

Elevation Color Legend			
Number	Minimum Elevation	Maximum Elevation	Color
1	-60.0	-30.0	Blue
2	-30.0	-28.0	Dark Blue
3	-28.0	-26.0	Light Blue
4	-26.0	-24.0	Light Green
5	-24.0	-22.0	Green
6	-22.5	-20.0	Yellow
7	-20.0	-18.5	Orange
8	-18.5	-16.0	Red
9	-16.0	-14.0	Dark Red
10	-14.0	-12.0	Dark Orange
11	-12.0	-10.0	Light Orange
12	-10.0	-8.0	Light Yellow
13	-8.0	-6.0	Yellow
14	-6.0	-4.0	Orange
15	-4.0	-2.0	Red
16	-2.0	4.0	Dark Red



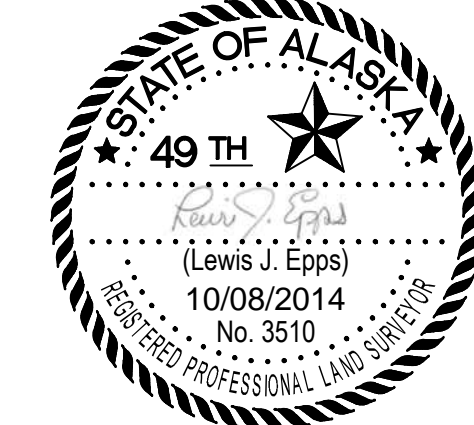
- NOTES**
- PRIMARY PROJECT HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 1, NAD83 (CORS96), IN US SURVEY FEET BASED ON A OPUS DB PUBLISHED VALUE FOR NOAA'S TIDAL BENCH MARK "2438 A 2009" (PID BBBQ31) AS N 2,296,080.45, E 2,341,612.33.
  - LOCAL PROJECT HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 1, NAD83, IN US SURVEY FEET HOLDING DOME BC "2438 A 2009" (PID BBBQ31) AS N 2,296,080.45, E 2,341,612.33.
  - VERTICAL CONTROL IS MEAN LOWER LOW WATER (MLLW=0.0), BASED ON THE NOAA'S TIDAL BENCH MARK LIST: "945 2438 HOONAH, ALASKA" PUBLISHED 04/19/2010. THIS TIDAL DATUM IS BASED ON THE 1983-2001 TIDAL EPOCH AND IS REFERENCED BY HOLDING NOAA'S TIDAL BENCH MARK "2438 B 2009" AS 26.71' AND NOAA'S TIDAL BENCH MARK "2438 C 2009" AS 23.38'.
  - VERTICAL TIES TO THE NATIONAL SPATIAL REFERENCE SYSTEM ARE BASED ON PUBLISHED NAVD88 (GEOID12A) ELEVATION HOLDING NOAA/USACE TIDAL BENCHMARK "2438 A 2009" (PID BBBQ31/VMH19565) AS 21.13'.
  - SOUNDINGS ARE IN FEET AND ARE MINUS UNLESS OTHERWISE INDICATED.
  - BATHYMETRY WAS COLLECTED AUGUST 30-31, 2014. SOUNDINGS WERE COLLECTED USING AN R2SONIC 2022 MULTIBEAM ECHOSOUNDER OPERATING AT 200 KHZ. SOUND VELOCITY THROUGH THE WATER COLUMN WAS DETERMINED WITH A MINOS BASE X SOUND VELOCITY PROBE. POSITION AND VESSEL ORIENTATION WERE MEASURED USING AN APPLANIX POSMV WAVEMASTER VS SYSTEM. DATA WAS COLLECTED AND PROCESSED USING QINSY 8.1 SOFTWARE. HORIZONTAL CONTROL WAS SURVEYED USING STATIC GNSS EQUIPMENT AND TECHNIQUES. VERTICAL CONTROL WAS SURVEYED USING DIFFERENTIAL LEVELING TECHNIQUES.
  - THIS DRAWING INDICATES GENERAL CONDITIONS AT THE TIME OF THE SURVEY.
  - MAP SOUNDINGS ARE BINNED AT 24 FEET AND ARE SHOAL-BIASED. CONTOURS ARE BASED ON 12 FEET BINNED SHOAL-BIASED SOUNDINGS. VOLUME SOUNDINGS ARE BINNED AT 3 FEET AND ARE MEAN VALUE SOUNDINGS.

SURVEY CONTROL DATA				
STATION	NORTHING	EASTING	MLLW	DESCRIPTION
1217-83-1 1963	2,295,907.00	2,340,730.90	23.80	3-1/2 INCH DOME USACE BM
1217-83-3 1983	2,294,737.50	2,341,381.28	25.83	3-1/2 INCH DOME USACE BM
1217-83-4 1983	2,294,737.15	2,341,731.69	25.52	3-1/2 INCH DOME USACE BM
1217-83-8 1983	2,295,773.27	2,341,299.72	25.66	3-1/2 INCH DOME USACE BM
1217-83-9 1983	2,295,699.90	2,342,246.33	23.50	3-1/2 INCH DOME USACE BM
1217-83-FIVE 1983	2,295,105.37	2,342,549.90	25.34	3-1/2 INCH DOME USACE BM
2438 A 2009	2,296,080.45	2,341,612.33	23.81	3-1/2 INCH DOME NOAA/USACE BM
2438 B 2009	2,296,246.83	2,341,951.76	26.71	3-1/2 INCH DOME NOAA/USACE BM
2438 C 2009	2,295,950.64	2,342,189.87	23.38	3-1/2 INCH DOME NOAA/USACE BM
2438 D 2009	2,295,740.97	2,342,337.53	22.15	3-1/2 INCH DOME NOAA/USACE BM
HH-A 2002	2,295,858.15	2,342,071.70	23.40	TERRA SURVEYS SBC

NAVIGATION AIDS			
USCG NO.	NORTHING	EASTING	DESCRIPTION
24150	2,296,331	2,341,005	HOONAH BREAKWATER LIGHT 2
24155	2,295,776	2,341,300	HOONAH BREAKWATER LIGHT 3

PROJECT LIMITS			PROJECT LIMITS		
CORNER#	NORTHING	EASTING	CORNER#	NORTHING	EASTING
1	2,295,650.29	2,341,069.40	6	2,295,651.98	2,341,468.93
2	2,294,989.36	2,341,426.50	7	2,295,857.80	2,341,203.65
3	2,294,950.84	2,341,617.80	8	2,296,244.39	2,341,271.93
4	2,295,338.42	2,342,472.02	9	2,296,304.39	2,341,177.93
5	2,295,911.83	2,342,041.63	10	2,295,568.19	2,341,284.25

VOLUME COMPUTATIONS	
ENTRANCE CHANNEL	
AVAILABLE TO PROJECT DEPTH (-18.5)	1,570 CU. YD.
AVAILABLE TO MAXIMUM PAY (-19.5)	5,573 CU. YD.
TOTAL AVAILABLE	7,143 CU. YD.



THIS HYDROGRAPHIC SURVEY WAS COMPLETED UNDER THE OVERSIGHT OF AN ACSM/THOSOA CERTIFIED HYDROGRAPHER

David R. Neff C.H. (275)

CONTRACT NO. W11H9-14-0013  
CONTRACTOR: ETAC INC.  
CITY: SAN RAFAEL  
STATE: CALIFORNIA  
DATE: 10/08/2014  
RECOMMENDED: MICHAEL E. JUELLER  
THOMAS A. SLOAN  
DATE: 10/08/2014

DATE	DESCRIPTION	BY	APPROVED
10/08/2014	PROJECT CONDITION SURVEY	DAVID R. NEFF	DAVID R. NEFF

U.S. ARMY CORPS OF ENGINEERS  
ALASKA DISTRICT  
JBER, ALASKA 99506-0988  
ETAC INC.  
637 LILAC STREET, 100  
SAN RAFAEL, CA 94901

HOONAH, ALASKA  
HOONAH HARBOR  
PROJECT CONDITION SURVEY  
AUGUST 24-31, 2014

SHEET IDENTIFICATION  
1-HOO-92-07-08  
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