

SHEET V-102

SHEET V-102

**US Army Corps of Engineers**  
ALASKA DISTRICT

CONTRACT NO. W716HE-0006  
CONTRACTOR: MANSON CONSTRUCTION CO.  
CITY: SEATTLE  
STATE: WASHINGTON

DATE: 07/11/18  
BY: JACOB

DESCRIPTION: 2018-2020 MAINTENANCE DREDGING, PORT OF ALASKA  
HYDROGRAPHIC SURVEY  
PRE\_20180430\_POA

CHECKED BY: J. HANSEN  
DRAWN BY: J. HANSEN  
SCALE: 1" = 100'

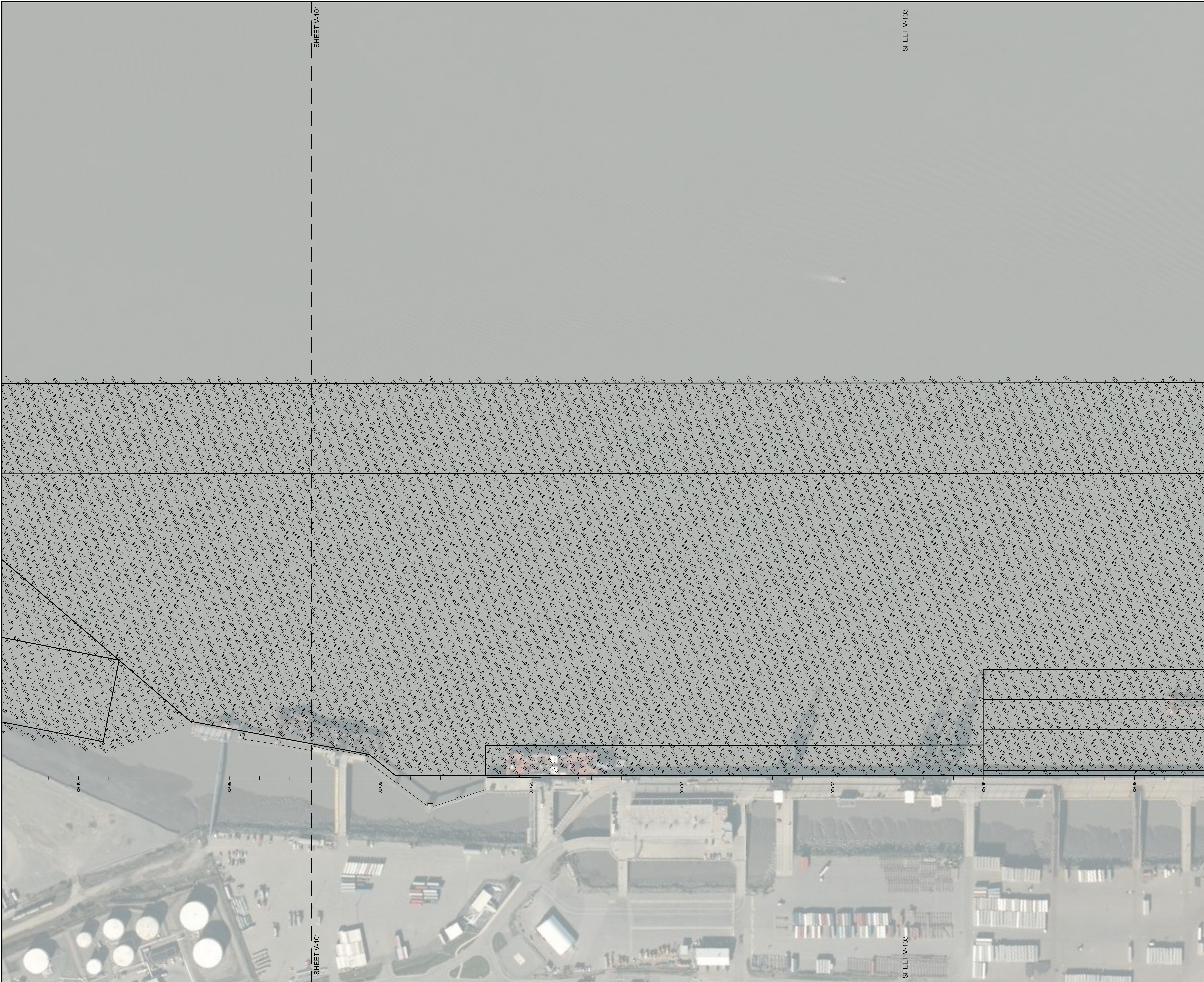
FILE NAME: 20180430\_POA\_P01.DWG

U.S. ARMY CORPS OF ENGINEERS  
ALASKA DISTRICT  
JBER, ALASKA 99506-9998

ANCHORAGE, ALASKA  
2018-2020 MAINTENANCE DREDGING, PORT OF ALASKA  
HYDROGRAPHIC SURVEY  
PRE\_20180430\_POA

SHEET IDENTIFICATION  
V-101  
Sheet 1 of 5





SHEET V-101

SHEET V-103

SHEET V-101

SHEET V-103

US Army Corps of Engineers  
of Engineers  
ALASKA DISTRICT

CONTRACT NO. W19H0000000000  
CONTINGENCY MAINTENANCE DREDGING, PORT OF ANCHORAGE, ALASKA  
CITY/STATE WASHINGTON, DC  
DRAWN BY: JEBER, ALASKA 8500-0888  
CHECKED BY: JEBER, ALASKA 8500-0888  
DATE: 11/11/2018

PROJECT: 2018-2020 MAINTENANCE DREDGING, PORT OF ANCHORAGE, ALASKA  
SHEET NO.: 101

SCALE: 1" = 100'

FILE NAME: PORT\_OF\_ANCHORAGE\_2018\_0888\_101.dwg

DATE: 11/11/2018

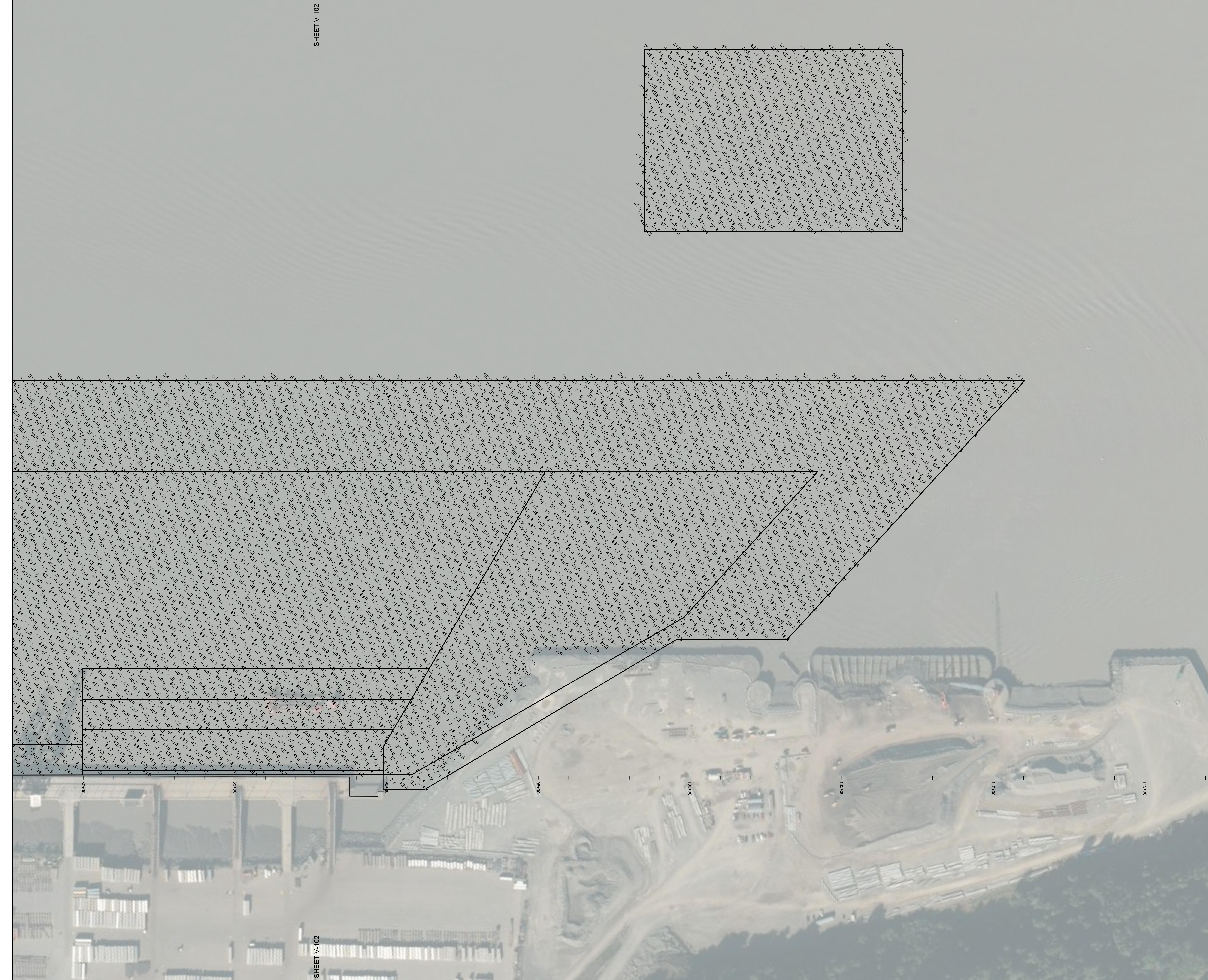
BY: JEBER

DESCRIPTION: HYDROGRAPHIC SURVEY

ANCHORAGE, ALASKA  
2018-2020 MAINTENANCE DREDGING, PORT OF ANCHORAGE, ALASKA  
HYDROGRAPHIC SURVEY  
PRE\_20180430\_POA

SHEET IDENTIFICATION  
V-102  
Sheet 2 of 5





SHEET V-102

SHEET V-102

CONTRACT NO.	W19H018C0000
CONTRACTING ORGANIZATION	MANCONSTRUCTION CO.
CITY	SEATTLE
STATE	WASHINGTON
DATE	
BY	
DESCRIPTION	

DRAWN BY	DATE	CHECKED BY	DATE	IN CHARGE	DATE
AWAY/PROP		JANSEN			
FILE NAME	FILE NUMBER	SCALE			
PORTAL DRAFT		AS SHOWN			

U.S. ARMY CORPS OF ENGINEERS ALASKA DISTRICT JBER, ALASKA 99506-0000
ANCHORAGE, ALASKA 2018-2020 MAINTENANCE DREDGING, PORT OF ALASKA HYDROGRAPHIC SURVEY PRE_20180430_POA

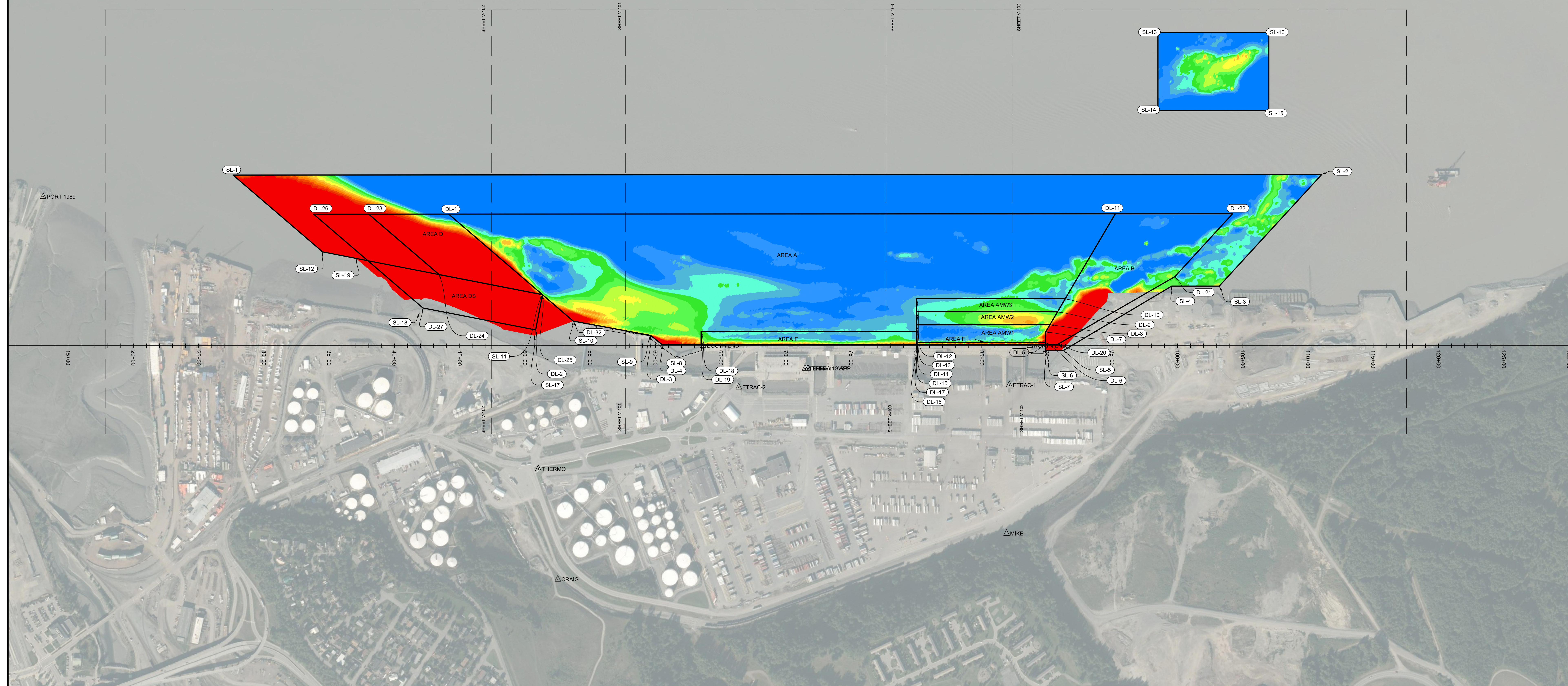
SHEET IDENTIFICATION  
V-103  
Sheet 3 of 5



NOTES

1. PRIMARY HORIZONTAL CONTROL IS ALASKA STATE PLANE, NAD 83 (2011) EPOCH 2010.00, ZONE 4. IN U.S. SURVEY FEET DERIVED FROM STATIC GPS MEASUREMENTS ORIGINATING FROM AND HOLDING NGS STATIONS "VAN DUSEN" (PID T14676), "LOOP2 RMS" (PID LV4446), AND NGS CORS STATIONS "ANC2" (PID DL6498), "TBN" (PID DK4055), "TSEA" (PID AI0952), "ZAN1" (PID DE9153).
2. LOCAL HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 4, NAD83. US SURVEY FEET. HOLDING USACE SBC "N END 1978" AS N 2,646,649.84', E 1,660,584.80' AND USACE SBC "S END 1978" AS N 2,644,296.27', E 1,659,728.03'.
3. VERTICAL CONTROL: ELEVATIONS ARE MEAN LOWER LOW WATER (MLLW) BASED ON THE 1983-2001 TIDAL EPOCH EXPRESSED IN US FEET. THE BASIS OF ELEVATIONS IS NOAA NOS TIDE STATION 9455920 "ANCHORAGE, KNIK ARM, COOK INLET, ALASKA" PUBLISHED 10/24/2011 HOLDING "NO 15 RESET 1966" (VM# 1332) AS 37.14'.
4. VERTICAL TIES TO THE NATIONAL SPATIAL REFERENCE SYSTEM ARE BASED ON PUBLISHED NAVD83 (GEOID 12B) ELEVATIONS HOLDING NOAA/USACE TIDAL BENCHMARK "9455920 TIDAL 16" (PID TT0713 VM# 1335) AS 29.79'.
5. SOUNDINGS ARE IN FEET AND ARE MINUS UNLESS OTHERWISE INDICATED.
6. BATHYMETRY WAS COLLECTED APRIL 30, 2018. SOUNDINGS WERE COLLECTED USING AN RESONIC 2024 MULTIBEAM ECHOSOUNDER OPERATING AT 200 KHZ. SURFACE SOUND VELOCITY WAS MEASURED USING A VALEPORT SV-PLUS MOUNTED TO THE SONAR HEAD. 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 SPSS5 GNSS RECEIVER SET AT CONTROL STATION "TERRA 11", LOCATED ATOP THE PORT OFFICE BUILDING. SURVEY DATA WAS COLLECTED USING QINSY 8.1 SOFTWARE AND PROCESSED USING QIMERA 1.5 SOFTWARE.
7. HORIZONTAL AND VERTICAL CONTROL SURVEY WAS PERFORMED BY USACE IN 2013 AND VERIFIED BY ETRAC INC IN APRIL, 2018 AS PART OF THE PREDREDGE SURVEY.
8. THIS DRAWING INDICATES GENERAL CONDITIONS AT THE TIME OF THE SURVEY.
9. MAP SOUNDINGS ARE BINNED AT 30 FEET (SHOAL-BIASED) AND COLOR ELEVATIONS ARE BINNED AT 12 FEET AND ARE SHOAL-BIASED.

SOUNDING ELEVATIONS TABLE			
#	MIN. ELEV.	MAX. ELEV.	COLOR
1	-100.0	-43.0	Blue
2	-43.0	-42.0	Light Blue
3	-42.0	-41.0	Light Green
4	-41.0	-40.0	Green
5	-40.0	-39.0	Light Green
6	-39.0	-38.0	Yellow-Green
7	-38.0	-37.0	Yellow
8	-37.0	-36.0	Light Yellow
9	-36.0	-35.0	Orange
10	-35.0	-34.0	Light Orange
11	-34.0	-33.0	Red-Orange
12	-33.0	-32.0	Red
13	-32.0	-31.0	Dark Red
14	-31.0	20.0	Red



**U.S. Army Corps of Engineers**  
ALASKA DISTRICT

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CONTRACT NO. W19HLE-C-0008  
 CONTINGENT MANAGER/CONSTRUCTION CO.  
 CITY/STATE/ZIP  
 STATE WASHINGTON  
 APPROVED: [Signature] DATE: [Date]  
 RECOMMENDED: [Signature] DATE: [Date]

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PREPARED BY: [Name]  
 CHECKED BY: [Name]  
 DRAWN BY: [Name]  
 DATE: [Date]  
 FILE NAME: [Name]  
 SIZE: [Name]  
 SCALE: [Name]

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U.S. ARMY CORPS OF ENGINEERS  
 ALASKA DISTRICT  
 JBER, ALASKA 99506-0888

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**ANCHORAGE, ALASKA**  
**2018-2020 MAINTENANCE DREDGING, PORT OF ALASKA**  
**HYDROGRAPHIC SURVEY**  
**PRE\_20180430\_POA**

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**SHEET IDENTIFICATION**  
**V-104**  
 Sheet 4 of 5



**DREDGE LIMITS-AREA A**

CORNER#	NORTHING	EASTING
DL-1	2,642,807.88	1,658,113.58
DL-3	2,643,944.48	1,659,516.63
DL-4	2,644,001.92	1,659,611.67
DL-10	2,647,025.64	1,660,339.01
DL-11	2,647,608.45	1,659,858.72
DL-12	2,645,952.60	1,659,948.39
DL-15	2,645,866.95	1,660,183.26
DL-18	2,644,317.98	1,659,620.16
DL-19	2,644,283.82	1,659,714.15
DL-32	2,643,424.51	1,659,210.27

**DREDGE LIMITS-AREA Amw1**

CORNER#	NORTHING	EASTING
DL-6	2,646,768.74	1,660,601.52
DL-7	2,646,798.05	1,660,526.57
DL-8	2,646,846.91	1,660,486.30
DL-14	2,645,884.06	1,660,136.28
DL-16	2,645,837.86	1,660,263.13

**DREDGE LIMITS-AREA Amw2**

CORNER#	NORTHING	EASTING
DL-8	2,646,846.91	1,660,486.30
DL-9	2,646,936.07	1,660,412.82
DL-13	2,645,918.33	1,660,042.33
DL-14	2,645,884.06	1,660,136.28

**DREDGE LIMITS-AREA Amw3**

CORNER#	NORTHING	EASTING
DL-9	2,646,936.07	1,660,412.82
DL-10	2,647,025.64	1,660,339.01
DL-12	2,645,952.60	1,659,948.39
DL-13	2,645,918.33	1,660,042.33

**DREDGE LIMITS-AREA E**

CORNER#	NORTHING	EASTING
DL-15	2,645,866.95	1,660,183.26
DL-17	2,645,832.73	1,660,277.22
DL-18	2,644,317.98	1,659,620.16
DL-19	2,644,283.82	1,659,714.15

**DREDGE LIMITS-AREA F**

CORNER#	NORTHING	EASTING
DL-5	2,646,763.28	1,660,615.50
DL-6	2,646,768.74	1,660,601.52
DL-16	2,645,837.86	1,660,263.13
DL-17	2,645,832.73	1,660,277.22

**DREDGE LIMITS-AREA B**

CORNER#	NORTHING	EASTING
DL-5	2,646,763.28	1,660,615.50
DL-7	2,646,798.05	1,660,526.57
DL-11	2,647,608.45	1,659,858.72
DL-20	2,646,850.77	1,660,647.34
DL-21	2,647,872.49	1,660,467.17
DL-22	2,648,452.82	1,660,165.67

**DREDGE LIMITS-AREA D**

CORNER#	NORTHING	EASTING
DL-1	2,642,807.88	1,658,113.58
DL-23	2,642,232.23	1,657,904.31
DL-24	2,642,580.52	1,658,523.75
DL-25	2,643,272.23	1,658,939.43

**DREDGE LIMITS-AREA DS**

CORNER#	NORTHING	EASTING
DL-2	2,643,130.57	1,659,175.14
DL-23	2,642,232.23	1,657,904.31
DL-24	2,642,580.52	1,658,523.75
DL-25	2,643,272.23	1,658,939.43
DL-26	2,641,835.69	1,657,760.16
DL-27	2,642,376.49	1,658,721.97

**ANCHORAGE HARBOR DISPOSAL SITE**

CORNER#	NORTHING	EASTING
DS-1	2,648,165.97	1,657,951.12
DS-2	2,648,842.59	1,656,063.65
DS-3	2,642,300.35	1,653,681.79
DS-4	2,641,635.87	1,655,567.00

**ANCHORAGE HARBOR SURVEY LIMITS**

CORNER#	NORTHING	EASTING
SL-1	2,641,357.75	1,657,267.21
SL-2	2,649,197.14	1,660,117.04
SL-3	2,648,167.33	1,660,652.06
SL-4	2,647,824.67	1,660,527.25
SL-5	2,646,872.99	1,660,708.20
SL-6	2,646,746.32	1,660,662.07
SL-7	2,646,763.28	1,660,615.50
SL-8	2,644,001.92	1,659,611.67
SL-9	2,643,944.48	1,659,516.63
SL-10	2,643,424.51	1,659,210.27
SL-11	2,643,272.22	1,658,939.43
SL-12	2,641,800.81	1,658,055.18

**ANCHORAGE TRANSITIONAL SURVEY LIMITS**

CORNER#	NORTHING	EASTING
SL-10	2,643,424.51	1,659,210.27
SL-11	2,643,272.22	1,658,939.43
SL-17	2,643,107.91	1,659,212.64
SL-18	2,642,339.74	1,658,748.44
SL-19	2,642,026.06	1,658,190.55

**ANCHORAGE SHOAL SURVEY LIMITS**

CORNER#	NORTHING	EASTING
SL-13	2,648,330.45	1,658,639.85
SL-14	2,648,120.96	1,659,197.08
SL-15	2,649,029.74	1,659,555.17
SL-16	2,649,250.34	1,658,875.35

**SOUNDING ELEVATIONS TABLE**

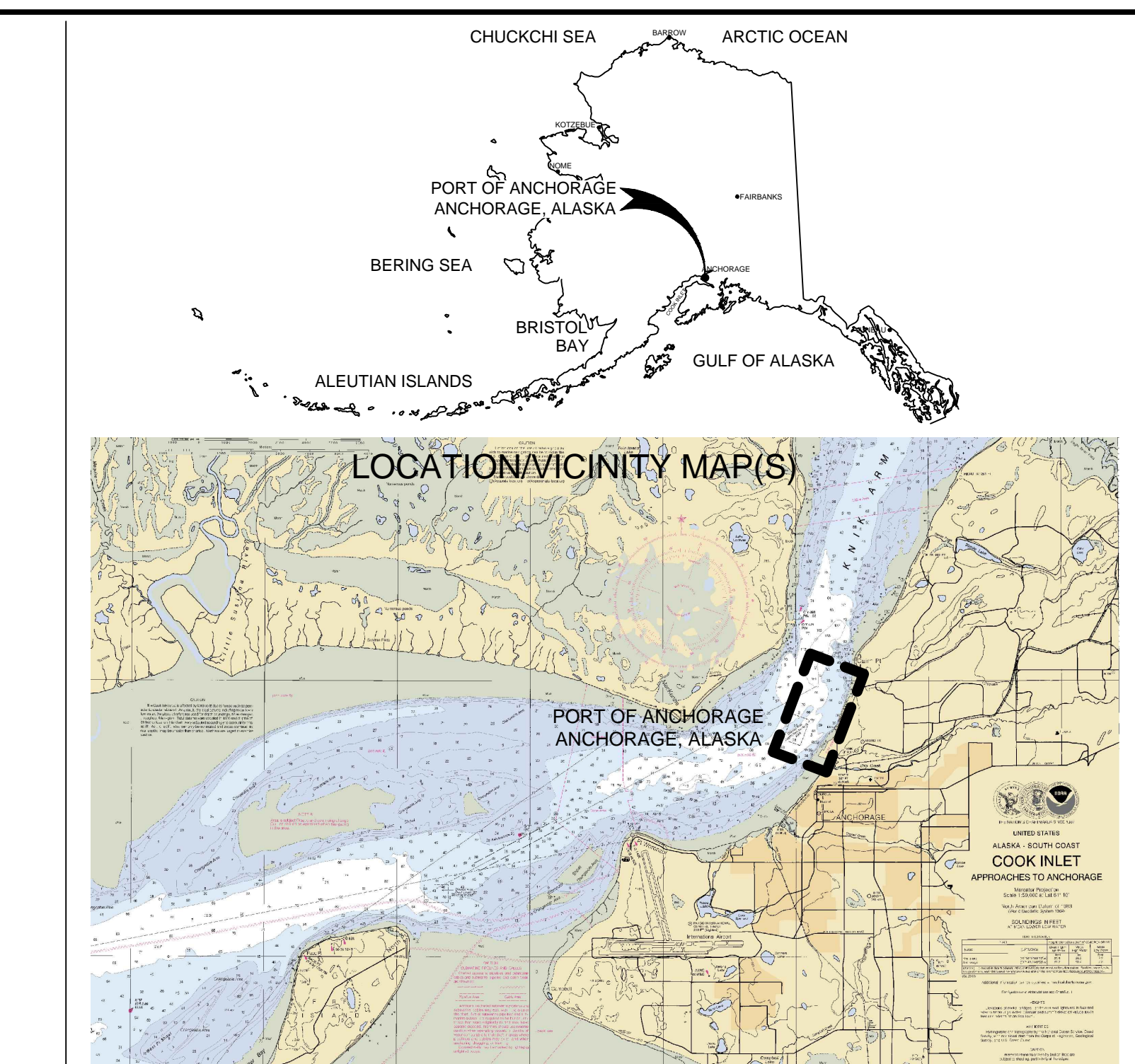
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7	-38.0	-37.0	Green
8	-37.0	-36.0	Yellow
9	-36.0	-35.0	Yellow
10	-35.0	-34.0	Orange
11	-34.0	-33.0	Orange
12	-33.0	-32.0	Orange
13	-32.0	-31.0	Red
14	-31.0	20.0	Red

**SURVEY CONTROL DATA**

STATION	NORTHING	EASTING	ELLIP. HT. (FT)	MLLW	DESCRIPTION
BM 12 1974	2,620,563.82	1,604,566.35	33.52	27.63	BRASS CAP
BM 5934 F	2,655,203.73	1,655,049.51	46.51	36.48	BRASS CAP
CRAIG	2,642,635.95	1,661,029.47	55.54	44.73	BRASS CAP
ETRAC-1	2,646,395.57	1,660,814.72	48.96	38.22	BRASS CAP
ETRAC-2	2,644,443.04	1,660,120.66	47.00	36.31	BRASS CAP
MIKE	2,645,987.73	1,661,875.48	59.23	48.38	BRASS CAP
NORTH END	2,646,649.84	1,660,584.80	52.22	41.51	BRASS CAP
PORT 1989	2,639,934.29	1,656,925.43	50.08	39.64	ALMON
PORT MAC	2,655,563.46	1,654,968.22	51.52	41.51	BRASS CAP
RIFE 1960	2,620,502.19	1,604,162.70	35.85	29.99	BRASS CAP
SOUTH END	2,644,296.27	1,659,728.03	51.22	40.57	BRASS CAP
TERRA 11 ARP	2,644,969.84	1,660,159.24	91.07	80.48	ARP
TERRA 12 ARP	2,644,990.65	1,660,166.56	91.90	81.21	ARP
THERMO	2,642,784.70	1,660,183.87	48.1	37.3	ALMON (DISTURBED)

**NAVIGATION AIDS**

USCG NO.	NORTHING	EASTING	DESCRIPTION
26410	2,620,482.01	1,605,132.29	FIRE ISLAND RANGE FRONT LIGHT
26415	2,619,767.91	1,603,779.36	FIRE ISLAND RANGE REAR LIGHT
26420	2,631,850.53	1,624,593.18	KNIK ARM SHOAL LIGHTED BUOY 7
26435	2,631,161.57	1,636,356.21	POINT WORONZOF RANGE FRONT LIGHT
26440	2,631,320.13	1,637,173.61	POINT WORONZOF RANGE REAR LIGHT



**NOTES**

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- BATHYMETRY WAS COLLECTED APRIL 30, 2018. SOUNDINGS WERE COLLECTED USING AN RESONIC 2024 MULTIBEAM ECHOSOUNDER OPERATING AT 200 KHZ. SURFACE SOUND VELOCITY WAS MEASURED USING A VALEPORT SV PLUS MOUNTED TO THE SONAR HEAD. 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 SP585 GNSS RECEIVER SET AT CONTROL STATION "TERRA 11", LOCATED ATOP THE PORT OFFICE BUILDING. SURVEY DATA WAS COLLECTED USING QINSY 8.1 SOFTWARE AND PROCESSED USING QIMERA 1.5 SOFTWARE.
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- MAP SOUNDINGS ARE BINNED AT 30 FEET (SHOAL-BIASED) AND COLOR ELEVATIONS ARE BINNED AT 12 FEET AND ARE SHOAL-BIASED.



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

**US Army Corps of Engineers - ALASKA DISTRICT**

CONTRACT NO. W19HLEK0004  
 CONTRACTOR: MANDATORY CONSTRUCTION CO.  
 CITY: SEATTLE STATE: WASHINGTON  
 DATE: 10/2018  
 DRAWN BY: J. ANDERSON  
 CHECKED BY: J. ANDERSON  
 FILE NAME: PRE\_20180430\_POA\_PNL.DWG  
 SIZE: 1"=100'  
 SHEET NO.: 5 OF 5

**ANCHORAGE, ALASKA**  
**2018-2020 MAINTENANCE DREDGING, PORT OF ALASKA**  
**HYDROGRAPHIC SURVEY**  
**PRE\_20180430\_POA**

SHEET IDENTIFICATION  
 V-105  
 Sheet 5 of 5