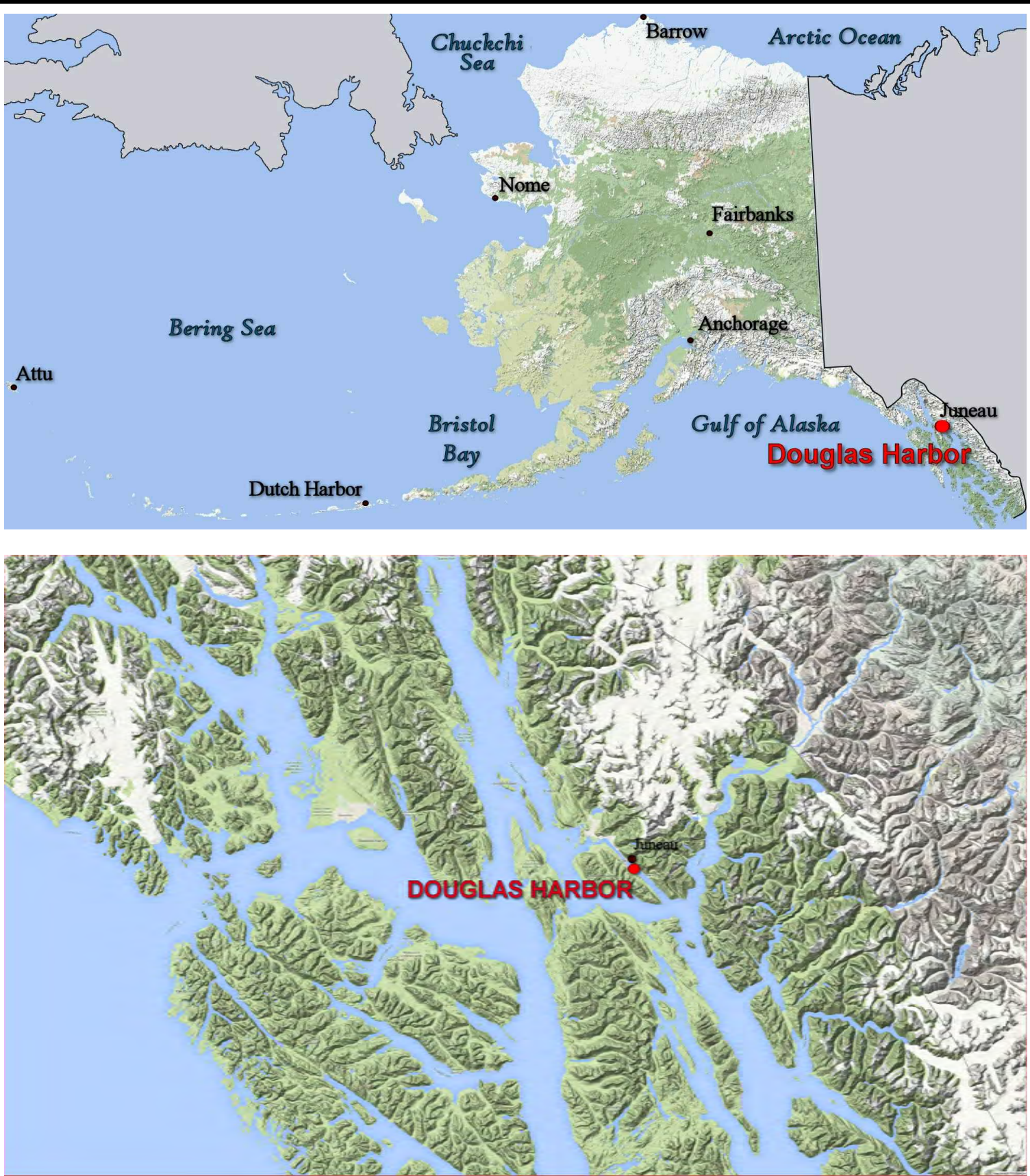


#	MIN. ELEV.	MAX. ELEV.	COLOR
1	-20.0	-19.0	
2	-19.0	-18.0	
3	-18.0	-17.0	
4	-17.0	-16.0	
5	-16.0	-15.0	
6	-15.0	-14.0	
7	-14.0	-13.0	
8	-13.0	-12.0	
9	-12.0	-11.0	
10	-11.0	-10.0	
11	-10.0	-9.0	
12	-9.0	-8.0	
13	-8.0	-6.0	
14	-6.0	-4.0	
15	-4.0	-2.0	
16	-2.0	0.0	



NOTES

1. PRIMARY PROJECT HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 1, NAD83 (2011), IN US SURVEY FEET BASED ON A FULLY CONSTRAINED STATIC GPS NETWORK HOLDING THE PUBLISHED NAD83 (2011) 2010.00 EPOCH VALUES OF NGS CORS STATIONS: "JUNEAU WAAS 1 CORS ARP" (JNU1 - PID DF4367), "KLAUWOKAIRAK 2006 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 US SURVEY FEET HOLDING "SBC 'DH-C 2000' AS N 2,353,359.31, E 2,546,726.69 AND USACE SBC 'RAMP 1975' AS N 2,353,048.30, E 2,547,438.98.
3. VERTICAL CONTROL IS MEAN LOWER LOW WATER (MLLW=0.0'), BASED ON THE NOAA'S TIDAL BENCH MARK LIST: "945 2210 JUNEAU, CASTNEAU CHANNEL, STEPHENS PASS, ALASKA" PUBLISHED 05/02/2014. THIS TIDAL DATUM IS BASED ON THE 2007-2011 TIDAL EPOCH AND IS REFERENCED BY HOLDING NOAA'S TIDAL BENCH MARK "2210 C 1982" (VMM 1196) AS 29.96'.
4. VERTICAL TIES TO THE NATIONAL SPATIAL REFERENCE SYSTEM ARE BASED ON NAVD88 (GEOID 12B) ELEVATIONS HOLDING NGS BENCHMARK "DH-C 2000" AS 20.53'.
5. SOUNDINGS ARE IN U.S. FEET AND ARE MINUS UNLESS OTHERWISE INDICATED.
6. BATHYMETRY WAS COLLECTED MARCH 19, 2017. SOUNDINGS WERE COLLECTED USING AN R2SONIC 2024 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 APPLIX POSNAV OCEANMASTER VS 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. THIS DRAWING INDICATES GENERAL CONDITIONS AT THE TIME OF THE SURVEY.
8. MAP SOUNDINGS ARE BINNED AT 24 FEET AND ARE SHOAL-BIASED. VOLUME SOUNDINGS ARE BINNED AT 3 FEET AND ARE MEAN.

SURVEY CONTROL DATA

STATION	NORTHING	EASTING	MLLW	DESCRIPTION
DH-3	2,354,095.52	2,546,951.23	26.26	3.25" DSBC
DH-C 2000	2,353,359.31	2,546,726.69	25.97	3.25" DSBC
DH-D 2000	2,353,103.36	2,547,126.72	25.67	3.25" DSBC
DHAR	2,353,388.57	2,547,704.09	24.02	3.5" USACE BRASS CAP
DL-1 1978	2,353,650.68	2,547,782.25	64.40	3.5" USACE BRASS CAP
RAMP 1975	2,353,048.30	2,547,438.98	23.30	3.5" USACE BRASS CAP

NAVIGATION AIDS

USCG NO.	NORTHING	EASTING	DESCRIPTION
23680	2,353,940	2,547,137	DOUGLAS BOAT HARBOR LIGHT ID

FEDERAL DREDGE BASIN

CORNER#	NORTHING	EASTING
1	2,353,746.99	2,547,214.45
2	2,353,443.04	2,547,023.77
3	2,353,381.92	2,547,121.19
4	2,353,353.12	2,547,103.12

FEDERAL DREDGE BASIN

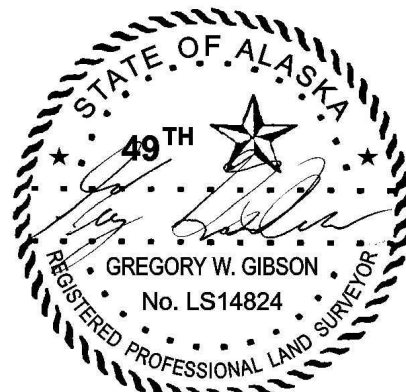
CORNER#	NORTHING	EASTING
5	2,353,177.75	2,547,382.66
6	2,353,499.66	2,547,584.60
7	2,353,712.22	2,547,245.76

DISPOSAL BASE LINE

BASE LINE	NORTHING	EASTING
DISP BL-5	2,355,554.60	2,547,981.16
DISP BL-6	2,352,824.80	2,550,904.88

HARBOR BASE LINE

BASE LINE	NORTHING	EASTING
N-S BL1	2,353,126.57	2,547,087.90
N-S BL2	2,353,719.55	2,547,459.89
E-W BL3	2,353,669.51	2,546,956.31
E-W BL4	2,353,244.38	2,547,634.00



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. W01H015-C-0017

CONTRACTOR: Western Marine Commission

CITY: Seattle

STATE: Washington

APPROVED: [Signature]

DATE: [Date]

NO.	DATE	DESCRIPTION
1	12/19/2017	1st Edition

U.S. ARMY CORPS OF ENGINEERS

ALASKA DISTRICT

JBER, ALASKA 99508-0988

8 Tracy Ave.

637 Uptown St., Ste 100

San Rafael, CA 94901

DOUGLAS, ALASKA

DOUGLAS HARBOR

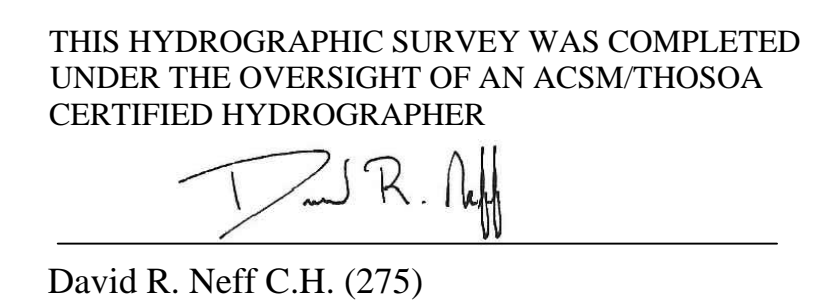
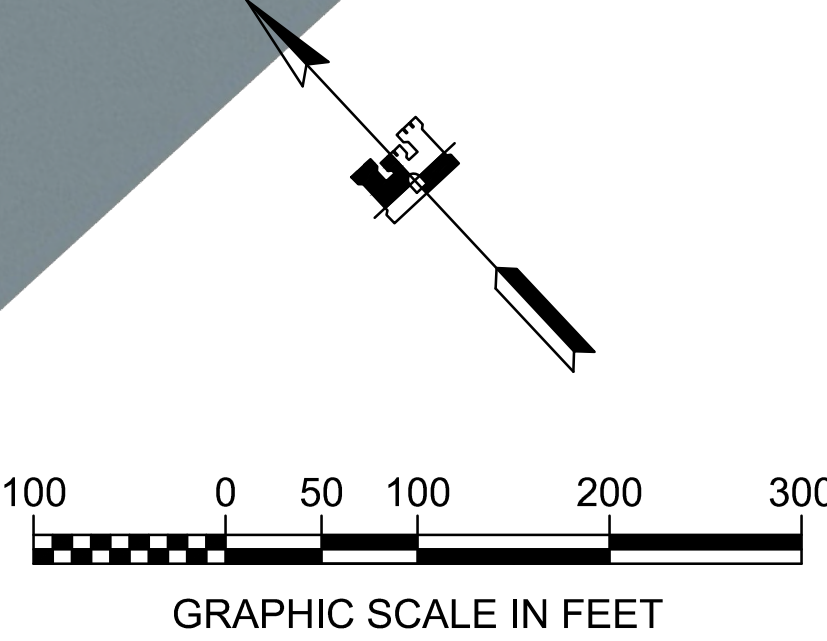
HYDROGRAPHIC SURVEY

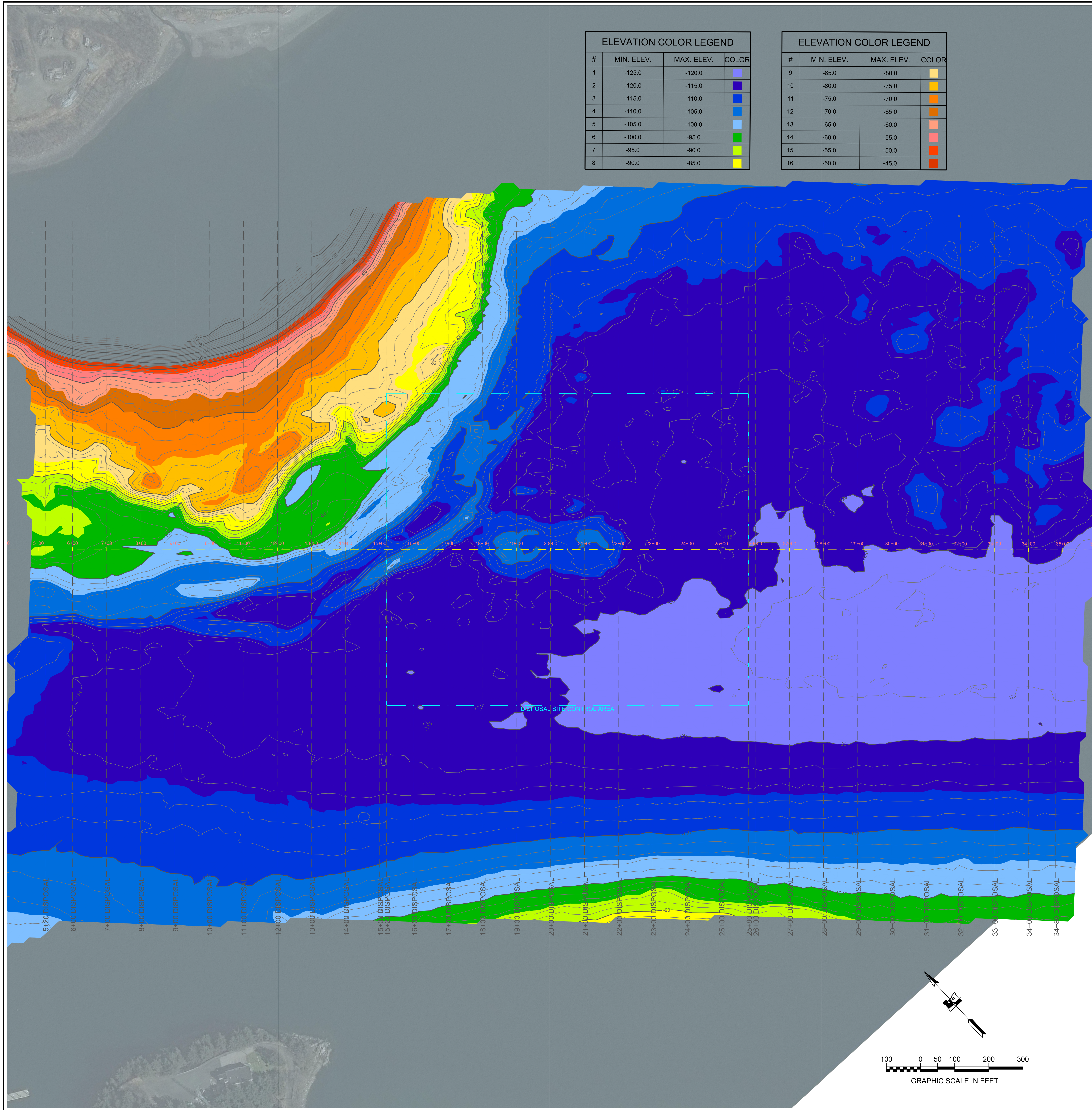
MARCH 19, 2017

SHEET IDENTIFICATION

V-102

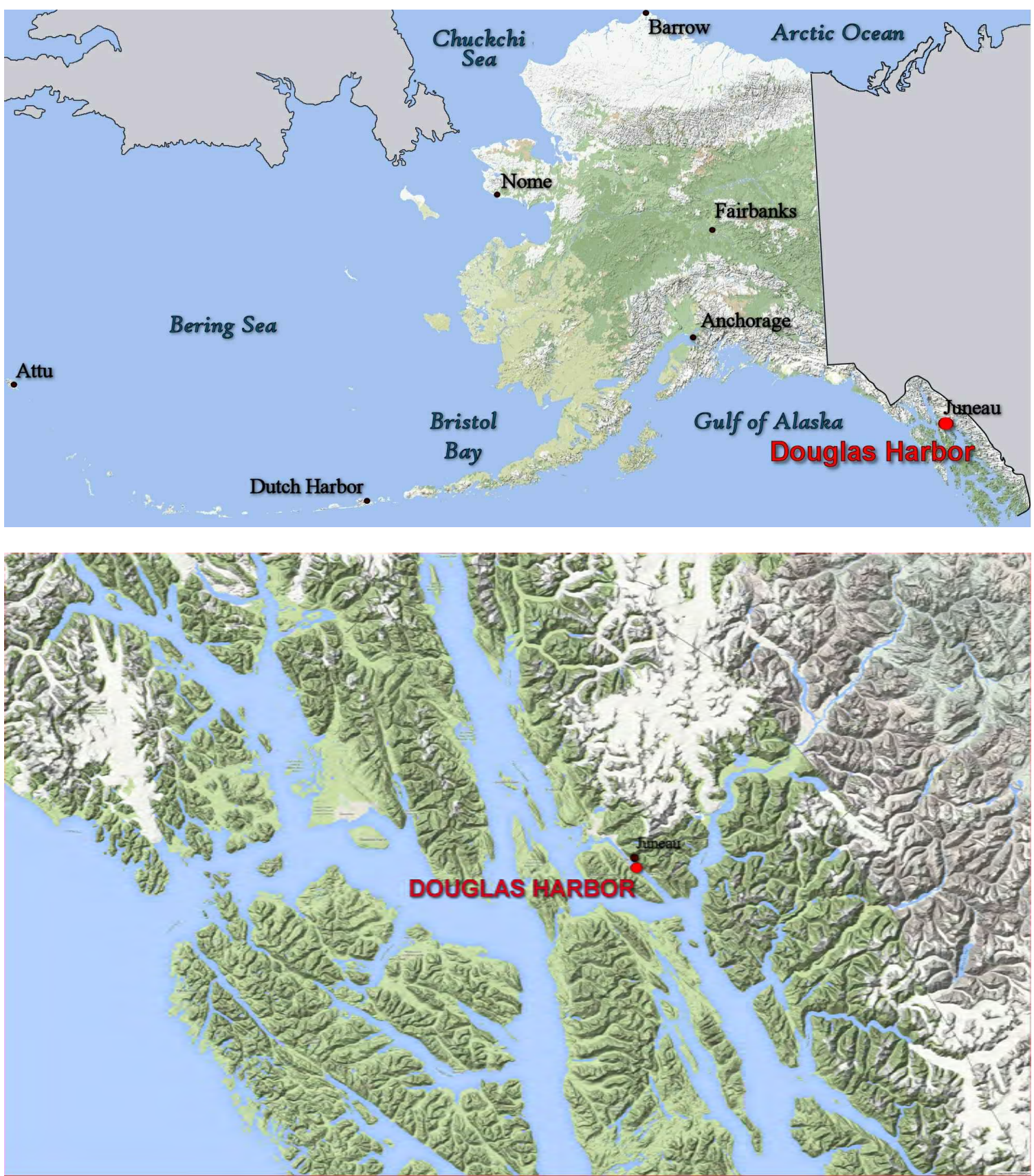
Sheet 2 of 19





ELEVATION COLOR LEGEND			
#	MIN. ELEV.	MAX. ELEV.	COLOR
1	-125.0	-120.0	Light Blue
2	-120.0	-115.0	Blue
3	-115.0	-110.0	Dark Blue
4	-110.0	-105.0	Light Green
5	-105.0	-100.0	Green
6	-100.0	-95.0	Yellow-Green
7	-95.0	-90.0	Yellow
8	-90.0	-85.0	Orange

ELEVATION COLOR LEGEND			
#	MIN. ELEV.	MAX. ELEV.	COLOR
9	-85.0	-80.0	Light Orange
10	-80.0	-75.0	Orange
11	-75.0	-70.0	Dark Orange
12	-70.0	-65.0	Red-Orange
13	-65.0	-60.0	Red
14	-60.0	-55.0	Dark Red
15	-55.0	-50.0	Dark Red
16	-50.0	-45.0	Dark Red



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David R. Neff C.H. (275)

US Army Corps of Engineers
ALASKA DISTRICT

CONTRACT NO. W01H15-C-0017

CONTRACTOR
Western Marine Construction

CITY
Sitka

STATE
Alaska

APPROVED
[Signature]

DATE
March 19, 2017

REVISIONS

NO.	DESCRIPTION	DATE
1	ISSUED FOR CONSTRUCTION	03/19/2017

DOUGLAS HARBOR
DOUGLAS HARBOR
HYDROGRAPHIC SURVEY
MARCH 19, 2017

SHEET IDENTIFICATION
V-106
Sheet 6 of 19