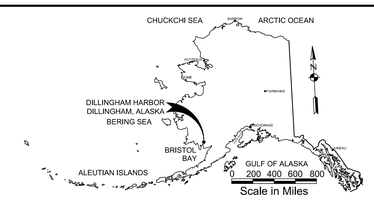

LOCATION/VICINITY MAP(S)

NOTES

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2. VERTICAL CONTROL IS MEAN LOWER LOW WATER (MLLW=0.0'), BASED ON THE NOAA/NOS TIDAL BENCH MARK LIST: "946 5374, SNAG POINT, NUSHAGAK BAY, DILLINGHAM, ALASKA" PUBLISHED 04/29/2013. THIS TIDAL DATUM IS BASED ON THE 1983-2001 TIDAL EPOCH AND IS REFERENCED BY HOLDING NOAA/NOS TIDAL BENCH MARK "5374 D 2007" AS 60.45' AND NOAA/NOS TIDAL BENCH MARK "5374 E 2007" AS 43.79'. 5374 D IS A DISK SET FLUSH IN A CONCRETE PATIO BETWEEN THE NORTH SIDE OF THE CITY HALL BUILDING AND 5374 E IS A DISK SET IN A CONCRETE APRON IN FRONT OF THE AC STORE IN DILLINGHAM, ALASKA.

3. VERTICAL TIES TO THE NATIONAL SPATIAL REFERENCE SYSTEM ARE BASED ON PUBLISHED NAVD88 ELEVATIONS HOLDING NOAA/NOS TIDAL BENCHMARK "5374 B 2007" (PID BBBF17/VM#18352) AS 18.46'.

4. SOUNDINGS ARE IN FEET AND ARE MINUS UNLESS OTHERWISE INDICATED.

5. BATHYMETRY FOR THIS PRE DREDGE SURVEY WAS CONDUCTED ON MAY 08-09, 2015 BY HUGHES & ASSOCIATES, WASILLA, AK. SOUNDINGS WERE COLLECTED USING AN RESON NAVISOUND 210 PRECISION DEPTH SOUNDER WITH A 200KHZ, 3-DEGREE BEAM-WIDTH TRANSDUCER. SOUNDER CALIBRATION WAS PERFORMED USING A DIGIBAR PRO SOUND VELOCITY PROBE. POSITIONING AND TIDES WERE PROVIDED IN REAL TIME USING A TRIMBLE R8 RTK GPS RECEIVER OPERATING ON KINEMATIC CORRECTIONS BROADCAST FROM A TRIMBLE R8 RTK BASE RECEIVER SET AT CONTROL STATION, "DILL 1998". VESSEL NAVIGATION, DATA COLLECTION AND PROCESSING WERE PERFORMED USING HYPACK 2015 INTEGRATED SOFTWARE. SURVEY CONTROL DATA TABLE BELOW WAS UPDATED DURING 2014 PRE DREDGE SURVEY. HORIZONTAL AND VERTICAL CONTROL WERE VERIFIED PRIOR TO THE 2015 PRE DREDGE SURVEY.

6. THIS DRAWING INDICATES GENERAL CONDITIONS AT THE TIME OF THE SURVEY.

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SURVEY CONTROL DATA

STATION	NORTHING	EASTING	MLLW	DESCRIPTION
1277-1 1984	1,841,622.39	1,550,745.71	32.29	3.25 INCH USACE SBC
1277-2 1984	1,840,494.00	1,550,879.74	30.91	3.25 INCH USACE SBC
1277-3 1984	1,840,427.98	1,550,887.60	30.24	3.25 INCH USACE SBC
5374 D 2007			60.45	NOAA/NOS TIDAL BM
5374 E 2007			43.79	NOAA/NOS TIDAL BM
DILL 1998	1,840,505.33	1,550,674.26	29.78	3.25 INCH FLAT ALCAP
DILLINGHAM 1947	1,849,383.08	1,551,809.45		3.5 INCH USCGS SBC
DILLINGHAM AZ MK	1,841,347.21	1,553,844.91		2 INCH USCGS IRON PIPE
PICKEL 1998	1,841,509.51	1,550,437.81	28.88	3.25 INCH FLAT ALCAP
WDS-2 2001	1,841,419.33	1,549,910.66	22.77	3.25 INCH DOMED ALCAP

DISPOSAL AREA

CORNER#	NORTHING	EASTING
DS-1	1,839,502.58	1,551,238.87
DS-2	1,839,739.66	1,551,159.55

DISPOSAL AREA

CORNER#	NORTHING	EASTING
DS-3	1,839,644.47	1,550,875.05
DS-4	1,839,407.39	1,550,954.38

PROJECT LIMITS

CORNER#	NORTHING	EASTING
DL-1	1,840,656.89	1,550,430.66
DL-2	1,840,645.10	1,550,447.69
DL-3	1,840,669.87	1,550,654.63
DL-4	1,841,364.89	1,550,571.44
DL-5	1,841,318.54	1,550,184.21

PROJECT LIMITS

CORNER#	NORTHING	EASTING
DL-6	1,840,930.19	1,550,305.22
DL-7	1,840,662.40	1,550,337.15
DL-8	1,840,575.05	1,550,329.96
DL-9	1,840,571.77	1,550,369.82
DL-10	1,840,653.73	1,550,376.57

SURVEY LIMITS

CORNER#	NORTHING	EASTING
SL-1	1,840,569.77	1,550,449.36
SL-2	1,840,610.25	1,550,787.66
SL-3	1,841,437.06	1,550,688.69
SL-4	1,841,461.80	1,550,593.75
SL-5	1,841,405.12	1,550,578.98
SL-6	1,841,432.20	1,550,396.29
SL-7	1,841,432.01	1,550,133.89
SL-8	1,841,362.83	1,550,065.66

SURVEY LIMITS

CORNER#	NORTHING	EASTING
SL-9	1,840,909.22	1,550,207.01
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SL-11	1,840,362.44	1,550,449.36
SL-12	1,839,293.60	1,551,455.40
SL-13	1,840,166.00	1,551,455.40
SL-14	1,840,166.00	1,550,359.57
SL-15	1,839,293.60	1,550,359.57

VOLUME COMPUTATIONS

DILLINGHAM HARBOR	MLLW	CU. YD.
AVAILABLE TO REQUIRED DEPTH (RD)	0.0	70,061
Available Between RD and Max Pay Depth (MP)	-2.0	17,598
AVAILABLE SIDE SLOPES (SS) AT 8:1	VARIES	37,811
TOTAL MAXIMUM VOLUME AVAILABLE (MP + SS)		125,470
OVER-DREDGE VOLUME WITHIN HARBOR BASIN		N/A
OVER-DREDGE VOLUME WITHIN SIDE SLOPES		N/A

US Army Corps of Engineers
ALASKA DISTRICT

CONTRACTOR: ALASKA MARINE EXCAVATION LLC
CONTRACT NO.: W912EG-14-C-0001
CITY: ANCHOR POINT STATE: ALASKA
Recommended: ____ Approved: ____ Date: ____
PROJECT ENGINEER — PROJECT MANAGER — CHIEF SURVEY SECTION

REVISION	DATE	DESCRIPTION	BY	REVISION	DATE	DESCRIPTION	BY	APPVD

U.S. ARMY CORPS OF ENGINEERS
ALASKA DISTRICT
P.O. BOX 6898
JBER, ALASKA 99506-0898

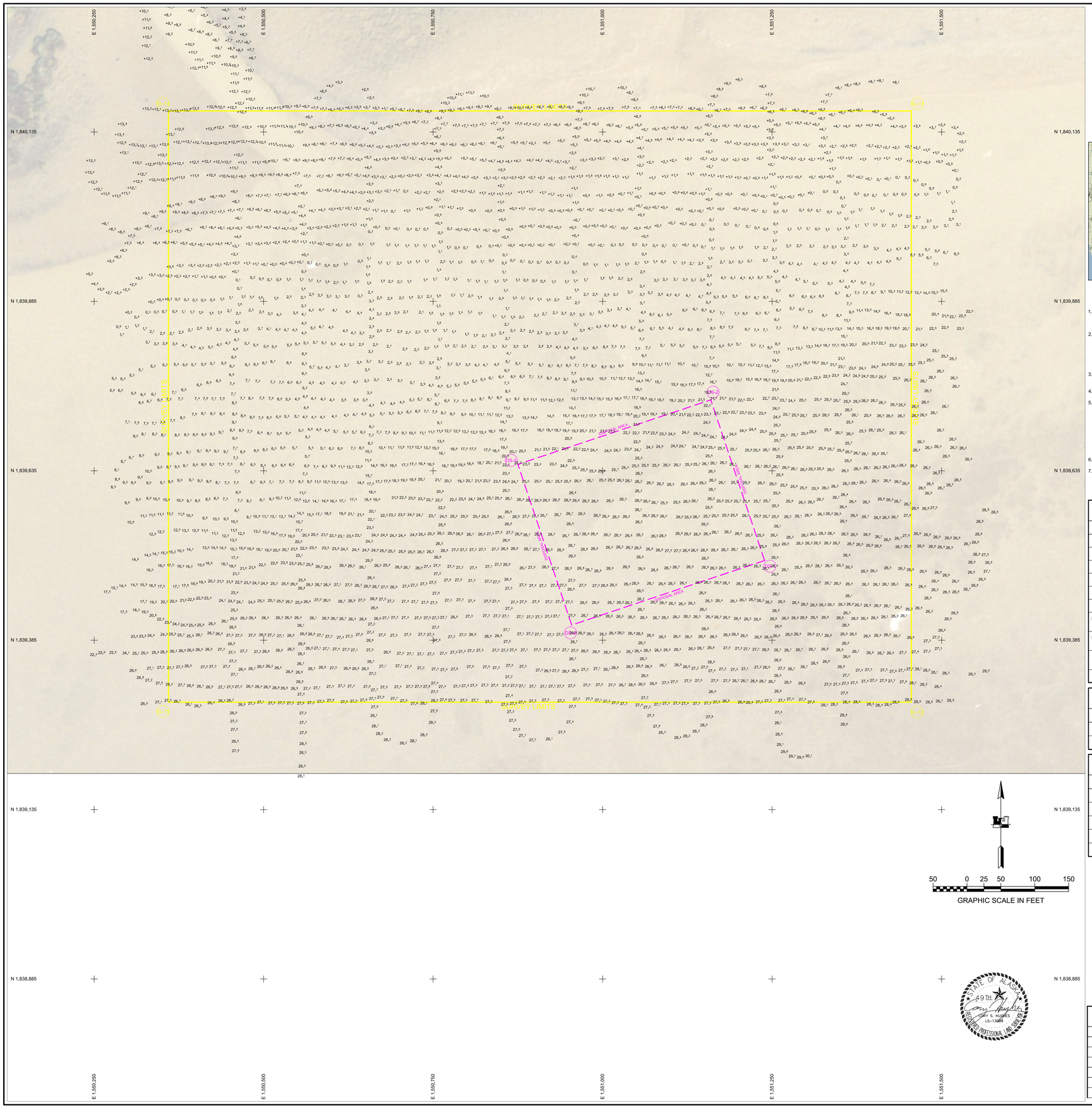
HUGHES & ASSOCIATES
2979 E. COTTLE LOOP
WASILLA, AK 99654

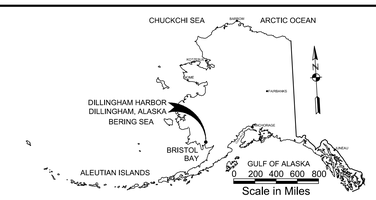
DATE: 27 June 2015
DRAWN BY: DPC
CHECKED BY: DPC
APPROVED BY: J. HUGHES, SURVEY CHIEF (PM-CP)
SCALE: 1" = 50'
SIZE: ANSI E
PLOT DATE: 6/27/2015
CONTRACT NO.: W912EG-14-C-0001
JOB NO.: 2015-16
FILE NAME: 2015 DILLINGHAM PRE DREDGE - 5_8 DWG

DILLINGHAM, ALASKA
DILLINGHAM HARBOR
PRE-DREDGE HYDROGRAPHIC SURVEY
MAY 08-09, 2015

STATE OF ALASKA
49TH
Jerry S. Hughes
LS-13265
REGISTERED PROFESSIONAL LAND SURVEYOR

SHEET IDENTIFICATION
V-101
Sheet 1 of 9





LOCATION/VICINITY MAP(S)

NOTES

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CORNER#	NORTHING	EASTING
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DS-2	1,839,739.66	1,551,159.55

DISPOSAL AREA

CORNER#	NORTHING	EASTING
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PROJECT LIMITS

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CORNER#	NORTHING	EASTING
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DILLINGHAM HARBOR	MLLW	CU. YD.
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OVER-DREDGE VOLUME WITHIN SIDE SLOPES		N/A

US Army Corps of Engineers
ALASKA DISTRICT

CONTRACT NO.: W912RS-14-C-0001
CONTRACTOR: ALASKA MARINE EXCAVATION LLC
CITY: ANCHOR POINT STATE: ALASKA
Recommended: Approved:
Date:
PROJECT ENGINEER / CONTRACTOR / CORPS SURVEY SECTION

REVISION	DATE	DESCRIPTION	BY	APPVD
REVISION	DATE	DESCRIPTION	BY	APPVD

DATE: 27 June 2015
LAT: LONG:
CONTRACT NO.: W912RS-14-C-0001
JOB NO.: 3295-10
FILE NAME: 2015 DILLINGHAM PRE DREDGE - 5_8.DWG

SURVEYED BY: CSH & ETR
DRAWN BY: ETR
CHECKED BY: CSH
APPROVED BY: CHARLES L. SUETTER, CHIEF (PM-CP)
SCALE: 1" = 60'
PLOT DATE: 6/27/2015
PAGE SIZE: 42x36

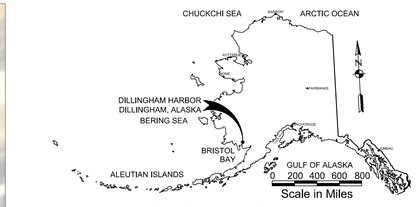
U.S. ARMY CORPS OF ENGINEERS
ALASKA DISTRICT
P.O. BOX 6898
JBER, ALASKA 99506-0898

HUGHES & ASSOCIATES
2070 E. COTTLE LOOP
WASILLA, AK 99654

DILLINGHAM, ALASKA
DILLINGHAM HARBOR
PRE-DREDGE HYDROGRAPHIC SURVEY
MAY 08-09, 2015

STATE OF ALASKA 49TH
CORY S. HUGHES
LS-13869
REGISTERED PROFESSIONAL LAND SURVEYOR

SHEET IDENTIFICATION
V-102
Sheet 2 of 9



LOCATION/VICINITY MAP(S)

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SL-14	1,840,166.00	1,550,359.57
SL-15	1,839,293.60	1,550,359.57

VOLUME COMPUTATIONS

DILLINGHAM HARBOR	MLLW	CU. YD.
REMOVED TO REQUIRED DEPTH (RD)	0.0	69,844
REMOVED BETWEEN RD AND MAX PAY DEPTH (MPD)	-2.0	14,223
REMOVED TO SIDE SLOPES (SS) AT 8:1	VARIES	19,364
TOTAL VOLUME REMOVED (MP + SS)		103,431
OVER-DREDGE VOLUME WITHIN HARBOR BASIN		3,463
OVER-DREDGE VOLUME WITHIN SIDE SLOPES		3,583

STATE OF ALASKA
49TH
CORY S. HUGHES
LS-13809
REGISTERED PROFESSIONAL LAND SURVEYOR

US Army Corps of Engineers
ALASKA DISTRICT

CONTRACT NO.: W911KB-14-C-0001
CONTRACTOR: ALASKA MARINE EXCAVATION LLC
CITY: ANCHOR POINT STATE: ALASKA
Recommended: Approved: Date:
Chief, Contracting Division / Chief, Engineering Division

REVISION	DATE	DESCRIPTION	BY	APPVD	REVISION	DATE	DESCRIPTION	BY	APPVD

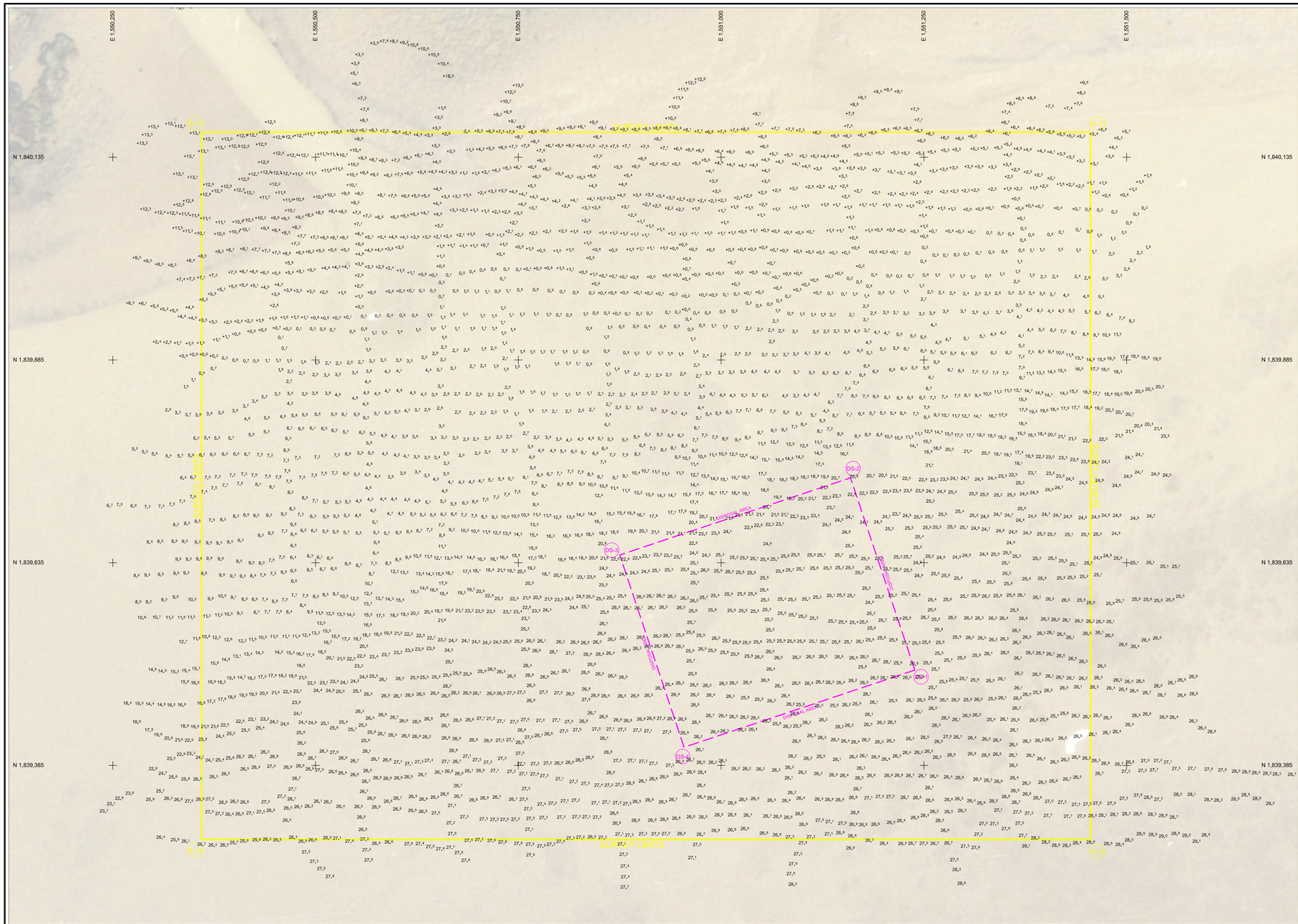
DATE: June 2015
UPC: D400B6
CONTRACT NO.: W911KB-14-C-0001
JOB NO.: 2015-01
CHECKED BY: CSH
PLOT DATE: 2015
DRAWN BY: AM
APPROVED BY: J. ANDERSON, BRANCH CHIEF (CX-O)
SCALE: 1" = 100'
SIZE: ANSI E
FILE NAME: 2015 DILLINGHAM HARBOR SURVEY

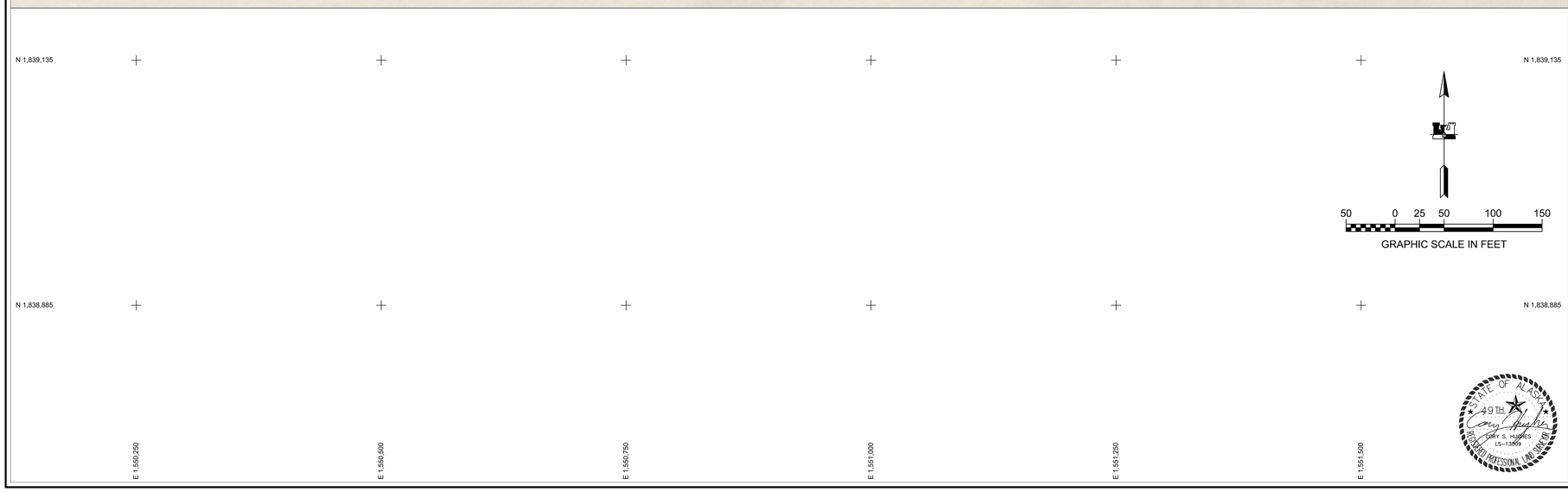
U.S. ARMY CORPS OF ENGINEERS
ALASKA DISTRICT
P.O. BOX 6898
JBER, ALASKA 99506-0898

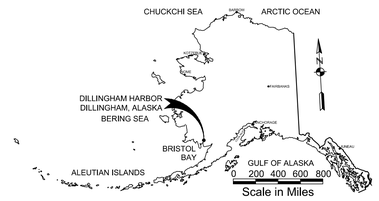
HUGHES & ASSOCIATES
2400 SCOTT LOOP
WASILLA, AK 99654

DILLINGHAM, ALASKA
DILLINGHAM HARBOR
POST DREDGE HYDROGRAPHIC SURVEY
JUNE 09-10, 2015

SHEET IDENTIFICATION
V-101
Sheet 1 of 9







LOCATION/VICINITY MAP(S)

NOTES

1. LOCAL PROJECT HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 6, NAD83, IN US SURVEY FEET BASED ON NGS PUBLISHED VALUES, HOLDING USACE SBC "DILL 1998" AS N 1,840,505.33, E 1,550,674.26. AND USACE SBC "PICKLE 1998" AS N 1,841,509.51, E 1,550,437.81.

2. VERTICAL CONTROL IS MEAN LOWER LOW WATER (MLLW=0.0'), BASED ON THE NOAA/NOS TIDAL BENCH MARK LIST: "946 5374. SNAG POINT, NUSHAGAK BAY, DILLINGHAM, ALASKA" PUBLISHED 04/29/2013. THIS TIDAL DATUM IS BASED ON THE 1983-2001 TIDAL EPOCH AND IS REFERENCED BY HOLDING NOAA/NOS TIDAL BENCH MARK "5374 D 2007" AS 60.45' AND NOAA/NOS TIDAL BENCH MARK "5374 E 2007" AS 43.79'. 5374 D IS A DISK SET FLUSH IN A CONCRETE PATIO BETWEEN THE NORTH SIDE OF THE CITY HALL BUILDING AND 5374 E IS A DISK SET IN A CONCRETE APRON IN FRONT OF THE AC STORE IN DILLINGHAM, ALASKA.

3. VERTICAL TIES TO THE NATIONAL SPATIAL REFERENCE SYSTEM ARE BASED ON PUBLISHED NAVD88 ELEVATIONS HOLDING NOAA/NOS TIDAL BENCHMARK "5374 B 2007" (PID BBBF17/VM#18352) AS 18.46'.

4. SOUNDINGS ARE IN FEET AND ARE MINUS UNLESS OTHERWISE INDICATED.

5. BATHYMETRY FOR THIS POST DREDGE SURVEY WAS CONDUCTED ON JUNE 09-10, 2015 BY HUGHES & ASSOCIATES, WASILLA, AK. SOUNDINGS WERE COLLECTED USING AN RESCN NAVISOUND 210 PRECISION DEPTH SOUNDER WITH A 200KHZ, 3-DEGREE BEAM-WIDTH TRANSDUCER. SOUNDER CALIBRATION WAS PERFORMED USING A DIGIBAR PRO SOUND VELOCITY PROBE. POSITIONING AND TIDES WERE PROVIDED IN REAL TIME USING A TRIMBLE R8 RTK GPS RECEIVER OPERATING ON KINEMATIC CORRECTIONS BROADCAST FROM A TRIMBLE R8 RTK BASE RECEIVER SET AT CONTROL STATION, "1277-3". VESSEL NAVIGATION, DATA COLLECTION AND PROCESSING WERE PERFORMED USING HYPACK 2015 INTEGRATED SOFTWARE. SURVEY CONTROL DATA TABLE BELOW WAS UPDATED DURING 2014 PRE DREDGE SURVEY. HORIZONTAL AND VERTICAL CONTROL WERE VERIFIED PRIOR TO THE 2015 PRE DREDGE SURVEY.

6. THIS DRAWING INDICATES GENERAL CONDITIONS AT THE TIME OF THE SURVEY.

7. MAP SOUNDINGS ARE SORTED ON 12 FOOT CENTERS. VOLUME SOUNDINGS ARE SORTED ON 3 FOOT CENTERS.

SURVEY CONTROL DATA

STATION	NORTHING	EASTING	MLLW	DESCRIPTION
1277-1 1984	1,841,622.39	1,550,745.71	32.29	3.25 INCH USACE SBC
1277-2 1984	1,840,494.00	1,550,879.74	30.91	3.25 INCH USACE SBC
1277-3 1984	1,840,427.98	1,550,887.60	30.24	3.25 INCH USACE SBC
5374 D 2007			60.45	NOAA/NOS TIDAL BM
5374 E 2007			43.79	NOAA/NOS TIDAL BM
DILL 1998	1,840,505.33	1,550,674.26	29.78	3.25 INCH FLAT ALCAP
DILLINGHAM 1947	1,849,383.08	1,551,809.45		3.5 INCH USCGS SBC
DILLINGHAM AZ MK	1,841,347.21	1,553,844.91		2 INCH USCGS IRON PIPE
PICKEL 1998	1,841,509.51	1,550,437.81	28.88	3.25 INCH FLAT ALCAP
WDS-2 2001	1,841,419.33	1,549,910.66	22.77	3.25 INCH DOMED ALCAP

DISPOSAL AREA

CORNER#	NORTHING	EASTING
DS-1	1,839,502.58	1,551,238.87
DS-2	1,839,739.66	1,551,159.55

DISPOSAL AREA

CORNER#	NORTHING	EASTING
DS-3	1,839,644.47	1,550,875.05
DS-4	1,839,407.39	1,550,954.38

PROJECT LIMITS

CORNER#	NORTHING	EASTING
DL-1	1,840,656.89	1,550,430.66
DL-2	1,840,645.10	1,550,447.69
DL-3	1,840,669.87	1,550,654.63
DL-4	1,841,364.89	1,550,571.44
DL-5	1,841,318.54	1,550,184.21

PROJECT LIMITS

CORNER#	NORTHING	EASTING
DL-6	1,840,930.19	1,550,305.22
DL-7	1,840,662.40	1,550,337.15
DL-8	1,840,575.05	1,550,329.96
DL-9	1,840,571.77	1,550,369.82
DL-10	1,840,653.73	1,550,376.57

SURVEY LIMITS

CORNER#	NORTHING	EASTING
SL-1	1,840,569.77	1,550,449.36
SL-2	1,840,610.25	1,550,787.66
SL-3	1,841,437.06	1,550,688.69
SL-4	1,841,461.80	1,550,593.75
SL-5	1,841,405.12	1,550,578.98
SL-6	1,841,432.20	1,550,396.29
SL-7	1,841,432.01	1,550,133.89
SL-8	1,841,362.83	1,550,065.66

SURVEY LIMITS

CORNER#	NORTHING	EASTING
SL-9	1,840,909.22	1,550,207.01
SL-10	1,840,362.44	1,550,272.21
SL-11	1,840,362.44	1,550,449.36
SL-12	1,839,293.60	1,551,455.40
SL-13	1,840,166.00	1,551,455.40
SL-14	1,840,166.00	1,550,359.57
SL-15	1,839,293.60	1,550,359.57

VOLUME COMPUTATIONS

DILLINGHAM HARBOR	MLLW	CU. YD.
REMOVED TO REQUIRED DEPTH (RD)	0.0	69,844
REMOVED BETWEEN RD AND MAX PAY DEPTH (MPD)	-2.0	14,223
REMOVED TO SIDE SLOPES (SS) AT 8:1	VARIES	19,364
TOTAL VOLUME REMOVED (MP + SS)		103,431
OVER-DREDGE VOLUME WITHIN HARBOR BASIN		3,463
OVER-DREDGE VOLUME WITHIN SIDE SLOPES		3,583

STATE OF ALASKA 49TH CORY S. HUGHES LS-13059 REGISTERED PROFESSIONAL LAND SURVEYOR

US Army Corps of Engineers
ALASKA DISTRICT

CONTRACT NO. W911KB-14-C-0001
CONTRACTOR: ALASKA MARINE EXCAVATION LLC
CITY: ANCHOR POINT STATE: ALASKA
Recommended: Approved: Date:
USACE CONTRACTOR USACE ADMIN/CONTROL

REVISION	DATE	DESCRIPTION	BY	REVISION	DATE	DESCRIPTION	BY

DATE: JUNE 09-10, 2015
UFC: D400206
CONTRACT NO.: W911KB-14-C-0001
DRAWN BY: AM
CHECKED BY: CSH
APPROVED BY: T. ANDERSON, BRANCH CHIEF (CO-O)
JOB NO.: 15-0001
SCALE: 1" = 100'
PLOT DATE: 7/7/2015
SIZE: ANSI E
FILE NAME: 2015 DILLINGHAM POST DREDGE 8_9_10.DWG

U.S. ARMY CORPS OF ENGINEERS
ALASKA DISTRICT
P.O. BOX 6898
JBER, ALASKA 99506-0898

HUGHES & ASSOCIATES
2000 E. CYOTE CLOVER
WASILLA, AK 99654

DILLINGHAM, ALASKA
DILLINGHAM HARBOR
POST DREDGE HYDROGRAPHIC SURVEY
JUNE 09-10, 2015

SHEET IDENTIFICATION
V-102
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