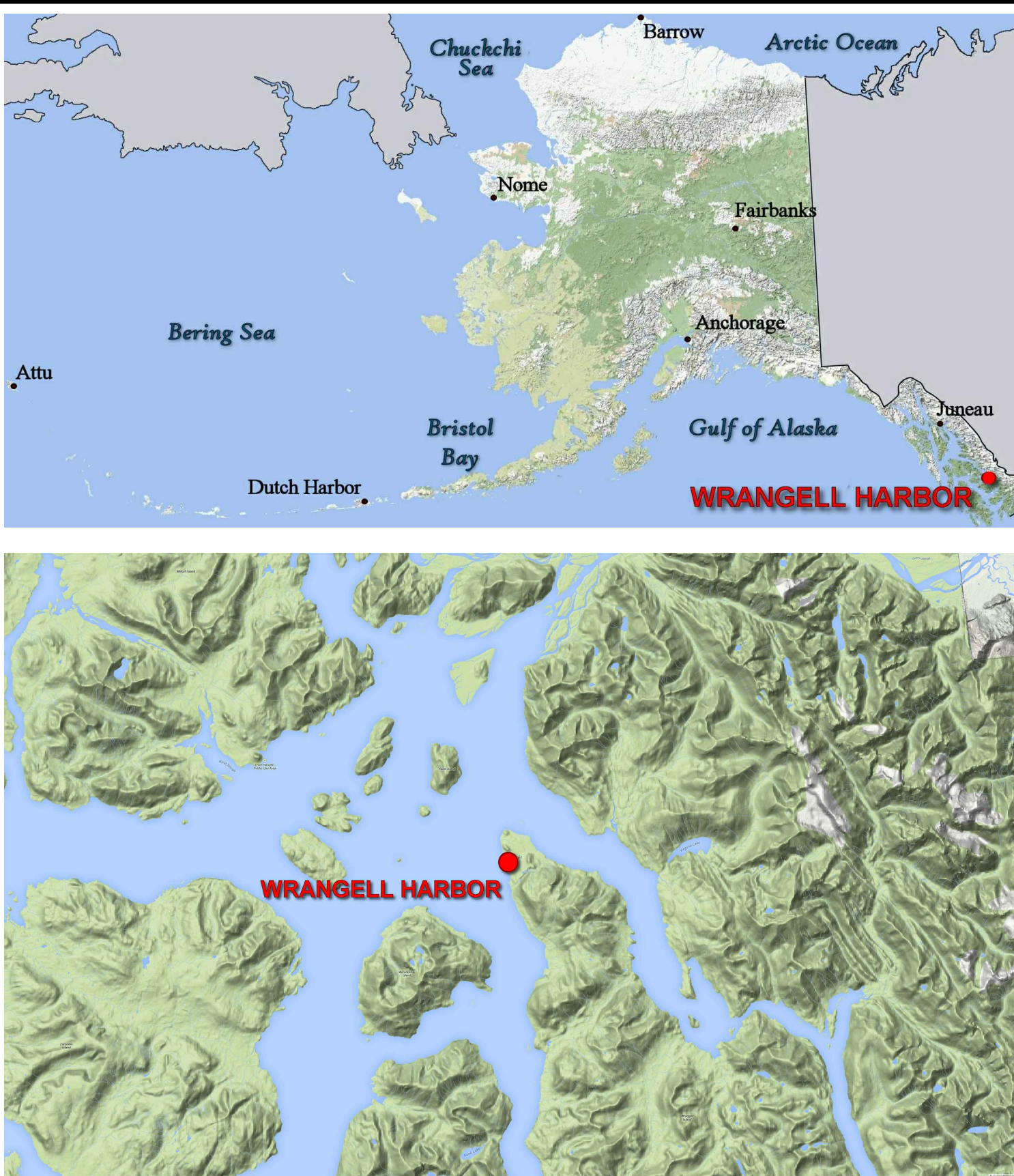




PROJECT LIMITS		
CORNER#	NORTHING	EASTING
1	1,694,154.00	2,945,570.00
2	1,693,508.00	2,946,005.00
3	1,693,667.00	2,946,234.00
4	1,693,857.00	2,946,323.00
5	1,694,311.00	2,946,123.00
6	1,694,442.00	2,946,421.00
7	1,693,984.00	2,946,622.00
8	1,693,835.00	2,946,445.00
9	1,693,587.00	2,946,330.00
10	1,693,412.00	2,946,070.00
11	1,693,276.00	2,946,162.00
12	1,693,068.00	2,945,873.00
13	1,693,232.00	2,945,758.00
14	1,693,205.00	2,945,705.00
15	1,693,518.00	2,945,480.00
16	1,693,568.00	2,945,554.00
17	1,693,962.00	2,945,288.00

OBSTRUCTION DATA				
ID	NORTHING	EASTING	DEPTH	APPROX SIZE (FEET)
OBST-1	1,693,622.5	2,945,776.8	10.2	3.5X3.5X1
OBST-2	1,694,106.6	2,945,185.9	9.3	3X4X4.2
OBST-3	1,693,239.1	2,946,111.1	8.2	31.7X1.2X1
OBST-4	1,693,407.7	2,946,038.3	9.9	3.5X3.5X2
OBST-5	1,693,589.0	2,946,350.7	1.3	15X14X2
OBST-6	1,694,244.3	2,946,426.7	8.5	7X3X1
OBST-7	1,694,407.6	2,946,395.6	8.1	9.5X3.5X2
OBST-8	1,694,308.5	2,946,444.4	8.5	12X4X1.5
OBST-9	1,693,343.3	2,946,001.7	8.0	8.5X7X2
OBST-10	1,693,418.2	2,946,152.0	1.5	15X14X2



- ### 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 2003.00 EPOCH VALUES OF NGS CORS STATIONS "KLAUOCKAIRAW2003 CORS ARP" (PID DM7451), "LEV6 LEVEL ISLAND 6 CORS ARP" (PID DJ3035), "ATISS ANNETTE ISLAND 5 CORS ARP" (PID DK6482).
 2. 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'.
 3. 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" (VMM11800) AS 40.27
 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 HOLDING THE WATER COLUMN WAS DETERMINED WITH AN AML BASE SOUND VELOCITY PROBE. POSITION AND VESSEL ORIENTATION WERE MEASURED USING AN APPLIX POSWY 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.
 6. THIS DRAWING INDICATES GENERAL CONDITIONS AT THE TIME OF THE SURVEY.
 7. MAP SOUNDINGS ARE BINNED AT 24 FEET AND ARE SHOAL-BASED. CONTOURS ARE BASED ON 12 FEET BINNED SHOAL-BASED 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
LARGE-2 1922	1,693,964.45	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
22630	1,694,512	2,944,943	BREAKWATER LIGHT 2
22640	1,693,410	2,946,153	DAYBEACON 4
22645	1,693,699	2,946,222	DAYBEACON 5
22650	1,693,587	2,946,353	DAYBEACON 6
22655	1,693,834	2,946,279	DAYBEACON 7

VOLUME COMPUTATIONS		
AREA A: OUTER BASIN	MLLW=0	CU. YD.
AVAILABLE TO PROJECT DEPTH (PD)	-10.0	2,502
AVAILABLE TO MAX PAY DEPTH (MP)	-11.0	6,801
AVAILABLE SIDE SLOPES (SS) AT 3:1 (H:V) & 25' WIDE	VARIES	1,344
AREA B: CONNECTING CHANNEL		
AVAILABLE TO PD	-10.0	134
AVAILABLE TO MP	-11.0	380
AVAILABLE SS AT 3:1 (H:V) & 25' WIDE	VARIES	802
AREA C: INNER BASIN		
AVAILABLE TO PD	-10.0	1,333
AVAILABLE TO MP	-11.0	4,394
AVAILABLE SS AT 3:1 (H:V) & 25' WIDE	VARIES	830
TOTAL MAXIMUM VOLUME AVAILABLE (MP + SS)		14,551

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. W01H614-0013.0004

CONTRACTOR: ETIEME INC.

CITY: SAN RAFAEL

STATE: CALIFORNIA

APPROVED: MICHAEL E. NEFF

DATE: 09/03/2015

DATE: 09/03/2015

FILE NAME: 090315-01

PROJECT: WRANGELL (OLD) HARBOR

PROJECT CONDITION SURVEY

DATE: 09/03/2015

WRANGELL, ALASKA

WRANGELL (OLD) HARBOR

PROJECT CONDITION SURVEY

JULY 18-26, 2015

SHEET IDENTIFICATION

1-WRA-92-07-53

Sheet 1 of 2

ELEVATION COLOR LEGEND

#	MIN. ELEV.	MAX. ELEV.	COLOR
1	-38.0	-18.0	Light Blue
2	-18.0	-16.0	Dark Blue
3	-16.0	-14.0	Blue
4	-14.0	-12.0	Light Blue
5	-12.0	-11.3	Light Blue
6	-11.3	-11.0	Green
7	-11.0	-10.0	Yellow
8	-10.0	-9.0	Yellow
9	-9.0	-8.0	Orange
10	-8.0	-7.0	Orange
11	-7.0	-6.0	Orange
12	-6.0	-4.0	Orange
13	-4.0	-2.0	Red
14	-2.0	0.0	Red
15	0.0	2.0	Red
16	2.0	4.0	Red

PROJECT LIMITS

CORNER#	NORTHING	EASTING
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OBSTRUCTION DATA

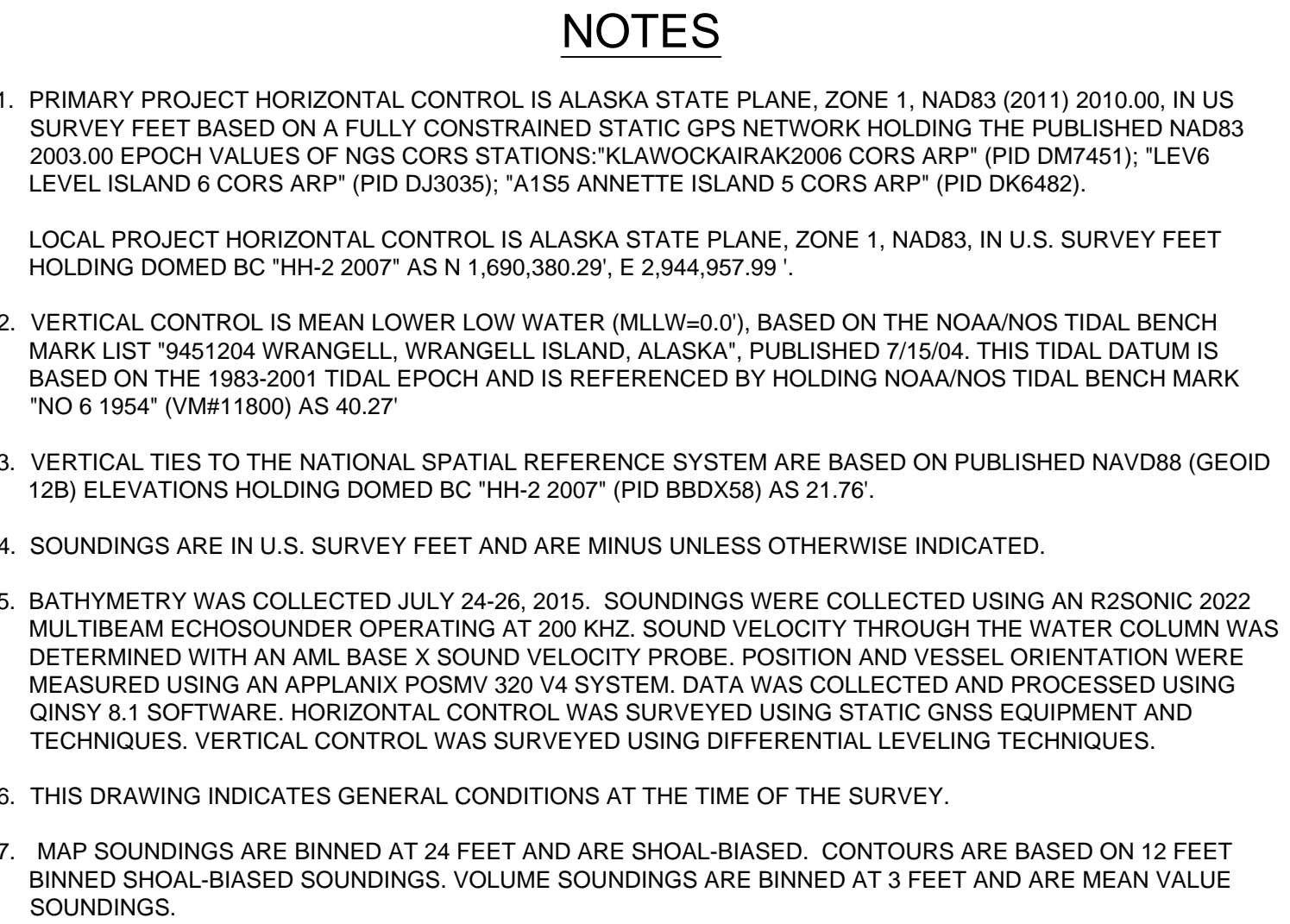
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GRAPHIC SCALE IN FEET

50 0 25 50 100 150

GRAPHIC SCALE IN FEET


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22655	1,693,834	2,946,279	DAYBEACON 7

STATE OF ALASKA
49 TH
Lewis J. Epps
(Lewis J. Epps)
09/03/2015
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)