



NOTES

1. PRIMARY PROJECT HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 1, NAD83 (CORS96). IN SURVEY FEET BASED ON A FULLY CONSTRAINED STATE GPS NETWORK HOLDING THE PUBLISHED NAD83 (CORS96) VALUES OF NGS CORS STATIONS "ANNETTE ISLAND 5 CORS ARP" (A55 - PID DK6482), "KLAWOCKAIRK2006 CORS ARP" (A849 - PID DM7451) AND "LEVEL ISLAND 6 CORS ARP" (LEV6 - PID J30305).
2. LOCAL PROJECT HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 1, NAD83, IN US SURVEY FEET HOLDING "TB-3 2001" (PID BDDX22) AS $N = 1,286,137.31 \pm 3.107, 894.00'$.
3. VERTICAL CONTROL IS MEAN LOWER LOW WATER (MLLW=0.0), BASED ON THE NOAA/NOS TIDAL BENCH MARK "NOAA 49460" (A460 - PID 11770) TONGAREVA, ESTABLISHED 02/27/2011. THIS TIDAL BENCH MARK IS BASED ON THE 1983-2001 TIDAL EPOCH AND IS DEFINED BY HOLDING NOAA/NOS TIDAL BENCH MARK "NO 37 1956" (PID A4914 - M1W 1170) AS 35.09'.
4. VERTICAL TIES TO THE NATIONAL SPATIAL REFERENCE SYSTEM ARE BASED ON PUBLISHED NAVD83 ELEVATIONS HOLDING NOAA TIDAL BENCHMARK "MN NO 37 1956" (PID A4914 / M1W 1170) AS 31.27'.
5. SOUNDINGS ARE IN US SURVEY FEET AND ARE MINUS UNLESS OTHERWISE INDICATED.
6. BATHYMETRY WAS COLLECTED FEBRUARY 22 & 23, MARCH 22. SOUNDINGS WERE COLLECTED USING AN R230NC 2024 MULTIBeam ECHOSOUNDER OPERATING AT 200 KHZ, SOUND VELOCITY THROUGH THE WATER WAS 1480 M/S WITH AN AML. DATA WAS COLLECTED IN SCOTTY DTD POSITION AND VESSEL ORIENTATION WERE MEASURED USING AN APPLICX POSMV OCEANMASTER VS SYSTEM. DATA WAS COLLECTED AND PROCESSED USING QINSY 8.1 SOFTWARE. HORIZONTAL CONTROL WAS SURVEYED USING GPS 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. CONTOURS ARE BASED ON 12 FEET BINNED SHOAL-BIASED SOUNDINGS. VOLUME SOUNDINGS ARE BINNED AT 3 FEET AND ARE MEAN VALUE.

SURVEY CONTROL DATA

STATION	NORTHING	EASTING	MLLW	DESCRIPTION
DP-1 1976	1,286,057.25	3,107,299.01	21.07	3.5 IN DOMED USACE BC
DP-3 1976	1,286,908.68	3,107,735.62	21.76	3.5 IN DOMED USACE BC
DP-5 1978	1,286,628.48	3,108,077.52	35.69	3.5 IN DOMED USACE BC
DP-5A 1978	1,286,626.52	3,108,073.89	35.77	3.5 IN DOMED USACE BC
TB-1 1998	1,286,170.56	3,107,068.03	21.92	3.25 IN DOMED SBC
TB-3 2001	1,286,137.51	3,107,894.00	22.62	3.25 IN DOMED SBC
TB-4 2001	1,287,128.46	3,107,465.89	21.77	3.25 IN DOMED SBC

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

NAVIGATION AIDS

USCG NO.	NORTHING	EASTING	DESCRIPTION
26015	1,286,049	3,107,300	THOMAS BASIN ENTRANCE LIGHT 2
26020	1,286,015	3,107,118	KETCHIKAN BERTH

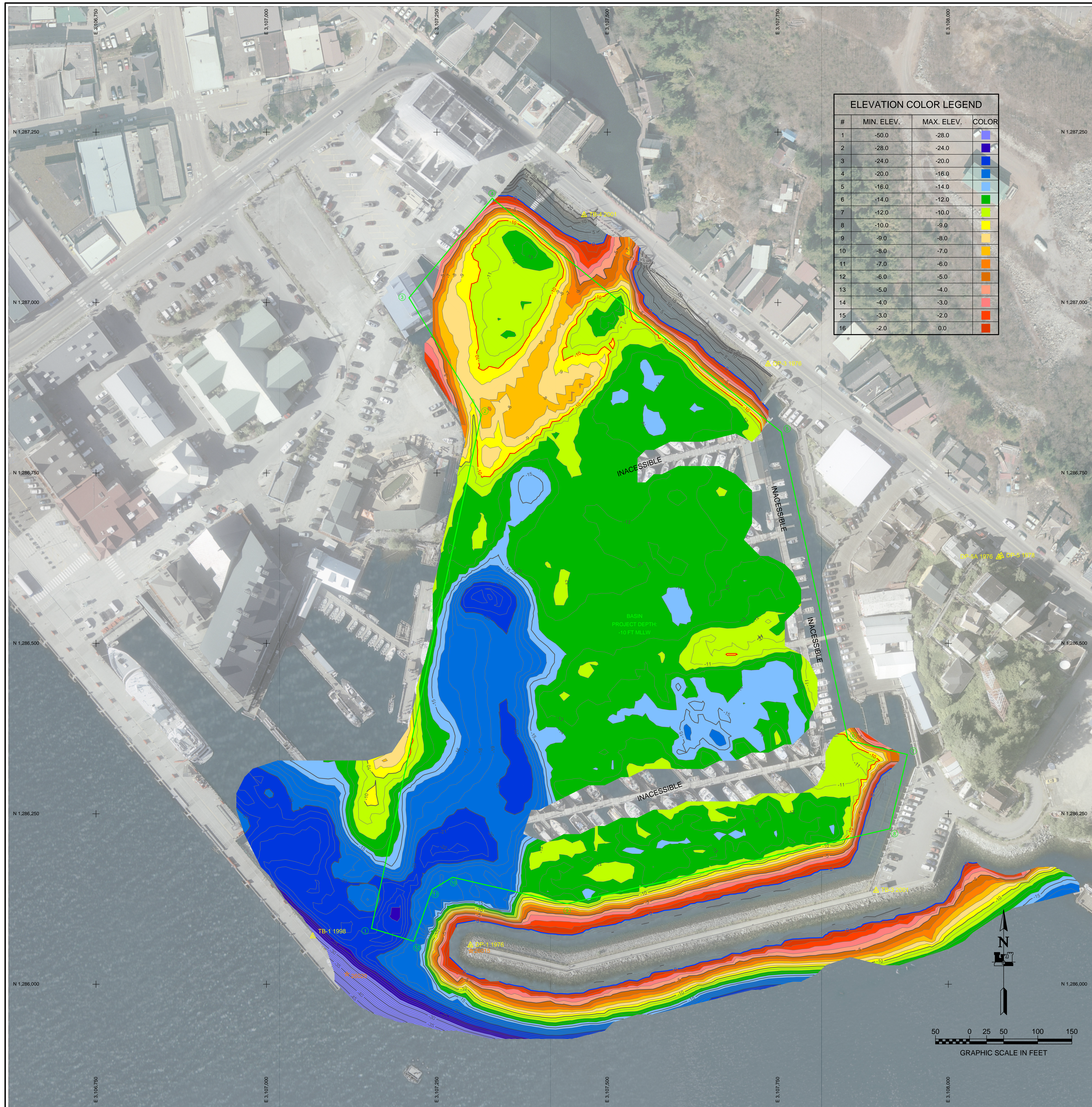
VOLUME COMPUTATIONS

AREA A: ENTRANCE CHANNEL	MLLW=0	CU. YD.
AVAILABLE TO PROJECT DEPTH (PD)	-10.0	3,377
AVAILABLE TO MAX PAY DEPTH (MP)	-11.0	5,257
AVAILABLE SIDE SLOPES (SS) AT 3:1 (H:V) & 25' WIDE	VARIES	926
TOTAL MAXIMUM VOLUME AVAILABLE (MP + SS)		6,183



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

David R. Neff C.H. (275)



NOTES

1. PRIMARY PROJECT HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 1, NAD83 (CORS96). IN SURVEY FEET BASED ON A FULLY CONSTRAINED STATIC GPS NETWORK HOLDING THE PUBLISHED NAD83 (CONUS) MEAN VALUES OF NSS CORRS STATIONS "ANNETTE ISLAND 5 CORS ARP" (AES5 - PID DK6482), "KLAWOCKAIRKAR2006 CORS ARP" (AB49 - PID DM7451) AND "LEVEL ISLAND 6 CORS ARP" (LEV6 - PID J3030S).
2. LOCAL PROJECT HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 1, NAD83, IN US SURVEY FEET HOLDING "TB-3 2001" (PID BDDXZ2) AS X 1,286; 137.31° E, 3.107,894.00'.
3. VERTICAL CONTROL IS MEAN LOWER LOW WATER (MLLW=0.0), BASED ON THE NOAA/NDS TIDAL BENCH MARK "TIDE GAUGE 10460" AT TONGUE POINT, AK. IT WAS OBSERVED 02/27/2011. THIS TIDAL MUDM IS BASED ON THE 1983-2001 TIDAL EPOCH AND IS APPROXIMATELY BY HOLDING NOAA/NDS TIDAL BENCH MARK "NO 37 1956" (PID AH914 / MID 1170) AS 35.09'.
4. VERTICAL TIES TO THE NATIONAL SPATIAL REFERENCE SYSTEM ARE BASED ON PUBLISHED NAVD83 ELEVATIONS HOLDING NOAA TIDAL BENCHMARK "MN NO 37 1956" (PID AH914 / MID 1170) AS 31.27'.
5. SOUNDINGS ARE IN US SURVEY FEET AND ARE MINUS UNLESS OTHERWISE INDICATED.
6. BATHEMYTRY WAS COLLECTED FEBRUARY 22 & 23 MARCH 22, 2017. SOUNDINGS WERE COLLECTED USING AN R230NC 2024 MULTIBEAM EC-HOUSUNDER OPERATING AT 200 KHZ. SOUND VELOCITY THROUGH THE WATER WAS DETERMINED WITH AN ANALOGIC SVP SONAR. SCOTTY DEEP POSITION AND VESSEL ORIENTATION WERE MEASURED USING AN APPLICAP POSMV OCEANMASTER VS SYSTEM. DATA WAS COLLECTED AND PROCESSED USING QINSY 8 SOFTWARE. HORIZONTAL CONTROL WAS SURVEYED USING DIFFERENTIAL EQUIPMENT AND TECHNIQUES. VERTICAL CONTROL WAS SURVEYED USING DIFFERENTIAL LEVELING TECHNIQUES.
7. THIS DRAWING INCLUDES GENERAL CONDITIONS AT THE TIME OF THE SURVEY.
8. 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

SURVEY CONTROL DATA

STATION	NORTHING	EASTING	MLLW	DESCRIPTION
DP-1 1976	1,286,057.25	3,107,299.01	21.07	3.5 IN DOMED USACE BC
DP-3 1976	1,286,909.68	3,107,735.62	21.76	3.5 IN DOMED USACE BC
DP-5 1978	1,286,628.48	3,108,077.52	35.69	3.5 IN DOMED USACE BC
DP-5A 1976	1,286,626.52	3,108,073.89	35.77	3.5 IN DOMED USACE BC
TB-1 1998	1,286,070.56	3,107,068.03	21.92	3.25 IN DOMED SBC
TB-3 2001	1,286,137.51	3,107,894.00	22.62	3.25 IN DOMED SBC
TB-4 2001	1,287,128.46	3,107,465.89	21.77	3.25 IN DOMED SBC

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

NAVIGATION AIDS

USCG NO.	NORTHING	EASTING	DESCRIPTION
26015	1,286,049	3,107,300	THOMAS BASIN ENTRANCE LIGHT 2
26020	1,286,015	3,107,118	KETCHIKAN BERTH

VOLUME COMPUTATIONS

AREA A: ENTRANCE CHANNEL	MLLW=0	CU. YD.
AVAILABLE TO PROJECT DEPTH (PD)	-10.0	3,377
AVAILABLE TO MAX PAY DEPTH (MP)	-11.0	5,257
AVAILABLE SIDE SLOPES (SS) AT 3:1 (H:V) & 25' WIDE	VARIES	926
TOTAL MAXIMUM VOLUME AVAILABLE (MP + SS)		6,183



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

David R. Neff C.H. (275)