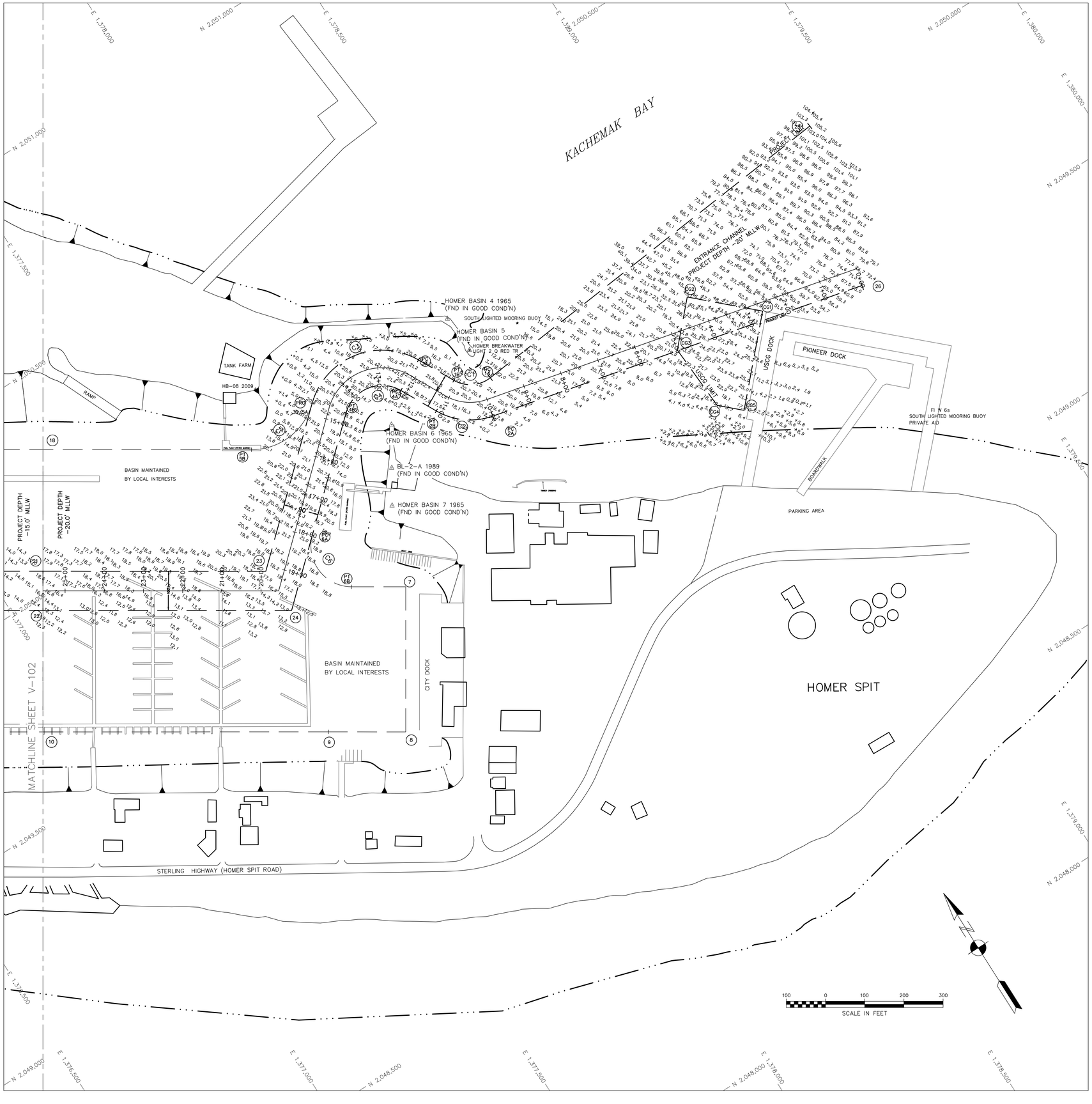
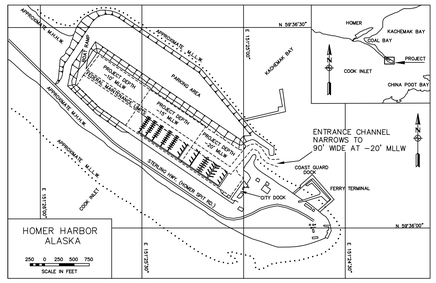
CORPS OF ENGINEERS





NOTES

1. HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 4, IN FEET, NAD 83, HOLDING USACE SBC "HOMER BASIN 7" AS N 2,049,712.22, E 1,377,964.36 AND USACE SBC "BL-2-A" AS N 2,049,793.81, E 1,378,015.52.
2. VERTICAL CONTROL IS IN FEET, REFERRING TO MEAN LOWER LOW WATER (MLLW=0.0'), HOLDING SBC "HOMER BASIN 7" AT 31.46'',
3. SOUNDINGS ARE IN FEET AND ARE NEGATIVE UNLESS OTHERWISE INDICATED.
4. THIS DRAWING IS INDICATIVE OF CONDITIONS AT THE TIME OF SURVEY.
5. THIS PRE DREDGE SURVEY WAS CONDUCTED ON SEPTEMBER 7–8, 2011 BY HUGHES AND ASSOCIATES. SOUNDINGS WERE COLLECTED USING AN INNERSPACE 448 DEPTH SOUNDER WITH A 200KHZ, 3–DEGREE BEAM–WIDTH TRANSDUCER. SPEED OF SOUND WAS DETERMINED USING AN ODOM DIGIBAR PRO AND CHECKED USING STANDARD BAR CHECK METHODS. POSITIONING AND TIDES WERE PROVIDED IN REAL TIME USING A TRIMBLE R8 RTK GPS RECEIVER OPERATING ON KINEMATIC CORRECTORS BROADCAST FROM A TRIMBLE 5700 RTK BASE RECEIVER SET AT CONTROL STATION, "HOMER BASIN 7". VESSEL NAVIGATION, DATA COLLECTION AND PROCESSING WERE PERFORMED USING HYPACK 2010 INTEGRATED SOFTWARE.
6. THE CONTROL VALUES SHOWN ON THIS PLAT WERE VERIFIED PRIOR TO THE PRE DREDGE SURVEY AND HELD AS PUBLISHED.
7. THERE WERE NO NEW PERMANENT CONTROL MONUMENTS SET DURING THIS SURVEY.

CONTROL DATA

STATION	NORTHING	EASTING	MLLW	NAVD88	DESCRIPTION
BL–2–A 1989	2,049,793.81	1,378,015.52	32.49'	27.66'	3–1/4" USACE SBC "SURVEY MARK"
HOMER BASIN 4 1965	2,050,038.11	1,378,340.09	31.28'	26.45'	3–1/4" USACE SBC "SURVEY MARK"
HOMER BASIN 5 1965	2,049,940.32	1,378,344.30	30.87'	26.04'	4" USACE SBC "TRAVERSE STATION"
HOMER BASIN 6 1965	2,049,887.28	1,378,073.96	31.21'	26.38'	3–1/4" USACE SBC "SURVEY MARK"
HOMER BASIN 7 1965	2,049,712.22	1,377,964.36	31.46'	26.63'	3–1/4" USACE SBC "SURVEY MARK"
AUDREY	2,051,507.88	1,375,406.60	33.31'	28.48'	1–1/2" ALUMINUM CAP
BOLL 1996	2,050,682.88	1,375,195.75	35.48'	30.65'	3–1/4" FLAT BRASS CAP
HB–08 2009	2,050,150.78	1,377,830.73	31.92'	27.09'	3–1/4" DOMED ALUMINUM CAP
HB–09 2009	2,051,199.61	1,375,120.24	32.01'	27.18'	3–1/4" DOMED ALUMINUM CAP
C 103 1965	––	––	26.95'	22.12'	3–1/4" USCGS SBC "BENCH MARK"
BM NO 6 1965	––	––	27.28'	22.45'	3–1/4" USCGS SBC "BENCH MARK"

☆ NAVIGATION AIDS ☆

USCG NO.	DESCRIPTION	NORTHING	EASTING
26210	HOMER BREAKWATER LIGHT 2	2,049,940.1	1,378,350.7
26216	SOUTH LIGHTED MOORING BUOY	2,049,932.5	1,378,484.4

PROJECT LIMITS – HOMER SMALL BOAT HARBOR

CORNER	NORTHING	EASTING	CORNER	NORTHING	EASTING
PC–1A	2,049,852.14	1,378,351.33	13	2,050,893.93	1,375,219.67
PT–1B	2,049,896.45	1,378,269.64	14	2,051,074.98	1,375,335.41
PC–2A	2,049,766.26	1,378,304.02	15	2,051,159.30	1,375,389.23
PT–2B	2,049,855.01	1,378,189.75	16	2,051,420.46	1,375,556.10
PC–3A	2,049,989.06	1,378,221.58	17	2,050,887.56	1,376,390.12
PRC–3B/5A	2,050,041.53	1,377,932.63	18	2,050,312.15	1,377,290.69
PT–5B	2,050,025.58	1,377,739.19	19	2,050,626.40	1,376,223.25
PC–6A	2,049,758.41	1,377,752.69	20	2,050,542.13	1,376,169.40
PT–6B	2,049,593.40	1,377,766.24	21	2,050,050.99	1,377,123.83
7	2,049,519.03	1,377,882.50	22	2,049,966.75	1,377,070.00
8	2,049,207.15	1,377,683.23	23	2,049,744.77	1,377,603.08
9	2,049,313.35	1,377,517.38	24	2,049,625.13	1,377,604.67
10	2,049,705.59	1,376,903.13	25	2,049,954.10	1,379,383.98
11	2,050,281.01	1,376,002.56	26	2,049,539.77	1,379,277.46
12	2,050,544.76	1,375,589.76			

CURVE DATA – HOMER SMALL BOAT HARBOR

CURVE NO.	RADIUS	ARC LENGTH	DELTA ANGLE	TANGENT
1	82.86'	98.65'	68–13–09	56.12'
2	172.86'	149.28'	49–28–56	79.66'
3	185.62'	338.80'	104–34–53	240.08'
4	95.62'	174.53'	104–34–53	123.67'
5	160.19'	208.50'	74–34–41	121.98'
6	104.07'	191.43'	105–23–29	136.59'

PROJECT LIMITS – USCG BERTH (USCGC "HICKORY")

CORNER	NORTHING	EASTING	CORNER	NORTHING	EASTING
CG1	2,049,621.31	1,379,028.43	CG4	2,049,481.24	1,378,801.20
CG2	2,049,755.11	1,378,885.74	CG5	2,049,443.37	1,378,852.25
CG3	2,049,654.76	1,378,791.65			

VOLUME COMPUTATIONS

BASE BID AREA VOLUMES (STATION 0+00 to 17+95.23)	
VOLUME AVAILABLE TO PROJECT DEPTH (–20')	1,268 cu. yds.
VOLUME AVAILABLE BETWEEN PROJECT DEPTH (–20') AND MAX PAY LINE (–21')	1,497 cu. yds.
VOLUME AVAILABLE ON SIDE SLOPES	3,513 cu. yds.
TOTAL VOLUME AVAILABLE (WITHIN PROJECT LIMTS)	6,278 cu. yds.
OPTION AREA VOLUMES (STATION 17+95.23 to 25+56.58)	
VOLUME AVAILABLE TO PROJECT DEPTH (–20')	7,525 cu. yds.
VOLUME AVAILABLE BETWEEN PROJECT DEPTH (–20') AND MAX PAY LINE (–21')	2,639 cu. yds.
VOLUME AVAILABLE ON SIDE SLOPES	1,939 cu. yds.
TOTAL VOLUME AVAILABLE (WITHIN PROJECT LIMTS)	12,103 cu. yds.

STATE OF ALASKA 49TH JACK S. HUGHES LS-4915 REGISTERED PROFESSIONAL LAND SURVEYOR

SURVEY

US ARMY CORPS OF ENGINEERS
ALASKA DISTRICT

CONTRACT NO. W911KB-10-B-0004
CONTRACTOR NEHALEM RIVER DREDGING
CITY NEHALEM STATE OREGON
Recommended: PRIME CONTRACTOR
Approved: RESIDENT ENGINEER
Date:

Sym	Action	Description	Date	Appvd

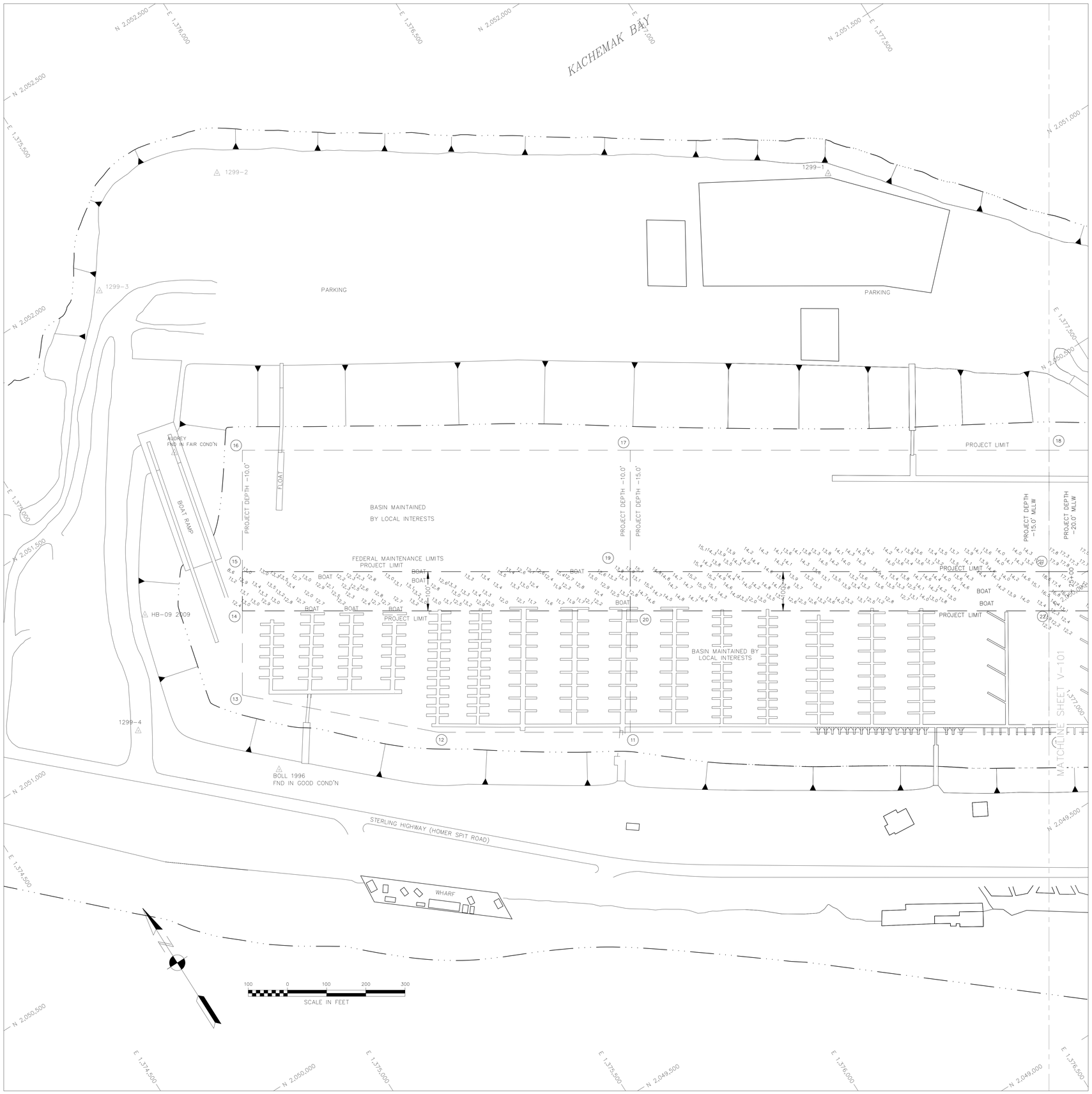
Surveyed: HUGHES AND ASSOCIATES
Drawn: REH
Reviewed: CSH
Chief: Section
Chief: Branch
Date: 9/8/11
Dwg Scale: 1" = 100'
Plot Scale:
File:
Drawing #:
2969-11

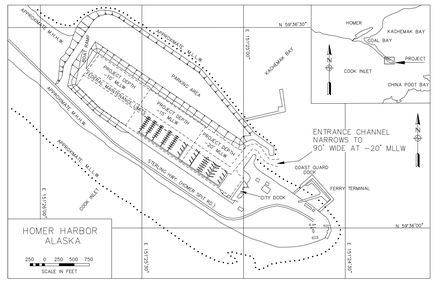
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ANCHORAGE, ALASKA

HOMER, ALASKA
HOMER HARBOR
PRE-DREDGE SURVEY
SEPTEMBER 7–8, 2011

Reference number:
V–101
Sheet 1 of 8

CORPS OF ENGINEERS





NOTES

1. HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 4, IN FEET, NAD 83, HOLDING USACE SBC "HOMER BASIN 7" AS N 2,049,712.22, E 1,377,964.36 AND USACE SBC "BL-2-A" AS N 2,049,793.81, E 1,378,015.52.
2. VERTICAL CONTROL IS IN FEET, REFERRING TO MEAN LOWER LOW WATER (MLLW=0.0'), HOLDING SBC "HOMER BASIN 7" AT 31.46".
3. SOUNDINGS ARE IN FEET AND ARE NEGATIVE UNLESS OTHERWISE INDICATED.
4. THIS DRAWING IS INDICATIVE OF CONDITIONS AT THE TIME OF SURVEY.
5. THIS PRE DREDGE SURVEY WAS CONDUCTED ON SEPTEMBER 7-8, 2011 BY HUGHES AND ASSOCIATES. SOUNDINGS WERE COLLECTED USING AN INNERSPACE 448 DEPTH SOUNDER WITH A 200KHZ, 3-DEGREE BEAM-WIDTH TRANSDUCER. SPEED OF SOUND WAS DETERMINED USING AN ODOM DIGIBAR PRO AND CHECKED USING STANDARD BAR CHECK METHODS. POSITIONING AND TIDES WERE PROVIDED IN REAL TIME USING A TRIMBLE R8 RTK GPS RECEIVER OPERATING ON KINEMATIC CORRECTORS BROADCAST FROM A TRIMBLE 5700 RTK BASE RECEIVER SET AT CONTROL STATION, "HOMER BASIN 7". VESSEL NAVIGATION, DATA COLLECTION AND PROCESSING WERE PERFORMED USING HYPACK 2010 INTEGRATED SOFTWARE.
6. THE CONTROL VALUES SHOWN ON THIS PLAT WERE VERIFIED PRIOR TO THE PRE DREDGE SURVEY AND HELD AS PUBLISHED.
7. THERE WERE NO NEW PERMANENT CONTROL MONUMENTS SET DURING THIS SURVEY.

CONTROL DATA

STATION	NORTHING	EASTING	MLLW	NAVD88	DESCRIPTION
BL-2-A 1989	2,049,793.81	1,378,015.52	32.49'	27.66'	3-1/4" USACE SBC "SURVEY MARK"
HOMER BASIN 4 1965	2,050,038.11	1,378,340.09	31.28'	26.45'	3-1/4" USACE SBC "SURVEY MARK"
HOMER BASIN 5 1965	2,049,940.32	1,378,344.30	30.87'	26.04'	4" USACE SBC "TRAVERSE STATION"
HOMER BASIN 6 1965	2,049,887.28	1,378,073.96	31.21'	26.38'	3-1/4" USACE SBC "SURVEY MARK"
HOMER BASIN 7 1965	2,049,712.22	1,377,964.36	31.46'	26.63'	3-1/4" USACE SBC "SURVEY MARK"
AUDREY	2,051,507.88	1,375,406.60	33.31'	28.48'	1-1/2" ALUMINUM CAP
BOLL 1996	2,050,682.88	1,375,195.75	35.48'	30.65'	3-1/4" FLAT BRASS CAP
HB-08 2009	2,050,150.78	1,377,830.73	31.92'	27.09'	3-1/4" DOMED ALUMINUM CAP
HB-09 2009	2,051,199.61	1,375,120.24	32.01'	27.18'	3-1/4" DOMED ALUMINUM CAP
C 103 1965	--	--	26.95'	22.12'	3-1/4" USCGS SBC "BENCH MARK"
BM NO 6 1965	--	--	27.28'	22.45'	3-1/4" USCGS SBC "BENCH MARK"

☆ NAVIGATION AIDS ☆

USCG NO.	DESCRIPTION	NORTHING	EASTING
26210	HOMER BREAKWATER LIGHT 2	2,049,940.1	1,378,350.7
26216	SOUTH LIGHTED MOORING BUOY	2,049,932.5	1,378,484.4

PROJECT LIMITS - HOMER SMALL BOAT HARBOR

CORNER	NORTHING	EASTING	CORNER	NORTHING	EASTING
PC-1A	2,049,852.14	1,378,351.33	13	2,050,893.93	1,375,219.67
PT-1B	2,049,896.45	1,378,269.64	14	2,051,074.98	1,375,335.41
PC-2A	2,049,766.26	1,378,304.02	15	2,051,159.30	1,375,389.23
PT-2B	2,049,855.01	1,378,189.75	16	2,051,420.46	1,375,556.10
PC-3A	2,049,989.06	1,378,221.58	17	2,050,887.56	1,376,390.12
PRC-3B/5A	2,050,041.53	1,377,932.63	18	2,050,312.15	1,377,280.69
PT-5B	2,050,025.58	1,377,739.19	19	2,050,626.40	1,376,223.25
PC-6A	2,049,758.41	1,377,752.69	20	2,050,542.13	1,376,169.40
PT-6B	2,049,593.40	1,377,766.24	21	2,050,050.99	1,377,123.83
7	2,049,519.03	1,377,882.50	22	2,049,966.75	1,377,070.00
8	2,049,207.15	1,377,683.23	23	2,049,744.77	1,377,603.08
9	2,049,313.35	1,377,517.38	24	2,049,625.13	1,377,604.67
10	2,049,705.59	1,376,903.13	25	2,049,954.10	1,379,383.98
11	2,050,281.01	1,376,002.56	26	2,049,539.77	1,379,277.46
12	2,050,544.76	1,375,589.76			

CURVE DATA - HOMER SMALL BOAT HARBOR

CURVE NO.	RADIUS	ARC LENGTH	DELTA ANGLE	TANGENT
1	82.86'	98.65'	68-13-09	56.12'
2	172.86'	149.28'	49-28-56	79.66'
3	185.62'	338.80'	104-34-53	240.08'
4	95.62'	174.53'	104-34-53	123.67'
5	160.19'	208.50'	74-34-41	121.98'
6	104.07'	191.43'	105-23-29	136.59'

PROJECT LIMITS - USCG BERTH (USCGC "HICKORY")

CORNER	NORTHING	EASTING	CORNER	NORTHING	EASTING
CG1	2,049,621.31	1,379,028.43	CG4	2,049,481.24	1,378,801.20
CG2	2,049,755.11	1,378,885.74	CG5	2,049,443.37	1,378,852.25
CG3	2,049,654.76	1,378,791.65			

VOLUME COMPUTATIONS

BASE BID AREA VOLUMES (STATION 0+00 to 17+95.23)	
VOLUME AVAILABLE TO PROJECT DEPTH (-20')	1,268 cu. yds.
VOLUME AVAILABLE BETWEEN PROJECT DEPTH (-20') AND MAX PAY LINE (-21')	1,497 cu. yds.
VOLUME AVAILABLE ON SIDE SLOPES	3,513 cu. yds.
TOTAL VOLUME AVAILABLE (WITHIN PROJECT LIMTS)	6,278 cu. yds.
OPTION AREA VOLUMES (STATION 17+95.23 to 25+56.58)	
VOLUME AVAILABLE TO PROJECT DEPTH (-20')	7,525 cu. yds.
VOLUME AVAILABLE BETWEEN PROJECT DEPTH (-20') AND MAX PAY LINE (-21')	2,639 cu. yds.
VOLUME AVAILABLE ON SIDE SLOPES	1,939 cu. yds.
TOTAL VOLUME AVAILABLE (WITHIN PROJECT LIMTS)	12,103 cu. yds.

STATE OF ALASKA
49TH
JACK S. HUGHES
LS-4915
REGISTERED PROFESSIONAL LAND SURVEYOR

SURVEY

US ARMY CORPS OF ENGINEERS
ALASKA DISTRICT

CONTRACT NO. W911KB-10-B-0004
CONTRACTOR NEHALEM RIVER DREDGING
CITY NEHALEM STATE OREGON
Recommended: Approved: Date:
PRIME CONTRACTOR RESIDENT ENGINEER

Sym.	Action	Description	Date	Appvd

Surveyed: HUGHES AND ASSOCIATES
Drawn: REH
Reviewed: CSH
Date: 9/8/11
Dwg Scale: 1" = 100'
Plot Scale:
File:
Drawing #:
Section
Branch
Chief
Chief
2969-11

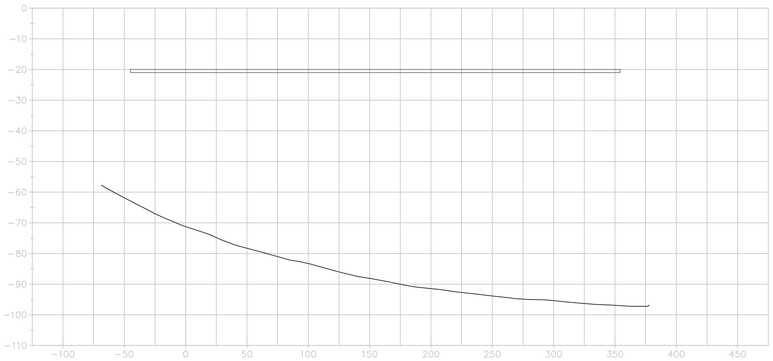
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ANCHORAGE, ALASKA

HOMER, ALASKA
HOMER HARBOR
PRE-DREDGE SURVEY
SEPTEMBER 7-8, 2011

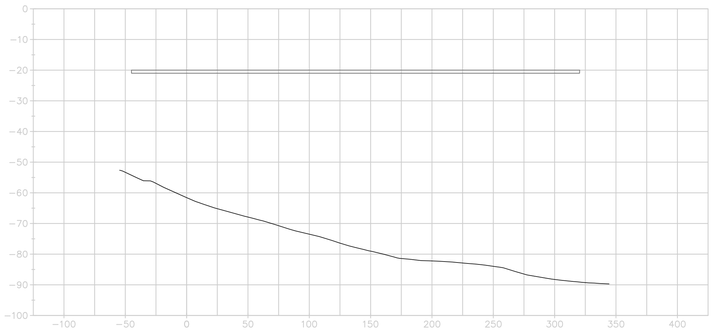
Reference number:
V-102
Sheet 2 of 8

CORPS OF ENGINEERS

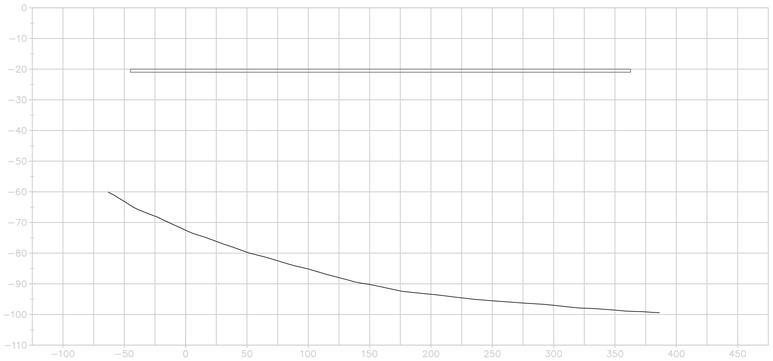
0+75



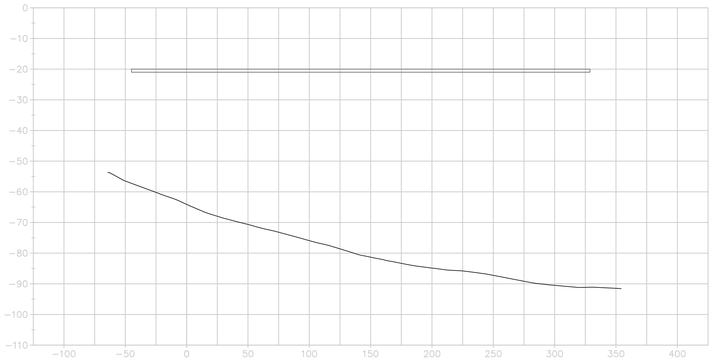
1+75



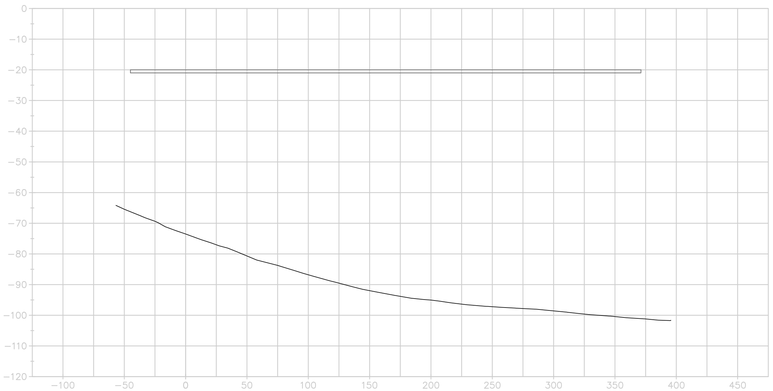
0+50



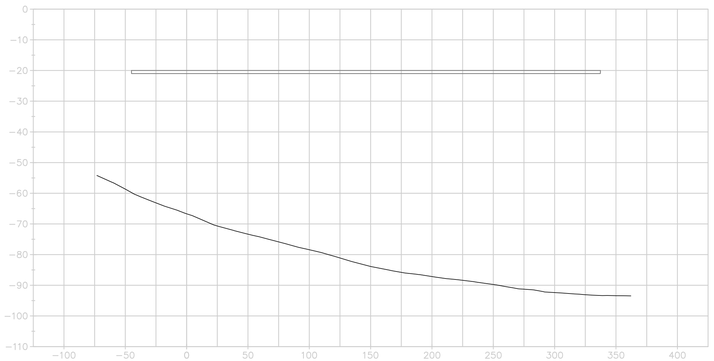
1+50



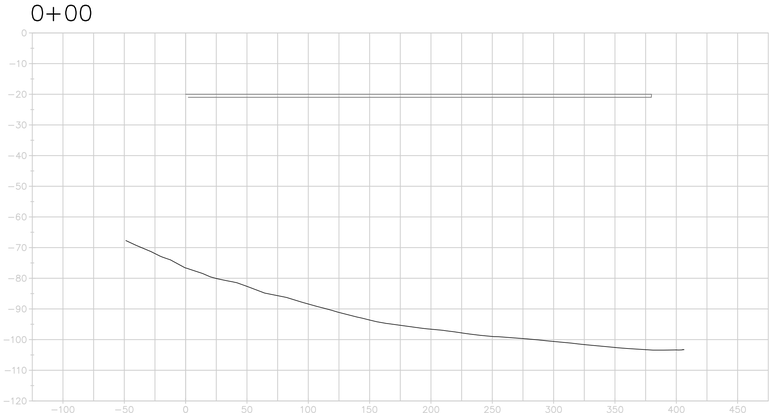
0+25



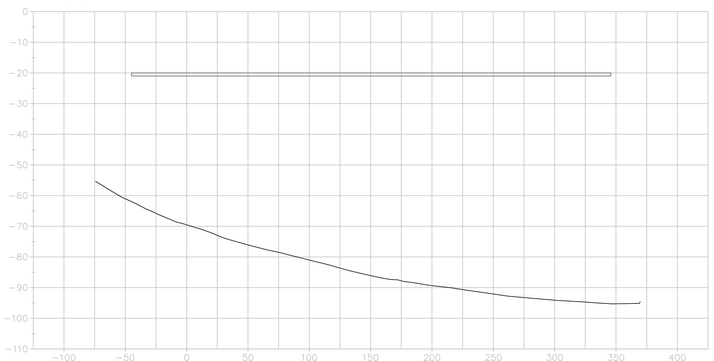
1+25



0+00



1+00



PRE-DREDGE SURVEY
SEPTEMBER 7-8, 2011

SCALE
HORIZONTAL: 1" = 50'
VERTICAL: 1" = 20'

STATE OF ALASKA 49TH
JACK S. HUGHES
LS-4915
REGISTERED PROFESSIONAL LAND SURVEYOR

SURVEY

US ARMY CORPS OF ENGINEERS
ALASKA DISTRICT

CONTRACT NO. W911KB-10-B-0004
CONTRACTOR NEHALEM RIVER DREDGING
CITY NEHALEM STATE OREGON
Recommended: Approved: Date:
PRIME CONTRACTOR RESIDENT ENGINEER

Sym	Action	Description	Date	Approv

Surveyed: HUGHES AND ASSOCIATES
Drawn: REH
Reviewed: CSH
Chief, Section:
Submitted:
Chief, Branch:
Date: 9/8/11
Dwg Scale:
Plot Scale:
File:
Drawing #: 2969-11

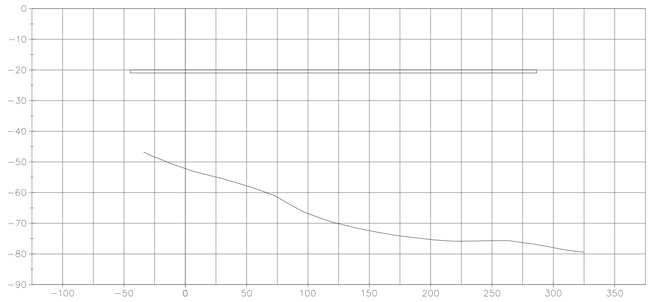
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ANCHORAGE, ALASKA

HOMER, ALASKA
HOMER HARBOR
PRE-DREDGE SURVEY
SEPTEMBER 7-8, 2011

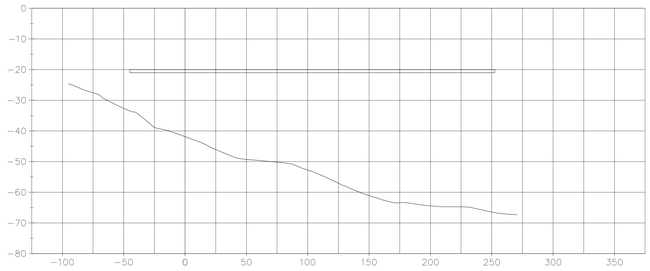
Reference number:
V-103
Sheet 3 of 8

CORPS OF ENGINEERS

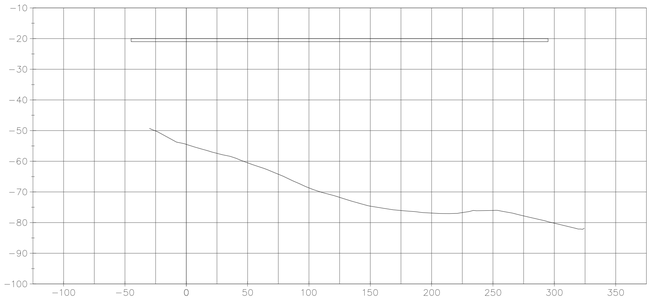
2+75



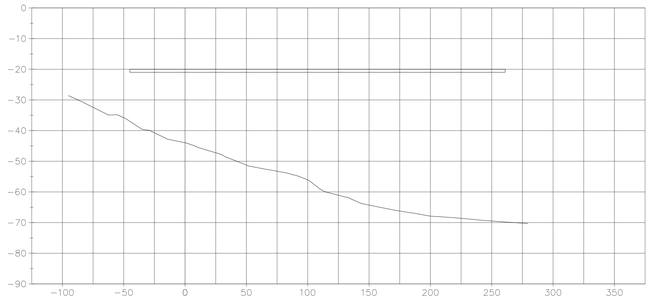
3+75



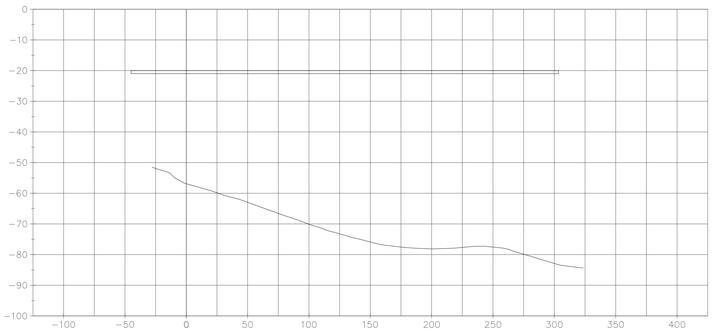
2+50



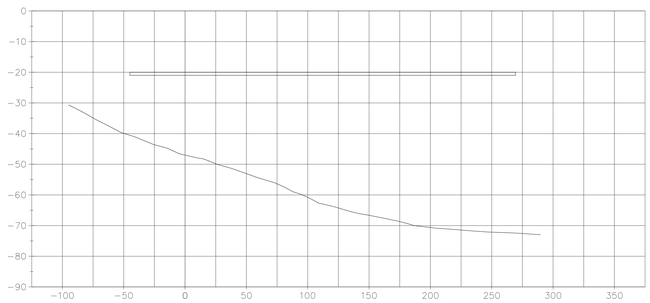
3+50



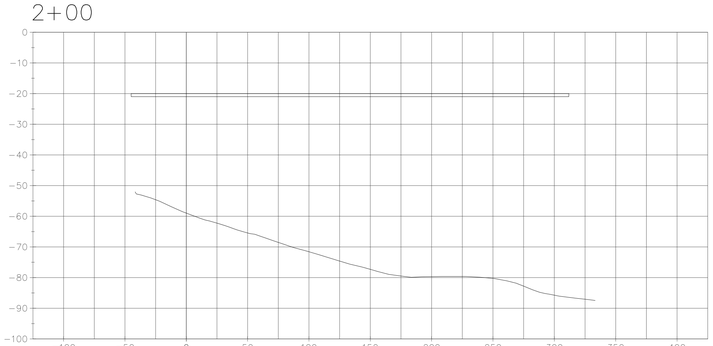
2+25



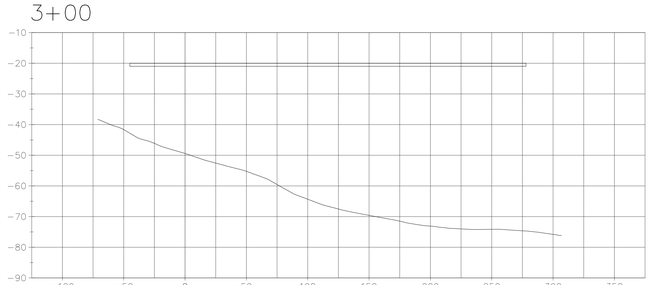
3+25



2+00



3+00



PRE-DREDGE SURVEY
SEPTEMBER 7-8, 2011

SCALE
HORIZONTAL: 1" = 50'
VERTICAL: 1" = 20'

STATE OF ALASKA
49TH
JACK S. HUGHES
LS-4915
REGISTERED PROFESSIONAL LAND SURVEYOR

SURVEY

US ARMY CORPS OF ENGINEERS
ALASKA DISTRICT

CONTRACT NO. W911KB-10-B-0004
CONTRACTOR NEHALEM RIVER DREDGING
CITY NEHALEM STATE OREGON
Recommended: Approved: Date:
PRIME CONTRACTOR RESIDENT ENGINEER

Sym.	Action	Description	Date	Appvd

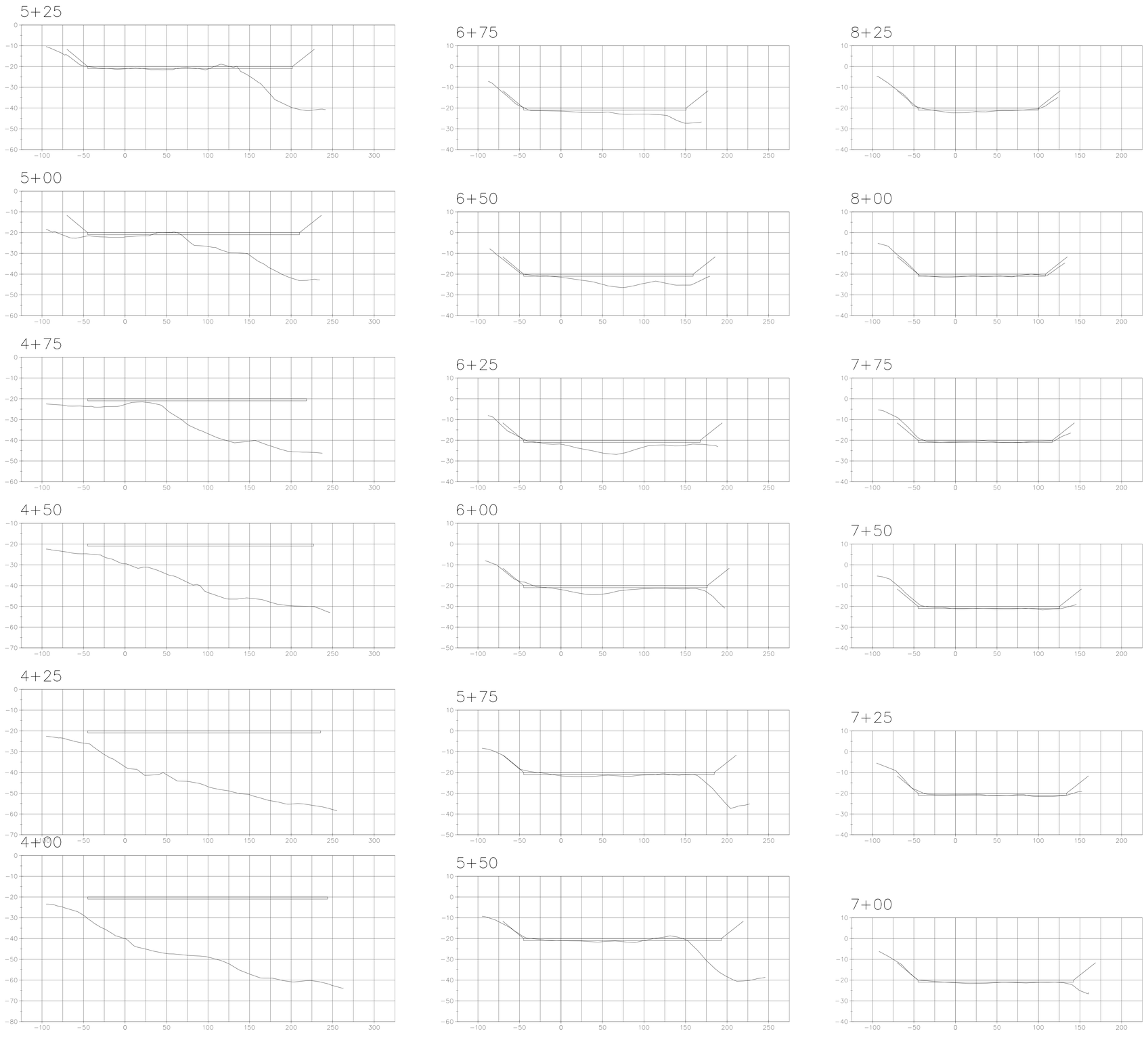
Surveyed: HUGHES AND ASSOCIATES
Drawn: REH
Reviewed: CSH
Chief, Section:
Submitted:
Chief, Branch:
Date: 9/8/11
Dwg Scale:
Plot Scale:
File:
Drawing #:
2969-11

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

HOMER, ALASKA
HOMER HARBOR
PRE-DREDGE SURVEY
SEPTEMBER 7-8, 2011

Reference number:
V-104
Sheet 4 of 8

CORPS OF ENGINEERS



PRE-DREDGE SURVEY
SEPTEMBER 7-8, 2011

SCALE
HORIZONTAL: 1" = 50'
VERTICAL: 1" = 20'

STATE OF ALASKA
49TH
JACK S. HUGHES
LS-4915
REGISTERED PROFESSIONAL LAND SURVEYOR

SURVEY

US ARMY CORPS OF ENGINEERS
ALASKA DISTRICT

CONTRACT NO. W911KB-10-B-0004
CONTRACTOR NEHALEM RIVER DREDGING
CITY NEHALEM STATE OREGON
Recommended: Approved: Date:
PRIME CONTRACTOR RESIDENT ENGINEER

Sym.	Action	Description	Date	Appvd

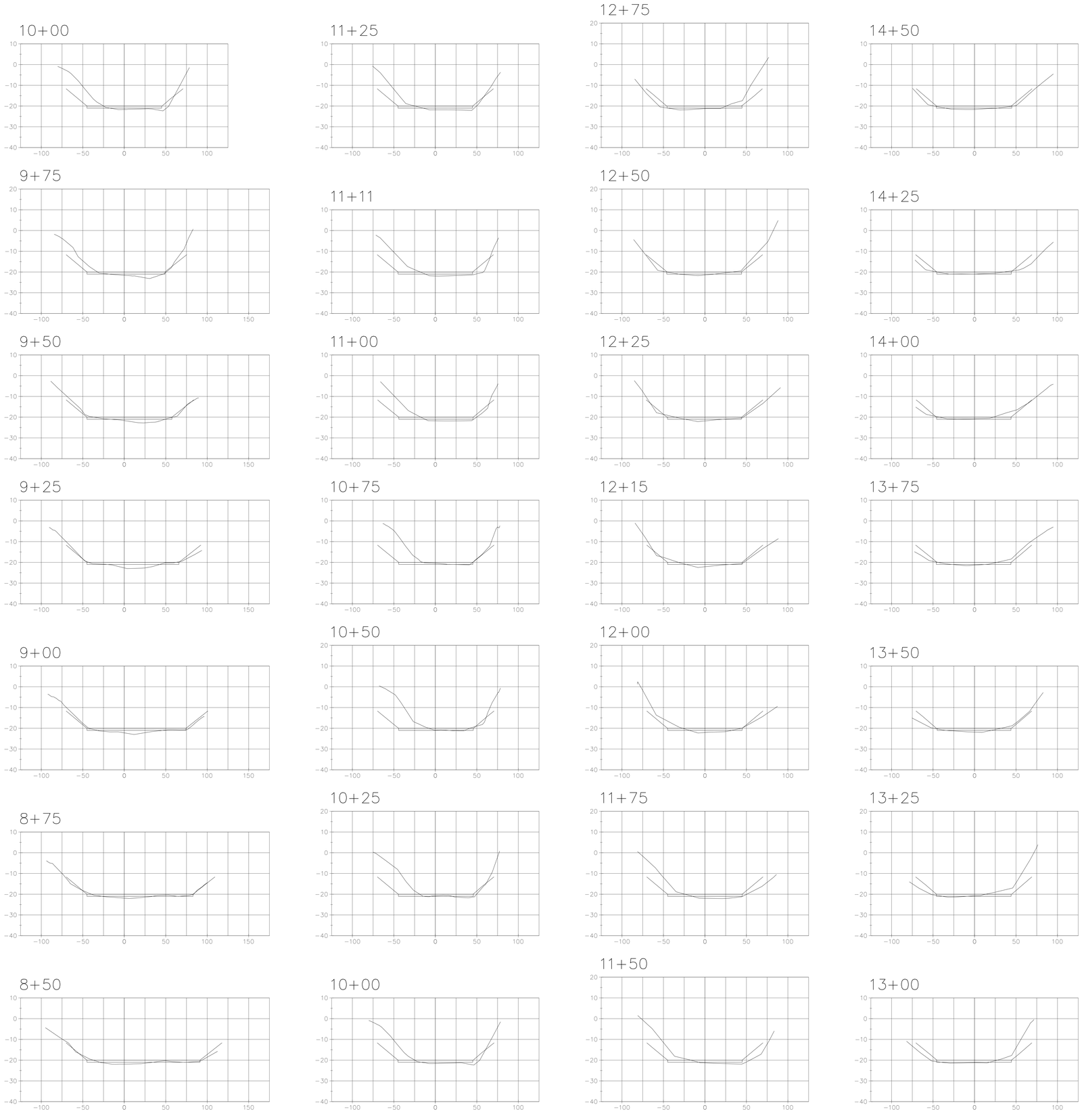
Surveyed: HUGHES AND ASSOCIATES Date: 9/8/11
Drawn: REH Dwg Scale:
Reviewed: CSH Plot Scale:
Chief Section File:
Submitted: Drawing #:
Chief, Branch: 2969-11

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

HOMER, ALASKA
HOMER HARBOR
PRE-DREDGE SURVEY
SEPTEMBER 7-8, 2011

Reference number:
V-105
Sheet 5 of 8

CORPS OF ENGINEERS



PRE-DREDGE SURVEY
SEPTEMBER 7-8, 2011

SCALE
HORIZONTAL: 1" = 50'
VERTICAL: 1" = 20'

STATE OF ALASKA 49TH JACK S. HUGHES LS-4915 REGISTERED PROFESSIONAL LAND SURVEYOR

SURVEY

US ARMY CORPS OF ENGINEERS
ALASKA DISTRICT

CONTRACT NO. W911KB-10-B-0004
CONTRACTOR NEHALEM RIVER DREDGING
CITY NEHALEM STATE OREGON
Recommended: PRIME CONTRACTOR
Approved: RESIDENT ENGINEER
Date:

Sym.	Action	Description	Date	Appvd

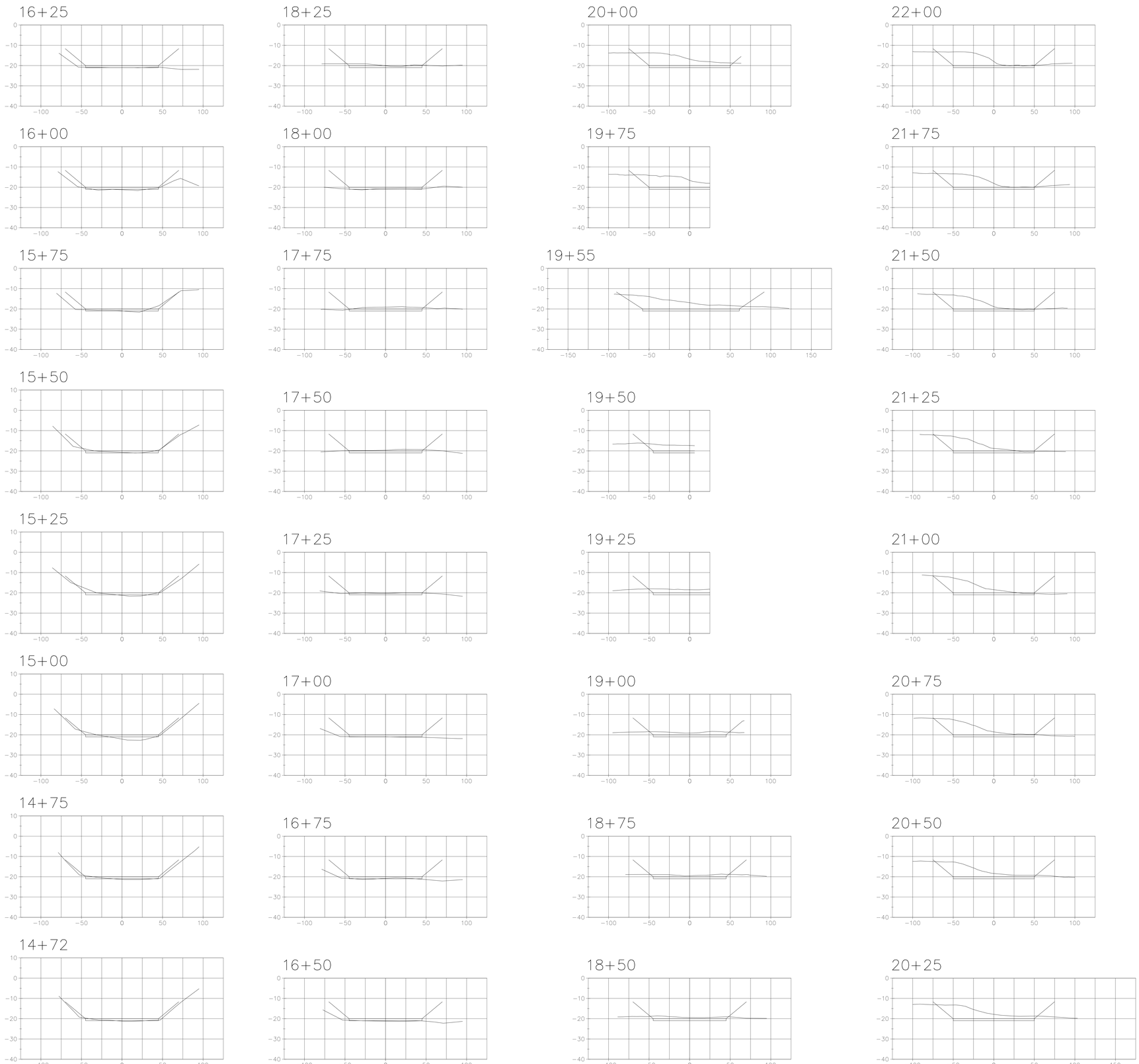
Surveyed: HUGHES AND ASSOCIATES
Drawn: REH
Reviewed: CSH
Chief:
Checked:
Chief:
Date: 9/8/11
Dwg Scale:
Plot Scale:
File:
Section
Branch
Drawing #: 2969-11

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

HOMER, ALASKA
HOMER HARBOR
PRE-DREDGE SURVEY
SEPTEMBER 7-8, 2011

Reference number:
V-106
Sheet 6 of 8

CORPS OF ENGINEERS



PRE-DREDGE SURVEY
SEPTEMBER 7-8, 2011

SCALE
HORIZONTAL: 1" = 50'
VERTICAL: 1" = 20'

STATE OF ALASKA 49TH JACK S. HUGHES LS-4915 REGISTERED PROFESSIONAL LAND SURVEYOR

SURVEY

US ARMY CORPS OF ENGINEERS
ALASKA DISTRICT

CONTRACT NO. W911KB-10-B-0004
CONTRACTOR NEHALEM RIVER DREDGING
CITY NEHALEM STATE OREGON
Recommended: Approved: Date:
PRIME CONTRACTOR RESIDENT ENGINEER

Sym.	Action	Description	Date	Appvd

Surveyed: HUGHES AND ASSOCIATES Date: 9/8/11
Drawn: REH Dwg Scale:
Reviewed: CSH Plot Scale:
Chief, Section: File:
Submitted: Drawing #:
Chief, Branch: 2969-11

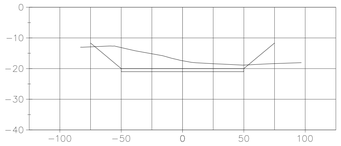
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ANCHORAGE, ALASKA

HOMER, ALASKA
HOMER HARBOR
PRE-DREDGE SURVEY
SEPTEMBER 7-8, 2011

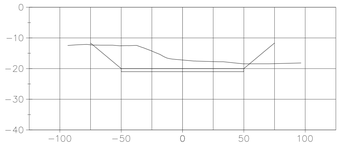
Reference number:
V-107
Sheet 7 of 8

CORPS OF ENGINEERS

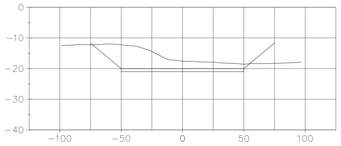
24+25



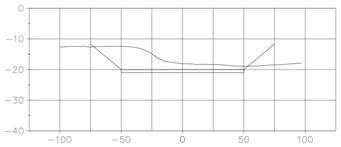
24+00



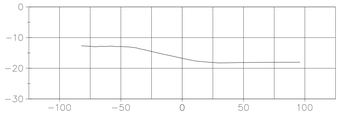
23+75



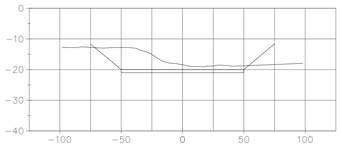
23+50



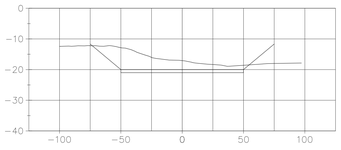
25+75



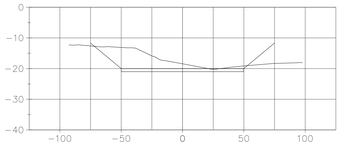
23+25



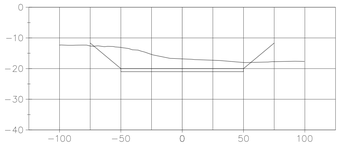
25+50



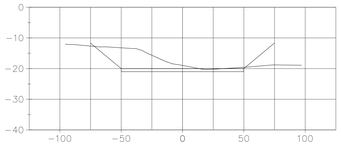
23+00



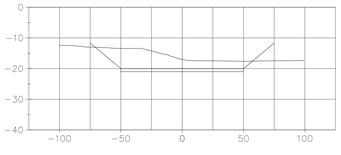
25+25



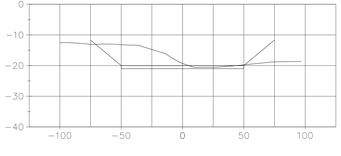
22+75



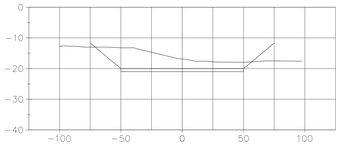
25+00



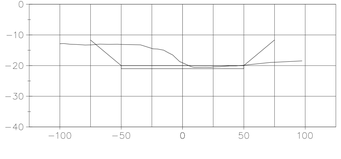
22+50



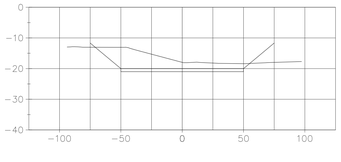
24+75



22+25



24+50



PRE-DREDGE SURVEY
SEPTEMBER 7-8, 2011

SCALE
HORIZONTAL: 1" = 50'
VERTICAL: 1" = 20'

STATE OF ALASKA
49TH
JACK S. HUGHES
LS-4915
REGISTERED PROFESSIONAL LAND SURVEYOR

SURVEY

US ARMY CORPS
OF ENGINEERS
ALASKA DISTRICT

CONTRACT NO. W911KB-10-B-0004
CONTRACTOR NEHALEM RIVER DREDGING
CITY NEHALEM STATE OREGON
Recommended: Approved: Date:
PRIME CONTRACTOR RESIDENT ENGINEER

Sym.	Action	Description	Date	Appvd

Surveyed: HUGHES AND ASSOCIATES
Drawn: REH
Reviewed: CSH
Chief, Section
Submitted:
Chief, Branch
Date: 9/8/11
Dwg Scale:
Plot Scale:
File:
Drawing #: 2969-11

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

HOMER, ALASKA
HOMER HARBOR
PRE-DREDGE SURVEY
SEPTEMBER 7-8, 2011

Reference number:
V-108
Sheet 8 of 8