

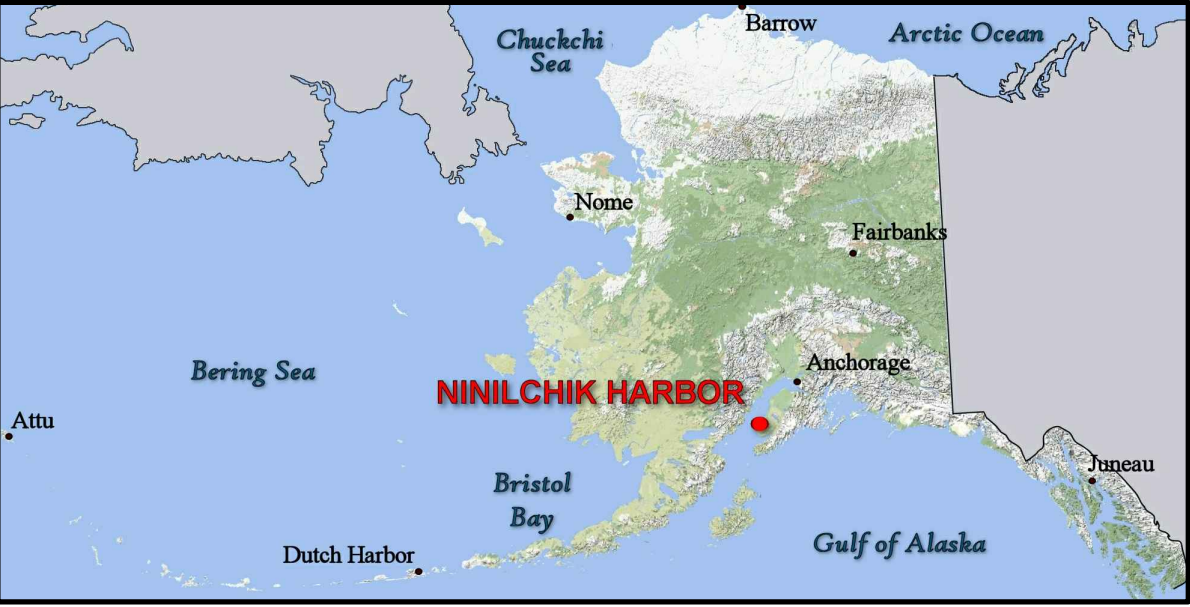


VOLUME COMPUTATIONS		
AREA A: BASIN		MLLW=0 CU. YD.
AVAILABLE TO PROJECT DEPTH (PD)	+3.3	2,979
AVAILABLE TO MAX PAY DEPTH (MP)	+2.0	5,288
AVAILABLE SIDE SLOPES (SS) AT 3:1 (H:V) & 25' WIDE	VARIES	1,079
AREA B: ENTRANCE CHANNEL		
AVAILABLE TO PROJECT DEPTH (PD)	+9.3	873
AVAILABLE TO MAX PAY DEPTH (MP)	+8.3	1,841
AVAILABLE SS AT 3:1 (H:V) & 25' WIDE	VARIES	3,417
TOTAL MAXIMUM VOLUME AVAILABLE (MP)		11,625

NAVIGATION AIDS			
NO.	NORTHING	EASTING	DESCRIPTION
26255	2,215,716	1,336,195	CHANNEL ENTRANCE LIGHT
26260	2,215,624	1,336,257	ROCK SILL NORTH DAYBEACON
26265	2,215,686	1,336,047	ROCK SILL SOUTH DAYBEACON

PROJECT LIMITS		
CORNER#	NORTHING	EASTING
1	2,215,380.30	1,336,164.37
2	2,215,425.79	1,336,111.41
3	2,215,123.35	1,335,851.63
4	2,215,058.05	1,335,927.64
5	2,215,045.59	1,335,954.77
6	2,215,074.98	1,335,968.27
7	2,215,347.60	1,336,202.44

PROJECT LIMITS		
CORNER#	NORTHING	EASTING
8	2,215,404.96	1,336,265.99
9	2,215,588.16	1,336,268.15
10	2,216,017.64	1,335,816.29
11	2,215,980.40	1,335,782.90
12	2,215,551.92	1,336,233.70
13	2,215,442.00	1,336,232.41



NOTES

- PRIMARY PROJECT HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 4, NAD83 (CORS), IN U.S. SURVEY FEET, BASED ON A STATIC GPS NETWORK HOLDING NGS EPOCH 2010.00 CORS L1 PHASE CENTER VALUES FOR "SOLDOTNA AK 2007 CORS ARP" (AC23 - PID DM7484) AND "MCNEIL CANYON ELE CORS ARP" (MCES - PID DP9272).

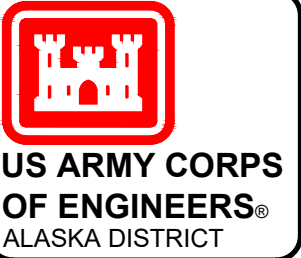
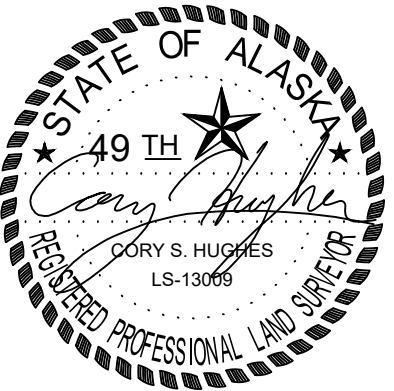
LOCAL PROJECT HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 4, NAD83 (CORS96), IN US SURVEY FEET HOLDING "5653 E" HAVING A VALUE OF N 2,215,591.88 AND E 1,336,145.19.
- VERTICAL CONTROL IS MEAN LOWER LOW WATER (MLLW = 0.0'), BASED ON THE NOAA/NOS TIDAL BENCHMARK LIST: "945 5653, NINILCHIK, COOK INLET, ALASKA" PUBLISHED 04/09/2018. THIS TIDAL DATUM IS BASED ON THE 2012-2016 TIDAL EPOCH AND IS REFERENCED BY HOLDING NOAA/NOS TIDAL BENCHMARK "5653 F 2011" (PID BBCM32/VM#20900) AS 29.50 FT AND NOAA/USACE TIDAL BENCHMARK "5653 E" (VM#14160) AS 30.62 FT.
- VERTICAL TIES TO THE NATIONAL SPATIAL REFERENCE SYSTEM ARE BASED ON PUBLISHED NAVD88 (GEOID12B) ELEVATIONS HOLDING NOAA/NOS TIDAL BENCHMARK "5653 F 2011" (PID BBCM32/VM#20900) AS 23.30 FT.
- SOUNDINGS ARE IN FEET AND ARE MINUS UNLESS OTHERWISE INDICATED.
- BATHYMETRY WAS COLLECTED APRIL 28, 2020. SOUNDINGS WERE COLLECTED USING A CEESCOPE ECHO SOUNDER OPERATING AT 200 KHZ. SOUND VELOCITY THROUGH THE WATER COLUMN WAS DETERMINED WITH AN AML BASE X2 SOUND VELOCITY PROBE POSITION AND TIDES WERE PROVIDED IN REAL TIME USING A TRIMBLE R8 RTK GPS RECEIVER OPERATING ON KINEMATICS CORRECTIONS BROADCAST FROM A TRIMBLE R8 RTK BASE RECEIVER SET AT CONTROL STATION, "5653 E". DATA WAS COLLECTED AND PROCESSED USING HYPACK 2020 SOFTWARE. HORIZONTAL CONTROL WAS SURVEYED USING RTK GNSS EQUIPMENT AND TECHNIQUES. VERTICAL CONTROL WAS SURVEYED USING DIFFERENTIAL LEVELING TECHNIQUES.
- THIS DRAWING INDICATES GENERAL CONDITIONS AT THE TIME OF THE SURVEY.
- MAP SOUNDINGS, CONTOURS, COLOR RELIEF AND VOLUME COMPUTATIONS ARE BASED ON A 10 FOOT SORT.

SURVEY CONTROL DATA				
STATION	NORTHING	EASTING	MLLW	DESCRIPTION
5653 A 1979	2,215,064.14	1,335,753.21	32.03	3-1/2 IN. USACE SBC
5653 D 1979	2,215,008.61	1,335,746.60	29.44	3-1/2 IN. USACE SBC
5653 E	2,215,591.88	1,336,145.18	30.62	BRONZE ROD IN BW ROCK
5653 F	2,214,548.32	1,335,413.80	29.50	SS ROD IN PVC
5653 G	2,214,391.12	1,335,295.80	29.78	SS ROD IN PVC
5653 H 2011	2,213,478.03	1,335,045.36	36.33	3-1/2 IN. USACE SBC

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

Cory S. Hughes

CORY S. HUGHES C.H. (245)



VOLUME CALCULATION		DESCRIPTION	
1	6/30/20	REV.	DATE

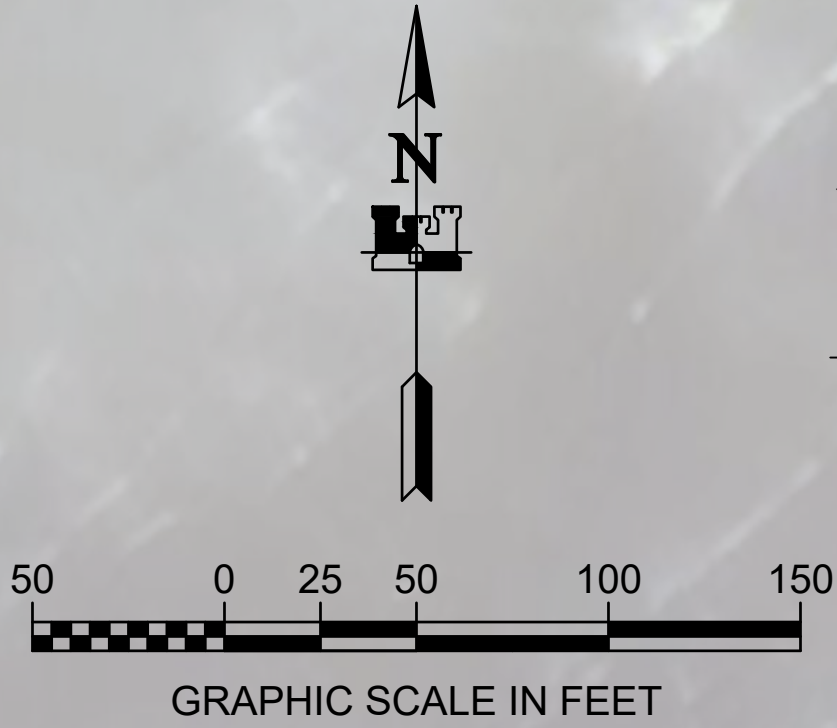
CONTRACT NO.: IW91KB2C0003	TASK ORDER NO.:	JOB NO.:	CONTRACTOR: ANCHOR MARINE EXCAVATION
UPC: HN2022	PLOT DATE: 06/30/2020	SCALE: 1" = 150'	CITY: ANCHORAGE
SURVEYED BY: CSH & DCA	DRAWN BY: DCA	CHECKED BY: CSH	APPROVED BY: THOMAS SLOAN, CHIEF GEOMATICS SECTION
U.S. ARMY CORPS OF ENGINEERS ALASKA DISTRICT 204 3RD STREET BER, ALASKA 99506-9888	HUGHES & ASSOCIATES 204 3RD STREET WASILLA, ALASKA 99654	NINILCHIK PRE DREDGE, 20200428, REV1.DWG	

NINILCHIK, ALASKA
NINILCHIK HARBOR
PRE-DREDGE SURVEY
APRIL 27 - 28, 2020

REFERENCE
NUMBER:
2-NIN-92-07-55

SHEET 1 OF 5

ALIGNMENT DATA (FT)						
NUMBER	LENGTH	LINE/CHORD BEARING	ARC LENGTH	RADIUS	DELTA ANGLE	CHORD LENGTH
L1	491.35	N40° 39' 57"E	-----	-----	-----	-----
C3	-----	N44° 15' 53.00"E	25.13	200.00	7°11'52"	25.11
L2	76.04	N47° 51' 49"E	-----	-----	-----	-----
C4	-----	N00° 42' 17.31"E	164.62	100.00	94°19'04"	146.65
L3	622.68	N46° 27' 15"W	-----	-----	-----	-----



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CERTIFIED HYDROGRAPHER

Cory S. Hughes
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VOLUME CALCULATION		DESCRIPTION	
1	6/30/20	REV.	DATE
		BY	APPR.

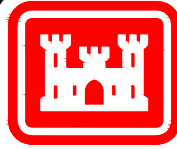
CONTRACT NO.:	IN2022	UPC:	IN2022
TASK ORDER NO.:	06/30/2020	PLOT DATE:	06/30/2020
JOB NO.:	1	CHECKED BY:	DCA
CONTRACTOR:	ANCHOR POINT ALASKA	APPROVED BY:	THOMAS SLOAN, CHIEF GEOMATICS SECTION
CITY:	ANCHOR POINT, ALASKA	SCALE:	1" = 50'
STATE:	ALASKA	SIZE:	ANSI D
ANCHOR POINT ALASKA		REVISION:	20200428 REV: DWG

U.S. ARMY CORPS OF ENGINEERS ALASKA DISTRICT 204 3RD STREET BER, ALASKA 99506-9888	SURVEYED BY: CSH & DCA	INILCHIK ALASKA PRE-DREDGE SURVEY APRIL 27 - 28, 2020
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REFERENCE NUMBER: 2-NIN-92-07-55
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DREDGE LIMITS CURVE DATA (FT)					
CURVE	RADIUS	ARC LENGTH	DELTA ANGLE	CHORD BEARING	CHORD LENGTH
C1	75.00	123.38	94°15'21"	N00°40'26"E	109.93
C2	125.02	202.40	92°45'31"	N00°04'18"W	181.01



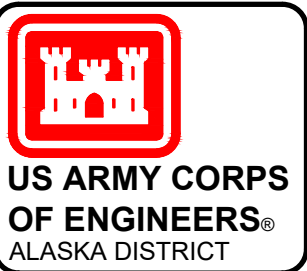
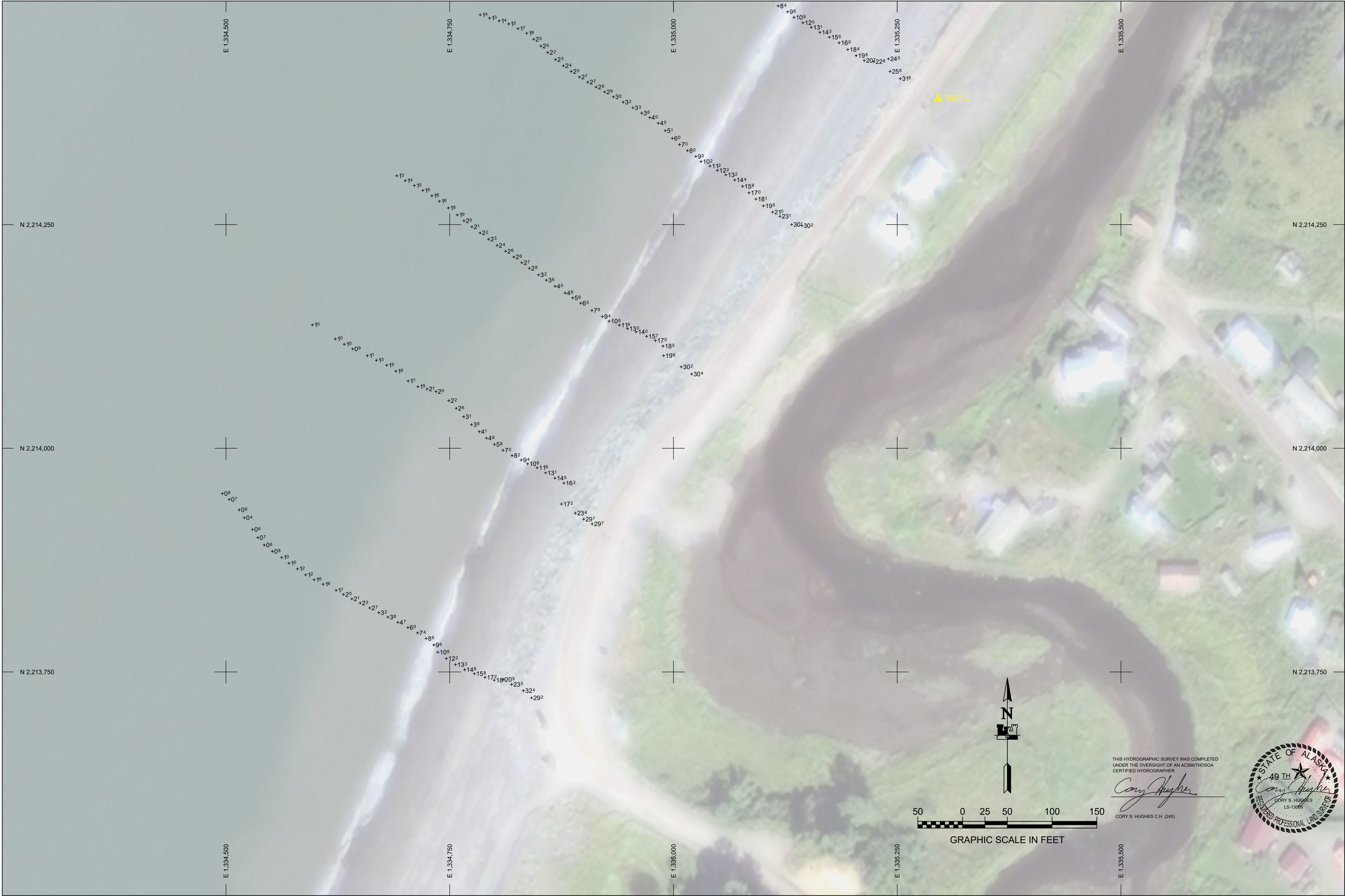
US ARMY CORPS
OF ENGINEERS®
ALASKA DISTRICT

VOLUME CALCULATION		DESCRIPTION	
1	6/30/20	REV.	DATE
		BY	APPR.

CONTRACT NO.: W911K92C0003		JOB NO.:		CONTRACTOR: ANCHOR MARINE EXCAVATION	
PLOT DATE: 06/30/2020		SCALE: 1" = 50'		CITY: ANCHORAGE, ALASKA	
DRAWN BY: DCA		CHECKED BY: CSH		APPROVED BY: THOMAS SLOAN, CHIEF GEOMATICS SECTION	
SURVEYED BY: CSH & DCA		PLOT DATE: 06/30/2020		INILCHIK PRE DREDGE, 20200428, REV. DWG	

NINILCHIK, ALASKA
NINILCHIK HARBOR
PRE-DREDGE SURVEY
APRIL 27 - 28, 2020

REFERENCE
NUMBER:
2-NIN-92-07-55
SHEET 3 OF 5



VOLUME CALCULATION		DESCRIPTION	
1	6/30/20	REV.	DATE
		BY	APPR.

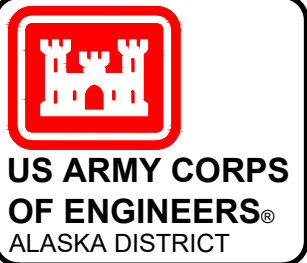
	SURVEYED BY: CSH & DCA		UPC: HN2022	CONTRACT NO.: W911KB20C0003
	DRAWN BY: DCA		PLOT DATE: 06/30/2020	TASK ORDER NO.:
	CHECKED BY: CSH		SIZE: ANSI D	JOB NO.:
	APPROVED BY: THOMAS SLOAN, CHIEF GEOMATICS SECTION		SCALE: 1" = 50'	CONTRACTOR: ALASKA MARINE EXCAVATION
HUGHES & ASSOCIATES 2014 3RD STREET WASILLA, ALASKA 99654		CITY: ANCHOR POINT, ALASKA		

NINILCHIK, ALASKA
NINILCHIK HARBOR
PRE-DREDGE SURVEY
APRIL 27 - 28, 2020

REFERENCE
NUMBER:
2-NIN-92-07-55
SHEET 4 OF 5



ELEVATION COLOR LEGEND			
#	MIN. ELEV.	MAX. ELEV.	COLOR
1	-4.0	-3.0	
2	-3.0	-2.0	
3	-2.0	-1.0	
4	-1.0	0.0	
5	0.0	1.0	
6	1.0	2.0	
7	2.0	3.0	
8	3.0	4.0	
9	4.0	5.0	
10	5.0	6.0	
11	6.0	7.0	
12	7.0	8.0	
13	8.0	9.0	
14	9.0	10.0	
15	10.0	11.0	
16	11.0	30.0	



VOLUME CALCULATION		DESCRIPTION	
1	6/30/20	REV.	DATE
		BY	APPR.

 U.S. ARMY CORPS OF ENGINEERS ALASKA DISTRICT 2014 3RD STREET BER, ALASKA 99506-0888	SURVEYED BY: CSH & DCA	UPC: HN2022	CONTRACT NO.: W911KB20C0003
	DRAWN BY: DCA	PLOT DATE: 06/30/2020	TASK ORDER NO.:
	CHECKED BY: CSH	SIZE: ANSI D	JOB NO.:
	APPROVED BY: THOMAS SLOAN, CHIEF GEOMATICS SECTION NINILCHIK PRE DREDGE, 20200428_REV1.DWG	SCALE: 1" = 150'	CONTRACTOR: HUGHES & ASSOCIATES WASILLA, ALASKA 99654

NINILCHIK, ALASKA

NINILCHIK HARBOR

PRE-DREDGE SURVEY

APRIL 27 - 28, 2020