

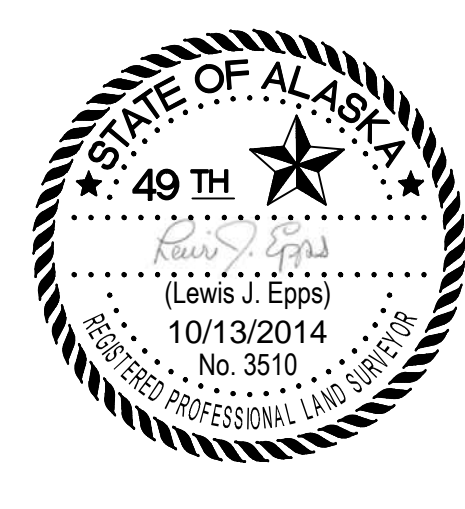
- NOTES**
1. PRIMARY PROJECT HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 7, NAD83 (CORS), IN US SURVEY FEET BASED ON A STATIC GPS NETWORK HOLDING NGS EPOCH 2003.00 CORRS. 1 PHASE CENTER VALUES FOR "HAYSTACK\_AK 2004 CORRS ARP" (NGS PID DG7414), "SANDPOINT\_AK 2004 CORRS ARP" (NGS PID DL7635) AND "PORT HEIDEN AK 2007 CORRS ARP" (NGS PID DL6447).
  2. LOCAL PROJECT HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 7, NAD83, IN US SURVEY FEET HOLDING USACE SBC "KCH-1 1998" AS N 386,998.71, E 1,572,568.92.
  3. VERTICAL CONTROL IS MEAN LOWER LOW WATER (MLLW=0.0), BASED ON THE NOAA'S TIDAL BENCH MARK LIST: "345 9881 KING COVE, DEER PASSAGE, PACIFIC OCEAN, ALASKA" PUBLISHED 11/21/2011. THIS TIDAL DATUM IS BASED ON THE 1985-2001 TIDAL EPOCH AND IS REFERENCED BY HOLDING NOAA/USACE TIDAL BENCH MARK "KCH-1 1998" AS 9.64' AND NOAA/USACE TIDAL BENCH MARK "KCH-2 1998" AS 12.72'.
  4. VERTICAL TIES TO THE NATIONAL SPATIAL REFERENCE SYSTEM ARE BASED ON PUBLISHED NAVD83 (GEOID 12A) ELEVATIONS HOLDING NOAA/USACE TIDAL BENCHMARK "KCH-1 1998" (PID BBB25/VN#17933) AS 9.08'.
  5. SOUNDINGS ARE IN FEET AND ARE MINUS UNLESS OTHERWISE INDICATED.
  6. BATHYMETRY WAS COLLECTED JULY 27-28, 2014. SOUNDINGS WERE COLLECTED USING AN RSONIC 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 V5 SYSTEM. DATA WAS COLLECTED AND PROCESSED USING CINSY 8.1 SOFTWARE. HORIZONTAL CONTROL WAS SURVEYED USING STATIC GNSS EQUIPMENT AND TECHNIQUES. VERTICAL CONTROL WAS SURVEYED USING DIFFERENTIAL LEVELING TECHNIQUES.
  7. THIS DRAWING INDICATES GENERAL CONDITIONS AT THE TIME OF THE SURVEY.
  8. 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
BNH-1 2010	384,599.33	1,572,114.07	15.74	3 INCH DOMED SBC IN ROCK
BNH-2 2010	384,808.29	1,571,519.59	14.95	3 INCH DOMED SBC IN ROCK
BNH-3 2010	385,824.89	1,572,274.91	17.88	3 INCH DOMED SBC IN CONC.
CITY 1995	386,702.08	1,572,123.29	12.49	1-1/2 INCH FLAT SAC
FIRE 1995	386,561.62	1,571,377.40	12.51	1-1/2 INCH FLAT SAC
KCH-1 1998	386,998.71	1,572,568.92	9.64	3 INCH DOMED SBC
KCH-2 1998	387,255.25	1,571,705.42	12.72	3 INCH DOMED SBC
KCH-4 2002	386,303.11	1,571,560.49	10.70	3-1/2 INCH DOMED SAC
KCH-5 2006	385,708.58	1,571,759.69	16.33	3 INCH FLAT SBC IN ROCK
KCH-6 2005	385,666.77	1,572,813.48	12.47	3 INCH FLAT SBC IN ROCK
RED 1995	386,912.57	1,572,714.92	6.94	1-1/2 INCH FLAT SAC

NAVIGATION AIDS			
USCG NO.	NORTHING	EASTING	DESCRIPTION
27181	385,305	1,572,586	SOUTH KING COVE HARBOR LIGHT 1

PROJECT LIMITS			PROJECT LIMITS		
CORNER#	NORTHING	EASTING	CORNER#	NORTHING	EASTING
1	385,392.92	1,572,629.07	6	384,919.17	1,572,186.37
2	385,401.85	1,572,556.84	7	384,960.38	1,572,079.01
3	385,392.97	1,572,500.77	8	385,478.52	1,572,277.90
4	385,379.02	1,572,412.72	9	385,672.80	1,572,352.48
5	385,350.96	1,572,352.12	10	385,517.34	1,572,648.98

VOLUME COMPUTATIONS		
ENTRANCE CHANNEL		
AVAILABLE TO PROJECT DEPTH (-17.0)		5 CU. YD.
AVAILABLE TO MAX PAY (-18.0)		233 CU. YD.
MANEUVERING AREA		
AVAILABLE TO PROJECT DEPTH (-16.0)		146 CU. YD.
AVAILABLE TO MAX PAY (-17.0)		948 CU. YD.
TOTAL AVAILABLE		1,332 CU. YD.



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

*David R. Neff*

David R. Neff C.H. (275)

US Army Corps of Engineers  
of Engineers  
ALASKA DISTRICT

CONTRACT NO. W9118B-14-2-0093  
CONTRACTOR: ETAC INC.  
CITY: SAN RAFAEL  
STATE: CALIFORNIA  
Date: 10/13/2014  
Approved: MICHAEL E. MUELLER  
THOSOA License No. 100  
THOSOA License State: CALIFORNIA

DATE: 10/13/2014  
CHECKED BY: JEFFREY A. GIBSON  
DRAWN BY: JEFFREY A. GIBSON  
PROJECT NO.: W9118B-14-2-0093  
JOB NO.: 100  
FILE NAME: 100  
SCALE: 1"=100'  
SHEET: 1 OF 2

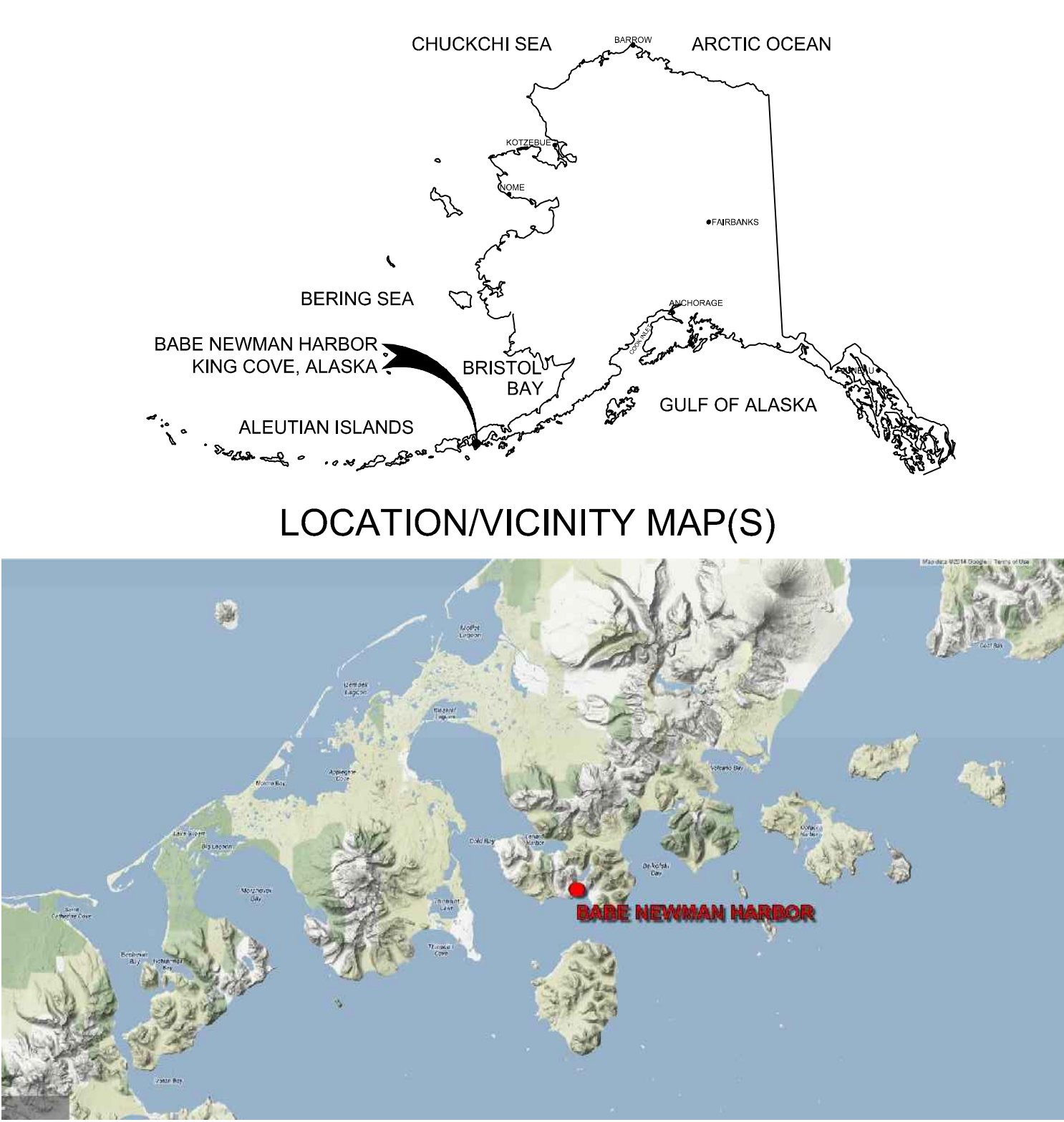
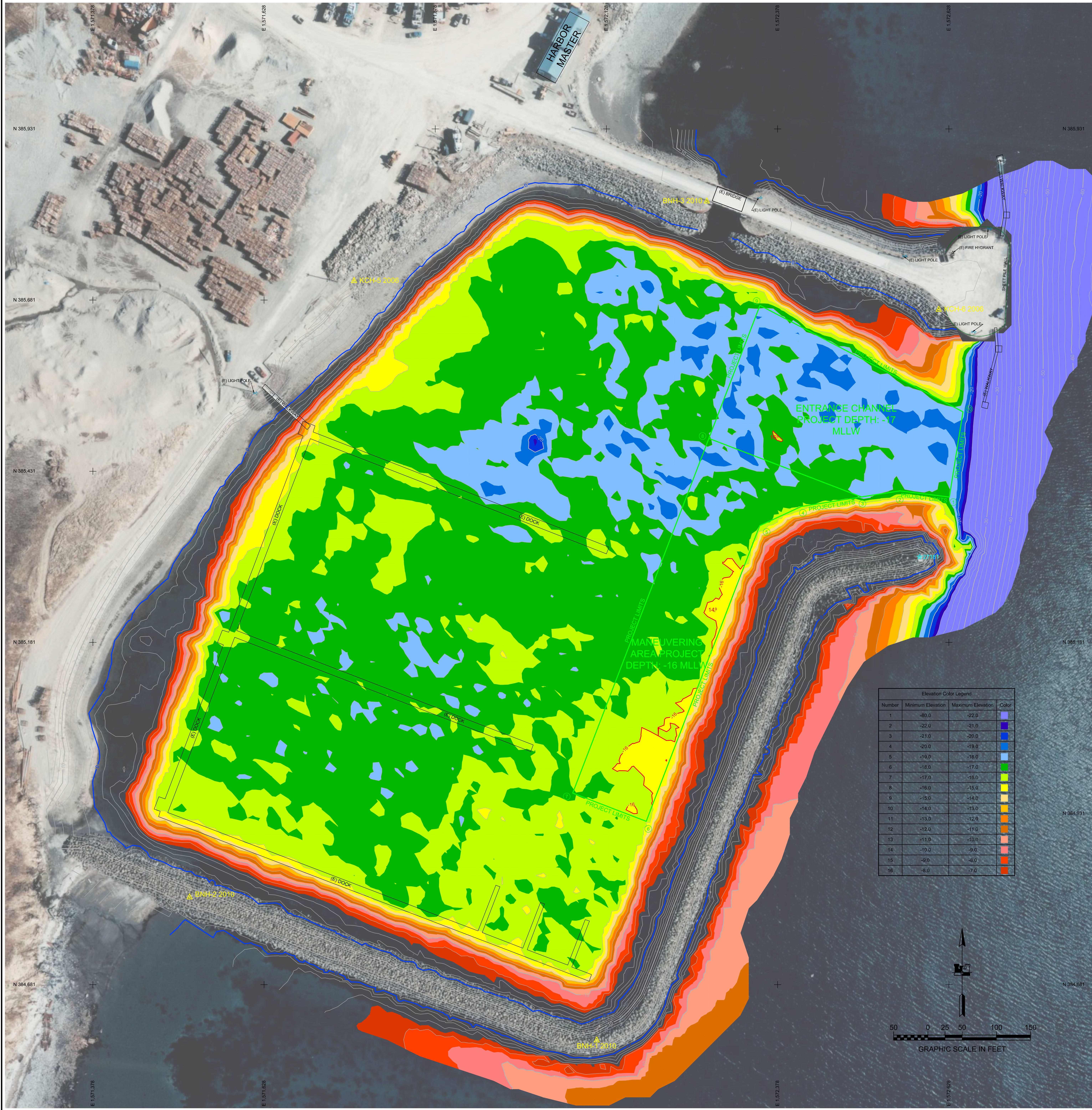
U.S. ARMY CORPS OF ENGINEERS  
ALASKA DISTRICT  
JBER, ALASKA 99506-0988

ETAC INC.  
627 LILAC AVE.  
SAN RAFAEL, CA 94901

KING COVE, ALASKA  
BABINE HARBOR  
PROJECT CONDITION SURVEY  
JULY 24-30, 2014

SHEET  
IDENTIFICATION  
5-KIN-92-07-19  
Sheet 1 of 2





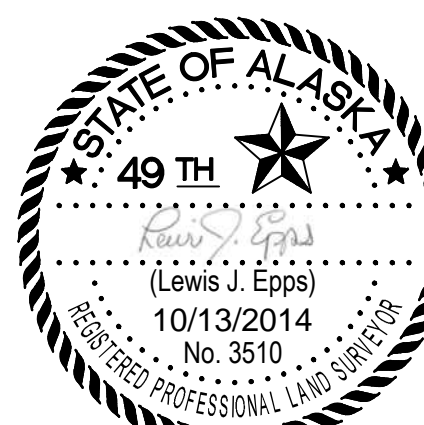
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*David R. Neff*  
David R. Neff C.H. (275)

CONTRACT NO. W017B-14-0003  
CONTRACTOR: ETAC INC.  
CITY: SAN RAFAEL  
STATE: CALIFORNIA  
DATE: 10/13/2014  
APPROVED: MICHAEL E. MUELLER  
THOMAS A. SLOAN  
CHIEF SURVEY ENGINEER

DATE: 10/13/2014  
CHECKED BY: JEFFREY A. SLOAN  
DRAWN BY: JEFFREY A. SLOAN  
PROJECT NO.: W017B-14-0003  
JOB NO.: 100  
FILE NAME: 100  
SCALE: AS SHOWN  
SHEET: 2 OF 2

U.S. ARMY CORPS OF ENGINEERS  
ALASKA DISTRICT  
JBER, ALASKA 99506-0988  
ETAC INC.  
627 LINCOLN AVE.  
SAN RAFAEL, CA 94901

KING COVE, ALASKA  
BABE NEWMAN HARBOR  
PROJECT CONDITION SURVEY  
JULY 24-30, 2014

SHEET IDENTIFICATION  
5-KIN-92-07-19  
Sheet 2 of 2