

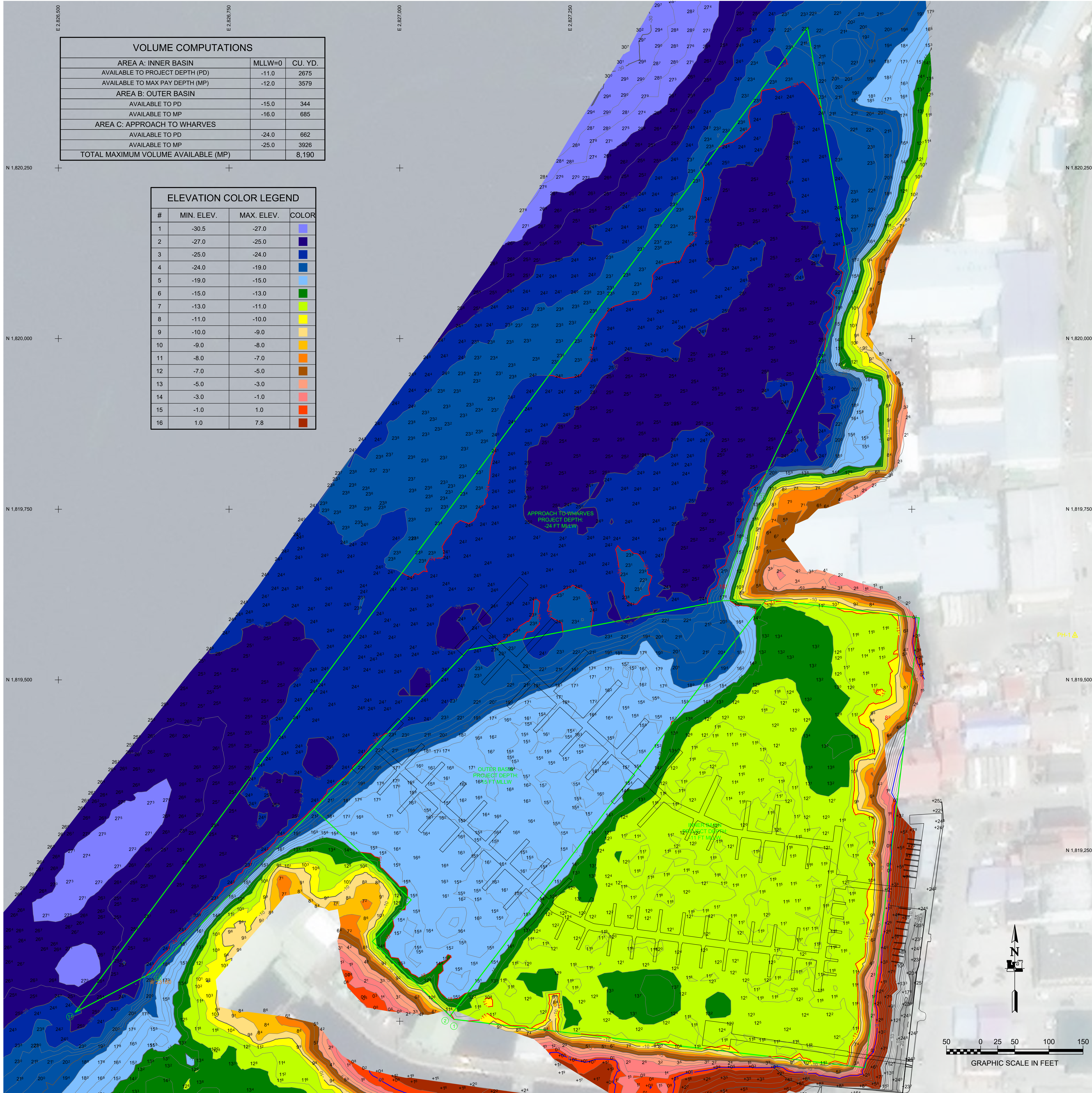
1. PRIMARY PROJECT HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 1, NAD83 (CORS96) EPOCH 2003 VALUES IN SURVEY FEET OF NOS CORRS STATIONS: "BIORKA ISLAND, 1 CORRS APID" (APID: A05022) AS N 1,838,763.17 E 2,311,186.49; "JUNEAU WAAS 1 CORRS ARP" (APID: DF3687) AS N 2,385,816.86 E 2,509,443.56; AND "LEVEL ISLAND 2 CORRS ARP" (APID: D3035) AS N 1,602,007.70 E 2,301,993.45.
2. LOCAL PROJECT HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 1, NAD83 (2011), IN SURVEY FEET HOLDING NAD83 2003 POINT 01, 819.05347. PUBLISHED 09/09/2008. NAD83 2011 DATUM IS BASED ON THE 1983-2001 DATUM EPOCH AND IS REFERENCED BY INCLUDING NAAOANS TIDAL BENCH MARK "945 1434 A 2006" (VM18105/DP BB86C2) AS 27.14 FT.
3. VERTICAL TIES TO THE NATIONAL SPATIAL REFERENCE SYSTEM ARE BASED ON AN OPTUS SOLUTION IN NAVD83 (GEOID 12B) ELEVATIONS HOLDING USACE 3-1/4" DOMED BRASS CAP "N1 1997" AS 20.74 FT.
4. SOUNDINGS ARE IN SURVEY FEET AND ARE MINUS UNLESS OTHERWISE INDICATED.
5. BATHYMETRY WAS COLLECTED JUNE 11, 2017. SOUNDINGS WERE COLLECTED USING AN "NORBIT-WBMS" SOUNDER WITH A 400KHZ+1, MULTIBEAM TRANSDUCER. SOUND VELOCITY THROUGH THE WATER COLUMN WAS DETERMINED WITH AN SONTEK CASTAWAY SOUND VELOCITY PROBE. AND VERIFIED WITH A MANUAL BATHY THERMOGRAPHIC DEPTH, POSITIONING AND VESSEL ATTITUDE WERE MEASURED USING A "TRIMBLE R10 RTK" SYSTEM AN APPLIXX WAVEMASTER I GNSS/INERTIAL NAVIGATION SYSTEM. RTK CORRECTIONS WERE BROADCAST FROM A LOCAL BASE STATION OCCUPYING "N1 1997" DATUM COLLECTED TIDE GAUGE DATA. TIDE GAUGE DATA WAS OBTAINED FROM TIDE ELEVATIONS MEASURED USING A "TRIMBLE R10 RTK" SYSTEM AND VERIFIED THROUGH CONVENTIONAL 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 SHOAL. CONTOURS ARE BINNED AT 12 FEET AND ARE SHOAL SHOAL. VOLUME SOUNDINGS ARE BINNED AT 3 FEET AND ARE AVERAGED.

SURVEY CONTROL DATA				
STATION	NORTHING	EASTING	MLLW	DESCRIPTION
1434 A 2006	1,814,207.81	2,823,232.54	27.14	NOAA/NOS 4 IN DBC
NH-1 1997	1,818,870.65	2,827,683.27	23.97	USACE 3-1/4 IN DBC
NH-2 1997	1,818,753.1	2,828,219.6	33.11	USACE 3-1/4 IN DBC
NH-3 2000	1,819,014.58	2,827,753.09	25.57	USACE 3-1/4 IN DBC
PH-1	1,819,565.09	2,827,988.98	24.72	2-1/2 IN BC
WN-1A 1999	1,821,893.6	2,830,057.1	24.23	USACE 3-1/4 IN DBC
WN-2B 1999	1,817,808.98	2,825,272.30	25.17	USACE 3-1/4 IN DBC

PROJECT LIMITS		
CORNER#	NORTHING	EASTING
1	1,819,002.75	2,827,079.82
2	1,819,007.75	2,827,073.82
3	1,819,116.75	2,826,959.81
4	1,819,177.76	2,827,016.81
5	1,819,310.76	2,826,874.80
6	1,819,543.80	2,827,099.80
7	1,819,615.83	2,827,471.81
8	1,819,617.84	2,827,536.81

PROJECT LIMITS		
CORNER#	NORTHING	EASTING
9	1,819,590.85	2,827,760.82
10	1,818,931.79	2,827,681.85
11	1,819,013.13	2,826,524.68
12	1,819,072.51	2,826,639.96
13	1,819,772.29	2,827,522.25
14	1,819,988.96	2,827,625.37
15	1,820,099.37	2,827,658.71
16	1,820,455.62	2,827,597.25

NAVIGATION AIDS			
USCG NO.	NORTHING	EASTING	DESCRIPTION
23180	1,819,058	2,826,637	PIER LIGHTS
23190	1,819,623	2,827,473	DOCK LIGHTS
23191	1,819,770	2,827,556	DOLPHIN LIGHT



VOLUME COMPUTATIONS		
AREA A: INNER BASIN	MLLW=0	CU. YD.
AVAILABLE TO PROJECT DEPTH (PD)	-11.0	2675
AVAILABLE TO MAX PAY DEPTH (MP)	-12.0	3579
AREA B: OUTER BASIN		
AVAILABLE TO PD	-15.0	344
AVAILABLE TO MP	-16.0	685
AREA C: APPROACH TO WHARVES		
AVAILABLE TO PD	-24.0	662
AVAILABLE TO MP	-25.0	3926
TOTAL MAXIMUM VOLUME AVAILABLE (MP)		8,190

ELEVATION COLOR LEGEND			
#	MIN. ELEV.	MAX. ELEV.	COLOR
1	-30.5	-27.0	
2	-27.0	-25.0	
3	-25.0	-24.0	
4	-24.0	-19.0	
5	-19.0	-15.0	
6	-15.0	-13.0	
7	-13.0	-11.0	
8	-11.0	-10.0	
9	-10.0	-9.0	
10	-9.0	-8.0	
11	-8.0	-7.0	
12	-7.0	-5.0	
13	-5.0	-3.0	
14	-3.0	-1.0	
15	-1.0	1.0	
16	1.0	7.8	



NOTES

- PRIMARY PROJECT HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 1, NAD83 (CORS96) EPOCH 2003 VALUES IN US SURVEY FEET OF NGC CORS STATIONS: "BIORKA ISLAND 1 CORS ARPO" (PID: A15022) AS N 1,838,783.13' E 2,311,186.49'; "JUNEAU WAAS 1 CORS ARPO" (PID: DF4367) AS N 2,385,816.86' E 2,509,443.56'; AND "LEVEL ISLAND 5 CORS ARPO" (PID: DJ3033) AS N 1,892,097.79' E 2,801,993.45'.
- LOCAL PROJECT HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 1, NAD83 (2011), IN US SURVEY FEET HOLDING NH-3 2000 AS N 1,819,014.58, E 2,827,753.09 AND NH-1 AS N 1,819,870.65, E 2,827,683.27.
- VERTICAL CONTROL IS MEAN LOWER LOW WATER (MLLW=0.0 FT), BASED ON THE NOAA/NOS TIDAL BENCH MARK LIST "945 1434 TURN POINT, ALASKA", PUBLISHED 06/09/2009. THIS TIDAL DATUM IS BASED ON THE 1983-2001 TIDAL EPOCH AND IS REFERENCED BY HOLDING NOAA/NOS TIDAL BENCH MARK "945 1434 A 2006" (VMF18109PID BBB62) AS 27.14 FT.
- VERTICAL TIES TO THE NATIONAL SPATIAL REFERENCE SYSTEM ARE BASED ON AN OPUS SOLUTION IN NAVD83 (GEOID 12B) ELEVATIONS HOLDING USACE 3-1/4" DOMED BRASS CAP "NH-1 1997" AS 20.74 FT.
- SOUNDINGS ARE IN US SURVEY FEET AND ARE MINUS UNLESS OTHERWISE INDICATED.
- BATHYMETRY WAS COLLECTED JUNE 11, 2017. SOUNDINGS WERE COLLECTED USING AN "NORBIT-JBMS" SOUNDER WITH A 400KHZ 1" MULTIBEAM TRANSDUCER. SOUND VELOCITY THROUGH THE WATER COLUMN WAS DETERMINED WITH AN SONTEK CASTAWAY SOUND VELOCITY PROBE, AND VERIFIED WITH A MANUAL BAR CHECK AT 3 INCREMENTS TO PROJECT DEPTH. POSITIONING AND VESSEL ATTITUDE WERE MEASURED USING A "TRIMBLE R10 RTK" SYSTEM AN APPLANIX WAVEMASTER II GNSS/INERTIAL NAVIGATION SYSTEM. RTK CORRECTIONS WERE BROADCAST FROM A LOCAL BASE STATION OCCUPYING "NH-1 1997". DATA WAS COLLECTED AND FIELD PROCESSED USING "HYPACK 2017" SOFTWARE. TIDE ELEVATIONS WERE MEASURED USING A "TRIMBLE R10 RTK" SYSTEM AND VERIFIED THROUGH CONVENTIONAL DIFFERENTIAL LEVELING TECHNIQUES.
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PROJECT LIMITS

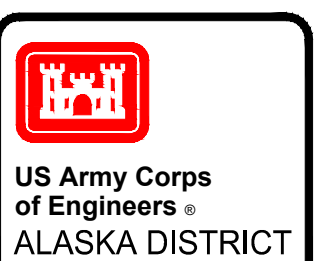
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US Army Corps of Engineers
ALASKA DISTRICT

CONTRACT NO.	DATE	BY	DESCRIPTION
1-PET-92-07-02	10/11/2017		

U.S. ARMY CORPS OF ENGINEERS
ALASKA DISTRICT
JBER, ALASKA 99506-0808
1776 Negana Street
Burien, AK 99612

PETERSBURG, ALASKA
PETERSBURG HARBOR
PROJECT CONDITION SURVEY
JUNE 10-11, 2017

SHEET IDENTIFICATION
1-PET-92-07-02
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