

NAVIGATION AIDS			
NO.	NORTHING	EASTING	DESCRIPTION
23705	2,362,966	2,539,201	HARRIS HARBOR LIGHT H FI W 4S

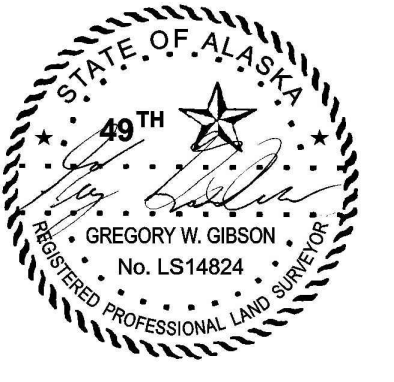
PROJECT LIMITS		
CORNER#	NORTHING	EASTING
1	2,362,601.49	2,539,337.23
2	2,362,970.55	2,539,884.40
3	2,363,724.98	2,539,375.53
4	2,363,459.36	2,538,981.74
5	2,362,945.36	2,539,328.44
6	2,362,841.91	2,539,175.07

VOLUME COMPUTATIONS		
AREA A: BASIN	MLLW=0	CU. YD.
AVAILABLE TO PROJECT DEPTH (PD)	-12.0	11,201
AVAILABLE TO MAX PAY DEPTH (MP)	-13.0	19,765
AVAILABLE SIDE SLOPES (SS) AT 3:1 (H:V) & 25' WIDE	VARIES	3,877
TOTAL MAXIMUM VOLUME AVAILABLE (MP + SS)		23,642

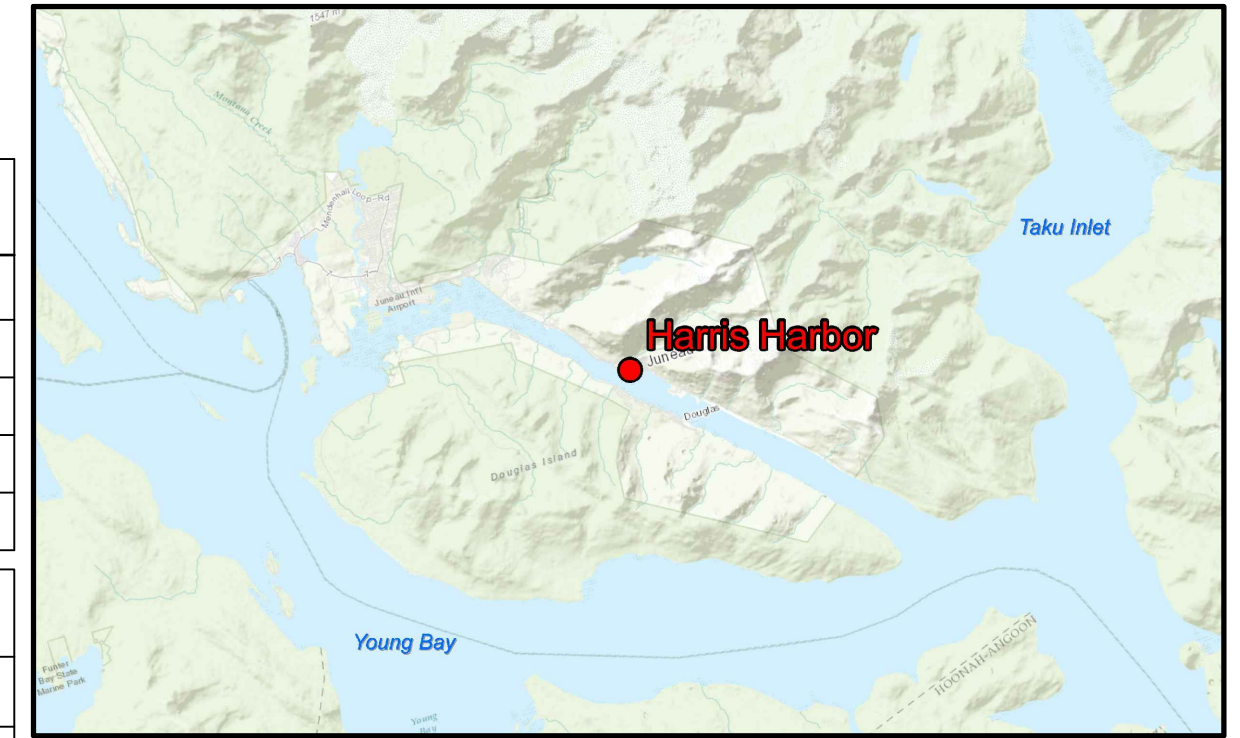
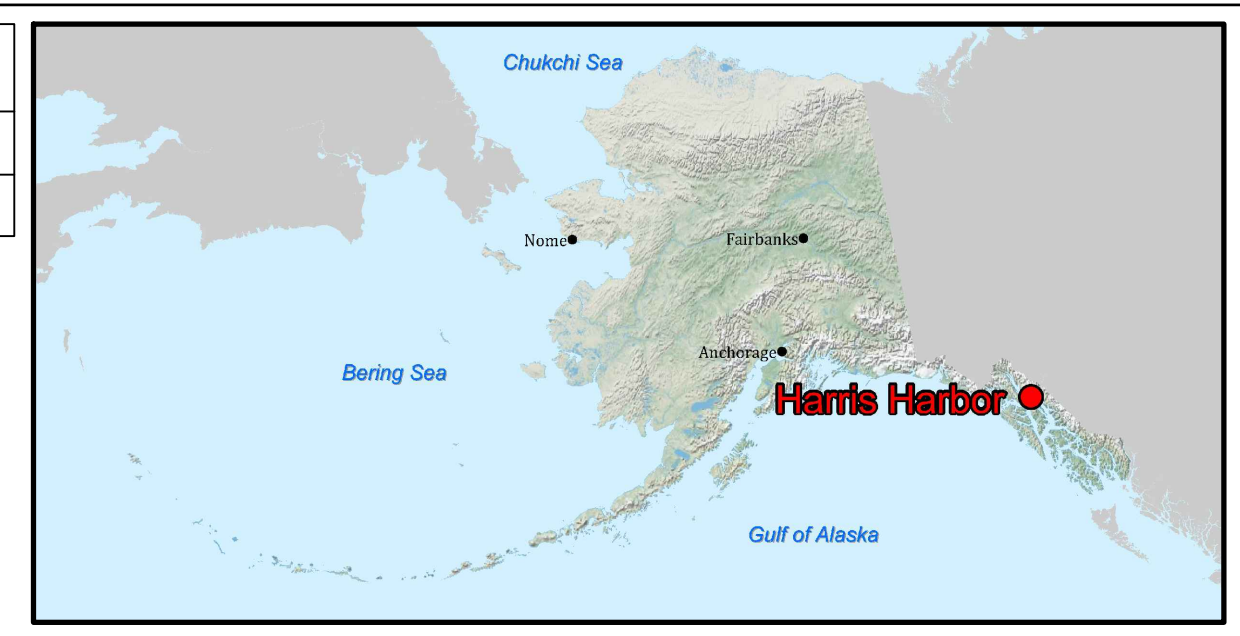
OBSTRUCTION DATA				
ID	NORTHING	EASTING	DEPTH	APPROX SIZE (FEET)
OBST-001	2,363,470.4	2,539,542.4	-4.9	6X6X2
OBST-002	2,363,564.0	2,539,219.6	-10.7	21X7X2
OBST-003	2,363,597.4	2,539,391.3	-9.8	2X2X3
OBST-004	2,363,434.9	2,539,456.3	-11.4	3X3X2
OBST-005	2,363,225.1	2,539,307.7	-11.7	7X3X1
OBST-006	2,363,368.9	2,539,546.5	-12.6	11X2X1
OBST-007	2,363,386.0	2,539,535.0	-12.4	5X5X1
OBST-008	2,363,160.1	2,539,519.9	-10.1	12X7X1

LEGEND

MANHOLE	□
CATCH BASIN	⊠
CULVERT	<
WATER VALVE	⊗
SIGN	○
ELECTRICAL JUNCTION BOX	⊕
ELECTRICAL METER	⊞
ELECTRICAL SWITCH BOX	⊟
POWER POLE	●
LIGHT POLE	○
FLOOD LIGHT	⊙
TRANSFORMER WITH PAD	⊠
COMMUNICATIONS PEDESTAL	⊞
OVERHEAD ELECTRIC LINE	— OH/E —
GUARD RAIL	— / / / —
BUILDING	—
FENCE LINE	— x —



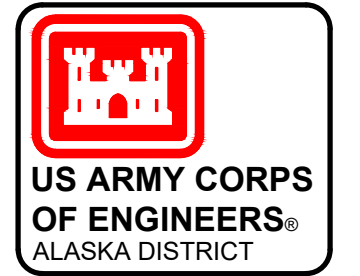
THIS HYDROGRAPHIC SURVEY WAS COMPLETED UNDER THE OVERSIGHT OF AN NSPS/THSOA CERTIFIED HYDROGRAPHER
 Gregory W. Gibson (317)



NOTES

- 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 EPOCH VALUES OF NGS STATIONS: "JNU TIDAL GPS" (PID A14908) AS N 2,362,232.94', E 2,541,120.78'; "JNU C" (PID A14906) AS N 2,382,651.51', E 2,511,618.99'.
- LOCAL PROJECT HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 1, NAD83 (2011), IN US SURVEY FEET HOLDING "JA-1 RESET 1989" (PID BBFS28) AS N 2,363,834.84', E 2,538,657.82'.
- VERTICAL CONTROL IS MEAN LOWER LOW WATER (MLLW=0.0 FT), BASED ON THE NOAA/NOS TIDAL BENCH MARK LIST "9452210 JUNEAU, GASTINEAU CHANNEL, STEPHENS PASS, ALASKA", PUBLISHED 02/16/2018. THIS TIDAL DATUM IS BASED ON THE 2012-2016 TIDAL EPOCH AND IS REFERENCED BY HOLDING NOAA/NOS TIDAL BENCH MARK "945 2210 M" (PID BBFQ10, VM#22341) AS 23.96 FT.
- VERTICAL TIES TO THE NATIONAL SPATIAL REFERENCE SYSTEM ARE BASED ON AN OPUS SOLUTION IN NAVD88 (GEOID 12B) ELEVATION HOLDING NOAA/NOS TIDAL BENCH MARK "945 2210 M" (PID BBFQ10, VM#22341) AS 23.96 FT.
- SOUNDINGS ARE IN US SURVEY FEET AND ARE MINUS UNLESS OTHERWISE INDICATED.
- BATHYMETRY WAS COLLECTED MARCH 21-23, 2019. SOUNDINGS WERE COLLECTED USING AN R2SONIC 2020 MULTIBEAM ECHOSOUNDER OPERATING AT 400 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 WAVEMASTER V5 SYSTEM RECEIVING RTK CORRECTIONS FROM A TRIMBLE R8 MODEL 3 GPS RECEIVER SET AT CONTROL STATION "JA-1 RESET 1989". DATA WAS COLLECTED AND PROCESSED USING QINSY 8.1 AND QIMERA 1.6 SOFTWARE. HORIZONTAL CONTROL WAS VERIFIED USING RTK GNSS EQUIPMENT AND TECHNIQUES. VERTICAL CONTROL WAS SURVEYED USING DIFFERENTIAL LEVELING EQUIPMENT AND TECHNIQUES.
- TERRESTRIAL LASER SCANNING DATA COLLECTED MARCH 21-23, 2019. DATA WAS COLLECTED USING A RIEGL VZ400 LASER SCANNER AND PROCESSED USING QINSY 8.1 SOFTWARE AND RIEGL RISCAN PRO SOFTWARE. POSITION AND VESSEL ORIENTATION WERE MEASURED USING AN APPLANIX POSMV WAVEMASTER V5 SYSTEM.
- THIS DRAWING INDICATES GENERAL CONDITIONS AT THE TIME OF THE SURVEY.
- MAP SOUNDINGS ARE BINNED AT 24 FEET AND ARE SHOAL BIASED. CONTOURS ARE BINNED AT 12 FEET AND ARE SHOAL BIASED. VOLUME SOUNDINGS ARE BINNED AT 3 FEET AND ARE MEAN-VALUE.
- PROJECT LIMITS WERE UPDATED IN DECEMBER 2018 BY THE USAGE ALASKA DISTRICT HYDRAULICS AND HYDROLOGY SECTION IN SUPPORT OF DREDGE PROJECT JNU004.

SURVEY CONTROL DATA				
STATION	NORTHING	EASTING	MLLW	DESCRIPTION
945 2210 M	2,362,530.33	2,542,076.08	27.63	3-1/2" NOS DOMED BC
HH-C 1999	2,363,204.25	2,539,899.93	26.78	3-1/4" DOMED BC
HH-D 1999	2,363,491.41	2,538,849.86	26.97	3-1/4" DOMED BC
HH-E USACE	2,362,496.69	2,539,491.35	24.30	3-1/4" DOMED BC
HH-H 2005	2,362,958.59	2,540,005.38	29.24	3" DOMED BC
JA-1 RESET 1989	2,363,834.84	2,538,657.82	24.62	3-1/2" USACE DOMED BC
JH-1 1972	2,362,671.49	2,539,630.95	29.95	4" USACE TRI. DOMED BC
JNU TIDAL GPS	2,362,232.94	2,541,120.78	29.57	3-1/2" NOS DOMED BC

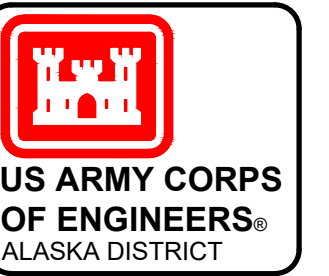
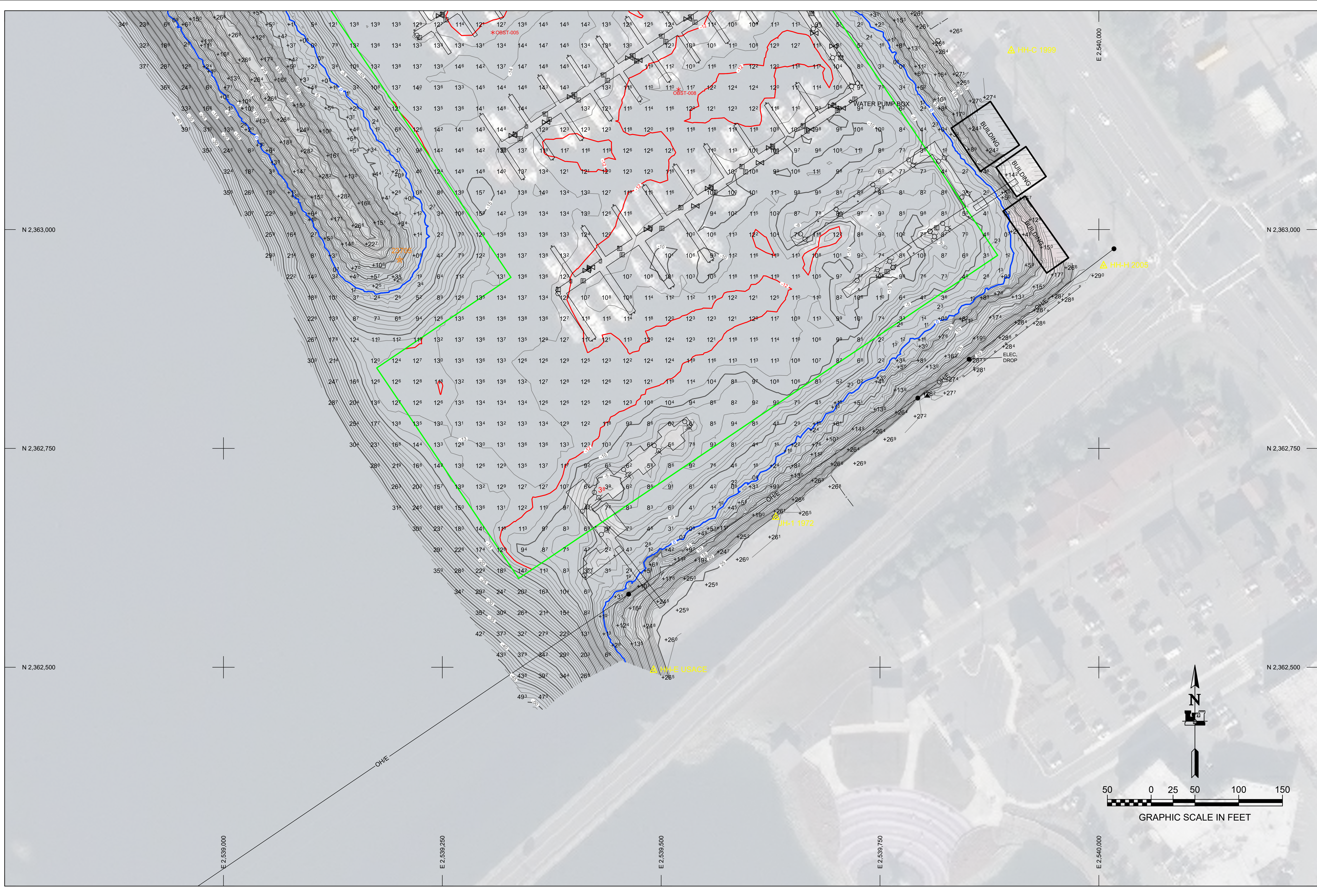


REV.	DATE	BY	APPR.	DESCRIPTION

CONTRACT NO.: 1W61TK-16-D-0014	UIC: 072797	SURVEYED BY: GREGORY W. GIBSON	STATE: ALASKA
TASK ORDER NO.: 1W61TK16FD035	PLOT DATE: 1 May 2019	DRAWN BY: ROBERT GOUGHNOUR	CITY: WASILLA
JOB NO.: 1 = 150	SCALE: 1" = 150'	CHECKED BY: TASHIGGIVG	FILE: 072797_VH02.DWG
ANSI D	SIZE: 11x17	DESIGNED BY: THOMAS SLOAN, CHIEF GEOMATICS SECTION	
CONTRACTOR: LETRAC INC.			

JUNEAU, ALASKA
072797 - HARRIS HARBOR
 PROJECT CONDITION SURVEY
 MARCH 18 - MARCH 24, 2019

REFERENCE NUMBER:
 1-JUN-92-07-19
 SHEET 1 OF 4

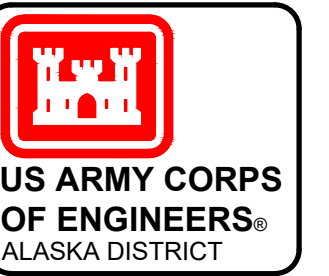
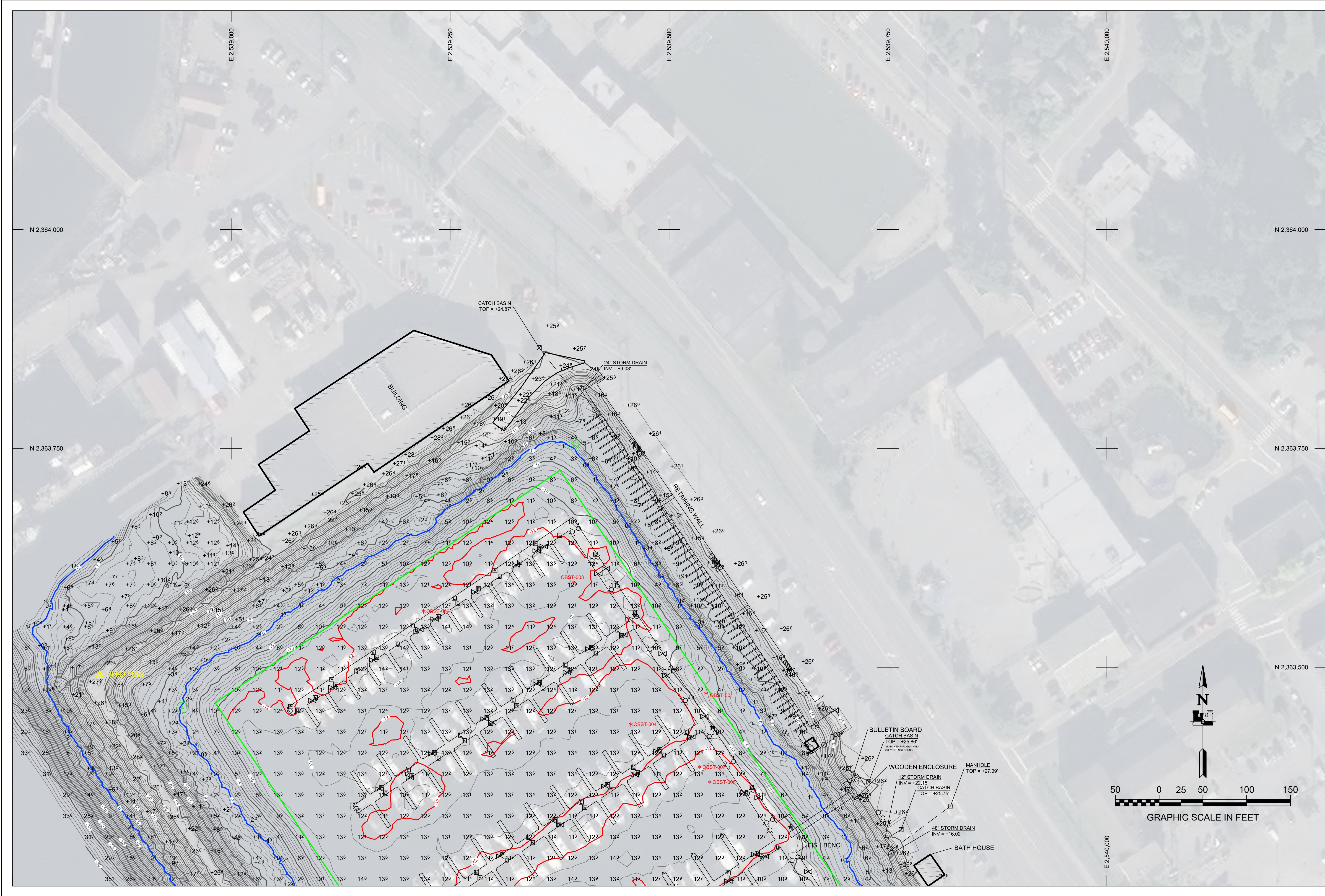


REV.	DATE	BY	APPR.	DESCRIPTION

U.S. ARMY CORPS OF ENGINEERS ALASKA DISTRICT 204 3RD STREET JBER, ALASKA 99506-0888	UPC: 072797	SURVEYED BY: GREGORY W. GIBSON	CONTRACT NO.: 1W81TKB-16D-0014
	PLOT DATE: 11 May 2019	DRAWN BY: ROBERT GOUGHNOUR	TASK ORDER NO.: 1W81TKB19F0035
	CHECKED BY: TASJGGVIG	ANSI D	SCALE: 1" = 50'
	FILE: 072797_VH02.DWG	CONTRACTOR: THOMAS SLOAN, CHIEF GEOMATICS SECTION	CONTRACTOR NAME: THOMAS SLOAN
		CITY: WASILLA	(STATE): ALASKA

JUNEAU, ALASKA
072797 - HARRIS HARBOR
 PROJECT CONDITION SURVEY
 MARCH 18 - MARCH 24, 2019

REFERENCE NUMBER:
1-JUN-92-07-19
 SHEET 2 OF 4

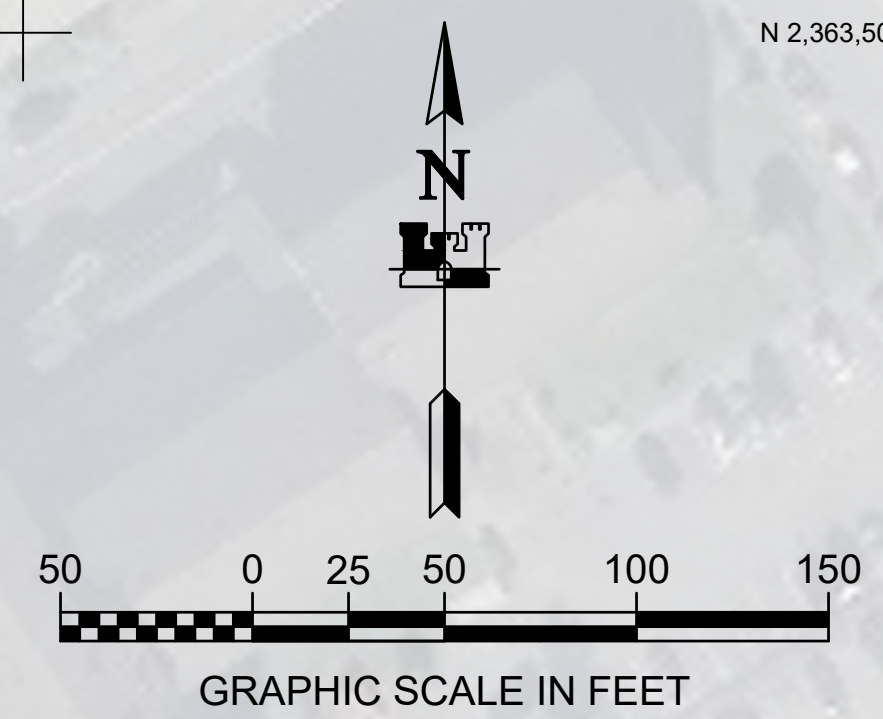


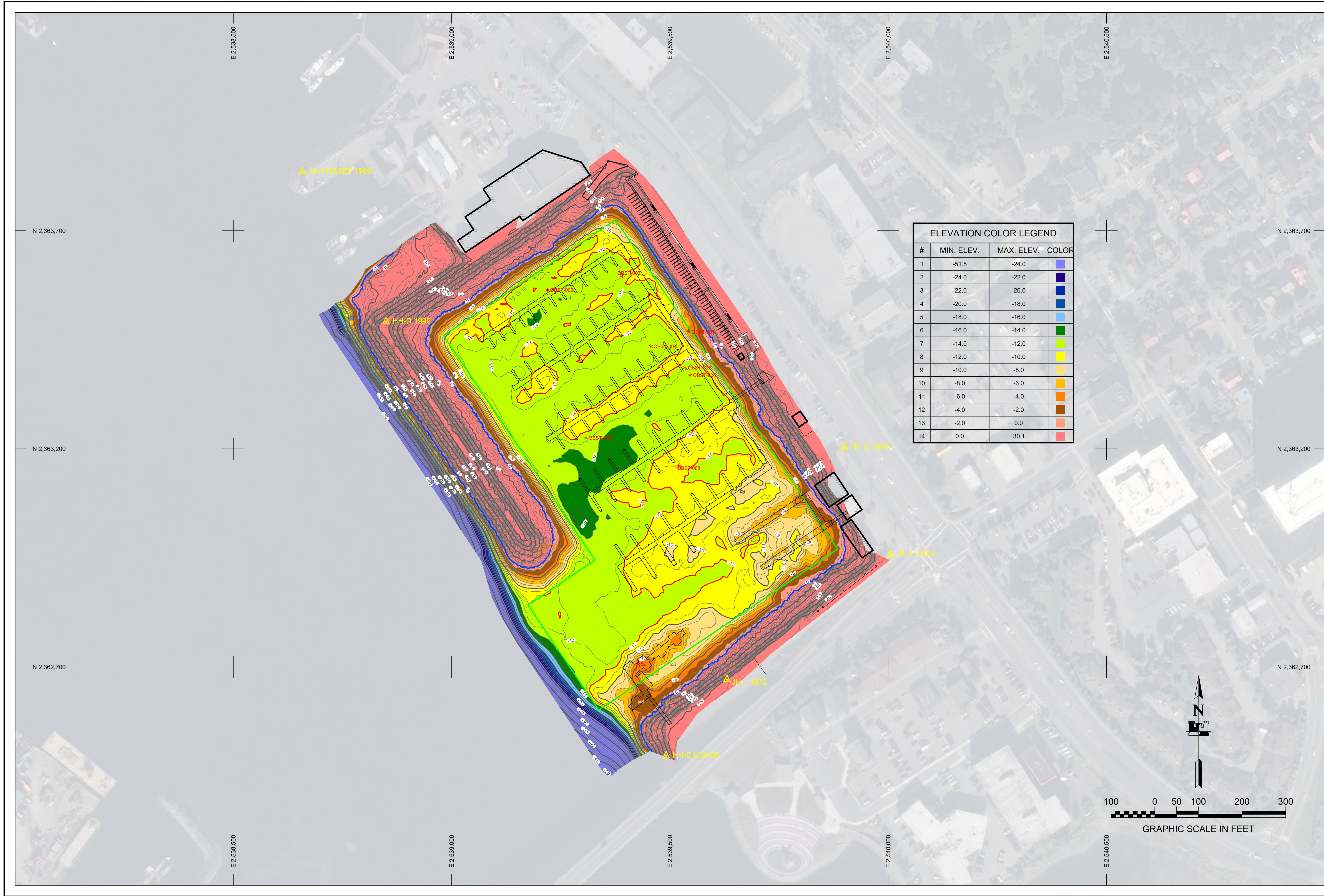
REV.	DATE	BY	APPR.	DESCRIPTION

U.S. ARMY CORPS OF ENGINEERS ALASKA DISTRICT 204 3RD STREET JBER, ALASKA 99506-0888	U.P.C.: 072797	CONTRACT NO.: 1W81TK-16-D-0014	STATE: ALASKA
DRAWN BY: ROBERT GOUGHNOUR	PLOT DATE: 11 May 2019	TASK ORDER NO.: 1W81TK19FD035	CITY: WASILLA
CHECKED BY: TASHIGGIVG	SCALE: 1" = 50'	JOB NO.:	SECTION:
DESIGNED BY: THOMAS SLOAN, CHIEF GEOMATICS SECTION	ANSI D:	CONTRACTOR: ETRAC INC.	FILE: 072797_VH02.DWG

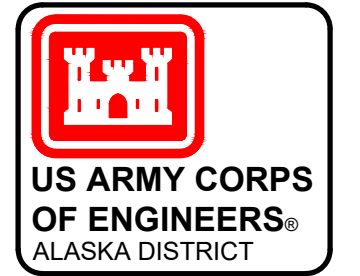
JUNEAU, ALASKA
072797 - HARRIS HARBOR
 PROJECT CONDITION SURVEY
 MARCH 18 - MARCH 24, 2019

REFERENCE NUMBER:
1-JUN-92-07-19
 SHEET 3 OF 4





ELEVATION COLOR LEGEND			
#	MIN. ELEV.	MAX. ELEV.	COLOR
1	-51.5	-24.0	Light Blue
2	-24.0	-22.0	Dark Blue
3	-22.0	-20.0	Blue
4	-20.0	-18.0	Light Blue
5	-18.0	-16.0	Light Green
6	-16.0	-14.0	Green
7	-14.0	-12.0	Light Yellow
8	-12.0	-10.0	Yellow
9	-10.0	-8.0	Light Orange
10	-8.0	-6.0	Orange
11	-6.0	-4.0	Dark Orange
12	-4.0	-2.0	Brown
13	-2.0	0.0	Light Red
14	0.0	30.1	Red



REV.	DATE	BY	APPR.	DESCRIPTION

U.S. ARMY CORPS OF ENGINEERS ALASKA DISTRICT 204 3RD STREET BER, ALASKA 99506-0888	SURVEYED BY: GREGORY W. GIBSON DRAWN BY: ROBERT GOUGHNOUR CHECKED BY: TASHEGGYV THOMAS SLOAN, CHIEF GEOMATICS SECTION	UPC: 072797 PLOT DATE: 1 May 2019 SCALE: 1" = 100'	CONTRACT NO.: 1W81KB-16-D-0014 TASK ORDER NO.: 1W81KB19FD035 JOB NO.: 1 CONTRACTOR: ETRAC INC. CITY: WASILLA STATE: ALASKA
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JUNEAU, ALASKA
072797 - HARRIS HARBOR
 PROJECT CONDITION SURVEY
 MARCH 18 - MARCH 24, 2019

REFERENCE NUMBER:
1-JUN-92-07-19
 SHEET 4 OF 4