCESS PLATFORM FOR DOCKS 3/4 AFTER CONSTRUCTION OF NEW ACCESS PLATFORM FOR DOCKS 3/4.
8. DEMOLISH EXISTING ACCESS PLATFORM FOR DOCKS 5/6 AFTER CONSTRUCTION OF THE NEW ACCESS PLATFORM FOR DOCKS 5/6.
9. PROVIDE 8' WIDE TEMPORARY FLOAT CONNECTING DOCK 2 AND DOCK 3 DURING CONSTRUCTION TO MAINTAIN ACCESS BETWEEN DOCKS 1/2 AND DOCKS 3/4. (1)
10. PROVIDE TEMPORARY UTILITIES FOR DOCKS 1/2 DURING CONSTRUCTION. CONTRACTOR SHALL COORDINATE TEMPORARY UTILITY LAYOUT WITH THE DISTRICT.
11. TEMPORARY CRANE PADS SHALL BE 24' WIDE X 30' LONG (DOCKS 3/4 AND 5/6) AND 24' WIDE X 45' LONG (DOCK 1/2). CRANE PAD SHALL BE CONSTRUCTED OF GRAVEL AND SHALL BE COMPLETELY REMOVED PER PERMIT REQUIREMENTS.
12. (1) IF REQUIRED, PROVIDE 8' WIDE TEMPORARY FLOAT CONNECTING DOCK 4 AND DOCK 5 DURING CONSTRUCTION TO MAINTAIN ACCESS BETWEEN DOCKS 3/4 AND 5/6.

50' 0' 50' 100'

SCALE: 1"=50'

APRIL 10, 2024
BID SET

SAN MATEO COUNTY HARBOR DISTRICT
504 Avenue Alhambra, 2nd Floor
El Granada, CA 94018
(650) 741-9163

REVISION	DESCRIPTION	BY	DATE
1	ADDENDUM 1	NN	05-10-2024

REGISTERED PROFESSIONAL ENGINEER — NEIL A. NICHOL — No. 56807 — EXP. 06/30/25 — CIVIL — STATE OF CALIFORNIA

moffatt & nichol
2185 N. CALIFORNIA BLVD.
SUITE 500
WALNUT CREEK, CA 94596

DSGN	DR	CHK
NN	EP/NN	BP/RD
JOB NO. 9673-13	SUBMITTED BY	TITLE

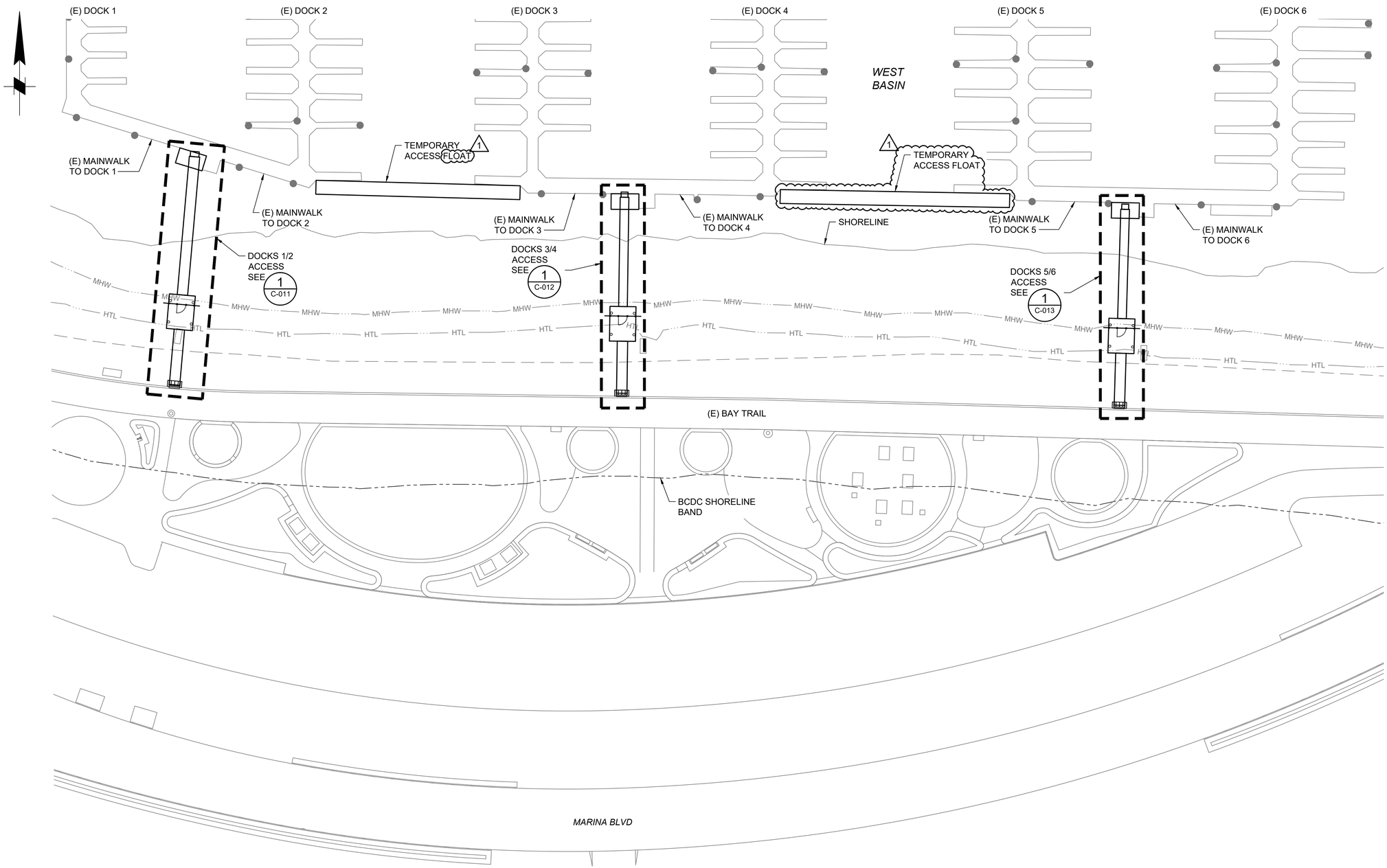
SAN MATEO COUNTY HARBOR DISTRICT

OYSTER POINT MARINA
WEST BASIN ACCESS IMPROVEMENTS

DEMOLITION & TEMPORARY FACILITIES PLAN

DATE 04-10-2024
SHEET 5 OF 25

C-003



1 - DOCK ACCESS PLAN
SCALE: 1" = 30'

LEGEND

- MHW — MHW
- HTL — HTL
- PROJECT FEATURE
- EXISTING FEATURE
- EXISTING PILE
- 16" SQUARE PILE

30' 0' 30' 60'

SCALE: 1" = 30'

APRIL 10, 2024
BID SET

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NEIL A. NICHOLAS
No. 56807
EXP. 06/30/25
CIVIL
STATE OF CALIFORNIA

moffatt & nichol
2185 N. CALIFORNIA BLVD.
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NN	EP/NN	BP/RD
JOB NO. 9673-13	SUBMITTED BY	TITLE

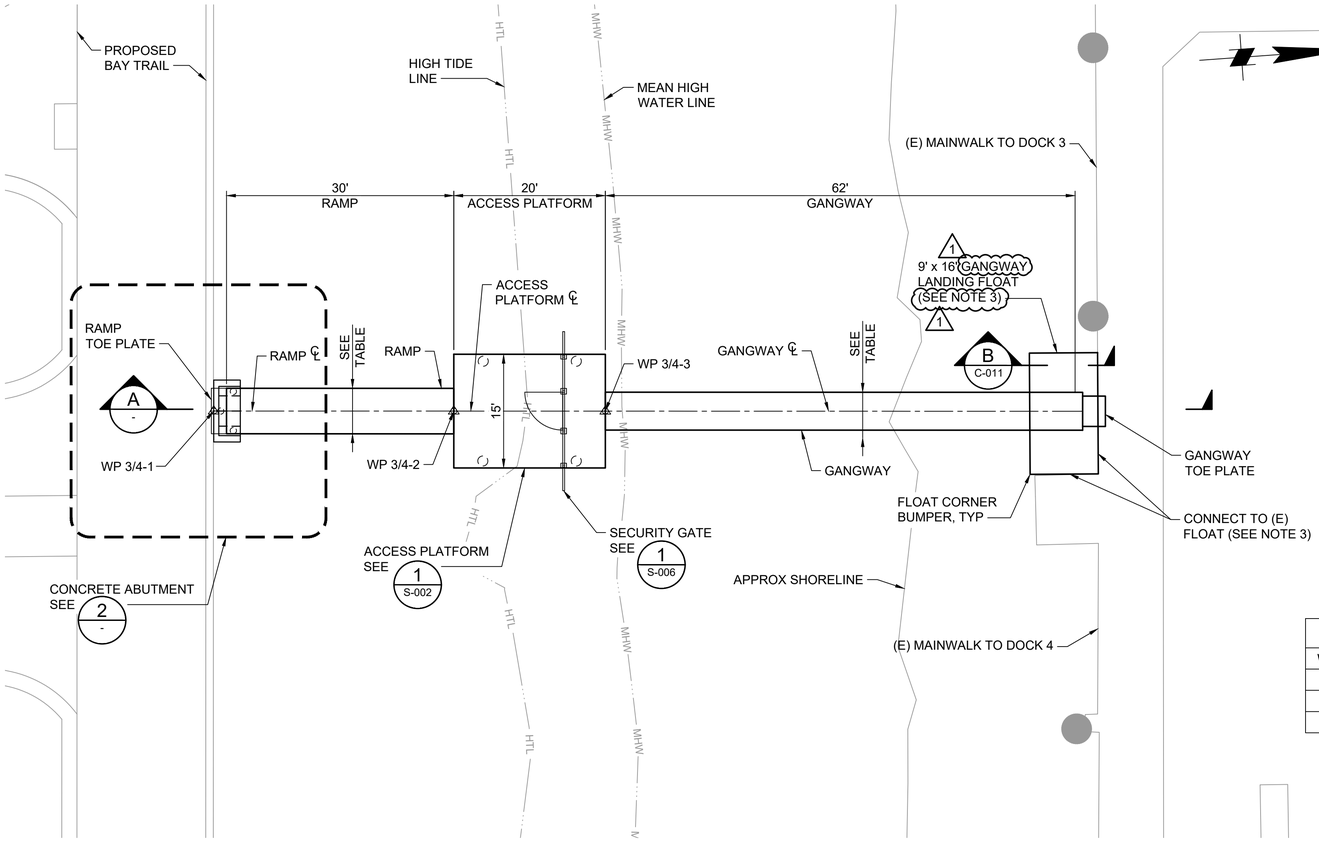
SAN MATEO COUNTY HARBOR DISTRICT

OYSTER POINT MARINA
WEST BASIN ACCESS IMPROVEMENTS

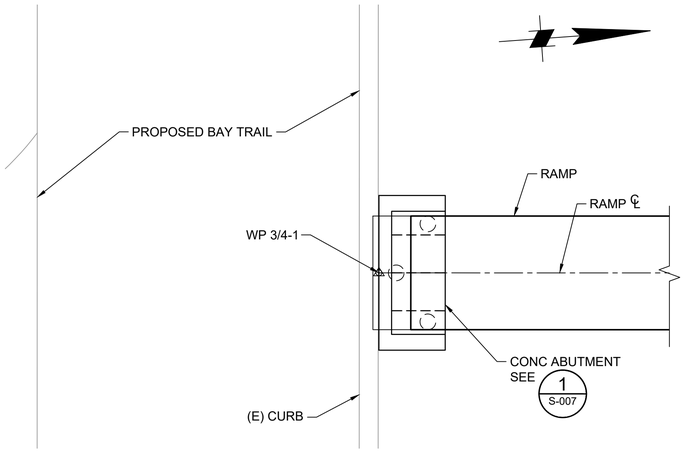
DOCK ACCESS PLAN

DATE 04-10-2024
SHEET 6 OF 25

C-010



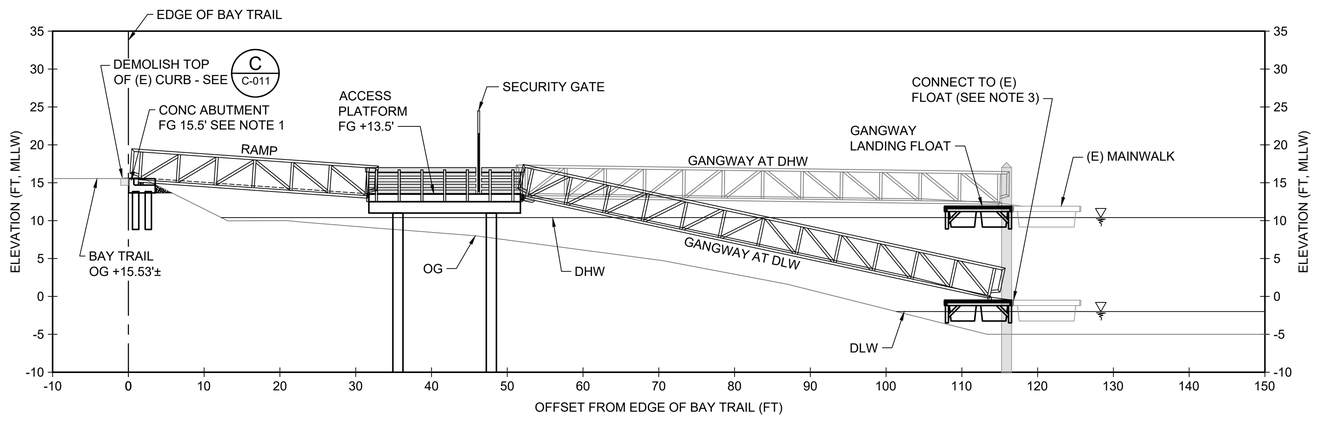
1 C-002 — DOCKS 3 AND 4 DOCK ACCESS PLAN
SCALE: 1" = 10'
C-010



2 - CONCRETE ABUTMENT DETAIL
SCALE: 1" = 4'

DOCKS 3/4 DOCK ACCESS WORK POINTS		
WORK POINT ID	NORTHING	EASTING
WP 3/4-1	2069232.99	6017216.40
WP 3/4-2	2069264.66	6017217.48
WP 3/4-3	2069284.64	6017218.15

TABLE: RAMP & GANGWAY WIDTH		
LOCATION	OVERALL WIDTH	CLEAR WIDTH
RAMP	6'-0"	5'-0"
GANGWAY	5'-0"	4'-0"



A - DOCKS 3 AND 4 DOCK ACCESS ELEVATION
SCALE: 1" = 10'

LEGEND

- MHW
- HTL
- PROJECT FEATURE
- 16" SQUARE PILE
- EXISTING FEATURE
- EXISTING CONTOUR
- EXISTING PILE
- SECURITY GATE

NOTES

1. SEE NOTES ON SHEET C-011.

4' 0' 4' 8'
SCALE: 1"=4'

10' 0' 10' 20'
SCALE: 1"=10'

APRIL 10, 2024
BID SET

SAN MATEO COUNTY HARBOR DISTRICT
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moffatt & nichol
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NN	EP/NN	BP/RD
JOB NO. 9673-13	SUBMITTED BY	TITLE

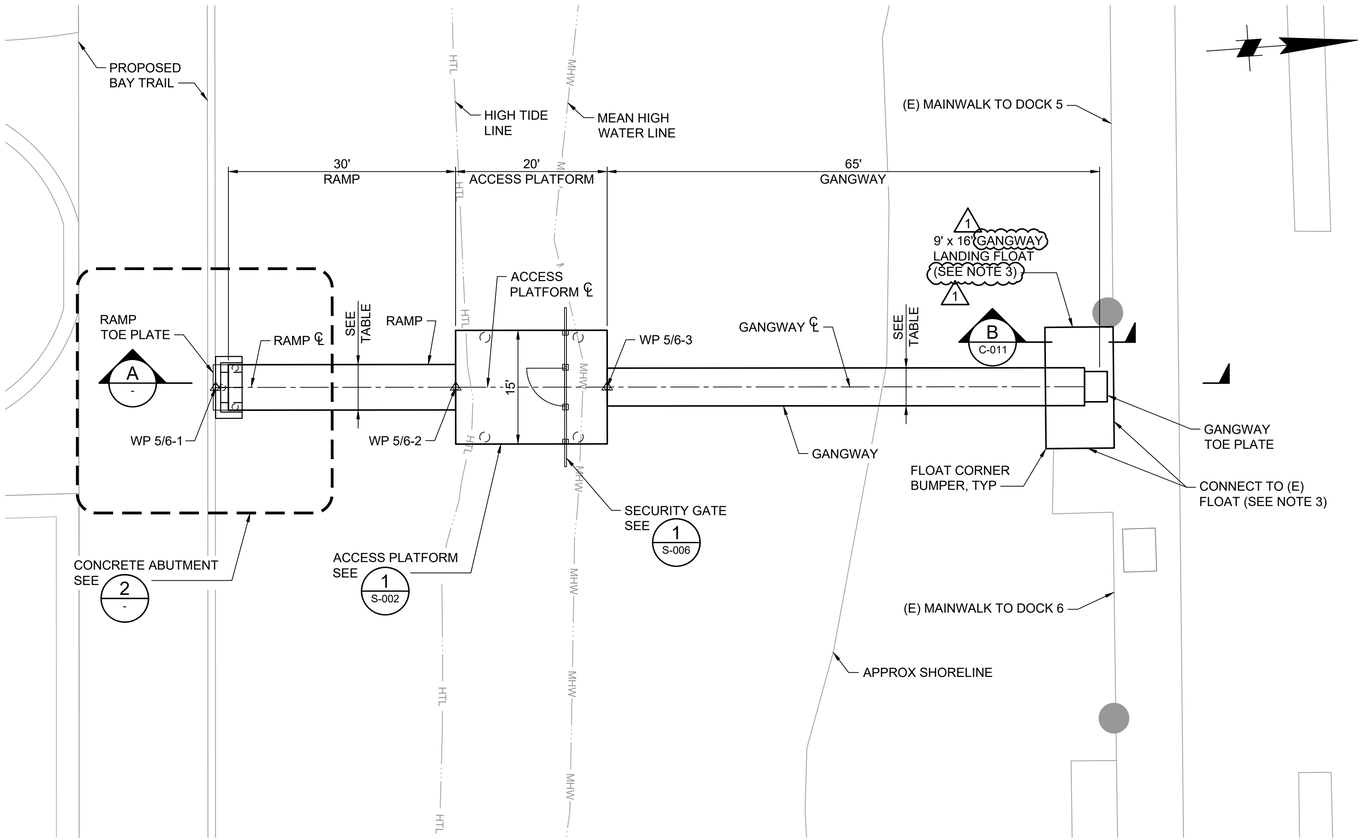
SAN MATEO COUNTY HARBOR DISTRICT
OYSTER POINT MARINA
WEST BASIN ACCESS IMPROVEMENTS

DATE 04-10-2024
SHEET 8 OF 25

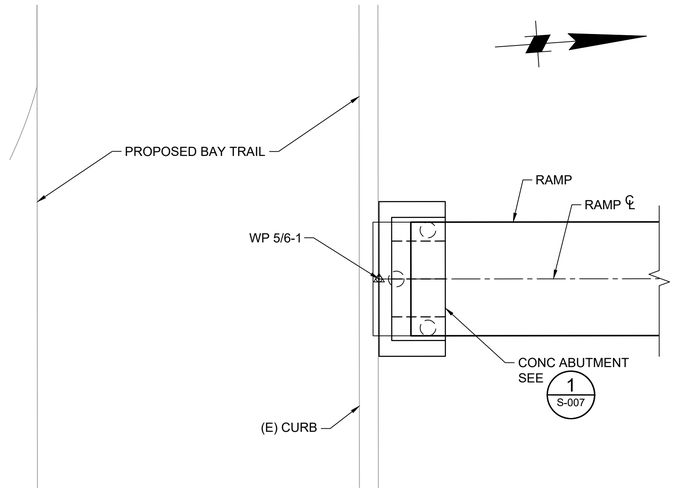
DOCKS 3 & 4 - DOCK ACCESS PLAN & ELEVATION

C-012

File: Q:\WC\9673-13 Oyster Pt Docks 12-14\4_CAD_Active_Sheets_West Basin Access Improvements\9673_13-C-012 ; Plotted: 5/10/2024 11:31 AM by TEJERO, JOSEPH ; Saved: 5/10/2024 11:21 AM by JTEJERO



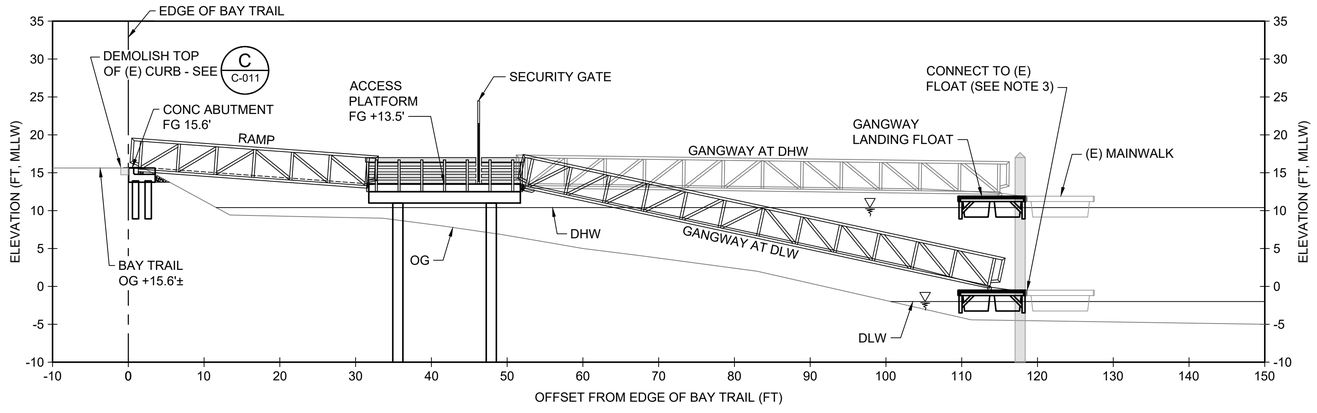
1 C-002 DOCKS 5/6 DOCK ACCESS PLAN
SCALE: 1" = 10'



2 - CONCRETE ABUTMENT DETAIL
SCALE: 1" = 4'

DOCKS 5/6 DOCK ACCESS WORK POINTS		
WORK POINT ID	NORTHING	EASTING
WP 5/6-1	2069220.43	6017503.03
WP 5/6-2	2069252.08	6017504.58
WP 5/6-3	2069272.05	6017505.56

TABLE: RAMP & GANGWAY WIDTH		
LOCATION	OVERALL WIDTH	CLEAR WIDTH
RAMP	6'-0"	5'-0"
GANGWAY	5'-0"	4'-0"



A - DOCKS 5/6 DOCK ACCESS ELEVATION
SCALE: 1" = 10'

LEGEND

- MHW — MHW
- HTL — HTL
- PROJECT FEATURE
- 16" SQUARE PILE
- EXISTING FEATURE
- EXISTING CONTOUR
- EXISTING PILE
- SECURITY GATE

NOTES

1. SEE NOTES ON SHEET C-011.

4' 0' 4' 8'
SCALE: 1"=4'

10' 0' 10' 20'
SCALE: 1"=10'

APRIL 10, 2024
BID SET

REVISION	DESCRIPTION	BY	DATE
1	ADDENDUM 1	NN	05-10-2024

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JOB NO. 9673-13	SUBMITTED BY	TITLE

SAN MATEO COUNTY HARBOR DISTRICT
OYSTER POINT MARINA
WEST BASIN ACCESS IMPROVEMENTS

DOCKS 5 & 6 - DOCK ACCESS PLAN & ELEVATION

DATE 04-10-2024
SHEET 9 OF 25

C-013

GENERAL NOTES

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST CITY OF SOUTH SAN FRANCISCO MECHANICAL AND PLUMBING CODES, FEDERAL, AND STATE CODES, RULES, REGULATIONS, STANDARDS, AND PER MANUFACTURER'S RECOMMENDATIONS.
2. ALL EQUIPMENT AND MATERIALS SHALL BE UL LISTED AND APPROVED FOR USE IN CALIFORNIA AND THE CITY OF SOUTH SAN FRANCISCO BUILDING AND SAFETY DEPARTMENT.
3. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATIONS, ELEVATIONS, AND CHARACTERISTICS OF ALL UTILITIES AND PIPING AND IMMEDIATELY NOTIFY THE DISTRICT'S REPRESENTATIVE OF ANY DISCREPANCIES.
4. CONTRACTOR SHALL EXAMINE AND BECOME ACQUAINTED WITH THE EXISTING CONSTRUCTION AND THE CONDITIONS UNDER WHICH THE WORK IS TO BE CARRIED OUT. THE CONTRACTOR SHALL MAKE ACCURATE FIELD DIMENSIONS OF ALL RELATED WORK AREAS, SPACES, OPENINGS, LEVELS, AND ITEMS OF ADJACENT WORK. BEFORE COMMENCING WORK THE CONTRACTOR SHALL REPORT TO THE DISTRICT'S REPRESENTATIVE IN WRITING ALL DISCREPANCIES BETWEEN THE CONTRACT DOCUMENTS AND THE ACTUAL FIELD CONDITIONS. COMMENCEMENT OF WORK SHALL CONSTITUTE ACCEPTANCE OF ALL EXISTING CONDITIONS AFFECTING THE WORK.
5. PLUMBING WORK SHALL BE INSTALLED SO AS TO AVOID STRUCTURAL FRAMING.
6. ALL ABOVE GROUND PIPING SHALL BE PAINTED A COLOR CHOSEN BY THE DISTRICT.
7. ALL CLEAN OUTS SHALL BE INSTALLED WHERE READILY ACCESSIBLE. THE CONTRACTOR SHALL COORDINATE ALL CLEAN OUT LOCATIONS WITH EQUIPMENT, CABINETS, ETC., WITH THE DISTRICT'S REPRESENTATIVE PRIOR TO ANY INSTALLATION.
8. UNIONS SHALL BE PROVIDED AND INSTALLED FOR EACH SCREW - TYPE VALVE AND EQUIPMENT CONNECTION.
9. BEFORE FABRICATION OR INSTALLATION, THE CONTRACTOR SHALL VERIFY EXACT LOCATIONS OF ALL MECHANICAL EQUIPMENT AND EQUIPMENT PROVIDED BY OTHER TRADES. EXACT ROUGH-IN LOCATIONS AND REQUIREMENTS SHALL BE DETERMINED IN THE FIELD.
10. STRUCTURAL PENETRATIONS FOR UTILITIES SHALL NOT BE ALLOWED.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PATCHING AND REPAIRING ALL AREAS WHICH ARE EXCAVATED AND/OR DAMAGED BY THEIR OPERATIONS. THE CONTRACTOR SHALL RESTORE THESE AREAS TO ORIGINAL CONDITION WITHOUT COST TO THE DISTRICT.
12. ALL CUTTING OF EXISTING PAVING, WALKWAYS AND/OR FLOORS SHALL BE BY MACHINE SAWCUT.
13. COORDINATE WORK WITH OTHER TRADES.
14. ALL WORK SHOWN IS NEW UNLESS NOTED AS EXISTING.
15. PROVIDE DIELECTRIC PROTECTION AT CONNECTIONS BETWEEN DISSIMILAR METALS.

FIRE PROTECTION NOTES

1. FIRE PROTECTION PLANS SHALL BE APPROVED BY THE LOCAL FIRE MARSHALL PRIOR TO THE INSTALLATION OF ANY PIPE. DURING CONSTRUCTION, A SET OF APPROVED PLANS SHALL BE MAINTAINED AT ALL TIMES ON THE JOB SITE.
2. HDPE PIPING SHALL BE TESTED IN ACCORDANCE WITH ASTM F2164.COMPLETED WORK SHALL BE SUBJECTED TO A FIRE WATER PRESSURE TEST OF 200 PSI FOR TWO HOURS, DURING WHICH THERE IS TO BE NO REDUCTION IN TEST PRESSURE. IF A REDUCTION SHOULD OCCUR, LEAK(S) SHALL BE LOCATED, REPAIRED AND THE TEST REPEATED. IN ADDITION, ALL NEWLY INSTALLED FIRE SERVICE LINES SHALL PASS HYDROSTATIC AND HYDRODYNAMIC TESTING REQUIREMENTS AS PERFORMED BY THE LOCAL FIRE MARSHAL.
3. THE SYSTEM SHALL ONLY EMPLOY THE USE OF APPROVED MATERIALS AND DEVICES OF NO LESS THAN 200 PSI RATED WORKING PRESSURE. FW PIPING SHALL BE HDPE DR 11 FOR UNDERGROUND OR PROTECTED LOCATIONS, OTHERWISE IT SHALL BE STAINLESS STEEL FOR THE EXPOSED ABOVEGROUND APPLICATIONS OR DUCTILE IRON WHERE BURIED AS INDICATED ON THE DRAWINGS.
4. ONE 10 POUND MINIMUM FIRE EXTINGUISHER HAVING A MINIMUM RATING OF 4A-60B:C SHALL BE PROVIDED AT EACH FIRE HOSE CABINET.
5. PIPING MATERIAL & FIREWATER SYSTEM SHALL BE IN COMPLIANCE WITH NFPA 14, NFPA 303 AND REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION. ALL MATERIALS SHALL BE UL LISTED WHERE AVAILABLE.
6. THE FLOATING DOCK FIRE PROTECTION SYSTEM SHALL BE A CLASS II WET STANDPIPE SYSTEM, PER NFPA 14.
7. FLEXIBLE HOSE CONNECTIONS AT GANGWAY SHALL BE FACTORY ASSEMBLED LENGTHS OF ANNUFLEX OR APPROVED EQUAL, 34" DYNAMIC MIN BEND RADIUS ON A 8" HOSE, 250 PSI MIN WORKING PRESSURE WITH MARINE (SS316) STAINLESS STEEL COUPLINGS EACH END.
8. MAXIMUM DISTANCE OF ABOVEGROUND PIPE BETWEEN PIPE SUPPORTS (PER NFPA) SHALL NOT EXCEED THE FOLLOWING UON: 1

NOMINAL PIPE SIZE	SS PIPE SPAN, FEET	HDPE PIPE SPAN, FEET
10"	15	8
8"	15	8
6"	15	8
4"	15	7
3"	15	5
2.5"	15	5

LEGEND AND ABBREVIATIONS

SYMBOLS	ABBREV	DESCRIPTION
	Ø	DIAMETER
	AHJ	AUTHORITY HAVING JURISDICTION
	ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
	ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
	BFP	BACKFLOW PREVENTION DEVICE
	BV	BALL VALVE
	CONN	CONNECTION
	CONT	CONTINUATION
	CPVC	CHLORINATED POLYVINYL CHLORIDE PIPE
	CU	COPPER
	DEPT	DEPARTMENT
	DIP	DUCTILE IRON PIPE
	DWG	DRAWING
	ELL	ELBOW
	EXIST	EXISTING
	FDC	FIRE DEPARTMENT CONNECTION
	FEC	FIRE EXTINGUISHER CABINET
FW	FW	FIRE WATER
	FS	FIREWATER SYSTEM
	FT	FEET
	GPM	GALLONS PER MINUTE
	GALV	GALVANIZED
	GV	GATE VALVE
	HB	HOSE BIBB
	HDPE	HIGH DENSITY POLYETHYLENE
	HYD	HYDRANT
	LDPE	LOW DENSITY POLYETHYLENE
	MAX	MAXIMUM
	MIN	MINIMUM
	MFR	MANUFACTURER
	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
	NPT	NATIONAL PIPE THREAD
	NSF	NATIONAL SANITATION FOUNDATION INTERNATIONAL
	NTS	NOT TO SCALE
	OSHA	OCCUPATIOAL AND SAFETY HEALTH ADMINISTRATION
	POC	POINT OF CONNECTION
	PPM	PARTS PER MILLION
	PVC	POLYVINYL CHLORIDE PIPE
PW	PW	POTABLE WATER
	PSI	POUNDS PER SQUARE INCH
	RED	REDUCER
	SS	STAINLESS STEEL
	STD	STANDARD
	STL	STEEL
	TYP	TYPICAL
	UL	UNDERWRITERS LABORATORIES, INC.
1	UON	UNLESS OTHERWISE NOTED
	VIC	VICTAULIC
WM	WM	WATER METER
	W/	WITH

APRIL 10, 2024
BID SET

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DSGN	DR	CHK
DM	DM	AK
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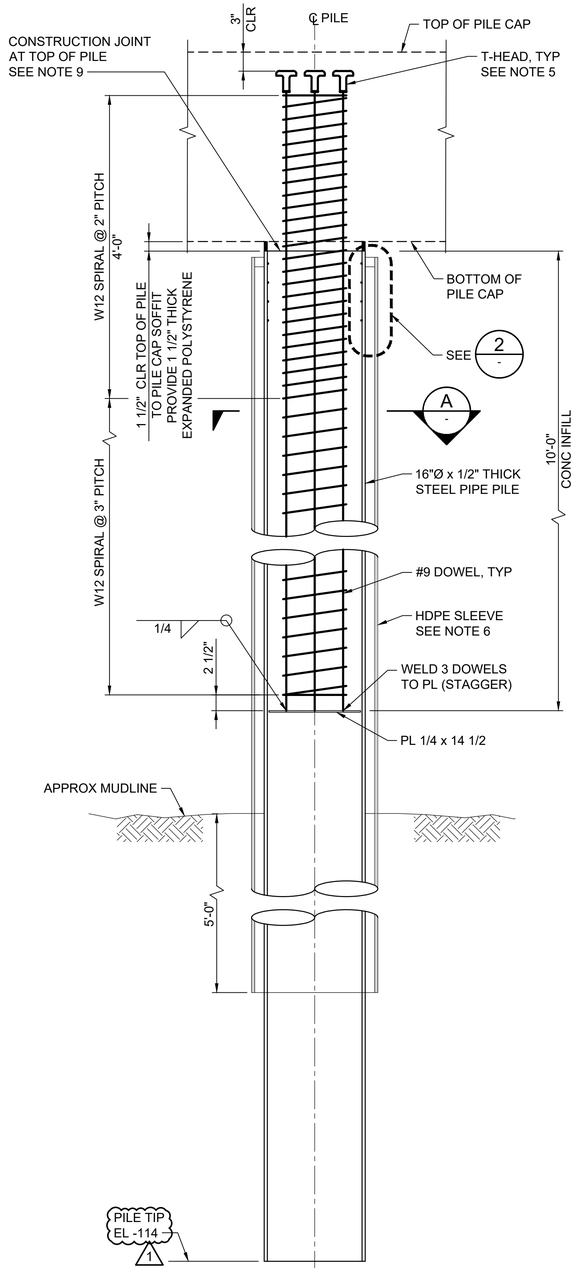
SAN MATEO COUNTY HARBOR DISTRICT
OYSTER POINT MARINA
WEST BASIN ACCESS IMPROVEMENTS

DATE 04-10-2024
SHEET 10 OF 25

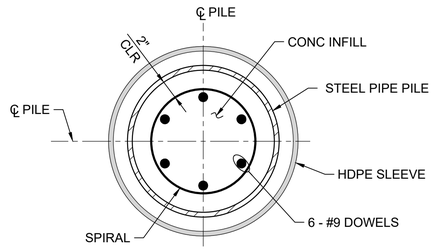
MECHANICAL GENERAL NOTES, LEGEND & ABBREVIATIONS

C-020

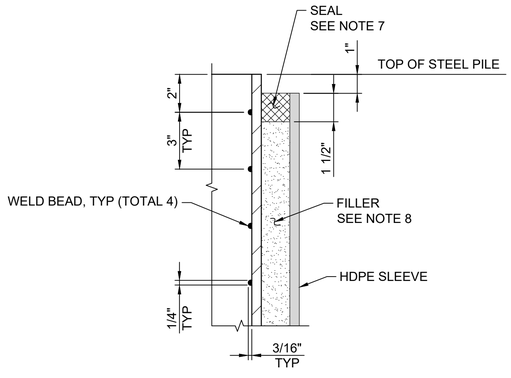
File: Q:\WO\9673-13 Oyster Pt Docks 12-14\4_CAD_Active_Sheets_West Basin Access Improvements\9673_13-C-020 ; Plotted: 5/13/2024 11:12 AM by TEJERO, JOSEPH ; Saved: 5/13/2024 11:11 AM by JTEJERO



1 S-003 16 INCH DIA STEEL PIPE PILE ELEVATION
SCALE: 1" = 1'-0"



A - SECTION
SCALE: 1 1/2" = 1'-0"



2 - DETAIL
SCALE: 3" = 1'-0"

NOTES:

1. STEEL PIPE PILE SHALL CONFORM WITH ASTM A252 GRADE 3 (MOD) - 50 KSI MINIMUM YIELD STRENGTH.
2. PILE FABRICATION SHALL CONFORM TO ASTM A252 GRADE 3 (MOD) - 50 KSI MINIMUM YIELD STRENGTH.
3. ANCHOR THE ENDS OF SPIRALS WITH ONE AND A HALF EXTRA TURNS AND A 135° SEISMIC HOOK AROUND A BAR.
4. LAPPED SPLICES IN SPIRAL REINFORCEMENT SHALL BE LAPPED AT LEAST 80 WIRE DIAMETERS. SPIRAL REINFORCEMENT AT SPLICE ENDS SHALL BE TERMINATED WITH A 135° HOOK WITH A 6" TAIL HOOKED AROUND A LONGITUDINAL STRAND.
5. T-HEADS FOR DOWELS SHALL BE HRC 555 PER ASTM A706 GRADE 80.
6. HDPE SLEEVE ALLOWABLE DIMENSIONS:
   A. MINIMUM WALL THICKNESS 0.5"
   B. MINIMUM INSIDE DIAMETER 16.5"
   C. MAXIMUM OUTSIDE DIAMETER 20".
7. SEALANT SHALL BE POLYURETHANE SEALANT 540 BY 3M OR APPROVED EQUAL.
8. FILLER SHALL BE 30-MESH SAND AND SHALL FILL THE SPACE BETWEEN THE PIPE PILE AND THE SLEEVE.
9. CONSTRUCTION JOINT SHALL BE CONSTRUCTED WHERE SHOWN.

6" 0'-0" 3" 6"
SCALE: 3"=1'-0"

1'-0" 0'-0" 6" 1'-0"
SCALE: 1 1/2"=1'-0"

1'-0" 0'-0" 1'-0" 2'-0"
SCALE: 1"=1'-0"

APRIL 10, 2024
BID SET

SAN MATEO COUNTY HARBOR DISTRICT
504 Avenue Alhambra, 2nd Floor
El Granada, CA 94018
(650) 741-9163

REVISION	DESCRIPTION	BY	DATE
1	ADDENDUM 1	NN	05-10-2024

REGISTERED PROFESSIONAL ENGINEER — NEIL A. NICHOLSON — No. 56807 — EXP. 06/30/25 — CIVIL — STATE OF CALIFORNIA

moffatt & nichol
2185 N. CALIFORNIA BLVD.
SUITE 500
WALNUT CREEK, CA 94596

DSGN	DR	CHK
NN	EP	JB
JOB NO. 9673-13	SUBMITTED BY	TITLE

SAN MATEO COUNTY HARBOR DISTRICT
OYSTER POINT MARINA
WEST BASIN ACCESS IMPROVEMENTS

ACCESS PLATFORM PILE DETAILS

DATE 04-10-2024
SHEET 22 OF 25
S-004