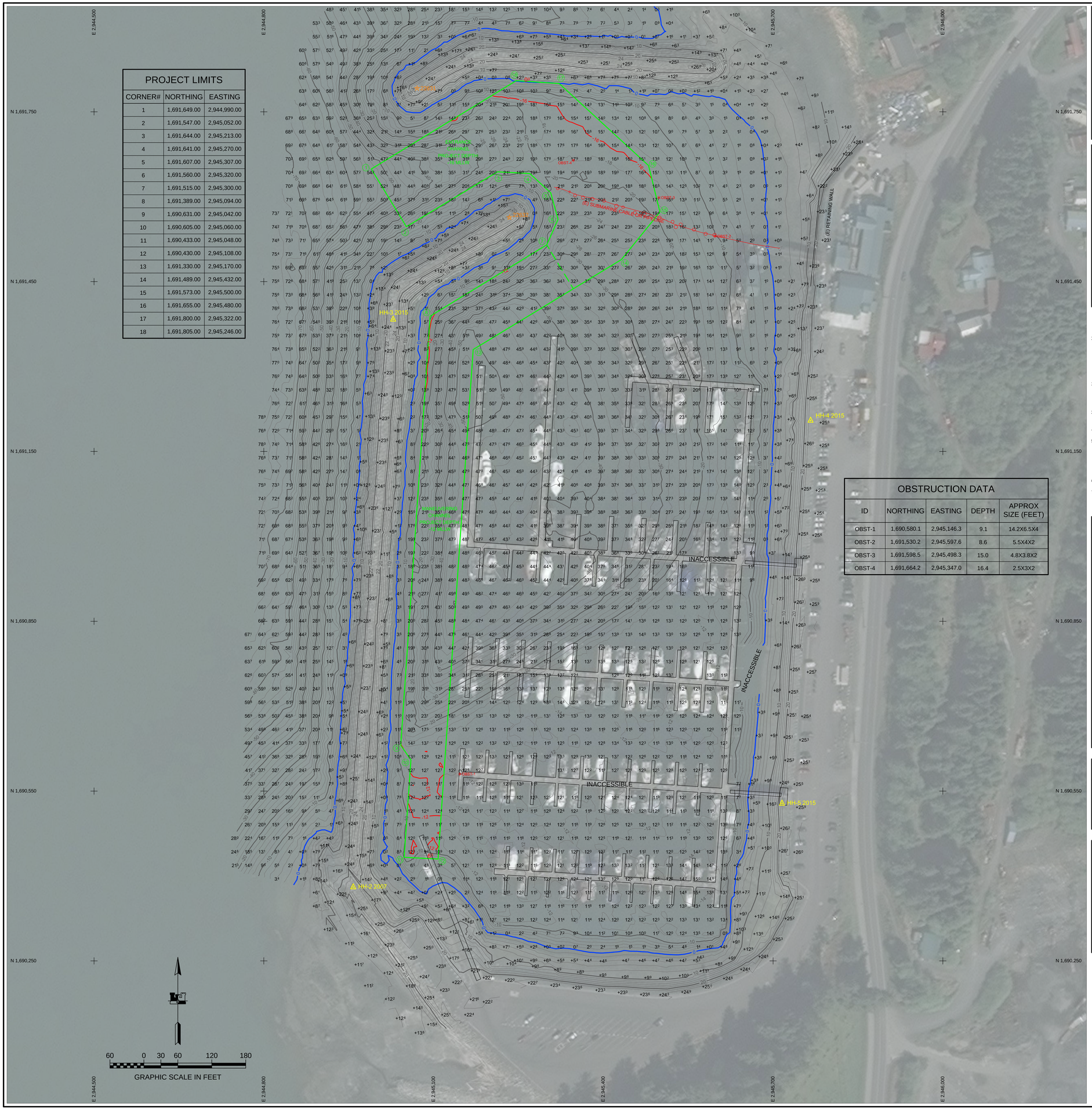

PROJECT LIMITS

CORNER#	NORTHING	EASTING
1	1,691,649.00	2,944,990.00
2	1,691,547.00	2,945,052.00
3	1,691,644.00	2,945,213.00
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8	1,691,389.00	2,945,094.00
9	1,690,631.00	2,945,042.00
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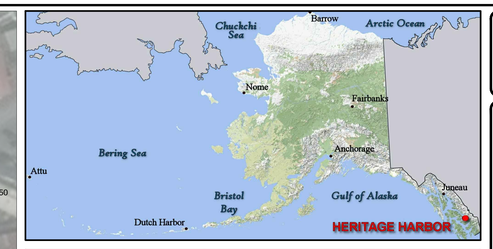
11	1,690,433.00	2,945,048.00
12	1,690,430.00	2,945,108.00
13	1,691,330.00	2,945,170.00
14	1,691,489.00	2,945,432.00
15	1,691,573.00	2,945,500.00
16	1,691,655.00	2,945,480.00
17	1,691,800.00	2,945,322.00
18	1,691,805.00	2,945,246.00

OBSTRUCTION DATA

ID	NORTHING	EASTING	DEPTH	APPROX SIZE (FEET)
OBST-1	1,690,580.1	2,945,146.3	9.1	14.2X6.5X4
OBST-2	1,691,530.2	2,945,597.6	8.6	5.5X4X2
OBST-3	1,691,598.5	2,945,498.3	15.0	4.8X3.8X2
OBST-4	1,691,664.2	2,945,347.0	16.4	2.5X3X2



NOTES

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   LOCAL PROJECT HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 1, NAD83, IN U.S. SURVEY FEET HOLDING DOMED BC "HH-2 2007" AS N 1,690,380.29', E 2,944,957.99'.

2. VERTICAL CONTROL IS MEAN LOWER LOW WATER (MLLW=0.0'), BASED ON THE NOAA/NOS TIDAL BENCH MARK LIST "9451204 WRANGELL, WRANGELL ISLAND, ALASKA", PUBLISHED 7/15/04. THIS TIDAL DATUM IS BASED ON THE 1983-2001 TIDAL EPOCH AND IS REFERENCED BY HOLDING NOAA/NOS TIDAL BENCH MARK "NO 6 1954" (VM#11800) AS 40.27'

3. VERTICAL TIES TO THE NATIONAL SPATIAL REFERENCE SYSTEM ARE BASED ON PUBLISHED NAVD88 (GEOID 12B) ELEVATIONS HOLDING DOMED BC "HH-2 2007" (PID BBDX58) AS 21.76'.

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

5. BATHYMETRY WAS COLLECTED JULY 24-26, 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 GNSS EQUIPMENT AND TECHNIQUES. VERTICAL CONTROL WAS SURVEYED USING DIFFERENTIAL LEVELING TECHNIQUES.

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7. 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
1304-2 1985	1,692,538.88	2,946,152.93	26.00	3.5" USACE DOMED BRASS CAP
HH-2 2007	1,690,380.29	2,944,957.99	25.12	3" DOMED STAMPED BRASS CAP
HH-3 2015	1,691,383.21	2,945,028.60	24.54	3.5" USACE DOMED BRASS CAP
HH-4 2015	1,691,204.65	2,945,766.27	26.97	3.5" USACE DOMED BRASS CAP
HH-5 2015	1,690,528.07	2,945,715.80	24.98	3.5" USACE DOMED BRASS CAP
LARGE-2 1922	1,683,964.45	2,925,896.83	21.20	3.5" USC&GS DOMED BRASS CAP
NL-1 1977	1,694,521.22	2,944,940.27	14.68	3.5" USACE DOMED BRASS CAP
NL-3 1977	1,693,954.53	2,945,863.80	13.45	3.5" USACE DOMED BRASS CAP
NL-4 1977	1,693,712.40	2,946,152.17	14.28	3.5" USACE DOMED BRASS CAP
NL-5 1977	1,693,630.72	2,946,551.87	14.45	3.5" USACE DOMED BRASS CAP
NL-9 1977	1,693,741.95	2,945,267.89	15.81	3.5" USACE DOMED BRASS CAP
NL-10 1977	1,693,860.13	2,945,206.54	14.09	3.5" USACE DOMED BRASS CAP
NL-11 1977	1,694,239.54	2,944,835.11	20.14	3.5" USACE DOMED BRASS CAP
NO-6 1954	1,696,366.66	2,944,512.60	40.27	3.5" USC&GS DOMED BRASS CAP

NAVIGATION AIDS

USCG NO.	NORTHING	EASTING	DESCRIPTION
22631	1,691,792	2,945,071	CEMETERY POINT LIGHT 1
22632	1,691,563	2,945,234	CEMETERY POINT LIGHT 2

VOLUME COMPUTATIONS

	MLLW=0	CU. YD.
AREA A: ENTRANCE CHANNEL		
AVAILABLE TO PROJECT DEPTH (PD)	-16.0	888
AVAILABLE TO MAX PAY DEPTH (MP)	-17.0	1,240
AVAILABLE SIDE SLOPES (SS) AT 3:1 (H:V) & 25' WIDE	VARIES	1,619
AREA B: MANEUVERING AREA		
AVAILABLE TO PD	-12.0	74
AVAILABLE TO MP	-13.0	335
AVAILABLE SS AT 3:1 (H:V) & 25' WIDE	VARIES	1,499
TOTAL MAXIMUM VOLUME AVAILABLE (MP + SS)		4,693

STATE OF ALASKA 49TH (Lewis J. Epps) 09/08/2015 No. 3510 REGISTERED PROFESSIONAL LAND SURVEYOR

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

David R. Neff C.H. (275)

US Army Corps of Engineers - ALASKA DISTRICT

CONTRACT NO. W911KB-14-D-0011/0023
CONTRACTOR: ETIAC INC.
CITY: SAN RAFAEL STATE: CALIFORNIA
Recommended: MICHAEL E. MUELLER, PROJECT MANAGER
Approved: THOMAS A. SLOAN, PROJECT DIRECTOR
Date: 09/08/2015

REVISION	DATE	DESCRIPTION	BY	APPROVED

REVISION	DATE	DESCRIPTION	BY	APPROVED

SURVEYED BY: Gregory W. Gibson
DRAWN BY: Gregory W. Gibson
APPROVED BY: Thomas A. Sloan, Chief Geomatics Section
SCALE: 1" = 60'
SIZE: 22X34
DATE: 8 September 2015
UPC: 105C01
CHECKED BY: Lewis J. Epps
REVIEWED DATE: 9/8/2015
CONTRACT NO.: W911KB-14-D-0011/ 0023
TASK NO.: 0015
FILE NAME: 105C01-WRG.DWG

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

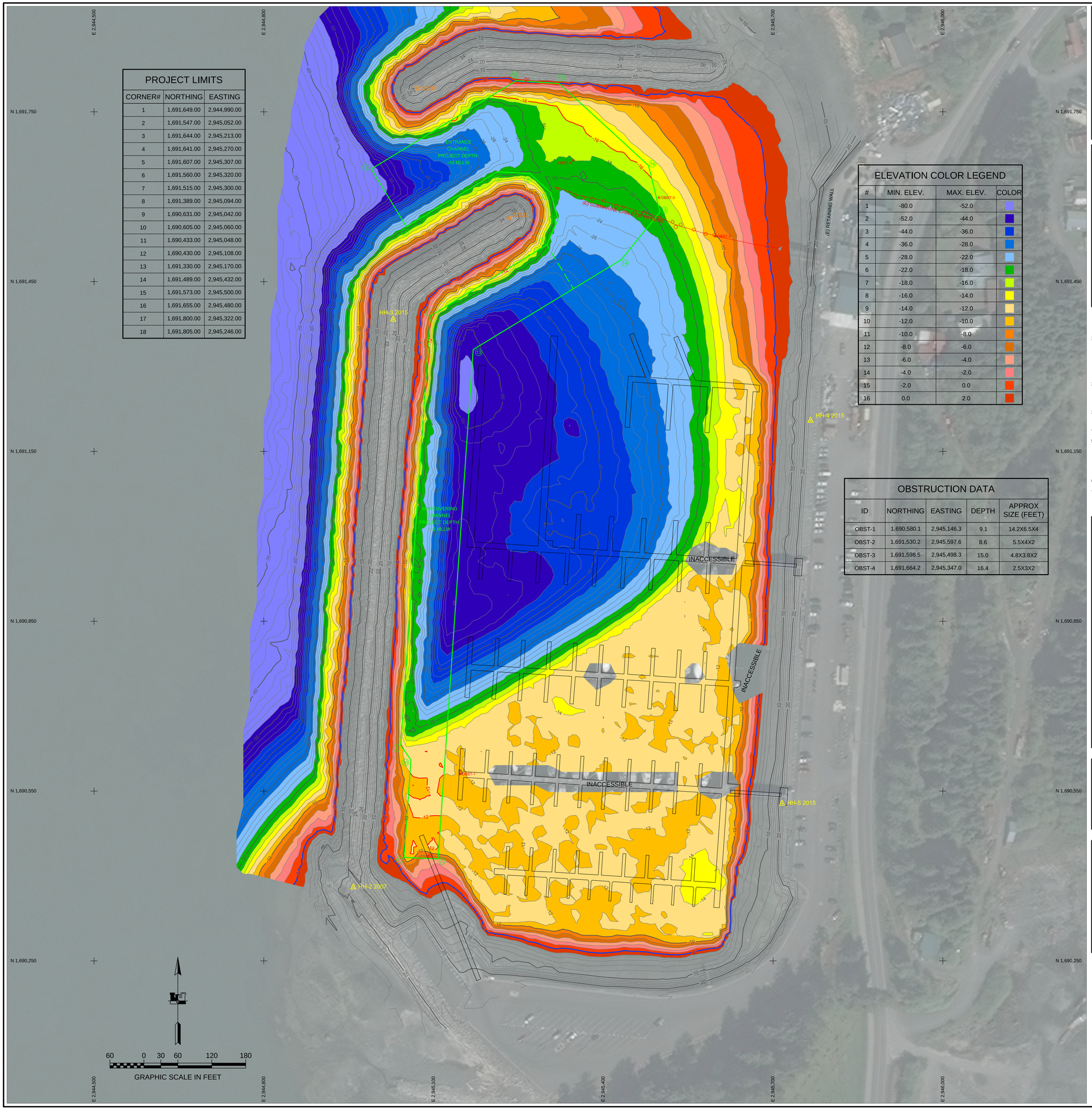
eTiac Inc.
637 Lindaro St., Ste 100
San Rafael, CA 94901

WRANGELL, ALASKA
HERITAGE HARBOR
PROJECT CONDITION SURVEY
JULY 18-26, 2015

SHEET IDENTIFICATION

1-WRA-92-07-52

Sheet 1 of 2



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18	1,691,805.00	2,945,246.00

ELEVATION COLOR LEGEND

#	MIN. ELEV.	MAX. ELEV.	COLOR
1	-80.0	-52.0	
2	-52.0	-44.0	
3	-44.0	-36.0	
4	-36.0	-28.0	
5	-28.0	-22.0	
6	-22.0	-18.0	
7	-18.0	-16.0	
8	-16.0	-14.0	
9	-14.0	-12.0	
10	-12.0	-10.0	
11	-10.0	-8.0	
12	-8.0	-6.0	
13	-6.0	-4.0	
14	-4.0	-2.0	
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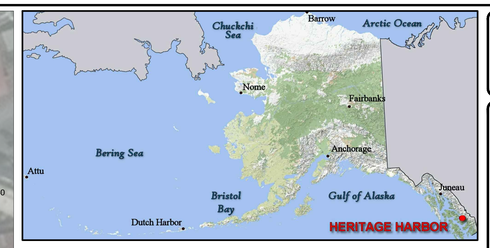

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REVISION	DATE	DESCRIPTION	BY	APPROVED

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DATE: 8 September 2015
UPC: USACE1
CHECKED BY: Lewis J. Epps
CONTRACT NO.: W911KB-14-D-0011 / 0023
APPROVED BY: Thomas A. Sloan, Chief Geomatics Section
TASK NO.: 0015
SCALE: 1" = 40'
FIELD DATE: 9/8/2015
SIZE: ANSI D
FILE NAME: 15-008-WRANGELL-DWG

SURVEYED BY: Gregory W. Gibson
DRAWN BY: Gregory W. Gibson

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

eTiac Inc.
637 Lindaro St., Ste 100
San Rafael, CA 94901

WRANGELL, ALASKA
HERITAGE HARBOR
PROJECT CONDITION SURVEY
JULY 18-26, 2015

SHEET IDENTIFICATION
1-WRA-92-07-52
Sheet 2 of 2