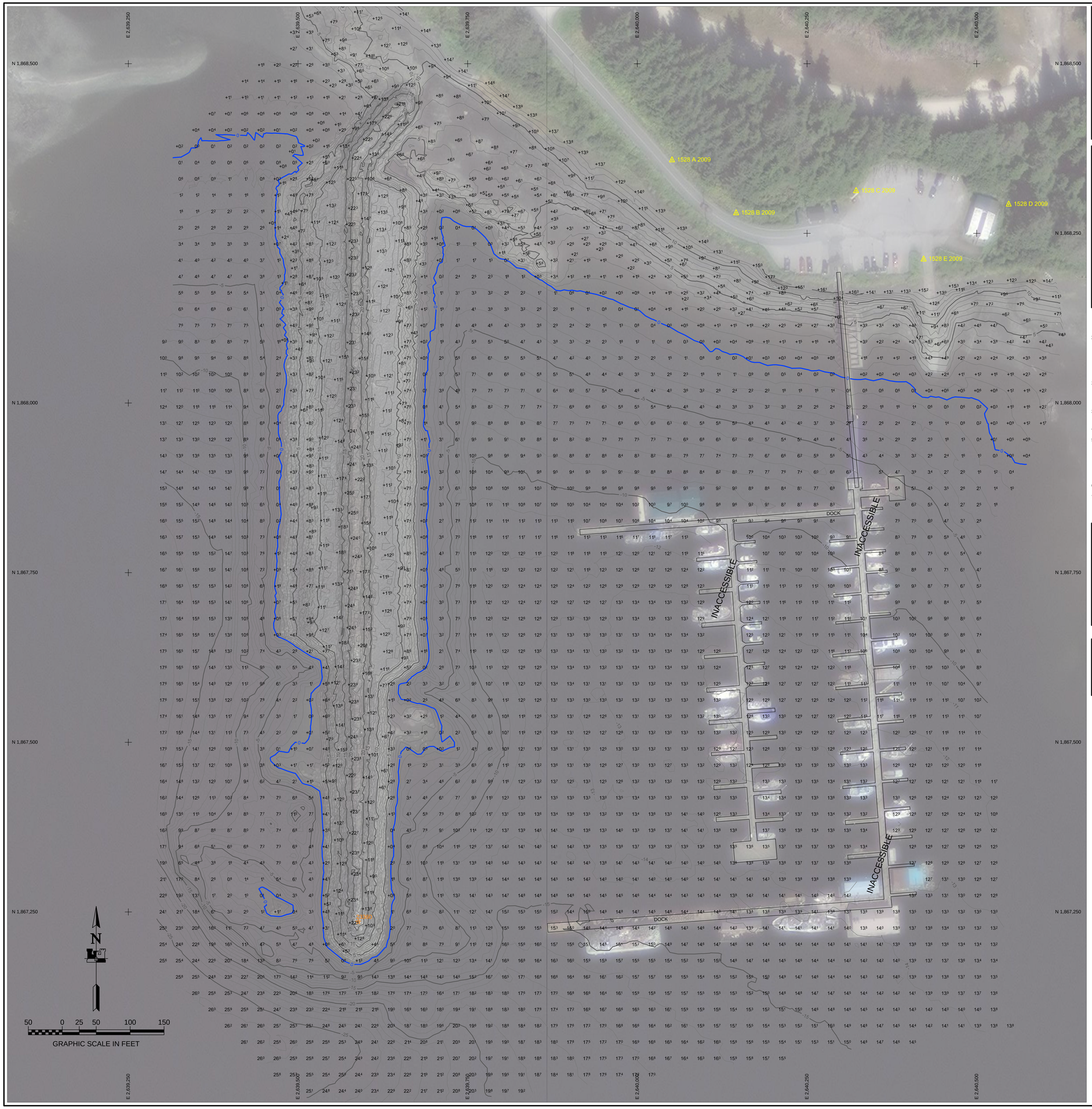


NOTES

1. PRIMARY PROJECT HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 1, NAD83 2011 (2010.00), IN US SURVEY FEET BASED ON A FULLY CONSTRAINED STATIC GPS NETWORK HOLDING THE PUBLISHED NAD83 2011 EPOCH 2010.00 VALUES OF NGS CORS STATIONS:"BIS5 BIORKA ISLAND 5 CORS ARP" (PID DK6423); "LEV5 LEVEL ISLAND 5 CORS ARP" (PID DJ3033); "AB48 PORTALEXANAK2005 CORS ARP" (PID DL6695).

   LOCAL PROJECT HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 1, NAD83, IN US SURVEY FEET HOLDING USACE SBC "1528 E 2009" AS N 1868211.78', E 2640421.76'.

2. VERTICAL CONTROL IS MEAN LOWER LOW WATER (MLLW=0.0 FT), BASED ON THE NOAA/NOS TIDAL BENCH MARK LIST "9451528 KAKE HARBOR, ALASKA", PUBLISHED 04/19/2010. THIS TIDAL DATUM IS BASED ON THE 1983-2001 TIDAL EPOCH AND IS REFERENCED BY HOLDING NOAA/NOS TIDAL BENCH MARK "945 1528 A 2009" (VM#19560) AS 24.03 FT.

3. VERTICAL TIES TO THE NATIONAL SPATIAL REFERENCE SYSTEM ARE BASED ON PUBLISHED NAVD88 (GEOID 12B) ELEVATIONS HOLDING USACE SBC "945 1528 E 2009" (PID BBBQ32/VM#19560) AS 17.54 FT.

4. SOUNDINGS ARE IN U.S. SURVEY FEET AND ARE MINUS UNLESS OTHERWISE INDICATED.

5. BATHYMETRY WAS COLLECTED APRIL 06-09, 2016. 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 OCEANMASTER V5 SYSTEM. DATA WAS COLLECTED AND PROCESSED USING QINSY 8.1 SOFTWARE. HORIZONTAL CONTROL WAS SURVEYED USING STATIC GNSS & CONVENTIONAL EQUIPMENT AND TECHNIQUES. VERTICAL CONTROL WAS SURVEYED USING DIFFERENTIAL LEVELING TECHNIQUES.

6. THIS DRAWING INDICATES GENERAL CONDITIONS AT THE TIME OF THE SURVEY.

7. 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
1528 A 2009	1,868,357.91	2,640,051.07	24.03	3.5" USACE DOMED SBC
1528 B 2009	1,868,279.81	2,640,145.56	25.91	3.5" USACE DOMED SBC
1528 C 2009	1,868,312.50	2,640,322.32	26.30	3.5" USACE DOMED SBC
1528 D 2009	1,868,292.63	2,640,547.13	31.91	3.5" USACE DOMED SBC
1528 E 2009	1,868,211.78	2,640,421.76	20.22	3.5" USACE DOMED SBC

NAVIGATION AIDS

USCG NO.	NORTHING	EASTING	DESCRIPTION
23360	1,867,236	2,639,589	LIGHT 13

STATE OF ALASKA 49TH GREGORY W. GIBSON No. LS14824 PROFESSIONAL LAND SURVEYOR

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

David R. Neff C.H. (275)

US Army Corps of Engineers
ALASKA DISTRICT

CONTRACT NO. W912EB-14-D-0013
CONTRACTOR ETRAC INC.
STATE ALASKA
CITY KAKE
CITY MANAGER
Date 05/16/2016
Project Manager THOMAS A. SLOAN, CHIEF ESTIMATING SECTION
MICHAEL MUELLER, PRIME CONTRACTOR

SHEET NO.	REVISION	DATE	DESCRIPTION	BY	APPROV

SHEET NO.	REVISION	DATE	DESCRIPTION	BY	APPROV

DATE: 16 June 2016
UPC: 07739
CHECKED BY: TG/EBW/JR/GCW/VG
CONTRACT NO. W912EB-14-D-0013
DRAWN BY: Gregory W. Gibson
JOB NO: 1336
APPROVED BY: Vincent Gonzales
PLOT DATE: 06/09/2016
SCALE: 1" = 50' ANSI E
FILE NAME: (07739-VH01.DWG

U.S. ARMY CORPS OF ENGINEERS
ALASKA DISTRICT
P.O. BOX 6898
JBER, ALASKA 99506-0898

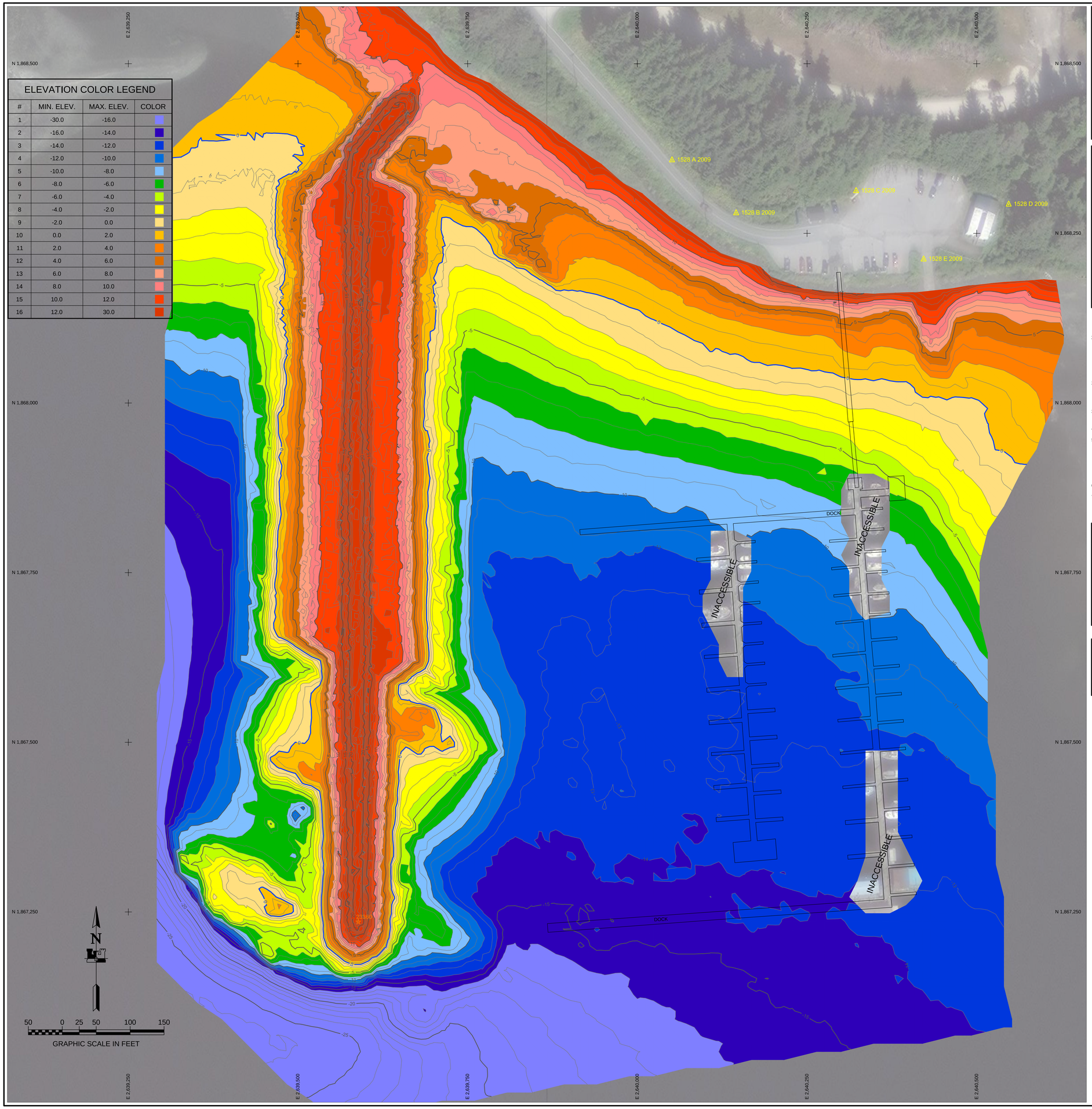
eTrac Inc.
617 S Knik-Goose Bay Rd, Suite C
Wasilla, AK 99654

KAKE, ALASKA
KAKE HARBOR BREAKWATER
PROJECT CONDITION SURVEY
APRIL 06-10, 2016

SHEET IDENTIFICATION

1-KAK-92-07-05

Sheet 1 of 2



ELEVATION COLOR LEGEND

#	MIN. ELEV.	MAX. ELEV.	COLOR
1	-30.0	-16.0	
2	-16.0	-14.0	
3	-14.0	-12.0	
4	-12.0	-10.0	
5	-10.0	-8.0	
6	-8.0	-6.0	
7	-6.0	-4.0	
8	-4.0	-2.0	
9	-2.0	0.0	
10	0.0	2.0	
11	2.0	4.0	
12	4.0	6.0	
13	6.0	8.0	
14	8.0	10.0	
15	10.0	12.0	
16	12.0	30.0	

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STATE OF ALASKA
49TH
GREGORY W. GIBSON
No. LS14824
REGISTERED PROFESSIONAL LAND SURVEYOR

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David R. Neff C.H. (275)

US Army Corps of Engineers
ALASKA DISTRICT

CONTRACT NO. W912EB-14-D-0013
CONTRACTOR ETRAC INC.
CITY WASILLA STATE ALASKA
Project Manager THOMAS A. SLOAN, CHIEF ESTIMATING SECTION
Date 05/16/2016
QUALITY CONTROL MICHAEL MUELLER, PRIME CONTRACTOR

REVISION	DATE	DESCRIPTION	BY	APPRVD

REVISION	DATE	DESCRIPTION	BY	APPRVD

DATE: 15 June 2016
UPC: 072719
CHECKED BY: TASER4-UBGCWG
CONTRACT NO.: W912EB-14-D-0013
DRAWN BY: Gregory W. Gibson
JOB NO: 1318
APPROVED BY: Thomas A. Sloan
PLOT DATE: 06/08/2016
SCALE: 1" = 50'
DATUM: NAD83
FILE NAME: 072719-VRD.DWG

U.S. ARMY CORPS OF ENGINEERS
ALASKA DISTRICT
P.O. BOX 6898
JBER, ALASKA 99506-0898

eTrac Inc.
617 S Kwik-Goose Bay Rd, Suite C
Wasilla, AK 99654

KAKE, ALASKA
KAKE HARBOR BREAKWATER
PROJECT CONDITION SURVEY
APRIL 06-10, 2016

SHEET IDENTIFICATION

1-KAK-92-07-05

Sheet 2 of 2