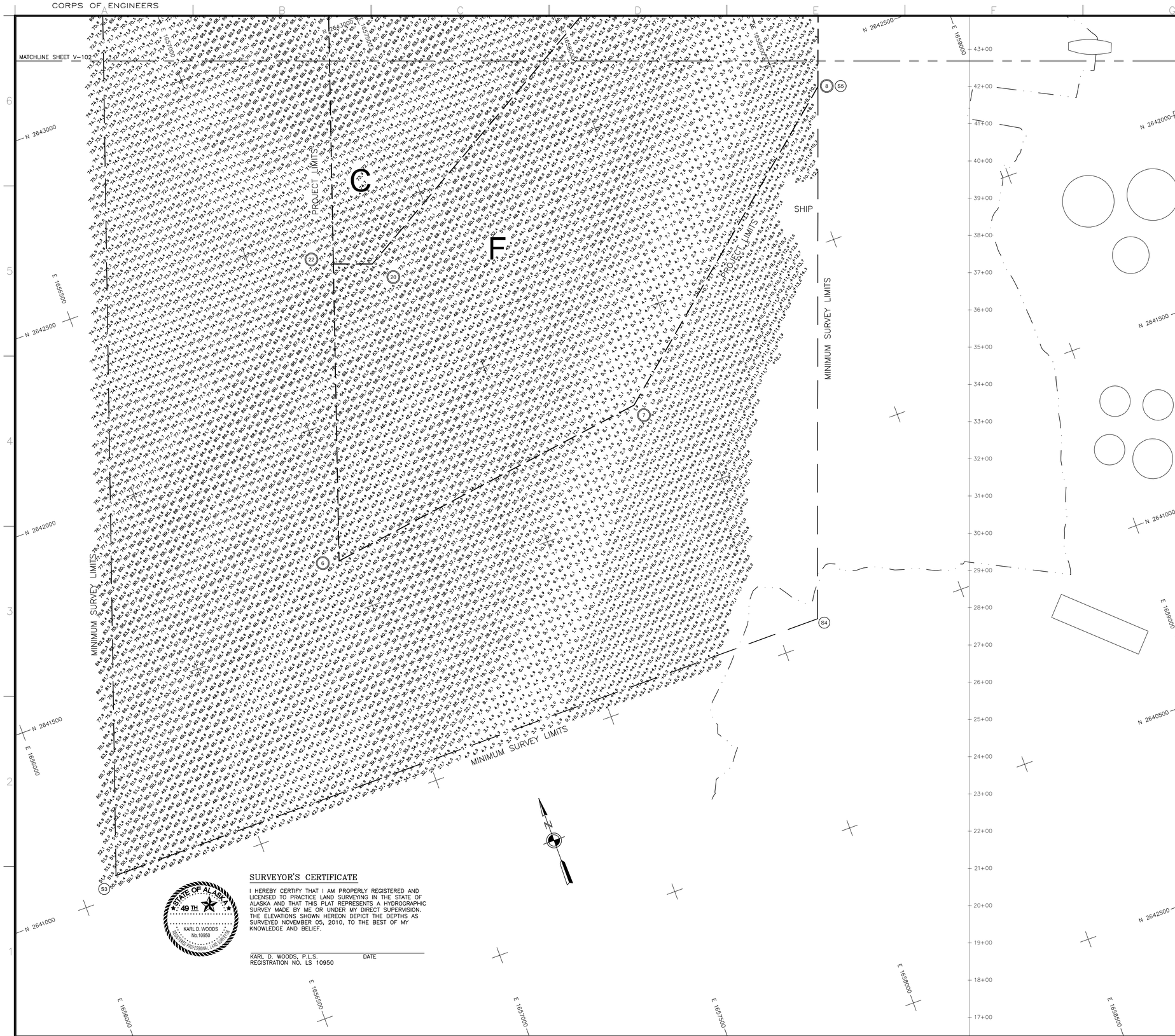
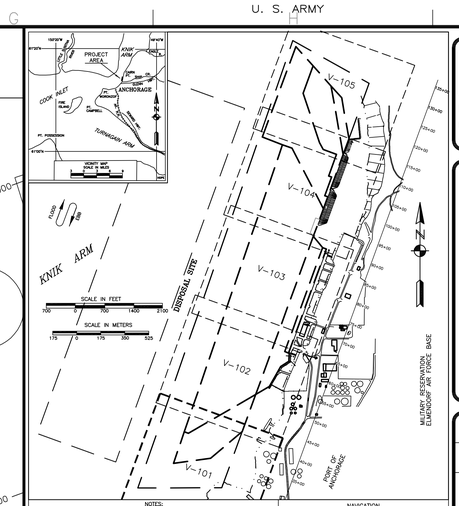
CORPS OF ENGINEERS

U. S. ARMY





NOTES:

1. THIS LOCALITY IS SHOWN ON USC & GS CHARTS NO. 16664, 16660, 16013 AND 500.
2. DEPTHS ARE IN FEET REFERENCED TO MEAN LOWER LOW WATER (MLLW=0.0').

NAVIGATION

ANCHORAGE HARBOR ALASKA

REVISED 2009

NOTES

1. HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 4, NAD 83, IN US SURVEY FEET, HOLDING USACE SBC "N END 1978" AS N 2,646,652.19', E 1,660,582.43' AND USACE SBC "S END 1978" AS N 2,644,298.25', E 1,659,725.47'.
2. VERTICAL CONTROL IS IN FEET, REFERRING TO MEAN LOWER LOW WATER (MLLW=0.0), BASED ON NOAA/NOS 1983–2001 TIDAL EPOCH BENCH MARK LIST, "9455920 ANCHORAGE, KNIK ARM, COOK INLET, ALASKA" PUBLISHED 4/21/2003, HOLDING USCGS SBC "TIDAL 16 1966" AS 40.53', USCGS SBC "B 75 1964" AS 36.82'.
3. THIS SURVEY WAS PERFORMED BY TERRASOND, LTD. ON NOVEMBER 05, 2010. SOUNDINGS WERE COLLECTED USING A RESON SEABAT 7101 MULTIBEAM ECHOSOUNDER WITH A 240kHz, 150–DEGREE SWATH–WIDTH TRANSDUCER (511 BEAMS). BEAM STEERING WAS ACCOMPLISHED USING AN APPLIED MICROSYSTEMS LABORATORIES (AML) SMART–PROBE, SOUND VELOCITY PROFILER LOCATED AT THE SONAR HEAD. SOUND VELOCITY THROUGH THE WATER COLUMN WAS MEASURED AND APPLIED USING AN ODOM DIGI–BAR PRO SOUND VELOCITY PROFILER DEPLOYED DURING THE SURVEY. VESSEL ATTITUDE, HEADING, POSITIONING AND REAL–TIME TIDES WERE PROVIDED USING A CODA OCTOPUS F185 INERTIAL MOTION UNIT OPERATING ON KINEMATIC GPS CORRECTIONS BROADCAST FROM A TRIMBLE NET–RS GPS RECEIVER SET AT CONTROL STATION, "TERRA–1O 2008", LOCATED ATOP THE PORT OFFICE BUILDING. REAL–TIME–KINEMATIC HEIGHT VALUES WERE CALIBRATED TO DIRECT MANUAL TIDE OBSERVATIONS HOLDING USCGS SBC "TIDAL 16 1966", LOCATED AT NOAA/NOS TIDE STATION "9455920" AT THE PORT OF ANCHORAGE. SURVEY NAVIGATION AND DATA COLLECTION WERE PERFORMED USING HYPACK "HYSWEEP 2010" INTEGRATED SOFTWARE (V2010). DATA PROCESSING WAS PERFORMED USING CARIS HIPS SOFTWARE (V7.0).
4. SOUNDINGS ARE IN FEET AND ARE MINUS UNLESS OTHERWISE INDICATED.
5. THIS SURVEY IS INDICATIVE OF GENERAL CONDITIONS ON THE DATES OF SURVEY.
6. THERE WERE NO NEW MONUMENTS ESTABLISHED DURING THIS SURVEY.
7. SEE SHEET 6 OF 6 FOR VOLUME COMPUTATION TABLE.

MINIMUM SURVEY LIMITS

CORNER	NORTHING	EASTING
S1	2,650,729.24	1,661,635.08
S2	2,651,749.00	1,659,812.00
S3	2,641,054.00	1,656,105.00
S4	2,641,057.43	1,658,111.18
S5	2,642,400.31	1,658,601.12
S6	2,643,288.83	1,658,924.76
S7	2,643,482.52	1,659,251.58
S8	2,643,954.33	1,659,521.86
S9	2,644,084.66	1,659,718.78
S10	2,644,273.75	1,659,727.11
S11	2,644,280.74	1,659,707.85
S12	2,646,765.84	1,660,612.59
S13	2,646,800.54	1,660,524.08
S14	2,647,069.90	1,660,302.09
S15	2,647,729.40	1,660,542.33

NOTES:

1. SURVEY LIMIT ALONG THE DOCK IS 5 FT OFF THE FINISHED DOCK FACE.
2. THE SURVEY LIMIT IS THE MINIMUM AREA OF SURVEY COVERAGE.
3. SURVEY LIMIT WILL CHANGE AS PORT EXPANSION PROGRESSES FOR THE NORTH AND SOUTH REPLACEMENT ALONG THE NEW DOCK FACE.

DISPOSAL SITE LIMITS

CORNER	NORTHING	EASTING
DS1	2,642,356.04	1,653,697.24
DS2	2,650,812.98	1,656,776.26
DS3	2,650,128.76	1,658,655.55
DS4	2,641,671.82	1,655,576.56

PROJECT AREA LIMITS

CORNER	NORTHING	EASTING
1	2,649,026.93	1,661,014.98
2	2,649,402.77	1,661,151.89
3	2,650,385.00	1,660,978.96
4	2,650,663.76	1,660,726.81
5	2,651,607.70	1,659,883.00
6	2,641,642.87	1,656,956.67
7	2,641,765.13	1,657,844.43
8	2,642,400.31	1,658,601.12
9	2,643,288.83	1,658,924.76
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18	2,647,729.40	1,660,542.33
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20	2,642,361.63	1,657,313.58
21	2,649,259.02	1,659,564.37
22	2,642,397.50	1,657,215.10
23	2,644,317.95	1,659,620.25
24	2,649,433.17	1,659,083.75
30	2,651,145.14	1,660,296.58
31	2,650,489.95	1,660,057.92
32	2,649,310.49	1,660,447.77
33	2,649,145.25	1,660,536.58
34	2,649,028.88	1,660,856.04
35	2,648,512.11	1,660,667.80
36	2,648,486.44	1,660,738.28
37	2,648,040.13	1,660,575.70
38	2,648,014.48	1,660,646.18

CONTROL DATA

STATION	NORTHING	EASTING	ELEV.	DESCRIPTION
N. END 1978	2,646,652.19	1,660,582.43	41.39	USACE SBC 1978 (STA 88+73.09)
S. END 1978	2,644,298.25	1,659,725.47	40.47	USACE SBC 1978 (STA 63+67.98)
DJ–1	2,650,309.04	1,661,821.57	181.47	–
NEW	2,652,477.41	1,653,265.13	46.47	–
EQ–1	2,629,995.41	1,643,787.75	83.07	–
SP–1	2,632,165.12	1,650,395.14	36.47	–
SANDBAG	2,646,634.30	1,662,476.29	206.82	USC & GS SBC
CLIFF	2,648,978.03	1,662,106.44	250.99	–
C 1/4 COR	2,642,005.73	1,660,981.81	128.25	–
ZZ–1	2,644,301.39	1,660,846.61	38.70	–
TERRA–10 2008	2,644,971.59	1,660,156.45	80.40	PORT OFFICE ANT. MOUNT

100 0 100 200 300

SCALE IN FEET

HORIZONTAL SCALE: 1"=100'

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT I AM PROPERLY REGISTERED AND LICENSED TO PRACTICE LAND SURVEYING IN THE STATE OF ALASKA AND THAT THIS PLAT REPRESENTS A HYDROGRAPHIC SURVEY MADE BY ME OR UNDER MY DIRECT SUPERVISION. THE ELEVATIONS SHOWN HEREON DEPICT THE DEPTHS AS SURVEYED NOVEMBER 05, 2010, TO THE BEST OF MY KNOWLEDGE AND BELIEF.

STATE OF ALASKA 49TH KARL D. WOODS No.10950 REGISTERED PROFESSIONAL LAND SURVEYOR

KARL D. WOODS, P.L.S. DATE
REGISTRATION NO. LS 10950

US ARMY CORPS OF ENGINEERS
ALASKA DISTRICT

CONTRACT NO. W911KB–09–R–0001
CONTRACTOR MANSON CONSTRUCTION CO.
CITY SEATTLE STATE WASHINGTON
Recommended: Approved: Date:
TRIAL CONTRACTOR RESIDENT ENGINEER

Sym	Action	Description	Date	Approv

Designed: JEA
Drawn: KNB/LEP
Reviewed: KDW
Chief, A. CHURCHILL
Section
Branch
Drawing #:
Date: 11/09/10
Dwg Scale: AS NOTED
Plot Scale:
File:
Scan Date:
Plot Date:
USACE Survey No.:

PRELIMINARY

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ANCHORAGE, ALASKA

SURVEY 69

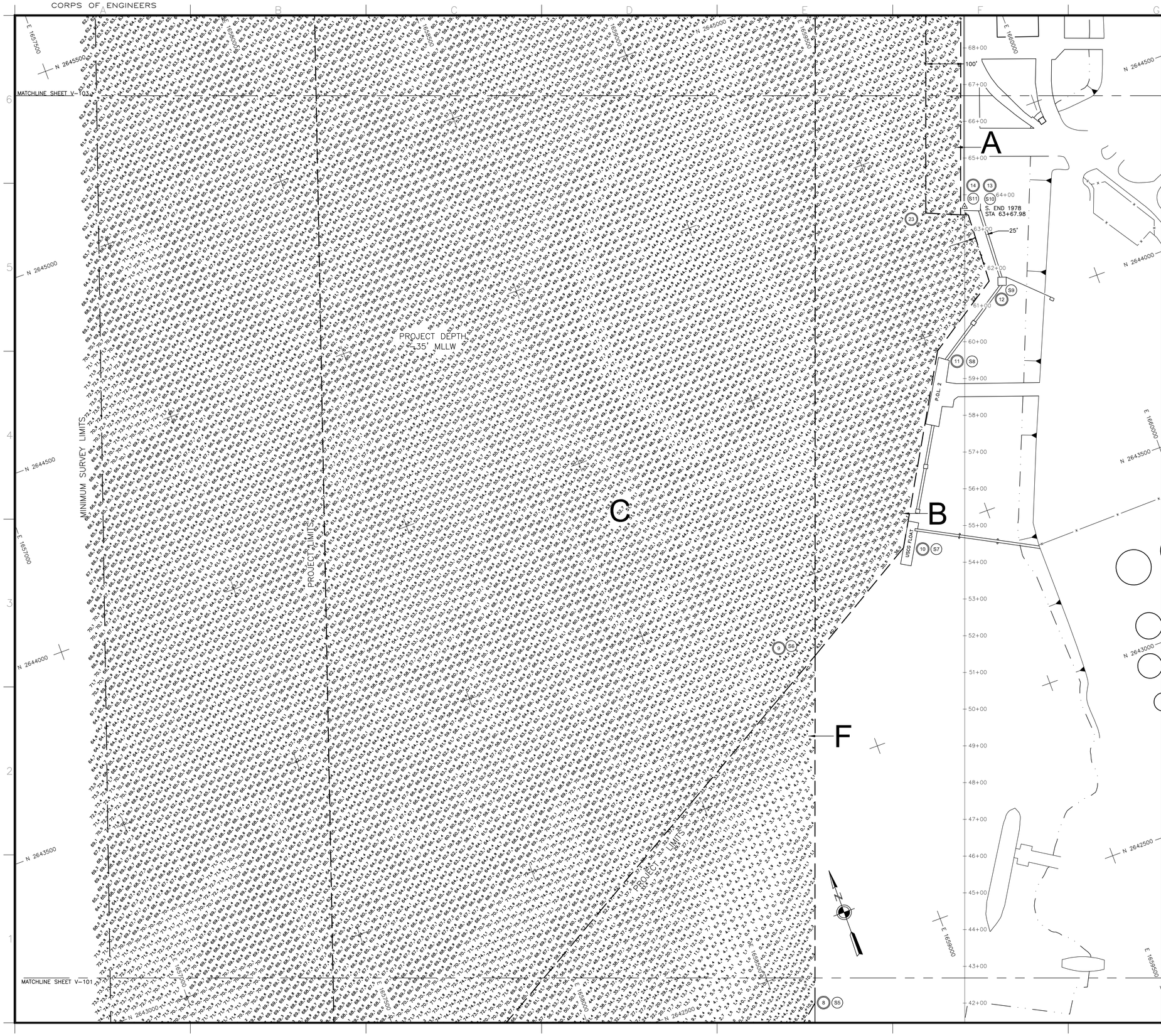
ANCHORAGE ALASKA
PORT OF ANCHORAGE
2009–2011
TRANSITIONAL AND MAINTENANCE DREDGING
2010 POST DREDGE SURVEY
NOVEMBER 05, 2010

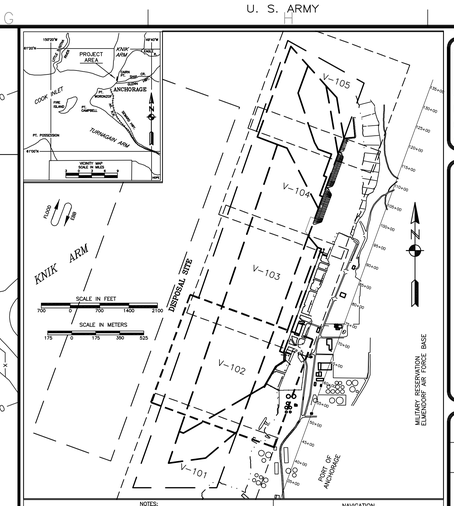
BATHYMETRY

Reference number:
V-101
Sheet 1 of 6

CORPS OF ENGINEERS

U. S. ARMY





NOTES:

1. THIS LOCALITY IS SHOWN ON USC & GS CHARTS NO. 16664, 16660, 16013 AND 500.
2. DEPTHS ARE IN FEET REFERENCED TO MEAN LOWER LOW WATER (MLLW=0.0').

NAVIGATION

ANCHORAGE HARBOR ALASKA

REVISED 2009

NOTES

1. HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 4, NAD 83, IN US SURVEY FEET, HOLDING USACE SBC "N END 1978" AS N 2,646,652.19', E 1,660,582.43' AND USACE SBC "S END 1978" AS N 2,644,298.25', E 1,659,725.47'.
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MINIMUM SURVEY LIMITS

CORNER	NORTHING	EASTING
S1	2,650,729.24	1,661,635.08
S2	2,651,749.00	1,659,812.00
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CONTROL DATA

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TERRA–10 2008	2,644,971.59	1,660,156.45	80.40	PORT OFFICE ANT. MOUNT

100 0 100 200 300

SCALE IN FEET

HORIZONTAL SCALE: 1"=100'

BATHYMETRY

US ARMY CORPS OF ENGINEERS
ALASKA DISTRICT

CONTRACT NO. W911KB–09–R–0001
CONTRACTOR MANSON CONSTRUCTION CO.
CITY SEATTLE STATE WASHINGTON
Recommended: Approved: Date:
PRIME CONTRACTOR RESIDENT ENGINEER

Grid Action	Description	Date	Approval

Designed: JEA
Drawn: KNB/LEP
Reviewed: KDW
Chief A. CHURCHILL
Submitted:
Recommended:
USACE Survey No.:

Date: 11/09/10
Dwg Scale: AS NOTED
Plot Scale:
Section
Drawing #:
Title:
Begin:

PRELIMINARY

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ANCHORAGE, ALASKA

SURVEY 69

ANCHORAGE, ALASKA
PORT OF ANCHORAGE
2009–2011
TRANSITIONAL AND MAINTENANCE DREDGING
2010 POST DREDGE SURVEY
NOVEMBER 05, 2010

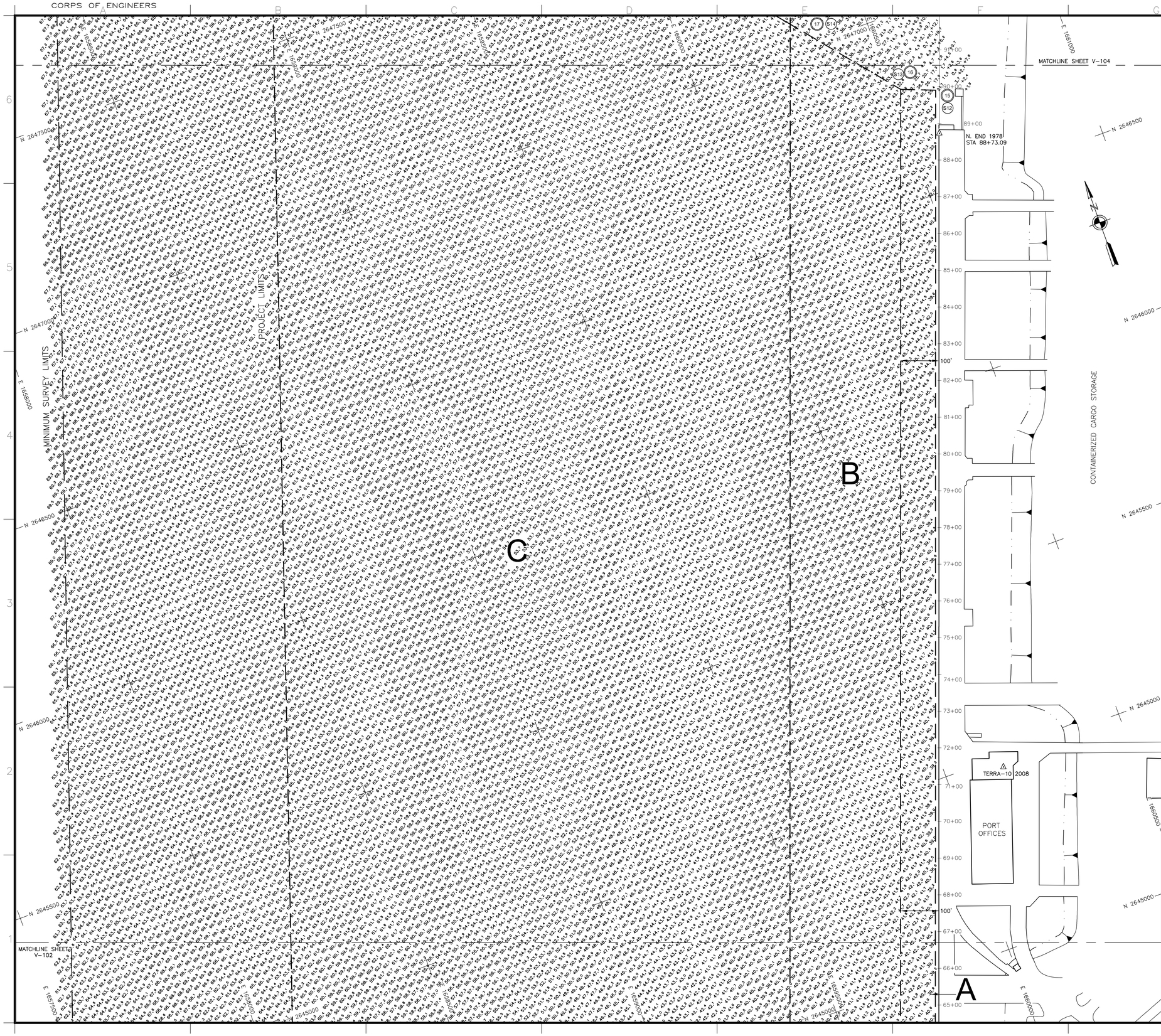
Reference number:

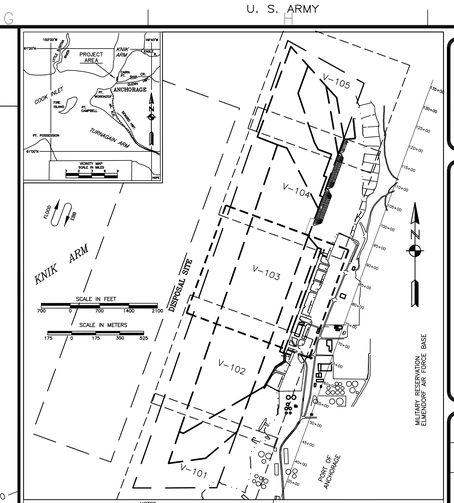
V-102

Sheet 2 of 6

CORPS OF ENGINEERS

U. S. ARMY





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NAVIGATION

ANCHORAGE HARBOR ALASKA

REVISED 2009

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DISPOSAL SITE LIMITS

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22	2,642,397.50	1,657,215.10
23	2,644,317.95	1,659,620.25
24	2,649,433.17	1,659,083.75
30	2,651,145.14	1,660,296.58
31	2,650,489.95	1,660,057.92
32	2,649,310.49	1,660,447.77
33	2,649,145.25	1,660,536.58
34	2,649,028.88	1,660,856.04
35	2,648,512.11	1,660,667.80
36	2,648,486.44	1,660,738.28
37	2,648,040.13	1,660,575.70
38	2,648,014.48	1,660,646.18

CONTROL DATA

STATION	NORTHING	EASTING	ELEV.	DESCRIPTION
N. END 1978	2,646,652.19	1,660,582.43	41.39	USACE SBC 1978 (STA 88+73.09)
S. END 1978	2,644,298.25	1,659,725.47	40.47	USACE SBC 1978 (STA 63+67.98)
DJ–1	2,650,309.04	1,661,821.57	181.47	–
NEW	2,652,477.41	1,653,265.13	46.47	–
EQ–1	2,629,995.41	1,643,787.75	83.07	–
SP–1	2,632,165.12	1,650,395.14	36.47	–
SANDBAG	2,646,634.30	1,662,476.29	206.82	USC & GS SBC
CLIFF	2,648,978.03	1,662,106.44	250.99	–
C 1/4 COR	2,642,005.73	1,660,981.81	128.25	–
ZZ–1	2,644,301.39	1,660,846.61	38.70	–
TERRA–10 2008	2,644,971.59	1,660,156.45	80.40	PORT OFFICE ANT. MOUNT

100 0 100 200 300

SCALE IN FEET

HORIZONTAL SCALE: 1"=100'

BATHYMETRY

US ARMY CORPS OF ENGINEERS
ALASKA DISTRICT

CONTRACT NO. W911KB–09–R–0001
CONTRACTOR MANSON CONSTRUCTION CO.
CITY SEATTLE STATE WASHINGTON
Recommended: Approved: Date:
TRIAL CONTRACTOR RESIDENT ENGINEER

Sym	Action	Description	Date	Approv

Date: 11/09/10
Dwg Scale: AS NOTED
Plot Scale:
File:
Drawing #:
Section:
Branch:
Designed: JEA
Drawn: KNB/LEP
Reviewed: KDW
Chief: A. CHURCHILL
Scan Date:
Scan Initial:
USACE Survey No.:

PRELIMINARY

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ANCHORAGE, ALASKA

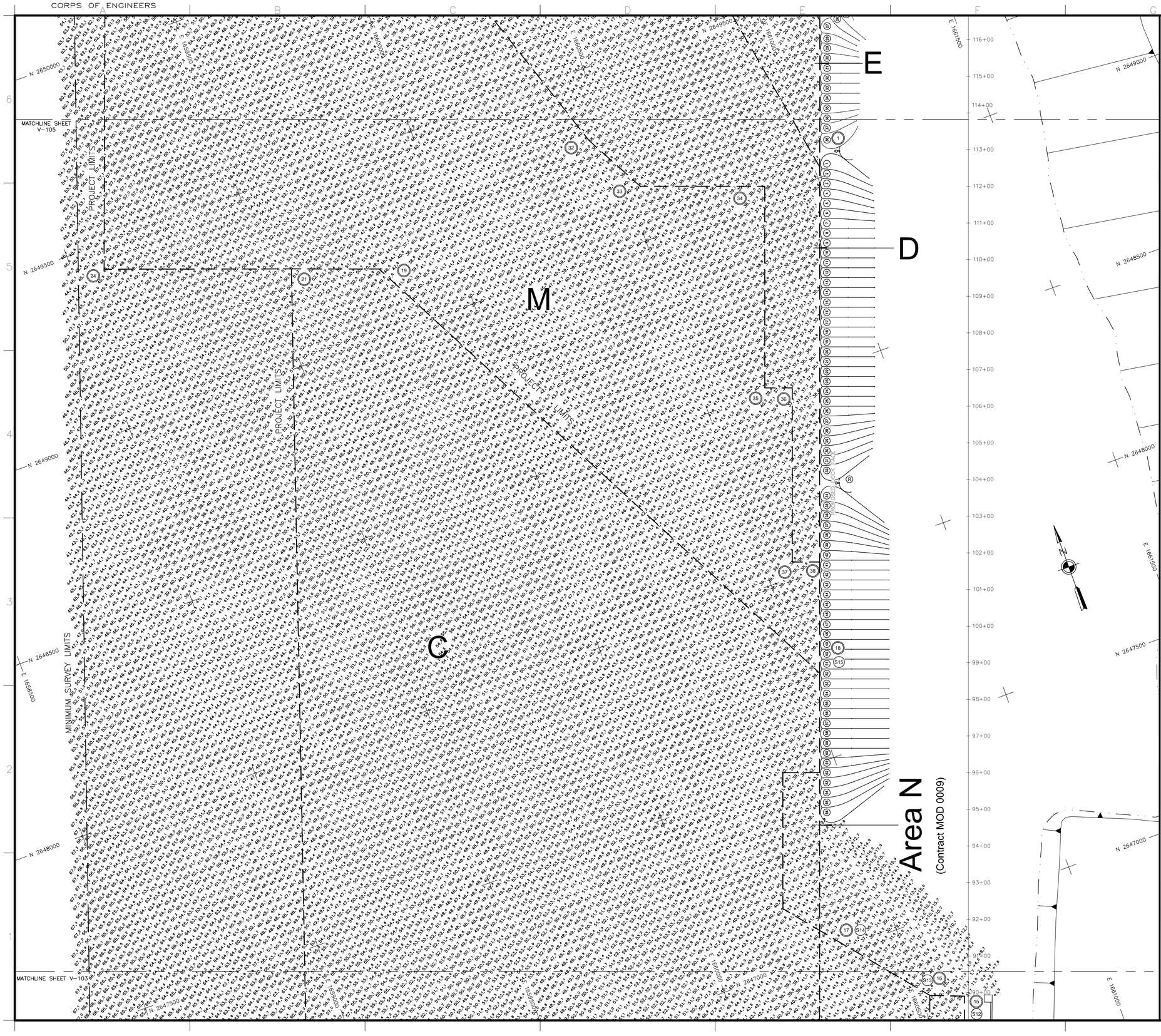
SURVEY 69

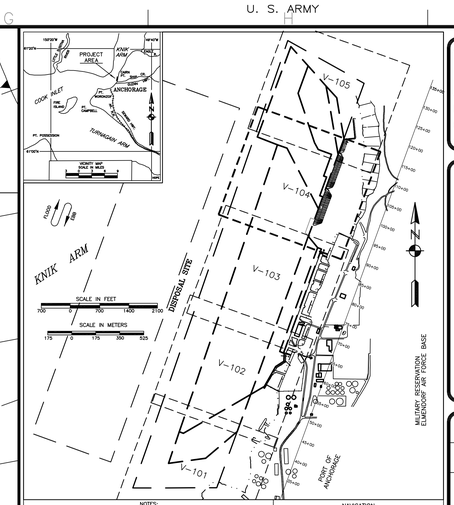
ANCHORAGE, ALASKA
PORT OF ANCHORAGE
2009–2011
TRANSITIONAL AND MAINTENANCE DREDGING
2010 POST DREDGE SURVEY
NOVEMBER 05, 2010

Reference number:
V-103
Sheet 3 of 6

CORPS OF ENGINEERS

U. S. ARMY





NOTES:

1. THIS LOCALITY IS SHOWN ON USC & GS CHARTS NO. 16664, 16660, 16013 AND 500.
2. DEPTHS ARE IN FEET REFERENCED TO MEAN LOWER LOW WATER (MLLW=0.0').

NAVIGATION

ANCHORAGE HARBOR ALASKA

REVISED 2009

NOTES

1. HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 4, NAD 83, IN US SURVEY FEET, HOLDING USACE SBC "N END 1978" AS N 2,646,652.19', E 1,660,582.43' AND USACE SBC "S END 1978" AS N 2,644,298.25', E 1,659,725.47'.
2. VERTICAL CONTROL IS IN FEET, REFERRING TO MEAN LOWER LOW WATER (MLLW=0.0), BASED ON NOAA/NOS 1983–2001 TIDAL EPOCH BENCH MARK LIST, "9455920 ANCHORAGE, KNIK ARM, COOK INLET, ALASKA" PUBLISHED 4/21/2003, HOLDING USCGS SBC "TIDAL 16 1966" AS 40.53', USCGS SBC "B 75 1964" AS 36.82'.
3. THIS SURVEY WAS PERFORMED BY TERRASOND, LTD. ON NOVEMBER 05, 2010. SOUNDINGS WERE COLLECTED USING A RESON SEABAT 7101 MULTIBEAM ECHOSOUNDER WITH A 240kHz, 150–DEGREE SWATH–WIDTH TRANSDUCER (511 BEAMS). BEAM STEERING WAS ACCOMPLISHED USING AN APPLIED MICROSYSTEMS LABORATORIES (AML) SMART–PROBE, SOUND VELOCITY PROFILER LOCATED AT THE SONAR HEAD. SOUND VELOCITY THROUGH THE WATER COLUMN WAS MEASURED AND APPLIED USING AN ODOM DIGI–BAR PRO SOUND VELOCITY PROFILER DEPLOYED DURING THE SURVEY. VESSEL ATTITUDE, HEADING, POSITIONING AND REAL–TIME TIDES WERE PROVIDED USING A CODA OCTOPUS F185 INERTIAL MOTION UNIT OPERATING ON KINEMATIC GPS CORRECTIONS BROADCAST FROM A TRIMBLE NET–RS GPS RECEIVER SET AT CONTROL STATION, "TERRA–10 2008", LOCATED ATOP THE PORT OFFICE BUILDING. REAL–TIME–KINEMATIC HEIGHT VALUES WERE CALIBRATED TO DIRECT MANUAL TIDE OBSERVATIONS HOLDING USCGS SBC "TIDAL 16 1966", LOCATED AT NOAA/NOS TIDE STATION "9455920" AT THE PORT OF ANCHORAGE. SURVEY NAVIGATION AND DATA COLLECTION WERE PERFORMED USING HYPACK "HYSWEEP 2010" INTEGRATED SOFTWARE (V2010). DATA PROCESSING WAS PERFORMED USING CARIS HIPS SOFTWARE (V7.0).
4. SOUNDINGS ARE IN FEET AND ARE MINUS UNLESS OTHERWISE INDICATED.
5. THIS SURVEY IS INDICATIVE OF GENERAL CONDITIONS ON THE DATES OF SURVEY.
6. THERE WERE NO NEW MONUMENTS ESTABLISHED DURING THIS SURVEY.
7. SEE SHEET 6 OF 6 FOR VOLUME COMPUTATION TABLE.

MINIMUM SURVEY LIMITS

CORNER	NORTHING	EASTING
S1	2,650,729.24	1,661,635.08
S2	2,651,749.00	1,659,812.00
S3	2,641,054.00	1,656,105.00
S4	2,641,057.43	1,658,111.18
S5	2,642,400.31	1,658,601.12
S6	2,643,288.83	1,658,924.76
S7	2,643,482.52	1,659,251.58
S8	2,643,954.33	1,659,521.86
S9	2,644,084.66	1,659,718.78
S10	2,644,273.75	1,659,727.11
S11	2,644,280.74	1,659,707.85
S12	2,646,765.84	1,660,612.59
S13	2,646,800.54	1,660,524.08
S14	2,647,069.90	1,660,302.09
S15	2,647,729.40	1,660,542.33

NOTES:

1. SURVEY LIMIT ALONG THE DOCK IS 5 FT OFF THE FINISHED DOCK FACE.
2. THE SURVEY LIMIT IS THE MINIMUM AREA OF SURVEY COVERAGE.
3. SURVEY LIMIT WILL CHANGE AS PORT EXPANSION PROGRESSES FOR THE NORTH AND SOUTH REPLACEMENT ALONG THE NEW DOCK FACE.

DISPOSAL SITE LIMITS

CORNER	NORTHING	EASTING
DS1	2,642,356.04	1,653,697.24
DS2	2,650,812.98	1,656,776.26
DS3	2,650,128.76	1,658,655.55
DS4	2,641,671.82	1,655,576.56

PROJECT AREA LIMITS

CORNER	NORTHING	EASTING
1	2,649,026.93	1,661,014.98
2	2,649,402.77	1,661,151.89
3	2,650,385.00	1,660,978.96
4	2,650,663.76	1,660,726.81
5	2,651,607.70	1,659,883.00
6	2,641,642.87	1,656,956.67
7	2,641,765.13	1,657,844.43
8	2,642,400.31	1,658,601.12
9	2,643,288.83	1,658,924.76
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18	2,647,729.40	1,660,542.33
19	2,649,176.89	1,659,790.12
20	2,642,361.63	1,657,313.58
21	2,649,259.02	1,659,564.37
22	2,642,397.50	1,657,215.10
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37	2,648,040.13	1,660,575.70
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CONTROL DATA

STATION	NORTHING	EASTING	ELEV.	DESCRIPTION
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SANDBAG	2,646,634.30	1,662,476.29	206.82	USC & GS SBC
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C 1/4 COR	2,642,005.73	1,660,981.81	128.25	–
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TERRA–10 2008	2,644,971.59	1,660,156.45	80.40	PORT OFFICE ANT. MOUNT

100 0 100 200 300

SCALE IN FEET

HORIZONTAL SCALE: 1"=100'

BATHYMETRY

US ARMY CORPS OF ENGINEERS
ALASKA DISTRICT

CONTRACT NO. W911KB–09–R–0001
CONTRACTOR MANSON CONSTRUCTION CO.
CITY SEATTLE STATE WASHINGTON
Recommended: Approved: Date:
TRIAL CONTRACTOR RESIDENT ENGINEER

Sym	Action	Description	Date	Approv

Designed: JEA
Drawn: KNB/LEP
Reviewed: KDW
Sub. A. CHURCHILL
Submitted:
Date: 11/09/10
Dwg Scale: AS NOTED
Plot Scale:
File:
Drawing #:
Section
Branch
USACE Survey No.:

PRELIMINARY

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ANCHORAGE, ALASKA

SURVEY 69

ANCHORAGE ALASKA
PORT OF ANCHORAGE
2009–2011
TRANSITIONAL AND MAINTENANCE DREDGING
2010 POST DREDGE SURVEY
NOVEMBER 05, 2010

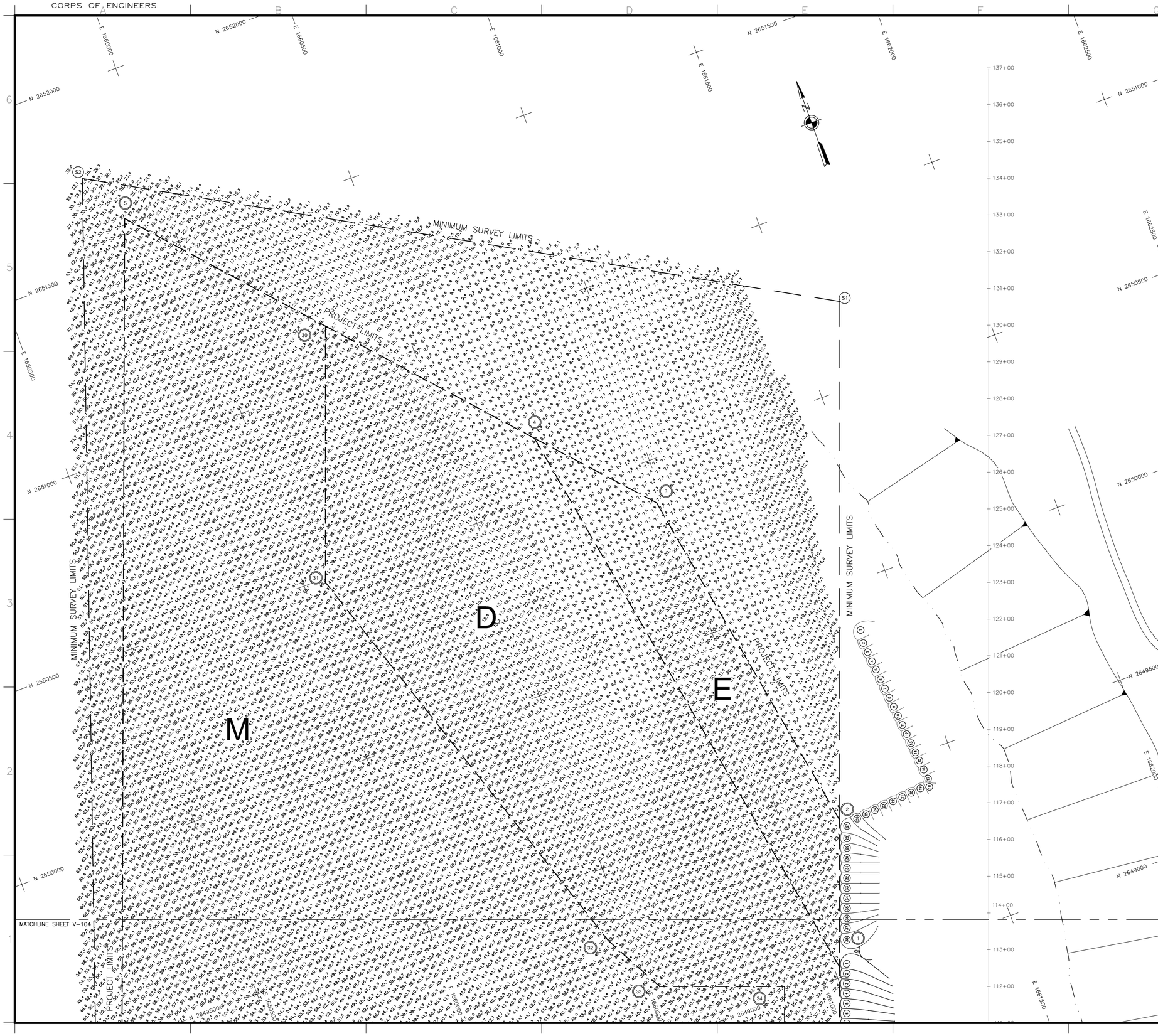
Reference number:

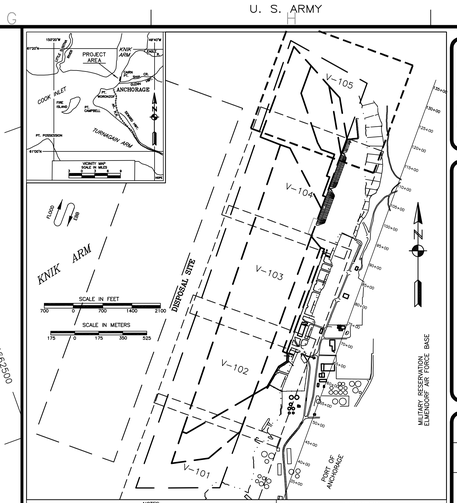
V-104

Sheet 4 of 6

CORPS OF ENGINEERS

U. S. ARMY





NOTES:

1. THIS LOCALITY IS SHOWN ON USC & GS CHARTS NO. 16664, 16660, 16013 AND 550.
2. DEPTHS ARE IN FEET REFERENCED TO MEAN LOWER LOW WATER (MLLW=0.0').

NAVIGATION

ANCHORAGE HARBOR ALASKA

REVISED 2009

NOTES

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7. SEE SHEET 6 OF 6 FOR VOLUME COMPUTATION TABLE.

MINIMUM SURVEY LIMITS

CORNER	NORTHING	EASTING
S1	2,650,729.24	1,661,635.08
S2	2,651,749.00	1,659,812.00
S3	2,641,054.00	1,656,105.00
S4	2,641,057.43	1,658,111.18
S5	2,642,400.31	1,658,601.12
S6	2,643,288.83	1,658,924.76
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DISPOSAL SITE LIMITS

CORNER	NORTHING	EASTING
DS1	2,642,356.04	1,653,697.24
DS2	2,650,812.98	1,656,776.26
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DS4	2,641,671.82	1,655,576.56

PROJECT AREA LIMITS

CORNER	NORTHING	EASTING
1	2,649,026.93	1,661,014.98
2	2,649,402.77	1,661,151.89
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100 0 100 200 300

SCALE IN FEET

HORIZONTAL SCALE: 1"=100'

BATHYMETRY

US ARMY CORPS OF ENGINEERS
ALASKA DISTRICT

CONTRACT NO. W911KB–09–R–0001
CONTRACTOR MANSON CONSTRUCTION CO.
CITY SEATTLE STATE WASHINGTON
Recommended: Approved: Date:
TRIAL CONTRACTOR RESIDENT ENGINEER

Sym	Action	Description	Date	Appvd

Designed: JEA
Drawn: KNB/LEP
Reviewed: KDW
Chief, A. CHURCHILL
Date: 11/09/10
Dwg Scale: AS NOTED
Plot Scale:
File:
Drawing #:
Section
Branch
Contract Number:
USACE Survey No.:

PRELIMINARY

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ANCHORAGE, ALASKA

SURVEY 69

ANCHORAGE, ALASKA
PORT OF ANCHORAGE
2009–2011
TRANSITIONAL AND MAINTENANCE DREDGING
2010 POST DREDGE SURVEY
NOVEMBER 05, 2010

Reference number:

V-105

Sheet 5 of 6

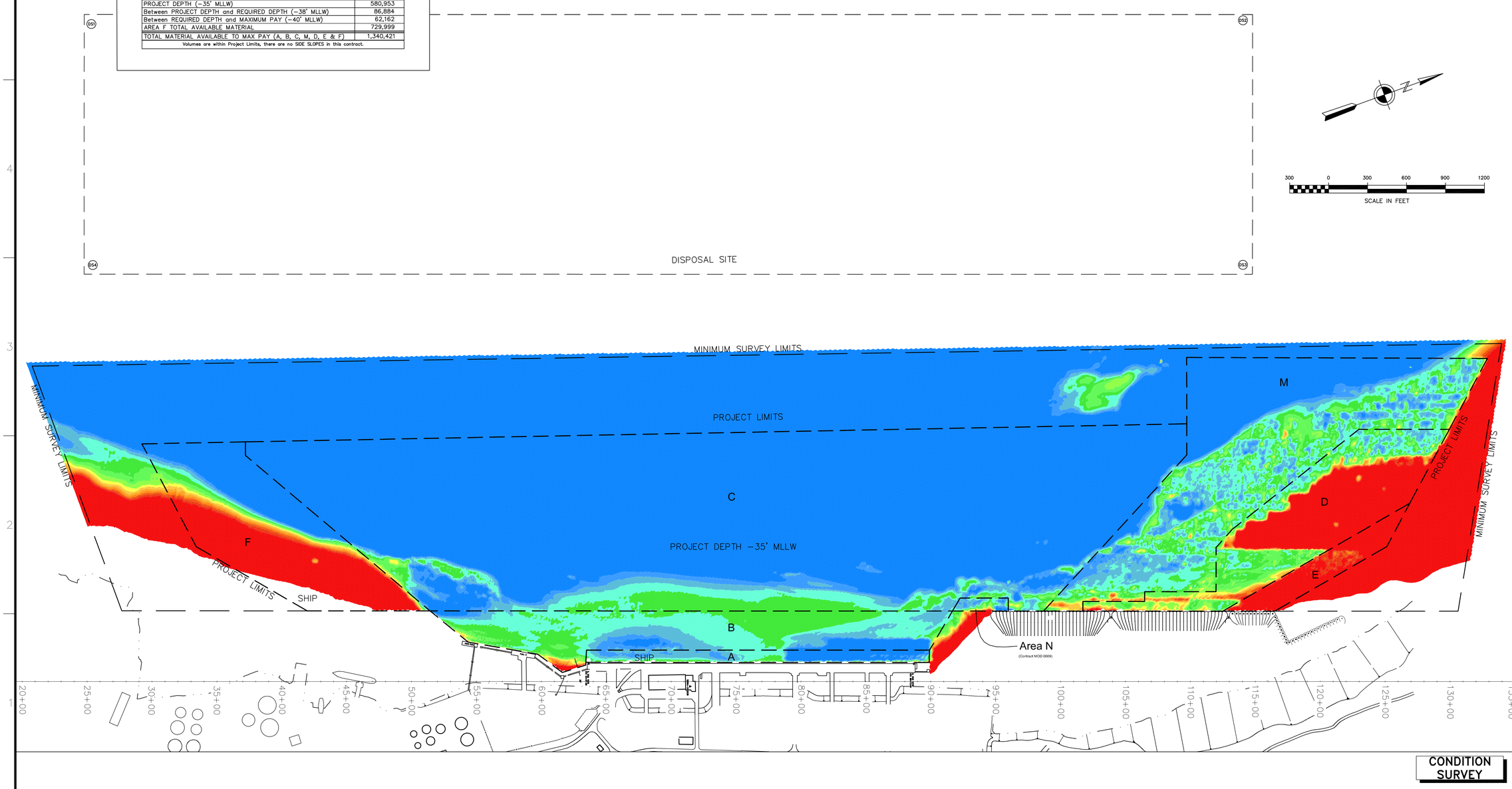
VOLUME COMPUTATIONS	
AREA A Project Depth –35' MLLW	CUBIC YARDS
PROJECT DEPTH (–35' MLLW)	36
Between PROJECT DEPTH and REQUIRED DEPTH (–37' MLLW)	148
Between REQUIRED DEPTH and MAXIMUM PAY (–38' MLLW)	205
AREA A TOTAL AVAILABLE MATERIAL	390
AREA B Project Depth –35' MLLW	CUBIC YARDS
PROJECT DEPTH (–35' MLLW)	3,077
Between PROJECT DEPTH and REQUIRED DEPTH (–38' MLLW)	2,548
Between REQUIRED DEPTH and MAXIMUM PAY (–39' MLLW)	1,617
AREA B TOTAL AVAILABLE MATERIAL	7,241
AREA C Project Depth –35' MLLW	CUBIC YARDS
PROJECT DEPTH (–35' MLLW)	54
Between PROJECT DEPTH and REQUIRED DEPTH (–38' MLLW)	715
Between REQUIRED DEPTH and MAXIMUM PAY (–39' MLLW)	1,048
AREA C TOTAL AVAILABLE MATERIAL	1,817
AREA M Project Depth –35' MLLW	CUBIC YARDS
PROJECT DEPTH (–35' MLLW)	3,418
Between PROJECT DEPTH and REQUIRED DEPTH (–38' MLLW)	11,389
Between REQUIRED DEPTH and MAXIMUM PAY (–39' MLLW)	11,803
AREA M TOTAL AVAILABLE MATERIAL	26,610
AREA D Project Depth –35' MLLW	CUBIC YARDS
PROJECT DEPTH (–35' MLLW)	376,612
Between PROJECT DEPTH and REQUIRED DEPTH (–38' MLLW)	71,033
Between REQUIRED DEPTH and MAXIMUM PAY (–40' MLLW)	53,677
AREA D TOTAL AVAILABLE MATERIAL	501,322
AREA E Project Depth 25' MLLW	CUBIC YARDS
PROJECT DEPTH (–25' MLLW)	46,596
Between PROJECT DEPTH and REQUIRED DEPTH (–28' MLLW)	14,142
Between REQUIRED DEPTH and MAXIMUM PAY (–30' MLLW)	12,306
AREA E TOTAL AVAILABLE MATERIAL	73,043
AREA F Project Depth –35' MLLW	CUBIC YARDS
PROJECT DEPTH (–35' MLLW)	580,953
Between PROJECT DEPTH and REQUIRED DEPTH (–38' MLLW)	86,884
Between REQUIRED DEPTH and MAXIMUM PAY (–40' MLLW)	62,162
AREA F TOTAL AVAILABLE MATERIAL	729,999
TOTAL MATERIAL AVAILABLE TO MAX PAY (A, B, C, M, D, E & F)	1,340,421
Volumes are within Project Limits, there are no SIDE SLOPES in this contract.	

VOLUME COMPUTATIONS	
AREA Amw	CUBIC YARDS
REQUIRED DEPTH (–44' MLLW)	1,061
Between REQUIRED DEPTH (–44') and MAXIMUM PAY (–45')	1,559
AREA Amw TOTAL AVAILABLE MATERIAL	2,621
AREA Amw02	CUBIC YARDS
REQUIRED DEPTH (–44' MLLW)	322
Between REQUIRED DEPTH (–44') and MAXIMUM PAY (–45')	727
AREA Amw TOTAL AVAILABLE MATERIAL	1,049
AREA Amw03	CUBIC YARDS
REQUIRED DEPTH (–44' MLLW)	112
Between REQUIRED DEPTH (–44') and MAXIMUM PAY (–45')	227
AREA Amw TOTAL AVAILABLE MATERIAL	340
AREA Bmw	CUBIC YARDS
REQUIRED DEPTH (–40' MLLW)	1,615
Between REQUIRED DEPTH (–40') and MAXIMUM PAY (–41')	2,895
AREA Bmw TOTAL AVAILABLE MATERIAL	4,510
AREA Cmw	CUBIC YARDS
AREA Cmw TOTAL AVAILABLE MATERIAL	48
AREA Dmw	CUBIC YARDS
AREA Dmw TOTAL AVAILABLE MATERIAL	31
AREA Emw	CUBIC YARDS
AREA Emw TOTAL AVAILABLE MATERIAL	110
AREA Fmw	CUBIC YARDS
AREA Fmw TOTAL AVAILABLE MATERIAL	215
AREA Gmw	CUBIC YARDS
AREA Gmw TOTAL AVAILABLE MATERIAL	407
TOTAL MATERIAL AVAILABLE TO MAXIMUM PAY (AREAS Amw–Gmw)	9,331
Volumes are within Project Limits, there are no SIDE SLOPES in this contract.	

NOTES

1. HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 4, NAD 83, IN US SURVEY FEET, HOLDING USACE SBC "N END 1978" AS N 2,646,652.19', E 1,660,582.43' AND USACE SBC "S END 1978" AS N 2,644,298.25', E 1,659,725.47'.
2. VERTICAL CONTROL IS IN FEET, REFERRING TO MEAN LOWER LOW WATER (MLLW=0.0), BASED ON NOAA/NOS 1983–2001 TIDAL EPOCH BENCH MARK LIST, "9455920 ANCHORAGE, KNIK ARM, COOK INLET, ALASKA" PUBLISHED 4/21/2003, HOLDING USCGS SBC "TIDAL 16 1966" AS 40.53', USCGS SBC "B 75 1984" AS 36.82'.
3. THIS SURVEY WAS PERFORMED BY TERRASOND, LTD. ON NOVEMBER 05, 2010. SOUNDINGS WERE COLLECTED USING A RESON SEABAT 7101 MULTIBEAM ECHOSOUNDER WITH A 240kHz, 150–DEGREE SWATH–WIDTH TRANSDUCER (511 BEAMS). BEAM STEERING WAS ACCOMPLISHED USING AN APPLIED MICROSYSTEMS LABORATORIES (AML) SMART–PROBE, SOUND VELOCITY PROFILER LOCATED AT THE SONAR HEAD. SOUND VELOCITY THROUGH THE WATER COLUMN WAS MEASURED AND APPLIED USING AN ODDM DIGI–BAR PRO SOUND VELOCITY PROFILER DEPLOYED DURING THE SURVEY. VESSEL ATTITUDE, HEADING, POSITIONING AND REAL–TIME TIDES WERE PROVIDED USING A CODA OCTOPUS F185 INERTIAL MOTION UNIT OPERATING ON KINEMATIC GPS CORRECTIONS BROADCAST FROM A TRIMBLE NET–RS GPS RECEIVER SET AT CONTROL STATION, "TERRA–10 2008", LOCATED ATOP THE PORT OFFICE BUILDING. REAL–TIME–KINEMATIC HEIGHT VALUES WERE CALIBRATED TO DIRECT MANUAL TIDE OBSERVATIONS HOLDING USCGS SBC "TIDAL 16 1966", LOCATED AT NOAA/NOS TIDE STATION "9455920" AT THE PORT OF ANCHORAGE. SURVEY NAVIGATION AND DATA COLLECTION WERE PERFORMED USING HYPACK "HYSWEEP 2010" INTEGRATED SOFTWARE (V2010). DATA PROCESSING WAS PERFORMED USING CARIS HIPS SOFTWARE (V7.0).
4. SOUNDINGS ARE IN FEET AND ARE MINUS UNLESS OTHERWISE INDICATED.
5. THIS SURVEY IS INDICATIVE OF GENERAL CONDITIONS ON THE DATES OF SURVEY.
6. THERE WERE NO NEW MONUMENTS ESTABLISHED DURING THIS SURVEY.
7. SEE SHEET 6 OF 6 FOR VOLUME COMPUTATION TABLE.

ELEVATIONS TABLE				
NUMBER	MINIMUM ELEVATION	MAXIMUM ELEVATION	COLOR NUMBER	COLOR
1	-44 & BELOW	-43	0,127,254	
2	-43	-42	46,150,255	
3	-42	-41	79,184,216	
4	-41	-40	92,255,214	
5	-40	-39	53,232,44	
6	-39	-38	89,249,78	
7	-38	-37	187,255,61	
8	-37	-36	255,255,61	
9	-36	-35	251,197,50	
10	-35	-34	253,161,23	
11	-34	-33	255,128,0	
12	-33	-32	242,74,2	
13	-32	-31	235,43,0	
14	-31	0	244,0,0	



CONDITION SURVEY

US ARMY CORPS OF ENGINEERS
ALASKA DISTRICT

CONTRACT NO. W911KB–09–R–0001
CONTRACTOR MANSON CONSTRUCTION CO.
CITY SEATTLE STATE WASHINGTON
Recommended: PRIME CONTRACTOR
Approved: RESIDENT ENGINEER
Date:

Sym	Action	Description	Date	Appvd

Designed: JEA
Dwn: KNB/LEP
Reviewed: KDW
Chief, A. CHURCHILL
Submitted:
Chief, Branch
Date: 11/09/10
Dwg Scale: AS NOTED
Plot Scale:
Section
File:
Drawing #
USACE Survey No.:
PRELIMINARY

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ANCHORAGE, ALASKA

SURVEY 69

ANCHORAGE, ALASKA
PORT OF ANCHORAGE
2009–2011
TRANSITIONAL AND MAINTENANCE DREDGING
2010 POST DREDGE SURVEY
NOVEMBER 05, 2010

Reference number:
V–106
Sheet 6 of 6