

### NOTES

- PRIMARY PROJECT HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 5, NAD83 (COR596), IN US SURVEY FEET BASED ON A FULLY CONSTRAINED STATIC GPS NETWORK HOLDING THE 2000 EPOCH VALUES OF OPUS DB DERIVED STATIONS: "NIC-4 2006" (PID BBBK44) AS NORTHING 1,388,817.55; EASTING 1,954,333.77; "SPH-3 2009" (PID BBBK45) AS NORTHING 1,382,702.24; EASTING 1,950,183.98; "TDB 125" (PID BBBK43) AS NORTHING 1,386,072.95; EASTING 1,950,690.54.
- LOCAL PROJECT HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 5, NAD83, IN US SURVEY FEET HOLDING DOMED BC "SHH-2 2009" AS N 1,383,833.76; E 1,950,856.32.
- VERTICAL CONTROL IS MEAN LOWER LOW WATER (MLLW=0.0) BASED ON THE NOAA/NOS TIDAL BENCH MARK LIST: "945 7282 KODIAK ISLAND, WOMENS BAY, ALASKA" PUBLISHED 05/02/2014. THIS TIDAL DATUM IS BASED ON THE 2007-2011 TIDAL EPOCH AND IS REFERENCED BY HOLDING NOAA/NOS TIDAL BENCH MARK "7292 B 1984" (VM#1613) AS 21.05.
- SOUNDINGS ARE IN FEET AND ARE MINUS UNLESS OTHERWISE INDICATED.
- BATHYMETRY WAS COLLECTED MARCH 24, 26-29, AND APRIL 4, 2015. SOUNDINGS WERE COLLECTED USING AN R2SONIC 2022 MULTIBEAM ECHOSOUNDER OPERATING AT 200 KHZ. SOUND VELOCITY THROUGH THE WATER COLUMN WAS DETERMINED WITH AN AML BASE X SOUND VELOCITY PROBE. POSITION AND VESSEL ORIENTATION WERE MEASURED USING AN APPLANIX POSMV 320 V4 SYSTEM. DATA WAS COLLECTED AND PROCESSED USING QINSY 8.1 SOFTWARE. HORIZONTAL CONTROL WAS SURVEYED USING STATIC AND RTK GNSS EQUIPMENT AND TECHNIQUES. VERTICAL CONTROL WAS SURVEYED USING DIFFERENTIAL LEVELING TECHNIQUES.
- UPLAND SHORELINE AND BREAKWATERS WERE SURVEYED BY MOBILE TERRESTRIAL LASER SCANNING METHODS. DATA WAS COLLECTED USING A Z400 LASER SCANNER. POSITION AND VESSEL ORIENTATION WERE MEASURED USING AN APPLANIX POSMV 320 V4 SYSTEM. DATA WAS COLLECTED AND PROCESSED USING QINSY 8.1 SOFTWARE.
- 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.

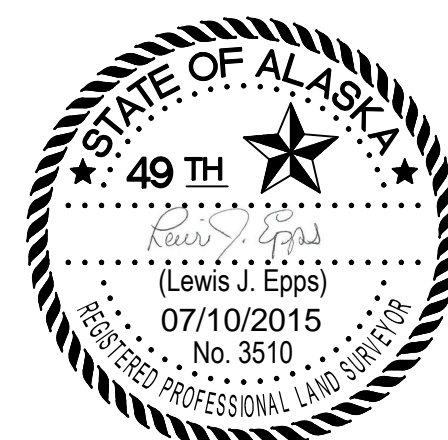
### SURVEY CONTROL DATA

STATION	NORTHING	EASTING	MLLW	DESCRIPTION
HARBOR MASTER	1,387,193.26	1,951,081.54	20.46	2" FLAT SBC
HBR NO. 1	1,386,047.27	1,948,002.61	46.4	2-1/2" FLAT SBC ON PIPE
NIC-1 1997	1,385,942.73	1,951,555.54	28.36	3-1/4" DOMED SBC
NIC-4 2006	1,388,617.55	1,954,333.77	16.56	3" DOMED SBC
SHH-3 2009	1,382,702.24	1,950,183.98	19.73	3-1/4" DOMED SBC
SPH-1 2009	1,387,252.33	1,950,663.43	20.37	3-1/4" DOMED SBC
SPH-2 2009	1,386,685.52	1,951,150.86	17.71	3-1/4" DOMED SBC
TDB 125	1,386,072.95	1,950,690.54	19.77	3-1/2" DOMED USACE BC

\*Bench marks with elevation precision of 0.1' were measured by RTK GNSS.

### NAVIGATION AIDS

USCG NO.	NORTHING	EASTING	DESCRIPTION
26620	1,386,160	1,950,982	KODIAK BOAT HARBOR DAYBEACON 2
26630	1,386,047	1,950,710	KODIAK BOAT HARBOR LIGHT 1



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  
ALASKA DISTRICT

CONTRACT NO. W01HB14-0011.0022

CONTRACTOR: ETIEME INC.

CITY: SAN RAFAEL

STATE: CALIFORNIA

APPROVED: MICHAEL E. NEFF

DATE: 07/10/2015

BY: [Signature]

NO.	DESCRIPTION	DATE
1	ISSUED	07/10/2015
2	REVISION	
3	REVISION	
4	REVISION	
5	REVISION	
6	REVISION	
7	REVISION	
8	REVISION	
9	REVISION	
10	REVISION	

U.S. ARMY CORPS OF ENGINEERS  
ALASKA DISTRICT  
JBER, ALASKA 99505-0888

ETIEME INC.  
837 LINDEROY ST., STE 100  
SAN RAFAEL, CA 94901

KODIAK, ALASKA  
ST. PAUL HARBOR  
PROJECT CONDITION SURVEY  
MARCH 24 - APRIL 04, 2015

SHEET IDENTIFICATION  
5-KOD-92-07-22  
Sheet 1 of 2



