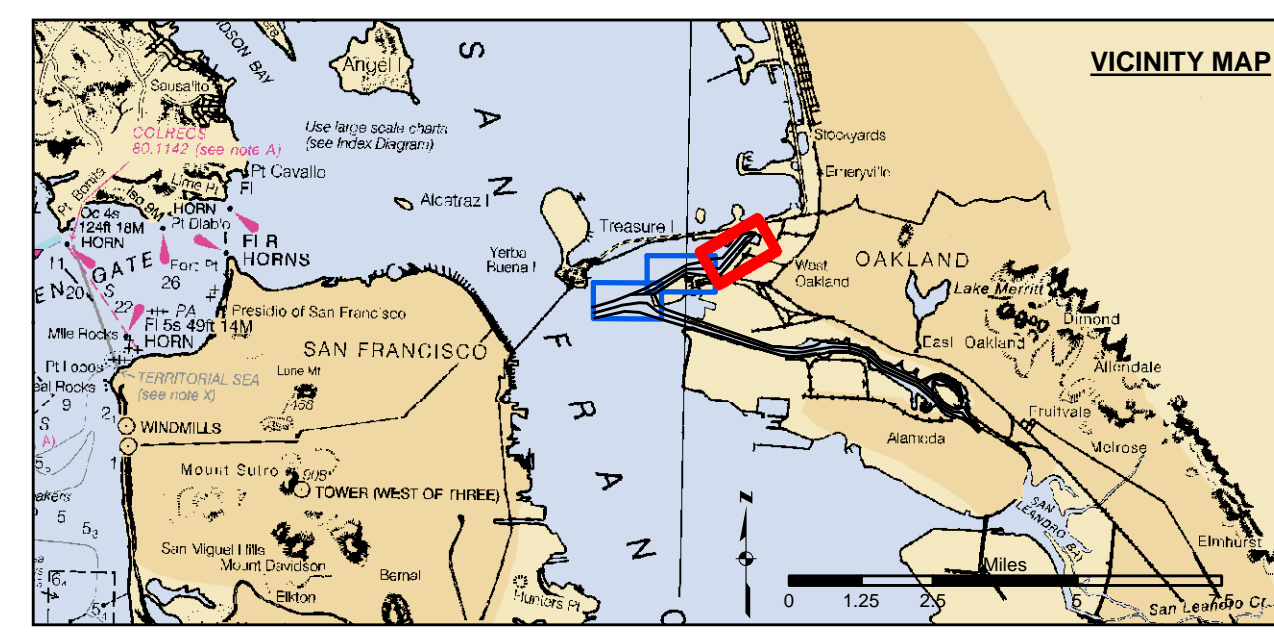


**US Army Corps of Engineers**  
 San Francisco District  
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Prepared Under the Direction of <b>TRAVIS J. RAYFIELD</b> LT COLONEL, C.E., DISTRICT ENGINEER	Chart Date: Apr 26, 2018
Submittal: Hydro Survey Team Leader	Designed by:
Recommendation: Navigation Technical Manager	Drawn by:
Approved: Project Manager	



Federal Navigation Channel	Beacon, General	<b>Contours</b>
Shoaling Area	Obstruction Point	
Placement Area	Navigation Buoy	
Anchorage Area	Navigation Buoy	
Wreck Area	Shoalest Sounding*	
Submerged Wreck		-50
Angle Point		-49
		-48
		-47
		-46

**NOTES:**  
 DRAWING NOT TO BE USED FOR NAVIGATION. ONLY CHANNEL CONDITION AT DATE OF SURVEY.  
 THE LOCATION OF ALL NAVIGATION AIDS ARE BASED ON INFORMATION PROVIDED BY THE U.S. COAST GUARD. BUOY LOCATIONS REPRESENT THE POSITION OF THE SINKER ONLY.  
 SOUNDINGS WERE TAKEN BY FATHOMETER AND ARE SHOWN TO THE NEAREST TENTH OF A FOOT.  
 SOUNDINGS ARE BASED ON THE DATUM OF MEAN LOWER LOW WATER AT THE LOCALITY. NAVD 88.  
 SURVEYED BY THE CORPS OF ENGINEERS.  
 BASE MAPS ARE USDA NAIP 2010.

**VERTICAL CONTROL:**  
 PCPC: PORT 1 1836PID HT:R64.  
 OAKLAND INNER, REACH 4-6 DISK SET AT SOUTH END OF CLAY STREET, AT THE PORT OF OAKLAND CLAY STREET PIER.  
 ELEVATION: 9.56 FEET MLLW - DERIVED FROM WGS-84 ELLIPSOID ELEVATION, GEOID09 AND VDUTUM MODELS  
 TIDE GAUGE LOCATION IS CHISEL MARK  
 APPROX. 10 FEET WEST ON TOP OF CONCRETE CURB, CHISEL ELEVATION 11.0 FEET MLLW.  
 LCP1: 941 4777 B TIDALPID A5211, OAKLAND INNER REACH 1-3 DISK SET IN BALLARD FOUNDATION  
 NEAR THE NORTHEAST END OF BERTH 40 OF THE OAKLAND MIDDLE HARBOR.  
 ELEVATION: 13.48 FEET MLLW - DERIVED FROM WGS-84 ELLIPSOID ELEVATION, GEOID09 AND VDUTUM MODELS  
 TIDE GAUGE LOCATION IS IN FACE OF PILING AT BERTH 37; NAIL ELEVATION 9.7 FEET MLLW.  
 LCP2: OAK OUTER 1 2012NO PID, OAKLAND OUTER REACH 7-10 DISK SET IN PARKING LOT AT PIER 6 AMNAV TUG  
 TERMINAL AT THE EDGE OF THE PIER. ELEVATION: 14.04 FEET MLLW - DERIVED FROM WGS-84 ELLIPSOID ELEVATION,  
 GEOID09 AND DATUM MODELS TIDE GAUGE LOCATION IS IN FACE OF PILING AT PIER 6, 10' EAST OF BENCHMARK;  
 NAIL ELEVATION 10.1 FEET MLLW.

**HORIZONTAL CONTROL:**  
 PRIMARY: RTK POSITIONING  
 SECONDARY: COAST GURAD DGPS D-BEACON

PROJECT DEPTH OF OUTER AND INNER HARBOR IS -50 FEET.  
 PROJECT DEPTH FROM INNER HARBOR TURNING BASIN TO PARK STREET BRIDGE IS 35 FEET.  
 TIDAL CANAL PROJECT DEPTH IS 18 FEET.

ALAMEDA COUNTY  
**OAKLAND OUTER HARBOR**  
 REACH 10  
 POST-DREDGE SURVEY  
 16 APRIL 2018

**Sheet**  
**Reference**  
**Number**  
**3 of 3**