

NOTES

1. PRIMARY PROJECT HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 1, NAD83 (CORS96), IN U.S. SURVEY FEET BASED ON A FULLY CONSTRAINED STATIC GPS NETWORK HOLDING THE PUBLISHED NAD83 (CORS96) 2010.00 EPOCH VALUES OF NGS CORS STATIONS: "ANNETTE ISLAND 5 CORS ARP" (AIS5 - PID DK6482), "KLAWOCKAIRAK2006 CORS ARP" (AB49 - PID DM7451) AND "LEVEL ISLAND 6 CORS ARP" (LEV6 - PID DJ3035).
2. LOCAL PROJECT HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 1, NAD83, IN U.S. SURVEY FEET HOLDING USACE SBC "TB-3 2001" AS N 1,286,137.51', E 3,107,894.00'.
3. VERTICAL CONTROL IS MEAN LOWER LOW WATER (MLLW+0.0), BASED ON THE NOAA'S TIDAL BENCH MARK LIST: "945 0405 KETCHIKAN HARBOR, ALASKA" PUBLISHED 08/27/2011. THIS TIDAL DATUM IS BASED ON THE 1983-2001 TIDAL EPOCH AND IS REFERENCED BY HOLDING NOAA'S TIDAL BENCH MARK "NO 37 1956" (PID: AH914 / VM 1170) AS 35.09'.
4. VERTICAL TIES TO THE NATIONAL SPATIAL REFERENCE SYSTEM ARE BASED ON PUBLISHED NAVD88 ELEVATIONS HOLDING NOAA TIDAL BENCHMARK "NO 37 1956" (PID AH914 / VM 1170) AS 31.27'.
5. SOUNDINGS ARE IN U.S. SURVEY FEET AND ARE MINUS UNLESS OTHERWISE INDICATED.
6. BATHYMETRY WAS COLLECTED AUGUST 1-2, 2015. SOUNDINGS WERE COLLECTED USING AN R2SONIC 2002 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 V5 SYSTEM. DATA WAS COLLECTED AND PROCESSED USING QINSY 8.1 SOFTWARE. HORIZONTAL CONTROL WAS SURVEYED USING RTK GNSS EQUIPMENT AND TECHNIQUES. VERTICAL CONTROL WAS SURVEYED USING DIFFERENTIAL LEVELING TECHNIQUES.
7. TERRESTRIAL LASER SCANNING DATA COLLECTED AUGUST 01-02, 2015. DATA WAS COLLECTED USING A REIGL V2400 3D LASER SCANNER. MOBILE SCANNING WAS COLLECTED AND PROCESSED USING QINSY 8.1 SOFTWARE. POSITION AND VESSEL ORIENTATION WERE MEASURED USING AN APPLANIX POSMV.
8. THIS DRAWING INDICATES GENERAL CONDITIONS AT THE TIME OF THE SURVEY.
9. 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
DP-1 1976	1,286,057.25	3,107,299.01	21.07	3.5" DOMED USACE BC
DP-3 1976	1,286,909.68	3,107,735.62	21.76	3.5" DOMED USACE BC
DP-5 1978	1,286,628.48	3,108,077.52	35.69	3.5" DOMED USACE BC
DP-5A 1976	1,286,626.52	3,108,073.89	35.77	3.5" DOMED USACE BC
TB-1 1998	1,286,070.56	3,107,068.03	21.92	3.25" DOMED SBC
TB-3 2001	1,286,137.51	3,107,894.00	22.62	3.25" DOMED SBC
TB-4 2001	1,287,128.46	3,107,465.89	21.77	3.25" DOMED SBC

NAVIGATION AIDS

USCG NO.	NORTHING	EASTING	DESCRIPTION
22165	1,286,049	3,107,300	THOMAS BASIN ENTRANCE LIGHT 2
22176	1,286,015	3,107,118	KETCHIKAN BERTH #1 SOUTH PIER LIGHT

PROJECT LIMITS

CORNER#	NORTHING	EASTING
1	1,286,082.00	3,107,154.00
2	1,286,835.00	3,107,315.00
3	1,287,007.00	3,107,209.00
4	1,287,153.00	3,107,331.00
5	1,286,810.00	3,107,755.00
6	1,286,358.00	3,107,853.00

PROJECT LIMITS

CORNER#	NORTHING	EASTING
7	1,286,337.00	3,107,940.00
8	1,286,228.00	3,107,914.00
9	1,286,118.00	3,107,441.00
10	1,286,157.00	3,107,273.00
11	1,286,139.00	3,107,243.00
12	1,286,063.00	3,107,216.00

VOLUME COMPUTATIONS

AREA A: BASIN	MLLW	CU. YD.
AVAILABLE TO PROJECT DEPTH (PD)	-10.0	4,049
AVAILABLE TO MAX PAY DEPTH (MP)	-11.0	5,971
AVAILABLE SIDE SLOPES (SS) AT 3:1 (H:V) & 25' WIDE	VARIES	1,715
TOTAL MAXIMUM VOLUME AVAILABLE (MP + SS)		7,686



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. W01H14-14-0011-0027

CONTRACTOR: ETIEME INC.

CITY: SAN RAFAEL STATE: CALIFORNIA

APPROVED BY: MICHAEL E. NEFFER

DATE: 09/28/2015

DESIGNED BY: [ ]

CHECKED BY: [ ]

DATE: [ ]

DESCRIPTION: [ ]

U.S. ARMY CORPS OF ENGINEERS  
ALASKA DISTRICT  
JBER, ALASKA 99505-0988

637 E. Third Ave., Ste. 100  
San Rafael, CA 94901

15 September 2015

U.S. ARMY CORPS OF ENGINEERS  
ALASKA DISTRICT  
JBER, ALASKA 99505-0988

637 E. Third Ave., Ste. 100  
San Rafael, CA 94901

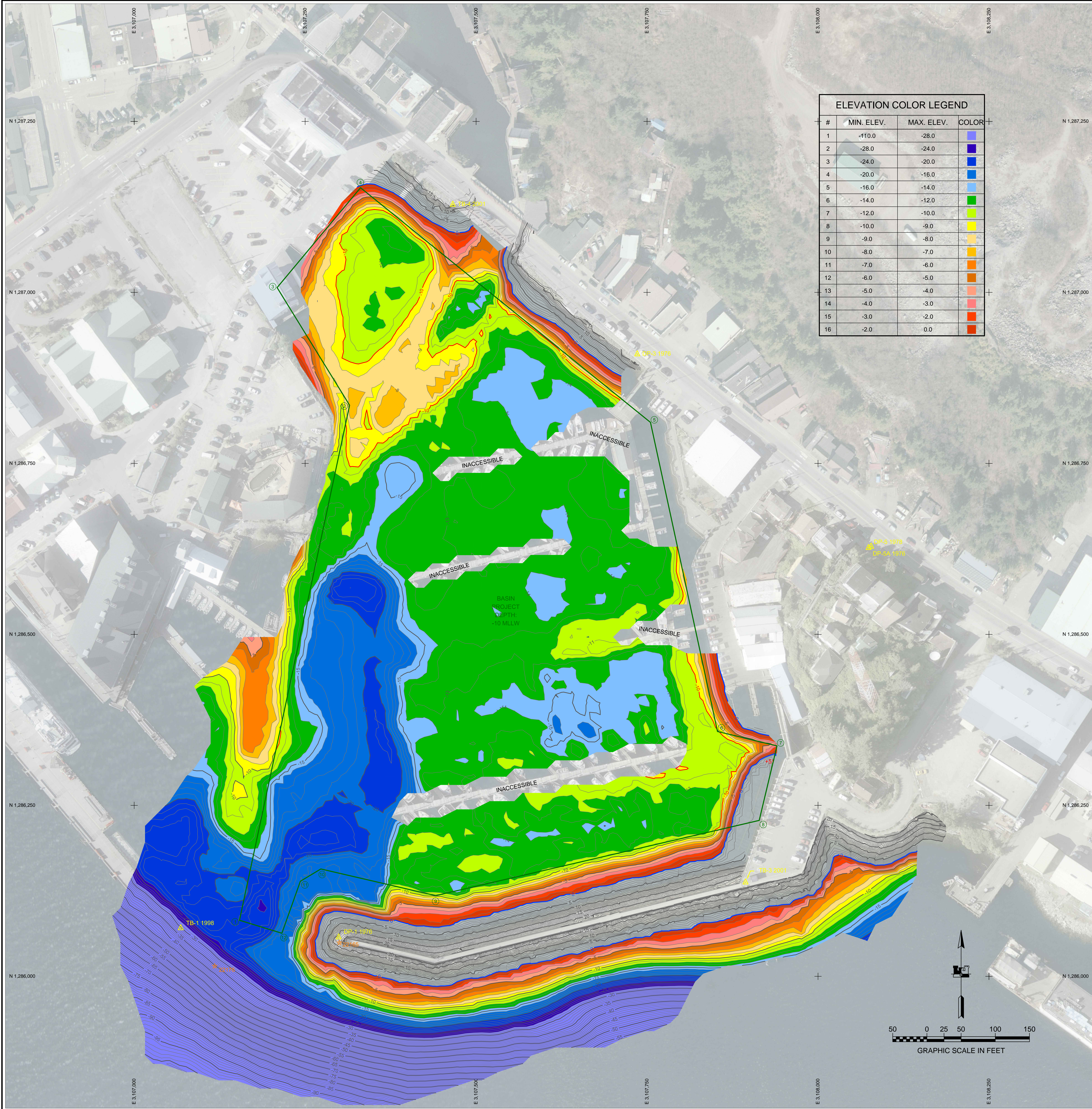
**KETCHIKAN, ALASKA**  
**THOMAS BASIN HARBOR**  
**PROJECT CONDITION SURVEY**  
**JULY 28-AUGUST 2, 2015**

**SHEET IDENTIFICATION**

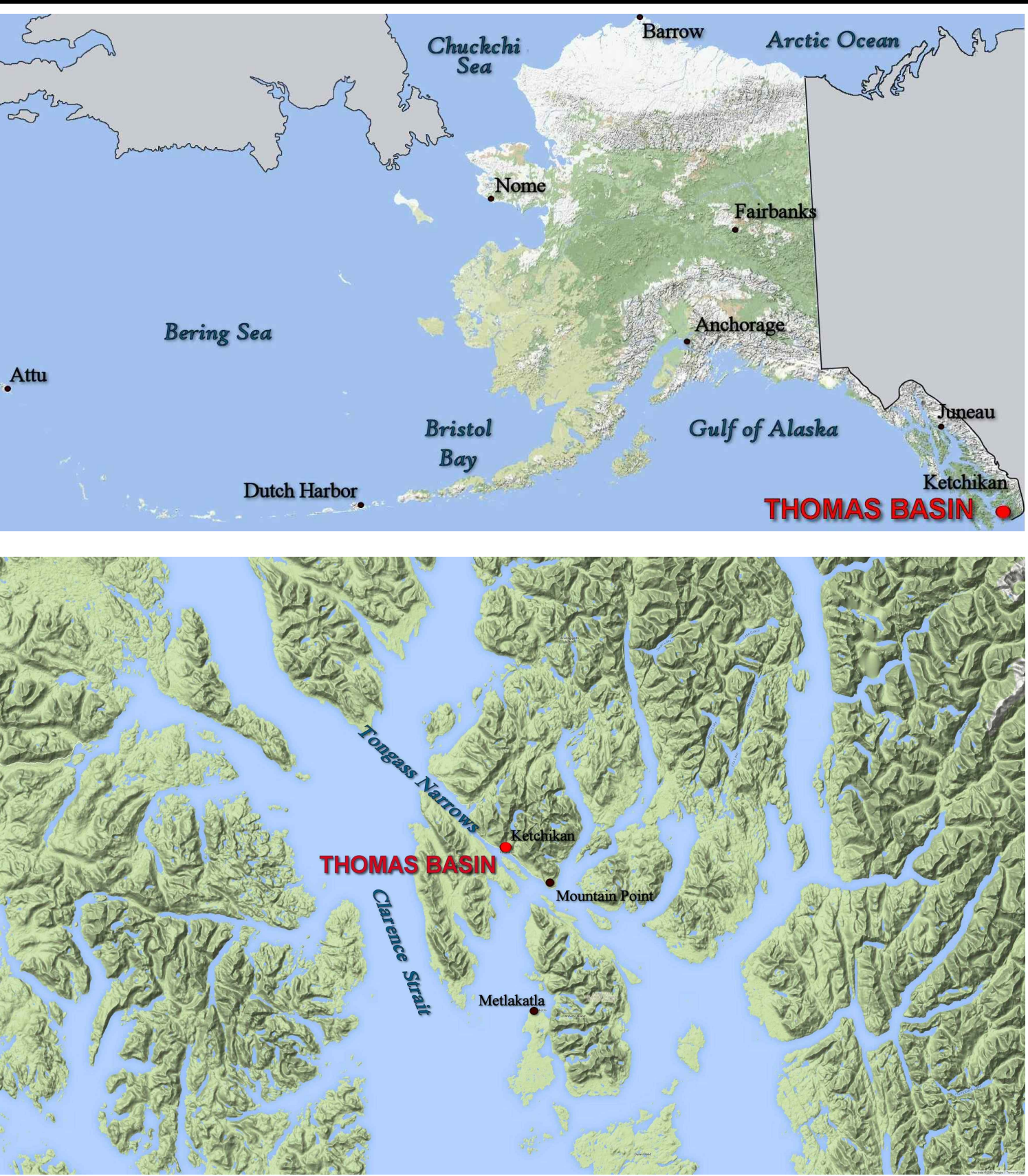
1-KET-92-07-22

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ELEVATION COLOR LEGEND			
#	MIN. ELEV.	MAX. ELEV.	COLOR
1	-110.0	-28.0	
2	-28.0	-24.0	
3	-24.0	-20.0	
4	-20.0	-16.0	
5	-16.0	-14.0	
6	-14.0	-12.0	
7	-12.0	-10.0	
8	-10.0	-9.0	
9	-9.0	-8.0	
10	-8.0	-7.0	
11	-7.0	-6.0	
12	-6.0	-5.0	
13	-5.0	-4.0	
14	-4.0	-3.0	
15	-3.0	-2.0	
16	-2.0	0.0	



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  - VERTICAL CONTROL IS MEAN LOWER LOW WATER (MLLW+0.0), BASED ON THE NOAA'S TIDAL BENCH MARK LIST: "945 0460 KETCHIKAN TONGASS NARROWS, ALASKA" PUBLISHED 08/27/2011. THIS TIDAL DATUM IS BASED ON THE 1983-2001 TIDAL EPOCH AND IS REFERENCED BY HOLDING NOAA'S TIDAL BENCH MARK "NO 37 1956" (PID: AH4914 / VM# 1170) AS 35.09'.
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*David R. Neff*

David R. Neff C.H. (275)

CONTRACT NO. W01H04-14-0-0113.0007

CONTRACTOR: ETIEME INC.

CITY: SAN RAFAEL

STATE: CALIFORNIA

APPROVED: MICHAEL E. NEFF

DATE: 08/28/2015

THOMAS A. BLAIN

DESIGNED BY: MICHAEL E. NEFF

DATE: 08/28/2015

BY: [Signature]

DATE: 08/28/2015

DESCRIPTION: THOMAS BASIN

U.S. ARMY CORPS OF ENGINEERS

ALASKA DISTRICT

JBER, ALASKA 99505-0988

637 1st Ave. Ste. 100

San Rafael, CA 94901

15 September 2015

CHECKED BY: [Signature]

DESIGNED BY: [Signature]

APPROVED BY: [Signature]

THOMAS A. BLAIN, Chief Executive Officer

FILE NAME: [Signature]

DATE: 08/28/2015

SCALE: 1" = 25'

PROJECT: THOMAS BASIN

KETCHIKAN, ALASKA

THOMAS BASIN HARBOR

PROJECT CONDITION SURVEY

JULY 28-AUGUST 2

SHEET IDENTIFICATION

1-KET-92-07-22

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