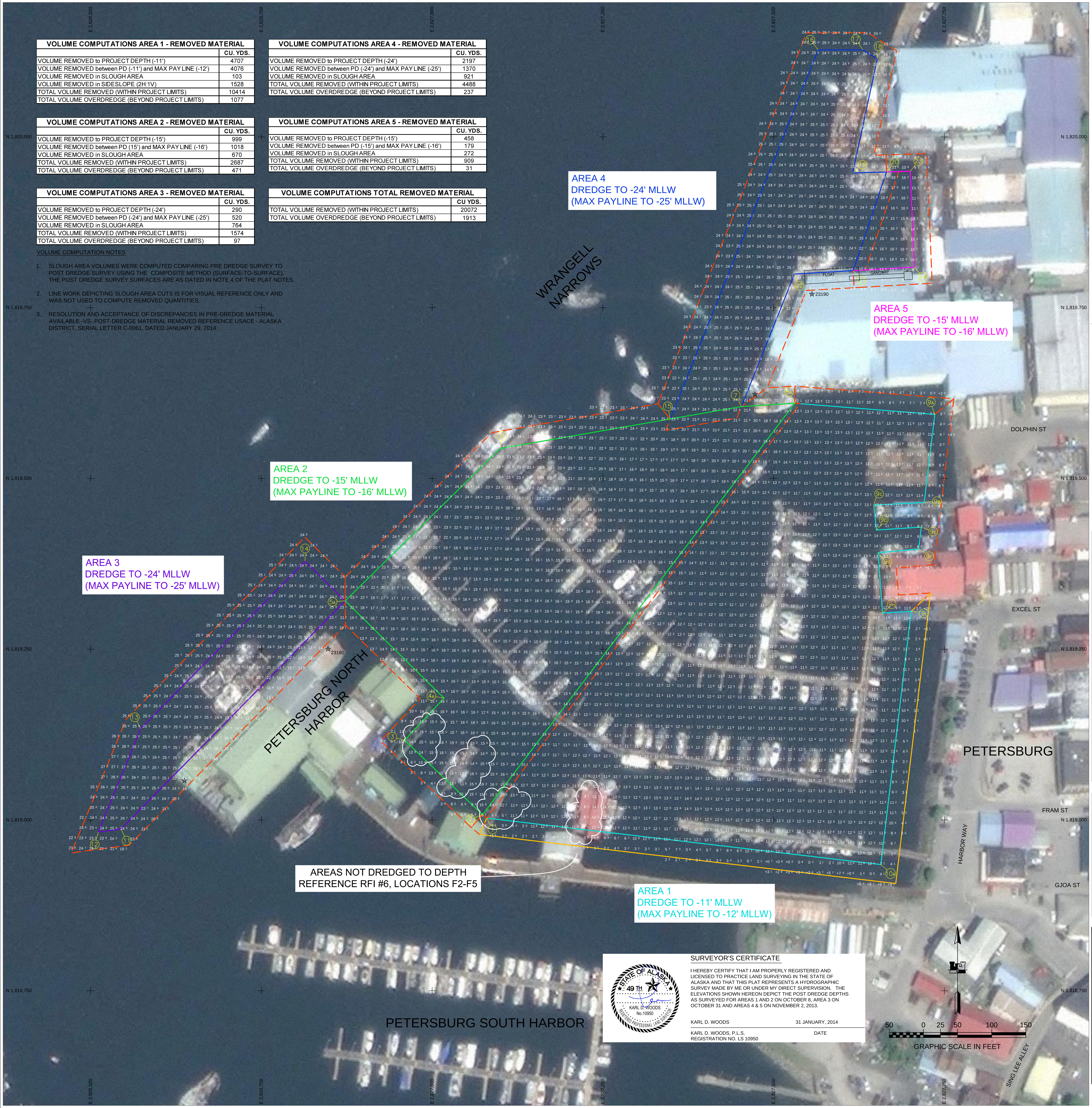


VOLUME COMPUTATIONS AREA 1 - REMOVED MATERIAL	CU. YDS.
VOLUME REMOVED to PROJECT DEPTH (-11')	4707
VOLUME REMOVED between PD (-11') and MAX PAY LINE (-12')	4076
VOLUME REMOVED in SLOUGH AREA	103
VOLUME REMOVED in SIDESLOPE (2H:1V)	1528
TOTAL VOLUME REMOVED (WITHIN PROJECT LIMITS)	10414
TOTAL VOLUME OVERDREDGE (BEYOND PROJECT LIMITS)	1077

VOLUME COMPUTATIONS AREA 2 - REMOVED MATERIAL	CU. YDS.
VOLUME REMOVED to PROJECT DEPTH (-15')	999
VOLUME REMOVED between PD (15') and MAX PAY LINE (-16')	1018
VOLUME REMOVED in SLOUGH AREA	670
TOTAL VOLUME REMOVED (WITHIN PROJECT LIMITS)	2687
TOTAL VOLUME OVERDREDGE (BEYOND PROJECT LIMITS)	471

VOLUME COMPUTATIONS AREA 3 - REMOVED MATERIAL	CU. YDS.
VOLUME REMOVED to PROJECT DEPTH (-24')	290
VOLUME REMOVED between PD (-24') and MAX PAY LINE (-25')	520
VOLUME REMOVED in SLOUGH AREA	764
TOTAL VOLUME REMOVED (WITHIN PROJECT LIMITS)	1574
TOTAL VOLUME OVERDREDGE (BEYOND PROJECT LIMITS)	97

VOLUME COMPUTATIONS AREA 4 - REMOVED MATERIAL	CU. YDS.
VOLUME REMOVED to PROJECT DEPTH (-24')	2197
VOLUME REMOVED between PD (-24') and MAX PAY LINE (-25')	1370
VOLUME REMOVED in SLOUGH AREA	921
TOTAL VOLUME REMOVED (WITHIN PROJECT LIMITS)	4488
TOTAL VOLUME OVERDREDGE (BEYOND PROJECT LIMITS)	237

VOLUME COMPUTATIONS AREA 5 - REMOVED MATERIAL	CU. YDS.
VOLUME REMOVED to PROJECT DEPTH (-15')	458
VOLUME REMOVED between PD (-15') and MAX PAY LINE (-16')	179
VOLUME REMOVED in SLOUGH AREA	272
TOTAL VOLUME REMOVED (WITHIN PROJECT LIMITS)	909
TOTAL VOLUME OVERDREDGE (BEYOND PROJECT LIMITS)	31

VOLUME COMPUTATIONS TOTAL REMOVED MATERIAL	CU YDS.
TOTAL VOLUME REMOVED (WITHIN PROJECT LIMITS)	20072
TOTAL VOLUME OVERDREDGE (BEYOND PROJECT LIMITS)	1913

VOLUME COMPUTATION NOTES

1. SLOUGH AREA VOLUMES WERE COMPUTED COMPARING PRE DREDGE SURVEY TO POST DREDGE SURVEY USING THE COMPOSITE METHOD (SURFACE-TO-SURFACE). THE POST DREDGE SURVEY SURFACES ARE AS DATED IN NOTE 4 OF THE PLAT NOTES.
2. LINE WORK DEPICTING SLOUGH AREA CUTS IS FOR VISUAL REFERENCE ONLY AND WAS NOT USED TO COMPUTE REMOVED QUANTITIES.
3. RESOLUTION AND ACCEPTANCE OF DISCREPANCIES IN PRE-DREDGE MATERIAL AVAILABLE -VS- POST-DREDGE MATERIAL REMOVED REFERENCE USACE - ALASKA DISTRICT, SERIAL LETTER C-0061, DATED JANUARY 29, 2014.

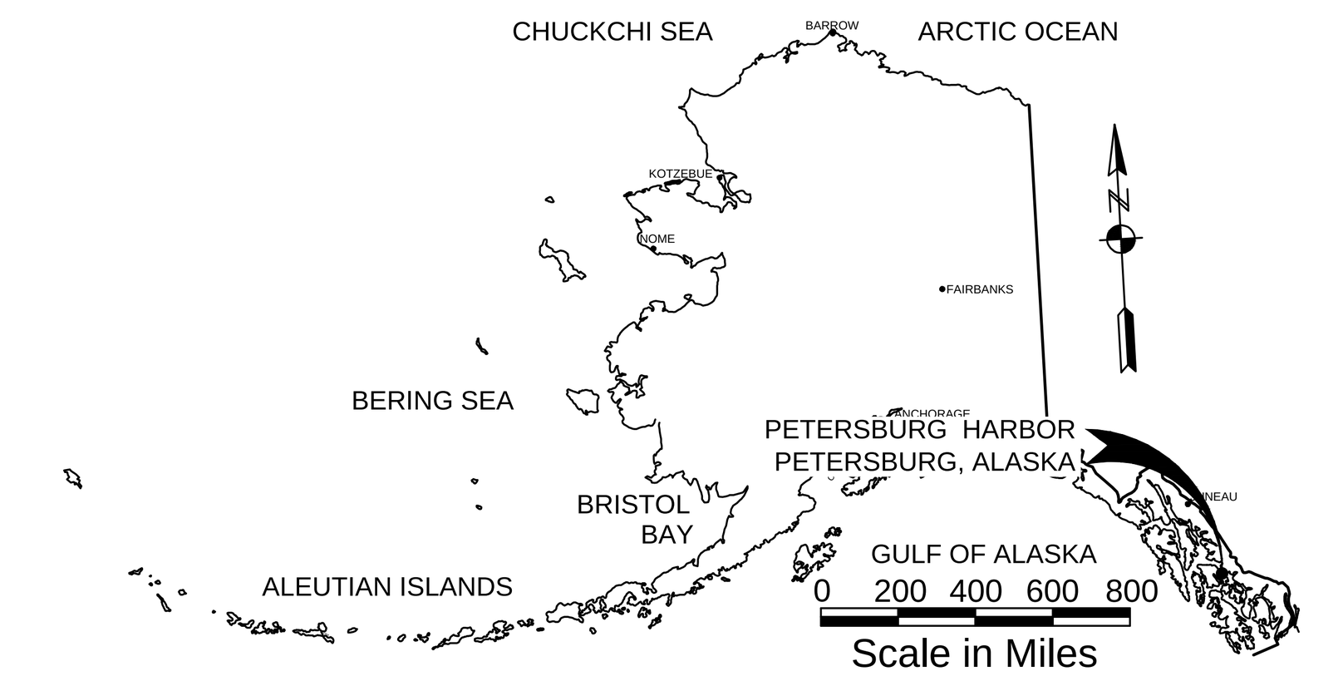
SURVEYOR'S CERTIFICATE

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 POST DREDGE DEPTHS AS SURVEYED FOR AREAS 1 AND 2 ON OCTOBER 8, AREA 3 ON OCTOBER 31 AND AREAS 4 & 5 ON NOVEMBER 2, 2013.

KARL D. WOODS — 31 JANUARY, 2014

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

US Army Corps of Engineers
ALASKA DISTRICT



LOCATION/VICINITY MAP(S)

NOTES

1. ALL HORIZONTAL AND VERTICAL CONTROL WAS PERFORMED AND PROVIDED BY R&M ENGINEERING-KETCHIKAN, INC. AUGUST 22 - 23, 2013. REFER TO THE CONTROL REPORT SIGNED BY GREGORY SCHEFF LS#6700 DATED SEPTEMBER 17, 2013.
2. HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 1, NAD 83, IN US SURVEY FEET, HOLDING CONTROL STATION "NH-1 1997", BASED ON CURRENT HORIZONTAL CONTROL VALUES "N 1,818,870.65" AND "E 2,827,683.27".
3. VERTICAL CONTROL IS IN FEET, REFERRING TO MEAN LOWER LOW WATER (MLLW=0.0'), HOLDING CONTROL STATION "NH-1 1997", BASED ON CURRENT VERTICAL CONTROL STATION VALUE OF 23.98' MLLW.
4. POST DREDGE BATHYMETRY WAS COLLECTED FOR AREAS 1 AND 2 ON OCTOBER 8, AREA 3 ON OCTOBER 31 AND AREAS 4 & 5 ON NOVEMBER 2, 2013 BY TERRASOND LIMITED. SOUNDINGS WERE COLLECTED USING RESON SEABAT 7125 SV2 MULTIBEAM ECHOSOUNDER (400kHz 512 BEAMS EQUAL ANGLE). BEAM STEERING WAS ACCOMPLISHED USING A 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. VESSEL ATTITUDE, HEADING, POSITIONING AND REAL-TIME TIDES WERE PROVIDED USING A POS MV WAVEMASTER INERTIAL MOTION UNIT OPERATING ON KINEMATIC GPS CORRECTIONS BROADCAST FROM A TOPCON HYPER V GPS RECEIVER SET AT HARBOR MASTERS OFFICE ROOF, "NORTH HARBOR BASE" HOLDING COORDINATES "N 1,819,236.65","E 2,827,763.78", AND "44.26 MLLW". SURVEY NAVIGATION AND DATA COLLECTION WERE PERFORMED USING HYPACK "HYSWEEP 2013" INTEGRATED SOFTWARE (V2013). DATA PROCESSING WAS PERFORMED USING CARIS HIPS SOFTWARE (V7.1). ADDITIONAL PREDREDGE SURVEY COVERAGE ALONG THE SOUTH BOAT RAMP WAS PROVIDED BY THE USACE AND INCORPORATED.
5. SOUNDINGS ARE IN FEET AND ARE MINUS UNLESS OTHERWISE INDICATED.
6. THIS DRAWING INDICATES GENERAL CONDITIONS AT THE TIME OF THE SURVEY.
7. MAP SOUNDINGS ARE BINNED AT 15 FEET AND ARE AVERAGE BIASED. VOLUME SOUNDINGS ARE BINNED AT 3 FEET AND ARE AVERAGE BIASED.
8. FLOATS 1, 2, HEADWALK, TRANSIENT AND SKIFF WERE REMOVED AT TIME OF SURVEY.
9. IMAGES ARE FOR REFERENCE ONLY AND WERE PROVIDED BY THE USACE.

SURVEY CONTROL DATA

STATION	NORTHING	EASTING	MLLW	DESCRIPTION
1346E 2003	1,769,457.40	2,833,296.22	17.68	NOAA / NOS 3.5" DBC (SOLID)
1434 A 2006	1,814,207.81	2,823,232.54	27.14	NOAA \ NOS BENCH MARK 4" DBC FND GOOD COND
NH-1 1997	1,818,870.65	2,827,683.27	23.98	USACE 3-1/4" DB CAP FND GOOD COND
NH-2 1997	1,818,753.15	2,828,219.63	33.13	USACE 3-1/4" DB CAP FND GOOD COND
NH-3 2000	1,819,014.58	2,827,753.09	25.58	USACE 3-1/4" DB CAP FND GOOD COND
NH-4 2000	1,818,325.29	2,827,135.91	25.35	USACE 3-1/4" DB CAP DESTROYED
NH-5 2003	1,819,618.09	2,828,298.02	52.42	USACE 3-1/4" DB CAP DESTROYED
NH-6 2003	1,818,814.73	2,828,296.24	40.97	USACE 3-1/4" DB CAP DESTROYED
PH-1	1,819,565.09	2,827,988.98	24.38	2-1/2" FLAT BRASS CAP NSF
SIGNAL 4	1,822,039.29	2,828,110.85	19.84	US ENGINEERS SURVEY MARK SBC NSF
SIGNAL 8	1,819,519.84	2,823,246.95	20.39	US ENGINEERS SURVEY MARK SBC NSF
WN-1A 1999	1,821,893.61	2,830,057.14	24.19	USACE 3-1/4" DB CAP NSF
WN-1B 1999	1,821,072.48	2,829,142.76	24.47	USACE 3-1/4" DB CAP NSF
WN-2A 1999	1,815,318.43	2,820,933.42	19.38	USACE 3-1/4" DB CAP NSF
WN-2B 1999	1,817,808.98	2,825,272.30	25.17	USACE 3-1/4 INCH DOMED BRASS CAP

☆ NAVIGATION AIDS ☆

USCG NO.	NORTHING	EASTING	DESCRIPTION
	1,819,057.60	2,826,637.30	OCEAN BEAUTY SEAFOOD PIER LIGHTS (S) - ON BUILDING
	1,819,623.30	2,827,472.70	PETERSBURG FISHERIES DOCK LIGHTS (S) - ON BUILDING
23180	1,819,250.40	2,826,847.60	OCEAN BEAUTY SEAFOOD PIER LIGHTS (N) - ON BUILDING
23190	1,819,769.90	2,827,556.20	PETERSBURG FISHERIES DOCK LIGHTS (N) - ON BUILDING

DREDGE LIMITS (#)

CORNER	NORTHING	EASTING	CORNER	NORTHING	EASTING
1	1,819,002.75	2,827,079.82	9 I	1,819,305.50	2,827,701.45
2	1,819,007.75	2,827,073.82	10 A	1,818,934.72	2,827,657.02
3	1,819,116.75	2,826,959.81	11	1,818,986.77	2,826,544.63
4 A	1,819,178.41	2,827,017.41	12	1,818,982.28	2,826,511.28
5 A	1,819,320.84	2,826,872.78	13	1,819,133.70	2,826,573.34
6	1,819,543.80	2,827,099.80	14	1,819,378.72	2,826,814.01
7	1,819,605.27	2,827,452.88	15	1,819,587.12	2,827,348.65
8 A	1,819,610.10	2,827,530.94	16	1,820,127.45	2,827,565.21
9 A	1,819,593.84	2,827,736.00	17	1,820,127.45	2,827,630.81
9 B	1,819,464.87	2,827,720.55	18	1,820,114.24	2,827,651.87
9 C	1,819,460.99	2,827,646.77	19	1,819,947.13	2,827,615.75
9 D	1,819,424.48	2,827,650.61	20	1,819,948.72	2,827,665.39
9 E	1,819,428.87	2,827,716.24	21	1,819,804.21	2,827,616.43
9 F	1,819,396.78	2,827,712.39	22	1,819,799.27	2,827,530.63
9 G	1,819,391.21	2,827,652.97	23	1,819,949.84	2,827,700.10
9 H	1,819,303.00	2,827,659.51	24	1,819,809.38	2,827,706.12

BATHYMETRY

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

TERRASOND LIMITED
1617 SOUTH INDUSTRIAL WAY SUITE 3
PALMER, ALASKA 99645

SURVEYED BY: TERRASOND LIMITED

DATE: 31 January 2014

PETERSBURG, ALASKA
PETERSBURG HARBOR
POST DREDGE SURVEYS
OCTOBER 08 & 31 AND NOVEMBER 02, 2013

SHEET IDENTIFICATION
V-101

VOLUME COMPUTATIONS AREA 1 - REMOVED MATERIAL	CU. YDS.
VOLUME REMOVED to PROJECT DEPTH (-11')	4707
VOLUME REMOVED between PD (-11') and MAX PAY LINE (-12')	4076
VOLUME REMOVED in SLOUGH AREA	103
VOLUME REMOVED in SIDESLOPE (2H:1V)	1528
TOTAL VOLUME REMOVED (WITHIN PROJECT LIMITS)	10414
TOTAL VOLUME OVERDREDGE (BEYOND PROJECT LIMITS)	1077

VOLUME COMPUTATIONS AREA 2 - REMOVED MATERIAL	CU. YDS.
VOLUME REMOVED to PROJECT DEPTH (-15')	999
VOLUME REMOVED between PD (15') and MAX PAY LINE (-16')	1018
VOLUME REMOVED in SLOUGH AREA	670
TOTAL VOLUME REMOVED (WITHIN PROJECT LIMITS)	2687
TOTAL VOLUME OVERDREDGE (BEYOND PROJECT LIMITS)	471

VOLUME COMPUTATIONS AREA 3 - REMOVED MATERIAL	CU. YDS.
VOLUME REMOVED to PROJECT DEPTH (-24')	290
VOLUME REMOVED between PD (-24') and MAX PAY LINE (-25')	520
VOLUME REMOVED in SLOUGH AREA	764
TOTAL VOLUME REMOVED (WITHIN PROJECT LIMITS)	1574
TOTAL VOLUME OVERDREDGE (BEYOND PROJECT LIMITS)	97

VOLUME COMPUTATIONS AREA 4 - REMOVED MATERIAL	CU. YDS.
VOLUME REMOVED to PROJECT DEPTH (-24')	2197
VOLUME REMOVED between PD (-24') and MAX PAY LINE (-25')	1370
VOLUME REMOVED in SLOUGH AREA	921
TOTAL VOLUME REMOVED (WITHIN PROJECT LIMITS)	4488
TOTAL VOLUME OVERDREDGE (BEYOND PROJECT LIMITS)	237

VOLUME COMPUTATIONS AREA 5 - REMOVED MATERIAL	CU. YDS.
VOLUME REMOVED to PROJECT DEPTH (-15')	458
VOLUME REMOVED between PD (-15') and MAX PAY LINE (-16')	179
VOLUME REMOVED in SLOUGH AREA	272
TOTAL VOLUME REMOVED (WITHIN PROJECT LIMITS)	909
TOTAL VOLUME OVERDREDGE (BEYOND PROJECT LIMITS)	31

VOLUME COMPUTATIONS TOTAL REMOVED MATERIAL	CU YDS.
TOTAL VOLUME REMOVED (WITHIN PROJECT LIMITS)	20072
TOTAL VOLUME OVERDREDGE (BEYOND PROJECT LIMITS)	1913

VOLUME COMPUTATION NOTES

1. SLOUGH AREA VOLUMES WERE COMPUTED COMPARING PRE DREDGE SURVEY TO POST DREDGE SURVEY USING THE COMPOSITE METHOD (SURFACE-TO-SURFACE). THE POST DREDGE SURVEY SURFACES ARE AS DATED IN NOTE 4 OF THE PLAT NOTES.
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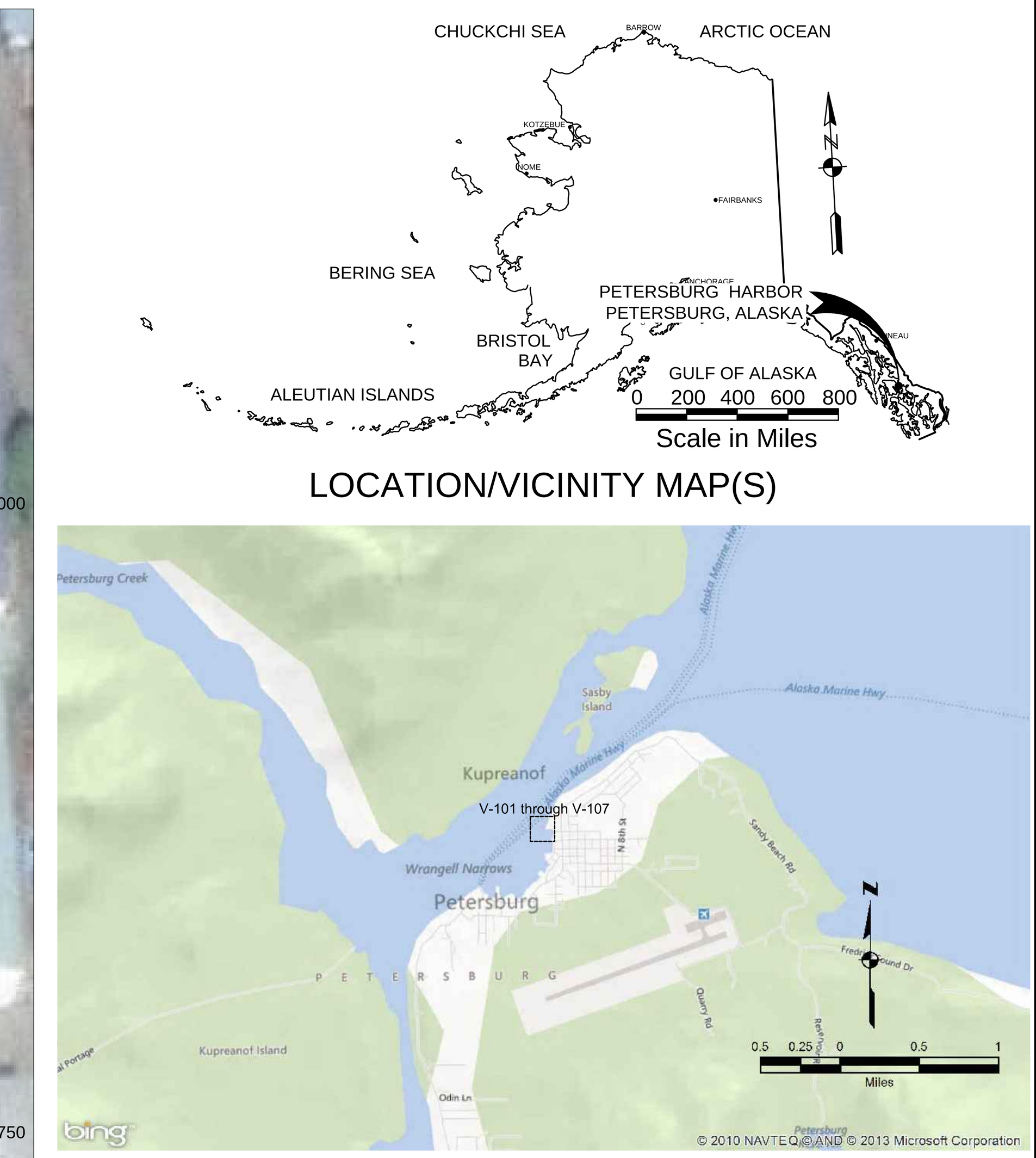
3. RESOLUTION AND ACCEPTANCE OF DISCREPANCIES IN PRE-DREDGE MATERIAL AVAILABLE -VS- POST-DREDGE MATERIAL REMOVED REFERENCE USACE - ALASKA DISTRICT, SERIAL LETTER C-0061, DATED JANUARY 29, 2014.

ELEVATION AREA 2 & 5		
MINIMUM	MAXIMUM	COLOR
-14.0'	9.4'	
-15.0'	-14.0'	
-16.0'	-15.0'	
-17.0'	-16.0'	
-39.9'	-17.0'	

ELEVATION AREA 3 & 4		
MINIMUM	MAXIMUM	COLOR
-23.0'	9.4'	
-24.0'	-23.0'	
-25.0'	-24.0'	
-26.0'	-25.0'	
-39.9'	-26.0'	

ELEVATION AREA 1		
MINIMUM	MAXIMUM	COLOR
-10.0'	9.4'	
-11.0'	-10.0'	
-12.0'	-11.0'	
-13.0'	-12.0'	
-39.9'	-13.0'	

US Army Corps of Engineers
ALASKA DISTRICT



LOCATION/VICINITY MAP(S)

NOTES

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3. VERTICAL CONTROL IS IN FEET, REFERRING TO MEAN LOWER LOW WATER (MLLW=0.0'), HOLDING CONTROL STATION "NH-1 1997", BASED ON CURRENT VERTICAL CONTROL STATION VALUE OF 23.98' MLLW.
4. POST DREDGE BATHYMETRY WAS COLLECTED FOR AREAS 1 AND 2 ON OCTOBER 8, AREA 3 ON OCTOBER 31 AND AREAS 4 & 5 ON NOVEMBER 2, 2013 BY TERRASOND LIMITED. SOUNDINGS WERE COLLECTED USING RESON SEABAT 7125 SV2 MULTIBEAM ECHOSOUNDER (400kHz 512 BEAMS EQUAL ANGLE). BEAM STEERING WAS ACCOMPLISHED USING A 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. VESSEL ATTITUDE, HEADING, POSITIONING AND REAL-TIME TIDES WERE PROVIDED USING A POS MV WAVEMASTER INERTIAL MOTION UNIT OPERATING ON KINEMATIC GPS CORRECTIONS BROADCAST FROM A TOPCON HYPER V GPS RECEIVER SET AT HARBOR MASTERS OFFICE ROOF, "NORTH HARBOR BASE" HOLDING COORDINATES "N 1,819,236.65","E 2,827,763.78", AND "44.26 MLLW". SURVEY NAVIGATION AND DATA COLLECTION WERE PERFORMED USING HYPACK "HYSWEEP 2013" INTEGRATED SOFTWARE (V2013). DATA PROCESSING WAS PERFORMED USING CARIS HIPS SOFTWARE (V7.1). ADDITIONAL PREDREDGE SURVEY COVERAGE ALONG THE SOUTH BOAT RAMP WAS PROVIDED BY THE USACE AND INCORPORATED.
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7. MAP SOUNDINGS ARE BINNED AT 15 FEET AND ARE AVERAGE BIASED. VOLUME SOUNDINGS ARE BINNED AT 3 FEET AND ARE AVERAGE BIASED.
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9. IMAGES ARE FOR REFERENCE ONLY AND WERE PROVIDED BY THE USACE.

SURVEY CONTROL DATA

STATION	NORTHING	EASTING	MLLW	DESCRIPTION
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NH-1 1997	1,818,870.65	2,827,683.27	23.98	USACE 3-1/4" DB CAP FND GOOD COND
NH-2 1997	1,818,753.15	2,828,219.63	33.13	USACE 3-1/4" DB CAP FND GOOD COND
NH-3 2000	1,819,014.58	2,827,753.09	25.58	USACE 3-1/4" DB CAP FND GOOD COND
NH-4 2000	1,818,325.29	2,827,135.91	25.35	USACE 3-1/4" DB CAP DESTROYED
NH-5 2003	1,819,618.09	2,828,298.02	52.42	USACE 3-1/4" DB CAP DESTROYED
NH-6 2003	1,818,814.73	2,828,296.24	40.97	USACE 3-1/4" DB CAP DESTROYED
PH-1	1,819,565.09	2,827,988.98	24.38	2-1/2" FLAT BRASS CAP NSF
SIGNAL 4	1,822,039.29	2,828,110.85	19.84	US ENGINEERS SURVEY MARK SBC NSF
SIGNAL 8	1,819,519.84	2,823,246.95	20.39	US ENGINEERS SURVEY MARK SBC NSF
WN-1A 1999	1,821,893.61	2,830,057.14	24.19	USACE 3-1/4" DB CAP NSF
WN-1B 1999	1,821,072.48	2,829,142.76	24.47	USACE 3-1/4" DB CAP NSF
WN-2A 1999	1,815,318.43	2,820,933.42	19.38	USACE 3-1/4" DB CAP NSF
WN-2B 1999	1,817,808.98	2,825,272.30	25.17	USACE 3-1/4 INCH DOMED BRASS CAP

☆ NAVIGATION AIDS ☆

USCG NO.	NORTHING	EASTING	DESCRIPTION
	1,819,057.60	2,826,637.30	OCEAN BEAUTY SEAFOOD PIER LIGHTS (S) - ON BUILDING
	1,819,623.30	2,827,472.70	PETERSBURG FISHERIES DOCK LIGHTS (S) - ON BUILDING
23180	1,819,250.40	2,826,847.60	OCEAN BEAUTY SEAFOOD PIER LIGHTS (N) - ON BUILDING
23190	1,819,769.90	2,827,556.20	PETERSBURG FISHERIES DOCK LIGHTS (N) - ON BUILDING

DREDGE LIMITS (#)

CORNER	NORTHING	EASTING	CORNER	NORTHING	EASTING
1	1,819,002.75	2,827,079.82	9 I	1,819,305.50	2,827,701.45
2	1,819,007.75	2,827,073.82	10 A	1,818,934.72	2,827,657.02
3	1,819,116.75	2,826,959.81	11	1,818,986.77	2,826,544.63
4 A	1,819,178.41	2,827,017.41	12	1,818,982.28	2,826,511.28
5 A	1,819,320.84	2,826,872.78	13	1,819,133.70	2,826,573.34
6	1,819,543.80	2,827,099.80	14	1,819,378.72	2,826,814.01
7	1,819,605.27	2,827,452.88	15	1,819,587.12	2,827,348.65
8 A	1,819,610.10	2,827,530.94	16	1,820,127.45	2,827,565.21
9 A	1,819,593.84	2,827,736.00	17	1,820,127.45	2,827,630.81
9 B	1,819,464.87	2,827,720.55	18	1,820,114.24	2,827,651.87
9 C	1,819,460.99	2,827,646.77	19	1,819,947.13	2,827,615.75
9 D	1,819,424.48	2,827,650.61	20	1,819,948.72	2,827,665.39
9 E	1,819,428.87	2,827,716.24	21	1,819,804.21	2,827,616.43
9 F	1,819,396.78	2,827,712.39	22	1,819,799.27	2,827,530.63
9 G	1,819,391.21	2,827,652.97	23	1,819,949.84	2,827,700.10
9 H	1,819,303.00	2,827,659.51	24	1,819,809.38	2,827,706.12

BATHYMETRY

SURVEYED BY: TERRASOND LIMITED		DATE: 31 January 2014
DRAWN BY: LEP/KNB	CHECKED BY: C MCCRARY	SURVEY NO.: 3141-13
APPROVED BY: A. CHURCHILL, BRANCH CHIEF (CO-O)		CONTRACT NO.: W911KB-12-C-0021
SCALE: 1" = 50'	PLOT DATE: 1/31/2014	CWIS or UPC & (P2) #'s: 72759
SIZE: ANSI E	FILE NAME: PETERSBURG_HARBOR-PCS2013_POST_ALL_AREAS_121313.DWG	

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

TERRASOND LIMITED
1617 SOUTH INDUSTRIAL WAY SUITE 3
PALMER, ALASKA 99645

REVISION	DATE	DESCRIPTION	BY	APPVD

PETERSBURG, ALASKA
PETERSBURG HARBOR
POST DREDGE SURVEYS
OCTOBER 08 & 31 AND NOVEMBER 02, 2013

SHEET IDENTIFICATION

V-102

VOLUME COMPUTATIONS AREA 1 - REMOVED MATERIAL	CU. YDS.
VOLUME REMOVED to PROJECT DEPTH (-11')	4707
VOLUME REMOVED between PD (-11') and MAX PAY LINE (-12')	4076
VOLUME REMOVED in SLOUGH AREA	103
VOLUME REMOVED in SIDESLOPE (2H:1V)	1528
TOTAL VOLUME REMOVED (WITHIN PROJECT LIMITS)	10414
TOTAL VOLUME OVERDREDGE (BEYOND PROJECT LIMITS)	1077

VOLUME COMPUTATIONS AREA 2 - REMOVED MATERIAL	CU. YDS.
VOLUME REMOVED to PROJECT DEPTH (-15')	999
VOLUME REMOVED between PD (15') and MAX PAY LINE (-16')	1018
VOLUME REMOVED in SLOUGH AREA	670
TOTAL VOLUME REMOVED (WITHIN PROJECT LIMITS)	2687
TOTAL VOLUME OVERDREDGE (BEYOND PROJECT LIMITS)	471

VOLUME COMPUTATIONS AREA 3 - REMOVED MATERIAL	CU. YDS.
VOLUME REMOVED to PROJECT DEPTH (-24')	290
VOLUME REMOVED between PD (-24') and MAX PAY LINE (-25')	520
VOLUME REMOVED in SLOUGH AREA	764
TOTAL VOLUME REMOVED (WITHIN PROJECT LIMITS)	1574
TOTAL VOLUME OVERDREDGE (BEYOND PROJECT LIMITS)	97

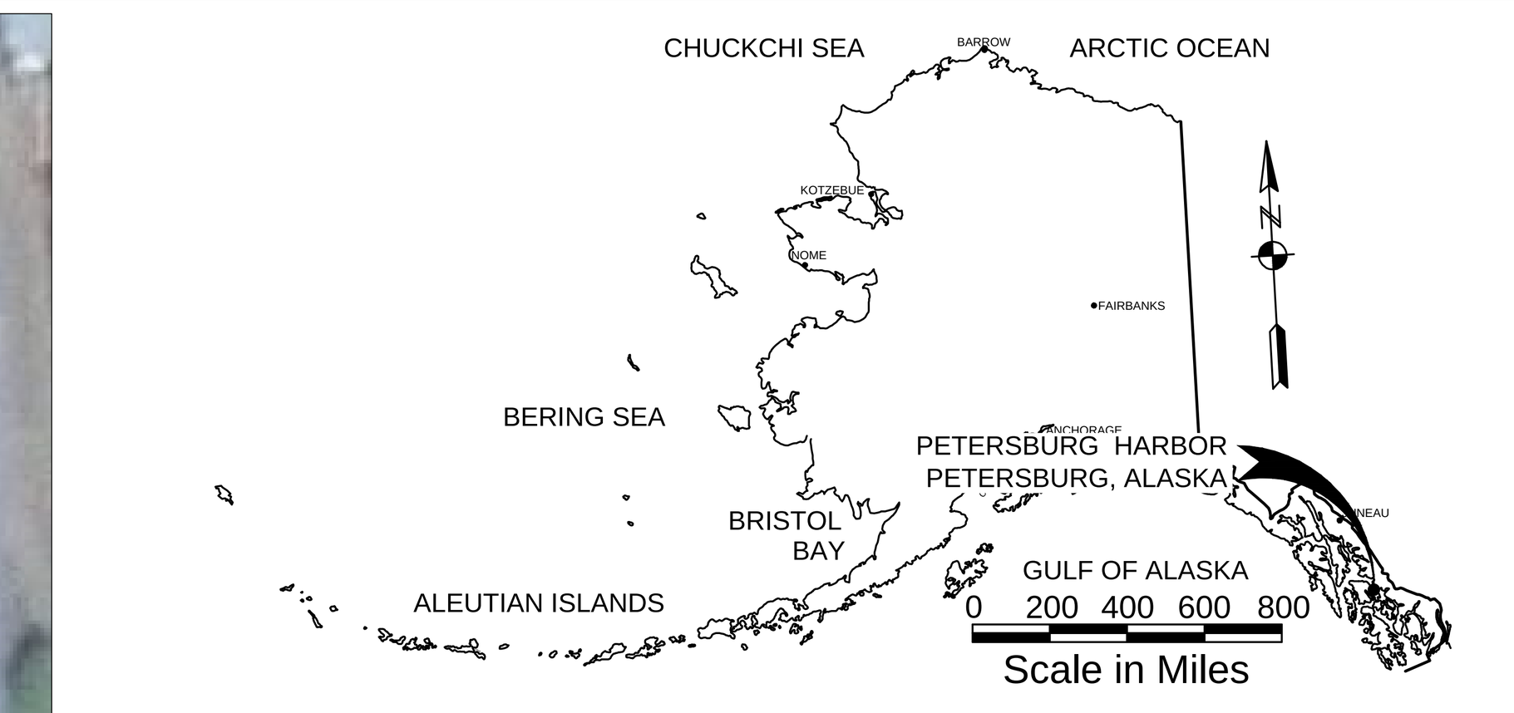
VOLUME COMPUTATIONS AREA 4 - REMOVED MATERIAL	CU. YDS.
VOLUME REMOVED to PROJECT DEPTH (-24')	2197
VOLUME REMOVED between PD (-24') and MAX PAY LINE (-25')	1370
VOLUME REMOVED in SLOUGH AREA	921
TOTAL VOLUME REMOVED (WITHIN PROJECT LIMITS)	4488
TOTAL VOLUME OVERDREDGE (BEYOND PROJECT LIMITS)	237

VOLUME COMPUTATIONS AREA 5 - REMOVED MATERIAL	CU. YDS.
VOLUME REMOVED to PROJECT DEPTH (-15')	458
VOLUME REMOVED between PD (-15') and MAX PAY LINE (-16')	179
VOLUME REMOVED in SLOUGH AREA	272
TOTAL VOLUME REMOVED (WITHIN PROJECT LIMITS)	909
TOTAL VOLUME OVERDREDGE (BEYOND PROJECT LIMITS)	31

VOLUME COMPUTATIONS TOTAL REMOVED MATERIAL	CU YDS.
TOTAL VOLUME REMOVED (WITHIN PROJECT LIMITS)	20072
TOTAL VOLUME OVERDREDGE (BEYOND PROJECT LIMITS)	1913

VOLUME COMPUTATION NOTES

1. SLOUGH AREA VOLUMES WERE COMPUTED COMPARING PRE DREDGE SURVEY TO POST DREDGE SURVEY USING THE COMPOSITE METHOD (SURFACE-TO-SURFACE). THE POST DREDGE SURVEY SURFACES ARE AS DATED IN NOTE 4 OF THE PLAT NOTES.
2. LINE WORK DEPICTING SLOUGH AREA CUTS IS FOR VISUAL REFERENCE ONLY AND WAS NOT USED TO COMPUTE REMOVED QUANTITIES.
3. RESOLUTION AND ACCEPTANCE OF DISCREPANCIES IN PRE-DREDGE MATERIAL AVAILABLE -VS- POST-DREDGE MATERIAL REMOVED REFERENCE USACE - ALASKA DISTRICT, SERIAL LETTER C-0061, DATED JANUARY 29, 2014.



LOCATION/VICINITY MAP(S)

NOTES

1. ALL HORIZONTAL AND VERTICAL CONTROL WAS PERFORMED AND PROVIDED BY R&M ENGINEERING-KETCHIKAN, INC. AUGUST 22 - 23, 2013. REFER TO THE CONTROL REPORT SIGNED BY GREGORY SCHEFF LS#6700 DATED SEPTEMBER 17, 2013.
2. HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 1, NAD 83, IN US SURVEY FEET, HOLDING CONTROL STATION "NH-1 1997", BASED ON CURRENT HORIZONTAL CONTROL VALUES "N 1,818,870.65" AND "E 2,827,683.27".
3. VERTICAL CONTROL IS IN FEET, REFERRING TO MEAN LOWER LOW WATER (MLLW=0.0'), HOLDING CONTROL STATION "NH-1 1997", BASED ON CURRENT VERTICAL CONTROL STATION VALUE OF 23.98' MLLW.
4. POST DREDGE BATHYMETRY WAS COLLECTED FOR AREAS 1 AND 2 ON OCTOBER 8, AREA 3 ON OCTOBER 31 AND AREAS 4 & 5 ON NOVEMBER 2, 2013 BY TERRASOND LIMITED. SOUNDINGS WERE COLLECTED USING RESON SEABAT 7125 SV2 MULTIBEAM ECHOSOUNDER (400kHz 512 BEAMS EQUAL ANGLE). BEAM STEERING WAS ACCOMPLISHED USING A 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. VESSEL ATTITUDE, HEADING, POSITIONING AND REAL-TIME TIDES WERE PROVIDED USING A POS MV WAVEMASTER INERTIAL MOTION UNIT OPERATING ON KINEMATIC GPS CORRECTIONS BROADCAST FROM A TOPCON HYPER V GPS RECEIVER SET AT HARBOR MASTERS OFFICE ROOF, "NORTH HARBOR BASE" HOLDING COORDINATES "N 1,819,236.65","E 2,827,763.78", AND "44.26 MLLW". SURVEY NAVIGATION AND DATA COLLECTION WERE PERFORMED USING HYPACK "HYSWEEP 2013" INTEGRATED SOFTWARE (V2013). DATA PROCESSING WAS PERFORMED USING CARIS HIPS SOFTWARE (V7.1). ADDITIONAL PREDREDGE SURVEY COVERAGE ALONG THE SOUTH BOAT RAMP WAS PROVIDED BY THE USACE AND INCORPORATED.
5. SOUNDINGS ARE IN FEET AND ARE MINUS UNLESS OTHERWISE INDICATED.
6. THIS DRAWING INDICATES GENERAL CONDITIONS AT THE TIME OF THE SURVEY.
7. MAP SOUNDINGS ARE BINNED AT 15 FEET AND ARE AVERAGE BIASED. VOLUME SOUNDINGS ARE BINNED AT 3 FEET AND ARE AVERAGE BIASED.
8. FLOATS 1, 2, HEADWALK, TRANSIENT AND SKIFF WERE REMOVED AT TIME OF SURVEY.
9. IMAGES ARE FOR REFERENCE ONLY AND WERE PROVIDED BY THE USACE.

SURVEY CONTROL DATA

STATION	NORTHING	EASTING	MLLW	DESCRIPTION
1346E 2003	1,769,457.40	2,833,296.22	17.68	NOAA / NOS 3.5" DBC (SOLID)
1434 A 2006	1,814,207.81	2,823,232.54	27.14	NOAA \ NOS BENCH MARK 4" DBC FND GOOD COND
NH-1 1997	1,818,870.65	2,827,683.27	23.98	USACE 3-1/4" DB CAP FND GOOD COND
NH-2 1997	1,818,753.15	2,828,219.63	33.13	USACE 3-1/4" DB CAP FND GOOD COND
NH-3 2000	1,819,014.58	2,827,753.09	25.58	USACE 3-1/4" DB CAP FND GOOD COND
NH-4 2000	1,818,325.29	2,827,135.91	25.35	USACE 3-1/4" DB CAP DESTROYED
NH-5 2003	1,819,618.09	2,828,298.02	52.42	USACE 3-1/4" DB CAP DESTROYED
NH-6 2003	1,818,814.73	2,828,296.24	40.97	USACE 3-1/4" DB CAP DESTROYED
PH-1	1,819,565.09	2,827,988.98	24.38	2-1/2" FLAT BRASS CAP NSF
SIGNAL 4	1,822,039.29	2,828,110.85	19.84	US ENGINEERS SURVEY MARK SBC NSF
SIGNAL 8	1,819,519.84	2,823,246.95	20.39	US ENGINEERS SURVEY MARK SBC NSF
WN-1A 1999	1,821,893.61	2,830,057.14	24.19	USACE 3-1/4" DB CAP NSF
WN-1B 1999	1,821,072.48	2,829,142.76	24.47	USACE 3-1/4" DB CAP NSF
WN-2A 1999	1,815,318.43	2,820,933.42	19.38	USACE 3-1/4" DB CAP NSF
WN-2B 1999	1,817,808.98	2,825,272.30	25.17	USACE 3-1/4 INCH DOMED BRASS CAP

☆ NAVIGATION AIDS ☆

USCG NO.	NORTHING	EASTING	DESCRIPTION
	1,819,057.60	2,826,637.30	OCEAN BEAUTY SEAFOOD PIER LIGHTS (S) - ON BUILDING
	1,819,623.30	2,827,472.70	PETERSBURG FISHERIES DOCK LIGHTS (S) - ON BUILDING
23180	1,819,250.40	2,826,847.60	OCEAN BEAUTY SEAFOOD PIER LIGHTS (N) - ON BUILDING
23190	1,819,769.90	2,827,556.20	PETERSBURG FISHERIES DOCK LIGHTS (N) - ON BUILDING

DREDGE LIMITS (#)

CORNER	NORTHING	EASTING	CORNER	NORTHING	EASTING
1	1,819,002.75	2,827,079.82	9 I	1,819,305.50	2,827,701.45
2	1,819,007.75	2,827,073.82	10 A	1,818,934.72	2,827,657.02
3	1,819,116.75	2,826,959.81	11	1,818,986.77	2,826,544.63
4 A	1,819,178.41	2,827,017.41	12	1,818,982.28	2,826,511.28
5 A	1,819,320.84	2,826,872.78	13	1,819,133.70	2,826,573.34
6	1,819,543.80	2,827,099.80	14	1,819,378.72	2,826,814.01
7	1,819,605.27	2,827,452.88	15	1,819,587.12	2,827,348.65
8 A	1,819,610.10	2,827,530.94	16	1,820,127.45	2,827,565.21
9 A	1,819,593.84	2,827,736.00	17	1,820,127.45	2,827,630.81
9 B	1,819,464.87	2,827,720.55	18	1,820,114.24	2,827,651.87
9 C	1,819,460.99	2,827,646.77	19	1,819,947.13	2,827,615.75
9 D	1,819,424.48	2,827,650.61	20	1,819,948.72	2,827,665.39
9 E	1,819,428.87	2,827,716.24	21	1,819,804.21	2,827,616.43
9 F	1,819,396.78	2,827,712.39	22	1,819,799.27	2,827,530.63
9 G	1,819,391.21	2,827,652.97	23	1,819,949.84	2,827,700.10
9 H	1,819,303.00	2,827,659.51	24	1,819,809.38	2,827,706.12

CROSS SECTIONS

US Army Corps of Engineers ®
ALASKA DISTRICT

CONTRACT NO. W911KB-12-C-0021
CONTRACTOR S&S GENERAL CONTRACTORS & EQUIP RENTAL, INC
CITY SITKA STATE ALASKA
Recommended: PRIME CONTRACTOR
Approved: CHIEF SURVEY SECTION
Date:

REVISION	DATE	DESCRIPTION	BY	APPVD

REVISION	DATE	DESCRIPTION	BY	APPVD

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

TERRASOND LIMITED
1617 SOUTH INDUSTRIAL WAY SUITE 3
PALMER, ALASKA 99645

SURVEYED BY: TERRASOND LIMITED
DATE: 31 January 2014
DRAWN BY: LEP/KNB
CHECKED BY: C MCCRARY
SURVEY NO.: 3141-13
APPROVED BY: A. CHURCHILL, BRANCH CHIEF (CO-O)
CONTRACT NO.: W911KB-12-C-0021
SCALE: 1" = 50'
PLOT DATE: 1/31/2014
CWIS or UPC & (P2) #'s: 72759
SIZE: ANSI E
FILE NAME: PETERSBURG_HARBOR-PCS2013_POST_ALL_AREAS_121313.DWG

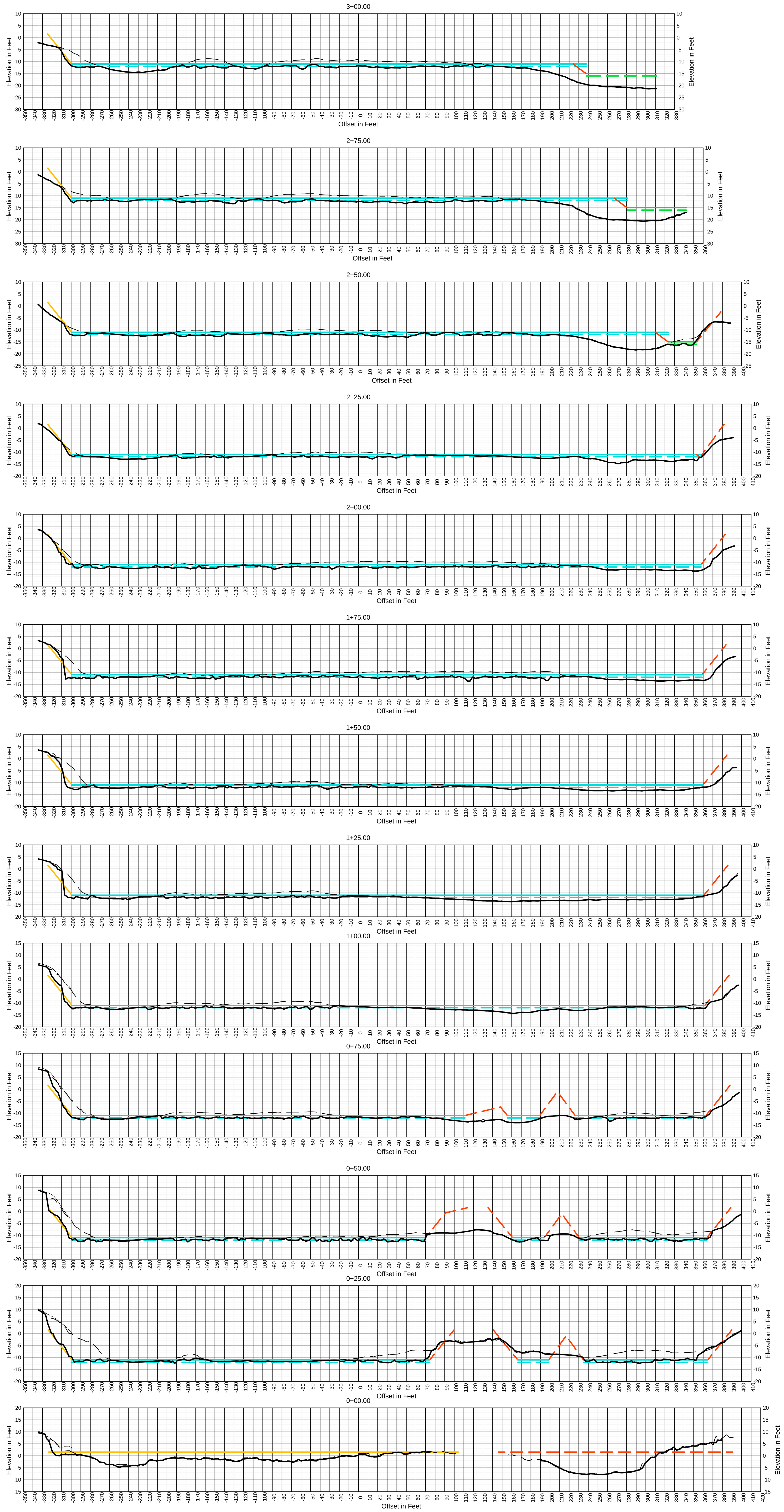
PETERSBURG, ALASKA
PETERSBURG HARBOR
POST DREDGE SURVEYS
OCTOBER 08 & 31 AND NOVEMBER 02, 2013

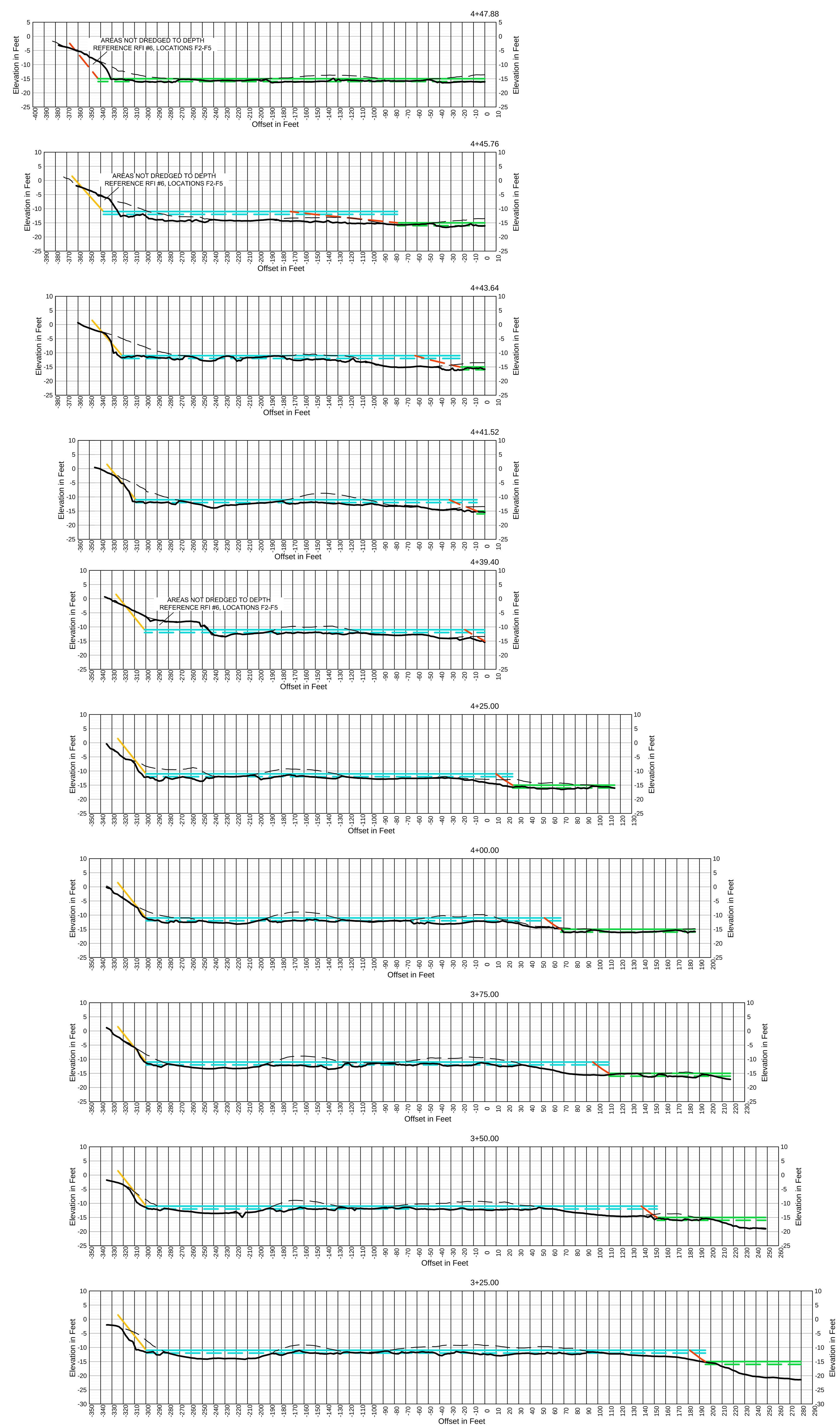
SHEET IDENTIFICATION
V-103

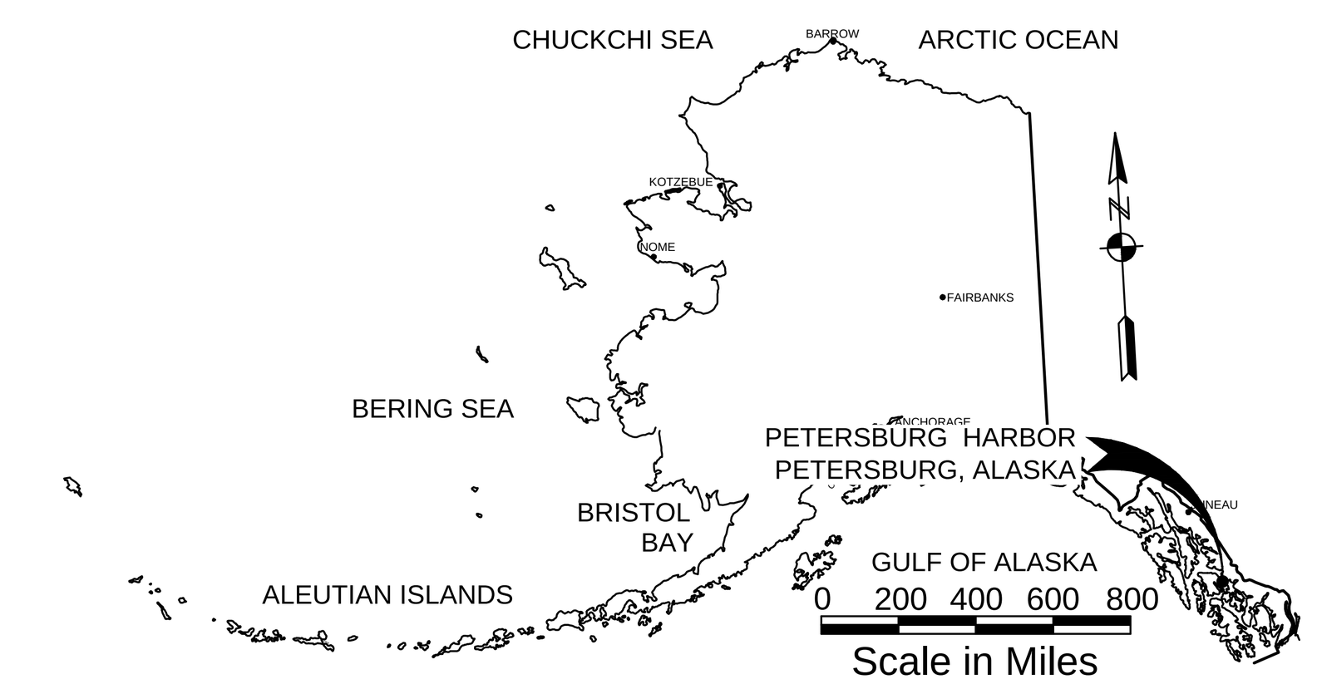
AREA 1 AND 2

CROSS SECTION LEGEND

AREA 1 PROJECT DEPTH	AREA 2 PROJECT DEPTH	AREA 4 PROJECT DEPTH	
AREA 1 MAXIMUM PAY	AREA 2 MAXIMUM PAY	AREA 4 MAXIMUM PAY	
AREA 1 SIDE SLOPE (2:1)	AREA 3 PROJECT DEPTH	SLOUGH ALLOWANCE MAX	
POST DREDGE	AREA 3 MAXIMUM PAY	AREA 5 PROJECT DEPTH	
PRE DREDGE	USACE 2011 DATA	AREA 5 MAXIMUM PAY	







LOCATION/VICINITY MAP(S)

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☆ NAVIGATION AIDS ☆

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9 F	1,819,396.78	2,827,712.39	22	1,819,799.27	2,827,530.63
9 G	1,819,391.21	2,827,652.97	23	1,819,949.84	2,827,700.10
9 H	1,819,303.00	2,827,659.51	24	1,819,809.38	2,827,706.12

CROSS SECTIONS

US Army Corps of Engineers ®
ALASKA DISTRICT

CONTRACT NO. W911KB-12-C-0021
CONTRACTOR S&S GENERAL CONTRACTORS & EQUIP RENTAL, INC
CITY SITKA STATE ALASKA
Recommended: PRIME CONTRACTOR
Approved: CHIEF SURVEY SECTION
Date:

REVISION	DATE	DESCRIPTION	BY	APPVD

SURVEYED BY: TERRASOND LIMITED
DRAWN BY: LEP/KNB
CHECKED BY: C MCCRARY
APPROVED BY: A. CHURCHILL, BRANCH CHIEF (CO-O)
SCALE: 1" = 50' H 1"=20' V
PLOT DATE: 1/31/2014
SIZE: ANSI E
FILE NAME: PETERSBURG_HARBOR-PCS2013_POST_ALL_AREAS_121313.DWG
DATE: 31 January 2014
SURVEY NO.: 3141-13
CONTRACT NO.: W911KB-12-C-0021
CWIS or UPC & (P2) #'s: 72759

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

TERRASOND LIMITED
1617 SOUTH INDUSTRIAL WAY SUITE 3
PALMER, ALASKA 99645

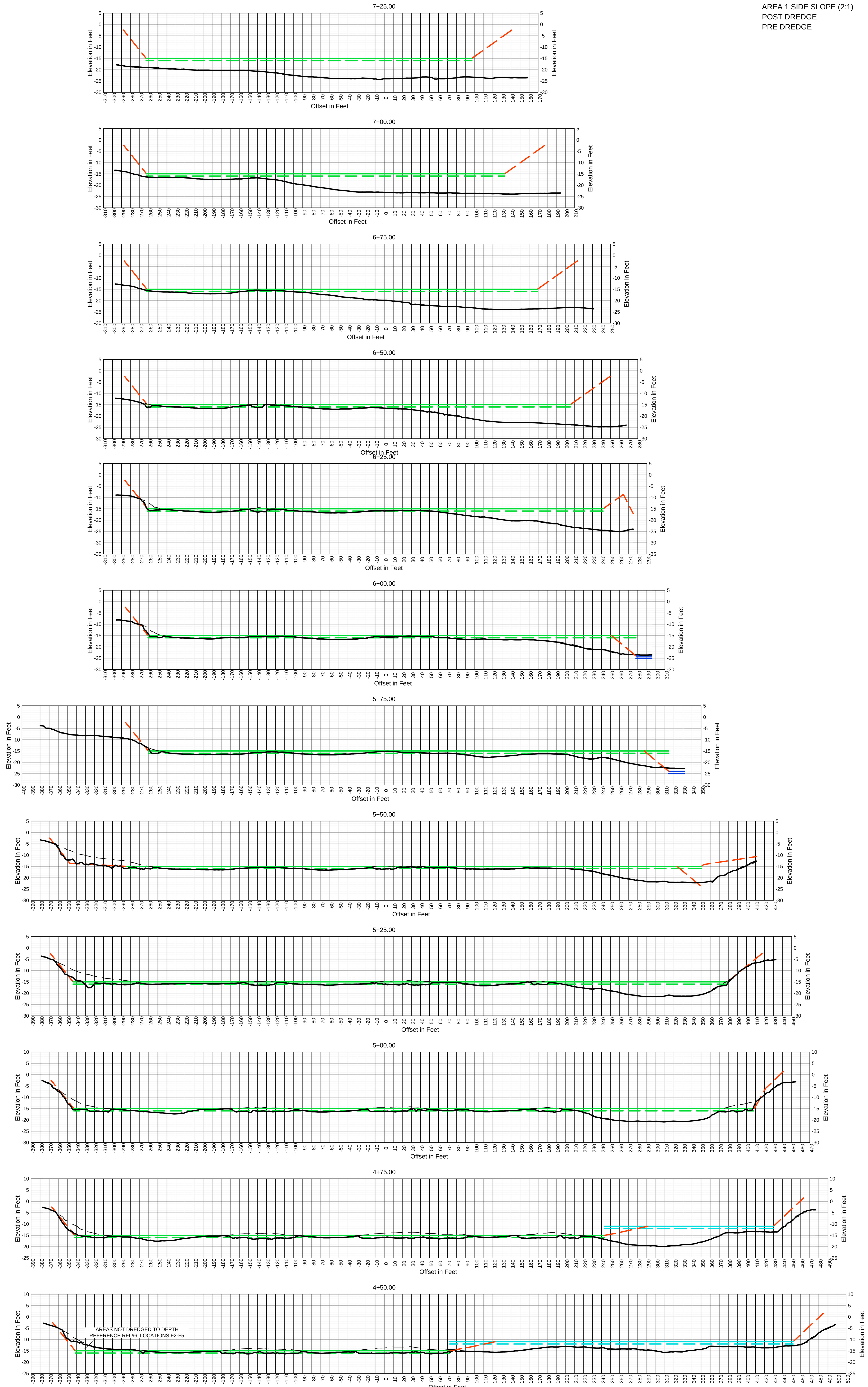
PETERSBURG, ALASKA
PETERSBURG HARBOR
POST DREDGE SURVEYS
OCTOBER 08 & 31 AND NOVEMBER 02, 2013

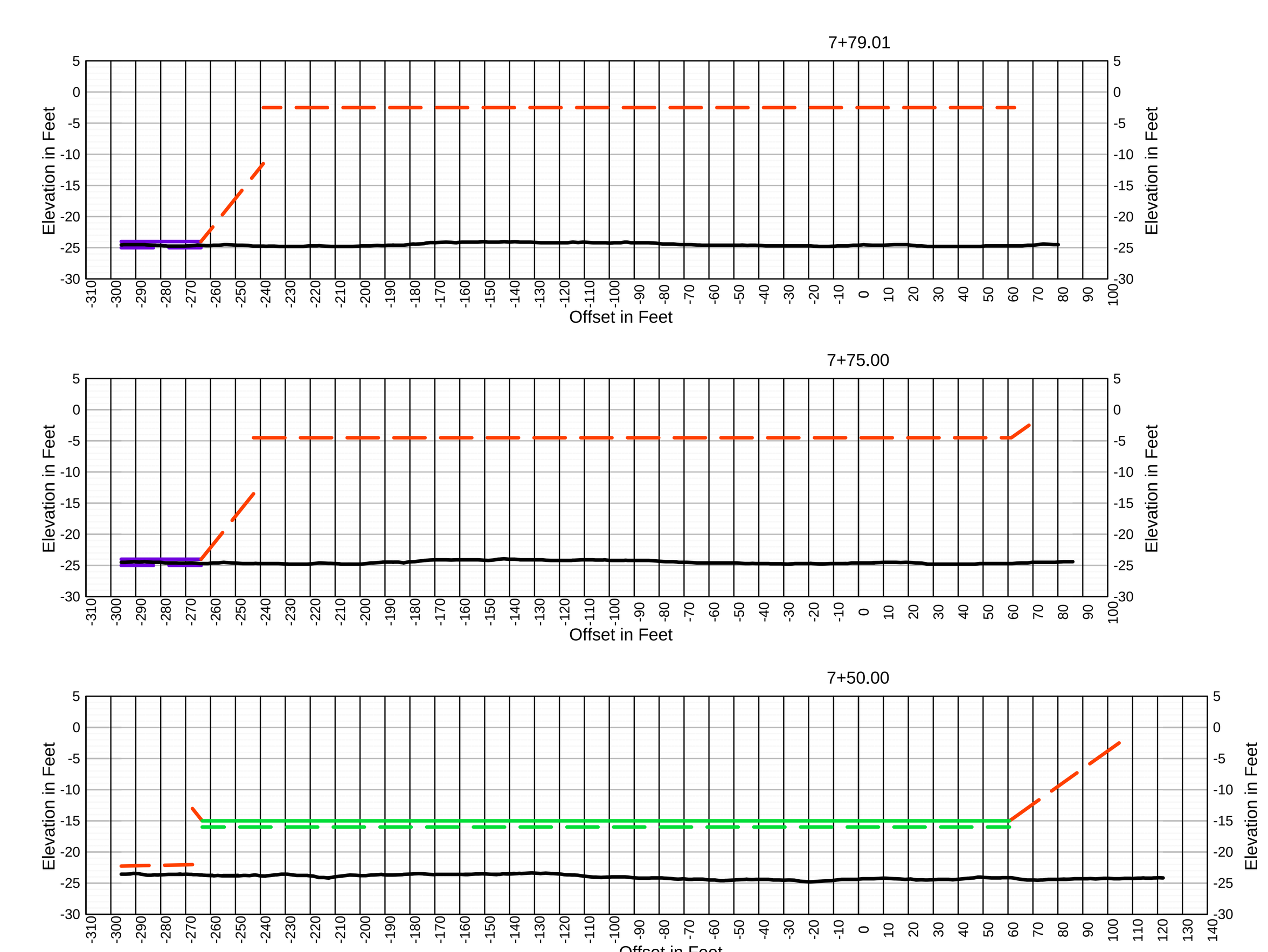
SHEET IDENTIFICATION
V-104
Sheet 4 of 7

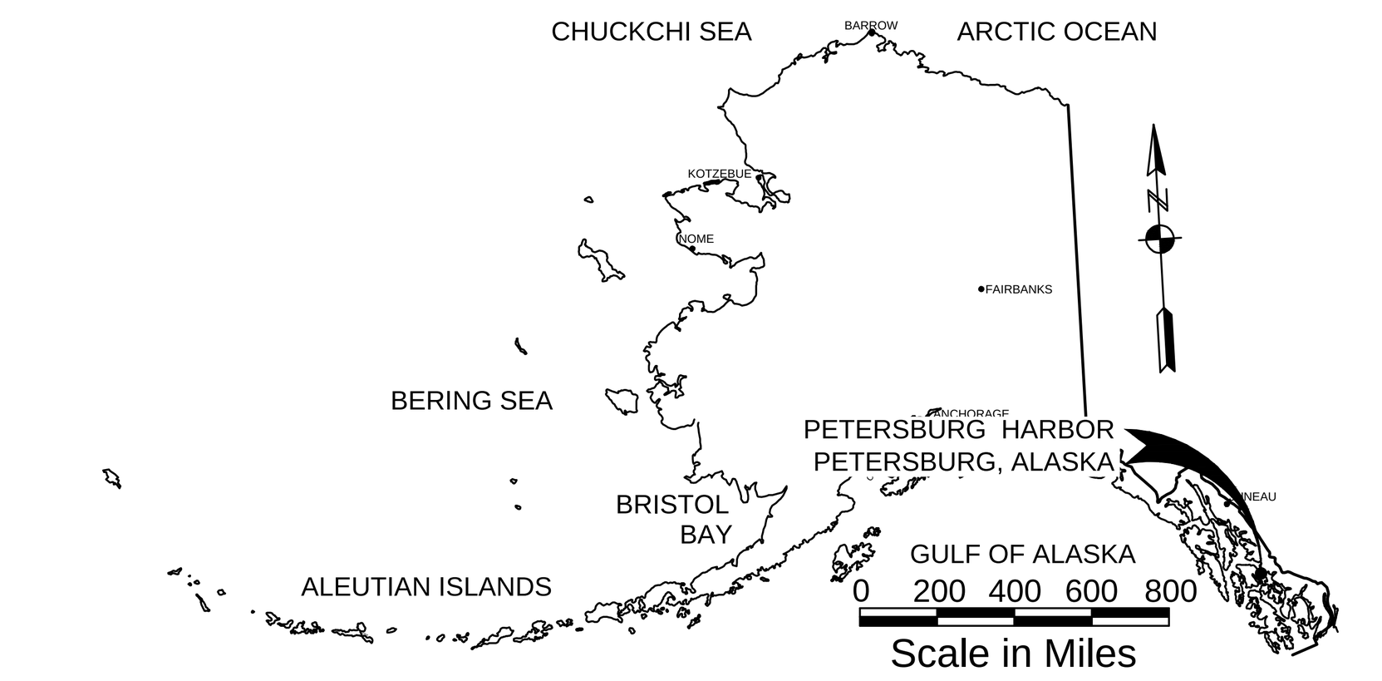
CROSS SECTION LEGEND

AREA 1 PROJECT DEPTH	cyan solid	AREA 2 PROJECT DEPTH	green solid	AREA 4 PROJECT DEPTH	blue solid
AREA 1 MAXIMUM PAY	cyan dashed	AREA 2 MAXIMUM PAY	green dashed	AREA 4 MAXIMUM PAY	blue dashed
AREA 1 SIDE SLOPE (2:1)	yellow dashed	AREA 3 PROJECT DEPTH	purple solid	SLOUGH ALLOWANCE MAX	red dashed
POST DREDGE	black solid	AREA 3 MAXIMUM PAY	purple dashed	AREA 5 PROJECT DEPTH	magenta solid
PRE DREDGE	black dashed	USACE 2011 DATA	fine dashed	AREA 5 MAXIMUM PAY	magenta dashed

AREA 1 AND 2







LOCATION/VICINITY MAP(S)

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1434 A 2006	1,814,207.81	2,823,232.54	27.14	NOAA \ NOS BENCH MARK 4" DBC FND GOOD COND
NH-1 1997	1,818,870.65	2,827,683.27	23.98	USACE 3-1/4" DB CAP FND GOOD COND
NH-2 1997	1,818,753.15	2,828,219.63	33.13	USACE 3-1/4" DB CAP FND GOOD COND
NH-3 2000	1,819,014.58	2,827,753.09	25.58	USACE 3-1/4" DB CAP FND GOOD COND
NH-4 2000	1,818,325.29	2,827,135.91	25.35	USACE 3-1/4" DB CAP DESTROYED
NH-5 2003	1,819,618.09	2,828,298.02	52.42	USACE 3-1/4" DB CAP DESTROYED
NH-6 2003	1,818,814.73	2,828,296.24	40.97	USACE 3-1/4" DB CAP DESTROYED
PH-1	1,819,565.09	2,827,988.98	24.38	2-1/2" FLAT BRASS CAP NSF
SIGNAL 4	1,822,039.29	2,828,110.85	19.84	US ENGINEERS SURVEY MARK SBC NSF
SIGNAL 8	1,819,519.84	2,823,246.95	20.39	US ENGINEERS SURVEY MARK SBC NSF
WN-1A 1999	1,821,893.61	2,830,057.14	24.19	USACE 3-1/4" DB CAP NSF
WN-1B 1999	1,821,072.48	2,829,142.76	24.47	USACE 3-1/4" DB CAP NSF
WN-2A 1999	1,815,318.43	2,820,933.42	19.38	USACE 3-1/4" DB CAP NSF
WN-2B 1999	1,817,808.98	2,825,272.30	25.17	USACE 3-1/4 INCH DOMED BRASS CAP

☆ NAVIGATION AIDS ☆

USCG NO.	NORTHING	EASTING	DESCRIPTION
	1,819,057.60	2,826,637.30	OCEAN BEAUTY SEAFOOD PIER LIGHTS (S) - ON BUILDING
	1,819,623.30	2,827,472.70	PETERSBURG FISHERIES DOCK LIGHTS (S) - ON BUILDING
23180	1,819,250.40	2,826,847.60	OCEAN BEAUTY SEAFOOD PIER LIGHTS (N) - ON BUILDING
23190	1,819,769.90	2,827,556.20	PETERSBURG FISHERIES DOCK LIGHTS (N) - ON BUILDING

DREDGE LIMITS (#)

CORNER	NORTHING	EASTING	CORNER	NORTHING	EASTING
1	1,819,002.75	2,827,079.82	9 I	1,819,305.50	2,827,701.45
2	1,819,007.75	2,827,073.82	10 A	1,818,934.72	2,827,657.02
3	1,819,116.75	2,826,959.81	11	1,818,986.77	2,826,544.63
4 A	1,819,178.41	2,827,017.41	12	1,818,982.28	2,826,511.28
5 A	1,819,320.84	2,826,872.78	13	1,819,133.70	2,826,573.34
6	1,819,543.80	2,827,099.80	14	1,819,378.72	2,826,814.01
7	1,819,605.27	2,827,452.88	15	1,819,587.12	2,827,348.65
8 A	1,819,610.10	2,827,530.94	16	1,820,127.45	2,827,565.21
9 A	1,819,593.84	2,827,736.00	17	1,820,127.45	2,827,630.81
9 B	1,819,464.87	2,827,720.55	18	1,820,114.24	2,827,651.87
9 C	1,819,460.99	2,827,646.77	19	1,819,947.13	2,827,615.75
9 D	1,819,424.48	2,827,650.61	20	1,819,948.72	2,827,665.39
9 E	1,819,428.87	2,827,716.24	21	1,819,804.21	2,827,616.43
9 F	1,819,396.78	2,827,712.39	22	1,819,799.27	2,827,530.63
9 G	1,819,391.21	2,827,652.97	23	1,819,949.84	2,827,700.10
9 H	1,819,303.00	2,827,659.51	24	1,819,809.38	2,827,706.12

CROSS SECTIONS

US Army Corps of Engineers
ALASKA DISTRICT

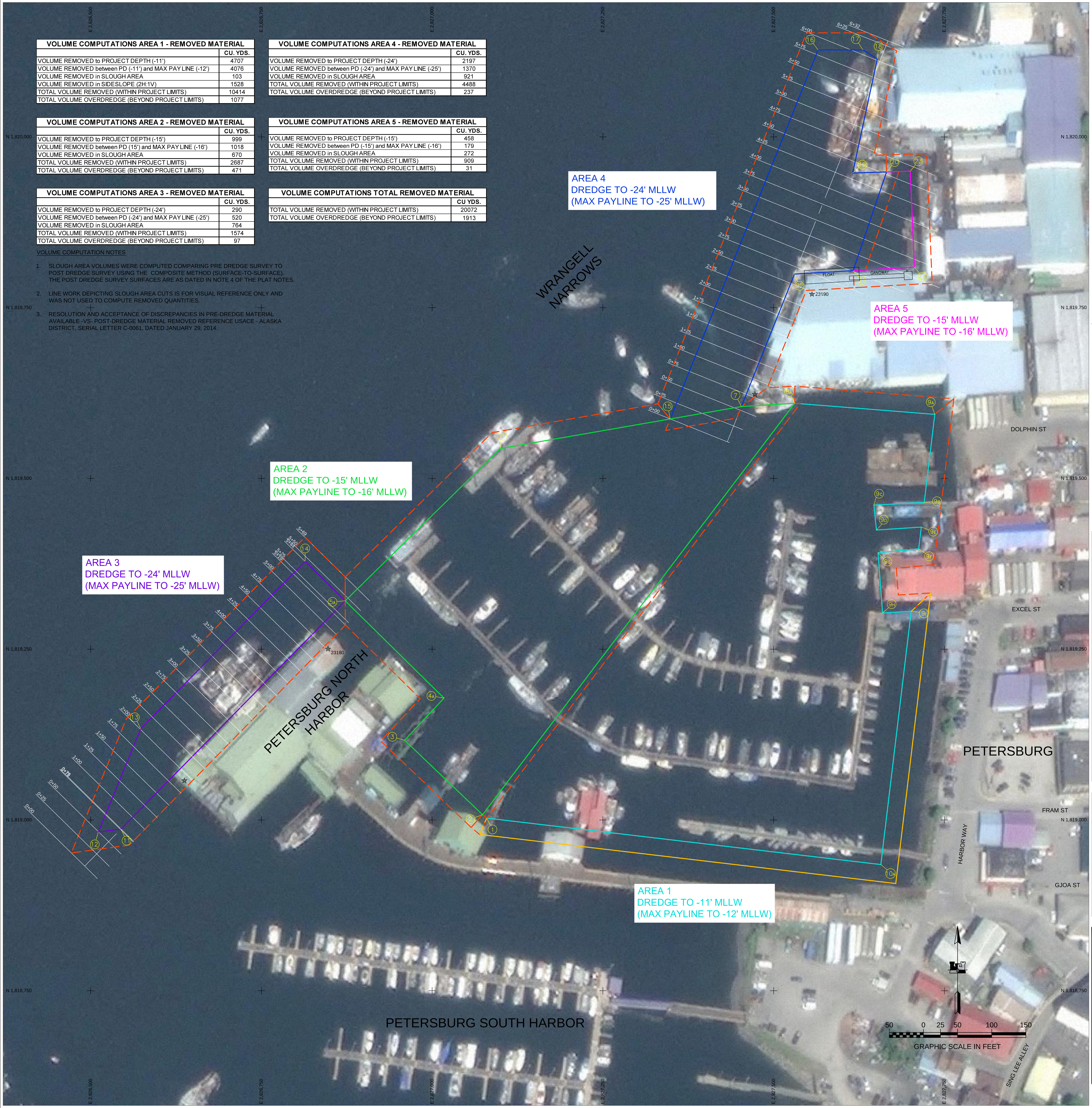
DATE: 31 January 2014
SURVEYED BY: TERRASOND LIMITED

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

TERRASOND LIMITED
1617 SOUTH INDUSTRIAL WAY SUITE 3
PALMER, ALASKA 99645

PETERSBURG, ALASKA
PETERSBURG HARBOR
POST DREDGE SURVEYS
OCTOBER 08 & 31 AND NOVEMBER 02, 2013

SHEET IDENTIFICATION
V-105



VOLUME COMPUTATIONS AREA 1 - REMOVED MATERIAL	CU. YDS.
VOLUME REMOVED to PROJECT DEPTH (-11')	4707
VOLUME REMOVED between PD (-11') and MAX PAY LINE (-12')	4076
VOLUME REMOVED in SLOUGH AREA	103
VOLUME REMOVED in SIDESLOPE (2H:1V)	1528
TOTAL VOLUME REMOVED (WITHIN PROJECT LIMITS)	10414
TOTAL VOLUME OVERDREDGE (BEYOND PROJECT LIMITS)	1077

VOLUME COMPUTATIONS AREA 2 - REMOVED MATERIAL	CU. YDS.
VOLUME REMOVED to PROJECT DEPTH (-15')	999
VOLUME REMOVED between PD (15') and MAX PAY LINE (-16')	1018
VOLUME REMOVED in SLOUGH AREA	670
TOTAL VOLUME REMOVED (WITHIN PROJECT LIMITS)	2687
TOTAL VOLUME OVERDREDGE (BEYOND PROJECT LIMITS)	471

VOLUME COMPUTATIONS AREA 3 - REMOVED MATERIAL	CU. YDS.
VOLUME REMOVED to PROJECT DEPTH (-24')	290
VOLUME REMOVED between PD (-24') and MAX PAY LINE (-25')	520
VOLUME REMOVED in SLOUGH AREA	764
TOTAL VOLUME REMOVED (WITHIN PROJECT LIMITS)	1574
TOTAL VOLUME OVERDREDGE (BEYOND PROJECT LIMITS)	97

VOLUME COMPUTATIONS AREA 4 - REMOVED MATERIAL	CU. YDS.
VOLUME REMOVED to PROJECT DEPTH (-24')	2197
VOLUME REMOVED between PD (-24') and MAX PAY LINE (-25')	1370
VOLUME REMOVED in SLOUGH AREA	921
TOTAL VOLUME REMOVED (WITHIN PROJECT LIMITS)	4488
TOTAL VOLUME OVERDREDGE (BEYOND PROJECT LIMITS)	237

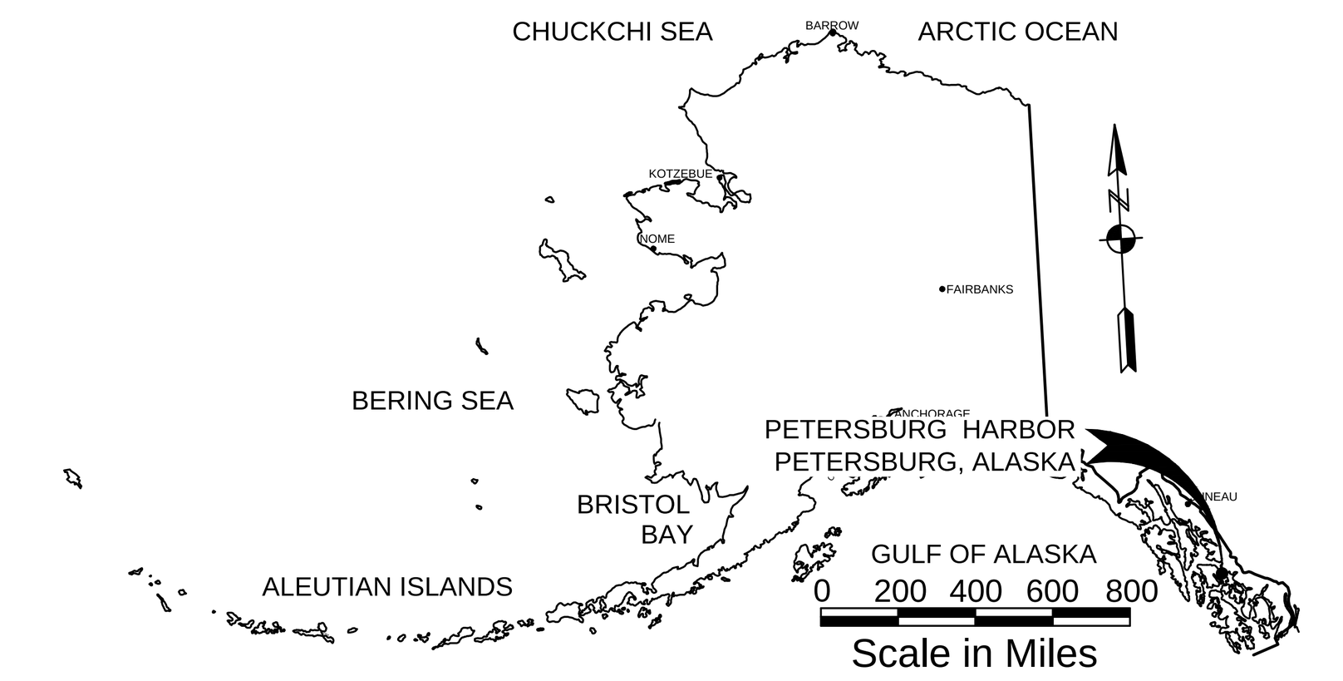
VOLUME COMPUTATIONS AREA 5 - REMOVED MATERIAL	CU. YDS.
VOLUME REMOVED to PROJECT DEPTH (-15')	458
VOLUME REMOVED between PD (-15') and MAX PAY LINE (-16')	179
VOLUME REMOVED in SLOUGH AREA	272
TOTAL VOLUME REMOVED (WITHIN PROJECT LIMITS)	909
TOTAL VOLUME OVERDREDGE (BEYOND PROJECT LIMITS)	31

VOLUME COMPUTATIONS TOTAL REMOVED MATERIAL	CU YDS.
TOTAL VOLUME REMOVED (WITHIN PROJECT LIMITS)	20072
TOTAL VOLUME OVERDREDGE (BEYOND PROJECT LIMITS)	1913

VOLUME COMPUTATION NOTES

1. SLOUGH AREA VOLUMES WERE COMPUTED COMPARING PRE DREDGE SURVEY TO POST DREDGE SURVEY USING THE COMPOSITE METHOD (SURFACE-TO-SURFACE). THE POST DREDGE SURVEY SURFACES ARE AS DATED IN NOTE 4 OF THE PLAT NOTES.
2. LINE WORK DEPICTING SLOUGH AREA CUTS IS FOR VISUAL REFERENCE ONLY AND WAS NOT USED TO COMPUTE REMOVED QUANTITIES.
3. RESOLUTION AND ACCEPTANCE OF DISCREPANCIES IN PRE-DREDGE MATERIAL AVAILABLE -VS- POST-DREDGE MATERIAL REMOVED REFERENCE USACE - ALASKA DISTRICT, SERIAL LETTER C-0061, DATED JANUARY 29, 2014.

US Army Corps of Engineers
ALASKA DISTRICT



LOCATION/VICINITY MAP(S)

NOTES

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4. POST DREDGE BATHYMETRY WAS COLLECTED FOR AREAS 1 AND 2 ON OCTOBER 8, AREA 3 ON OCTOBER 31 AND AREAS 4 & 5 ON NOVEMBER 2, 2013 BY TERRASOND LIMITED. SOUNDINGS WERE COLLECTED USING RESON SEABAT 7125 SV2 MULTIBEAM ECHOSOUNDER (400kHz 512 BEAMS EQUAL ANGLE). BEAM STEERING WAS ACCOMPLISHED USING A 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. VESSEL ATTITUDE, HEADING, POSITIONING AND REAL-TIME TIDES WERE PROVIDED USING A POS MV WAVEMASTER INERTIAL MOTION UNIT OPERATING ON KINEMATIC GPS CORRECTIONS BROADCAST FROM A TOPCON HYPER V GPS RECEIVER SET AT HARBOR MASTERS OFFICE ROOF, "NORTH HARBOR BASE" HOLDING COORDINATES "N 1,819,236.65","E 2,827,763.78", AND "44.26 MLLW". SURVEY NAVIGATION AND DATA COLLECTION WERE PERFORMED USING HYPACK "HYSWEEP 2013" INTEGRATED SOFTWARE (V2013). DATA PROCESSING WAS PERFORMED USING CARIS HIPS SOFTWARE (V7.1). ADDITIONAL PREDREDGE SURVEY COVERAGE ALONG THE SOUTH BOAT RAMP WAS PROVIDED BY THE USACE AND INCORPORATED.
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DREDGE LIMITS (#)

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CROSS SECTIONS

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

TERRASOND LIMITED
1617 SOUTH INDUSTRIAL WAY SUITE 3
PALMER, ALASKA 99645

SURVEYED BY: TERRASOND LIMITED
DATE: 31 January 2014
DRAWN BY: LEP/KNB
CHECKED BY: C MCCRARY
SURVEY NO.: 3141-13
APPROVED BY: A. CHURCHILL, BRANCH CHIEF (CO-O)
CONTRACT NO.: W911KB-12-C-0021
SCALE: 1" = 50'
PLOT DATE: 1/31/2014
CWIS or UPC & (P2) #'s: 72759
SIZE: ANSI E
FILE NAME: PETERSBURG_HARBOR-PCS2013_POST_ALL_AREAS_121313.DWG

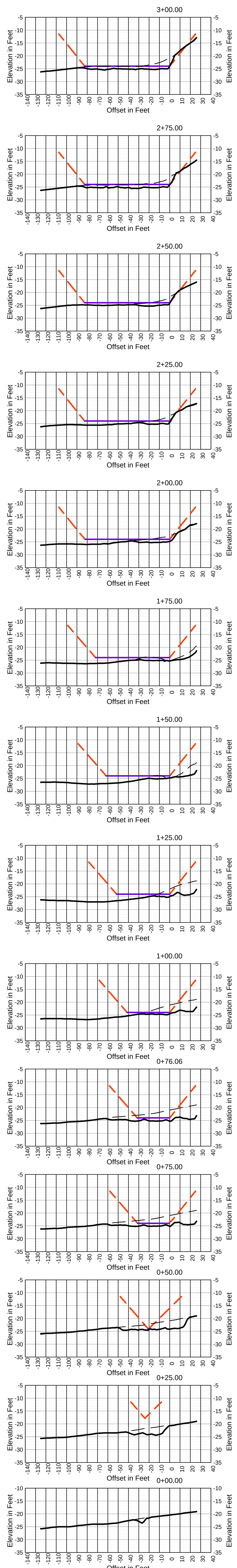
PETERSBURG, ALASKA
PETERSBURG HARBOR
POST DREDGE SURVEYS
OCTOBER 08 & 31 AND NOVEMBER 02, 2013

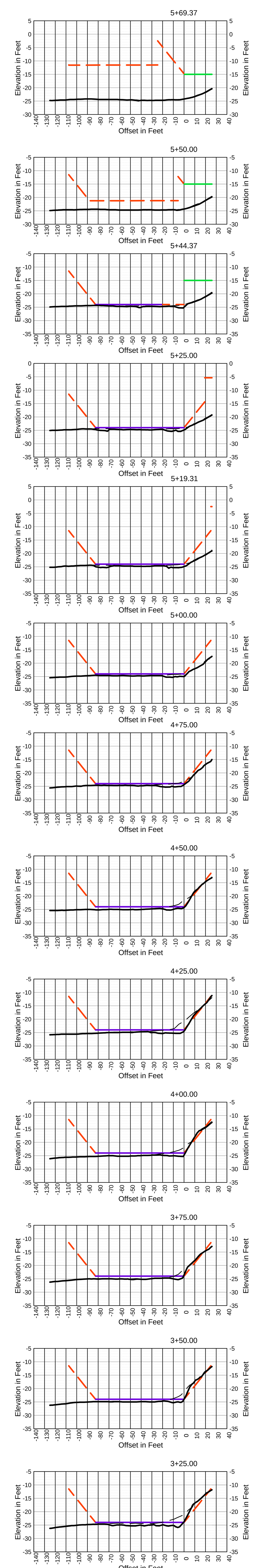
SHEET IDENTIFICATION
V-106

AREA 3

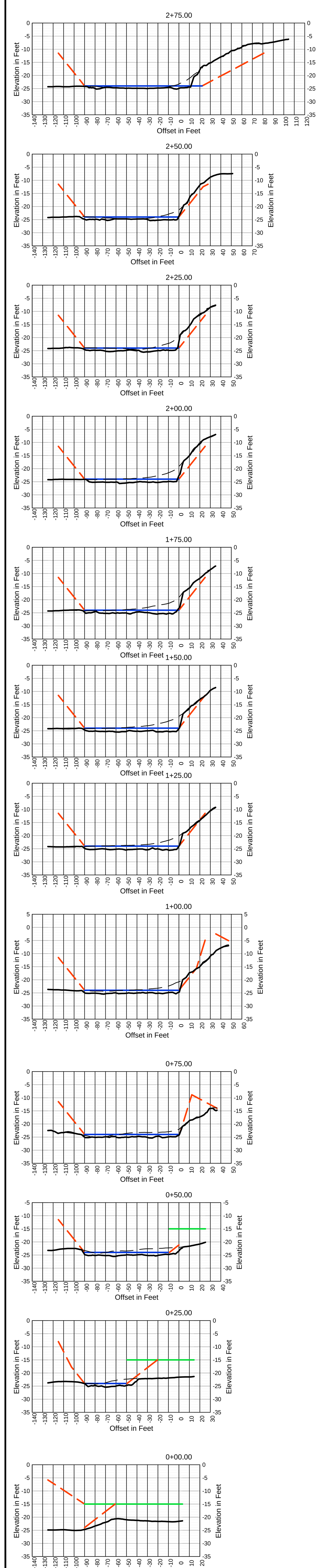
CROSS SECTION LEGEND

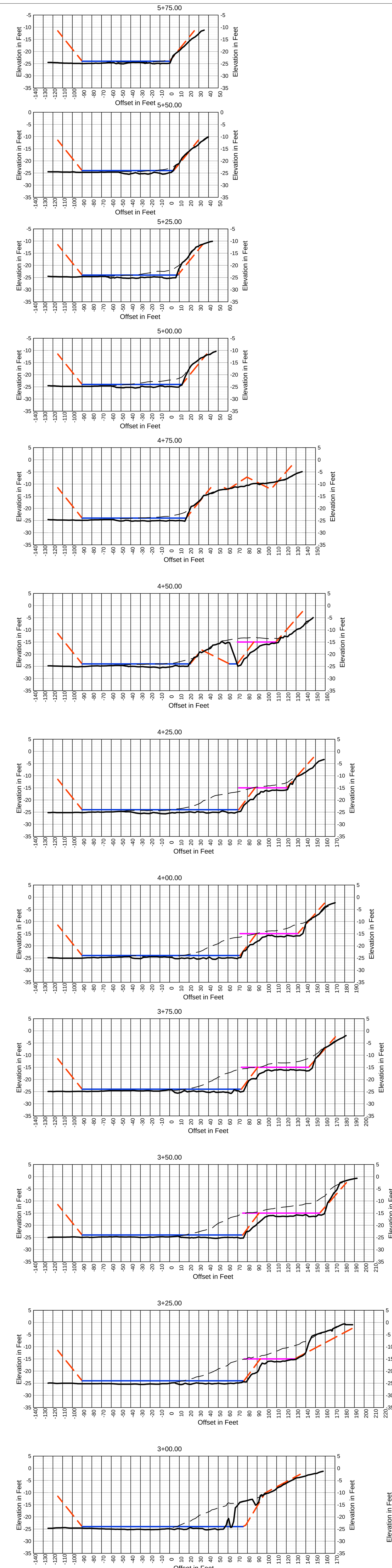
- AREA 1 PROJECT DEPTH
- AREA 1 MAXIMUM PAY
- AREA 1 SIDE SLOPE (2:1)
- SLOUGH ALLOWANCE MAX
- POST DREDGE
- PRE DREDGE
- AREA 2 PROJECT DEPTH
- AREA 2 MAXIMUM PAY
- AREA 3 PROJECT DEPTH
- AREA 3 MAXIMUM PAY
- AREA 4 PROJECT DEPTH
- AREA 4 MAXIMUM PAY
- AREA 5 PROJECT DEPTH
- AREA 5 MAXIMUM PAY

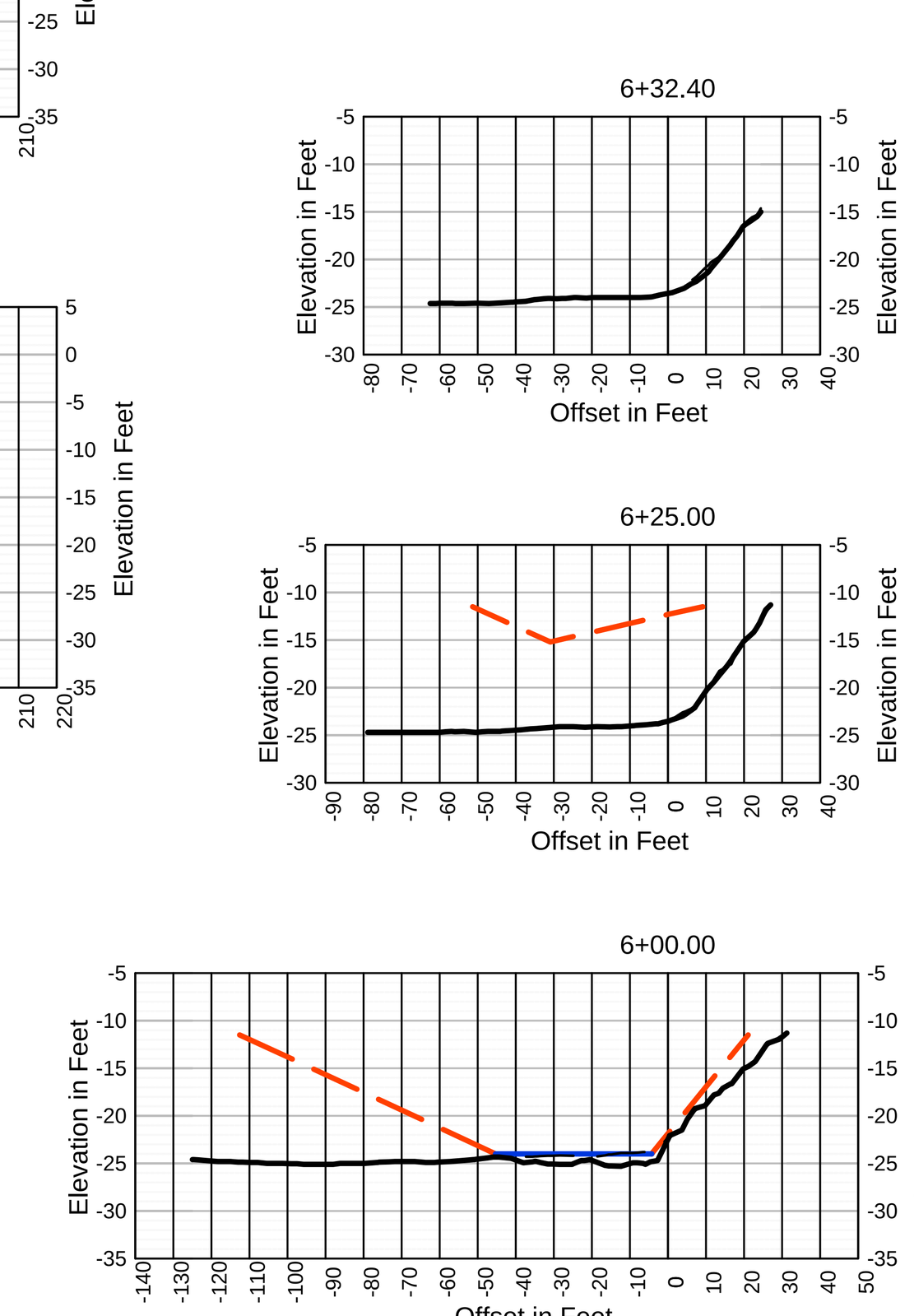


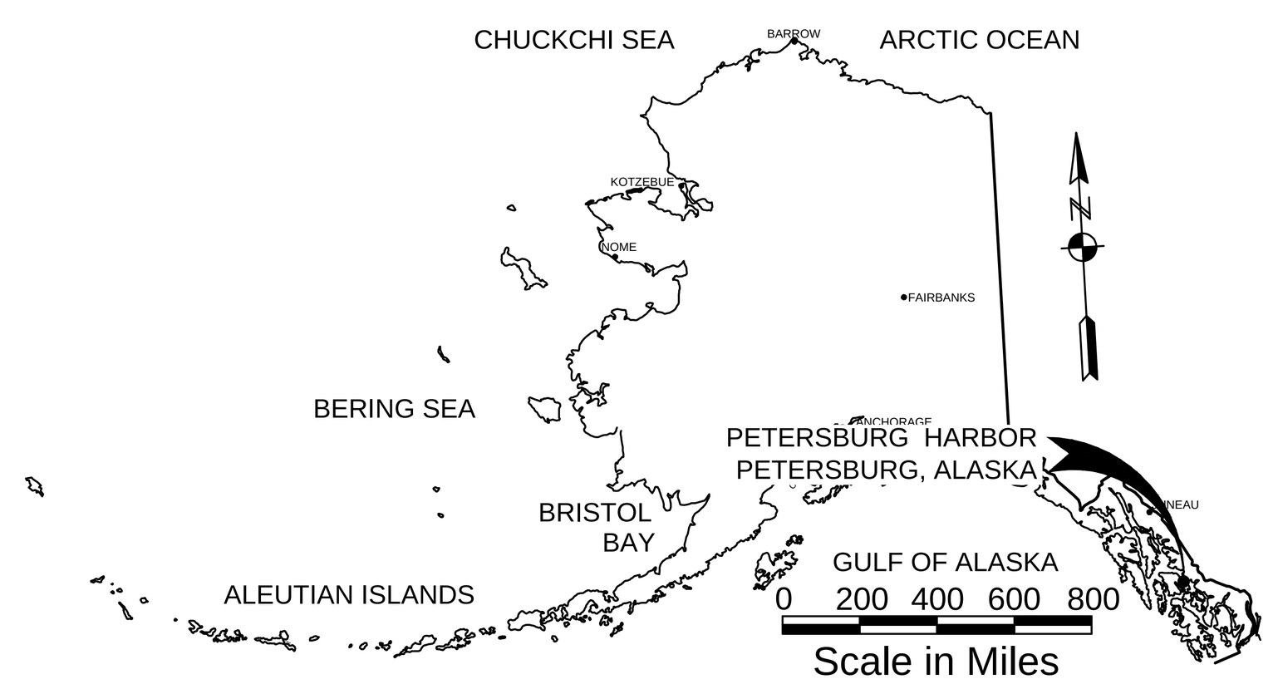


AREA 4 AND 5

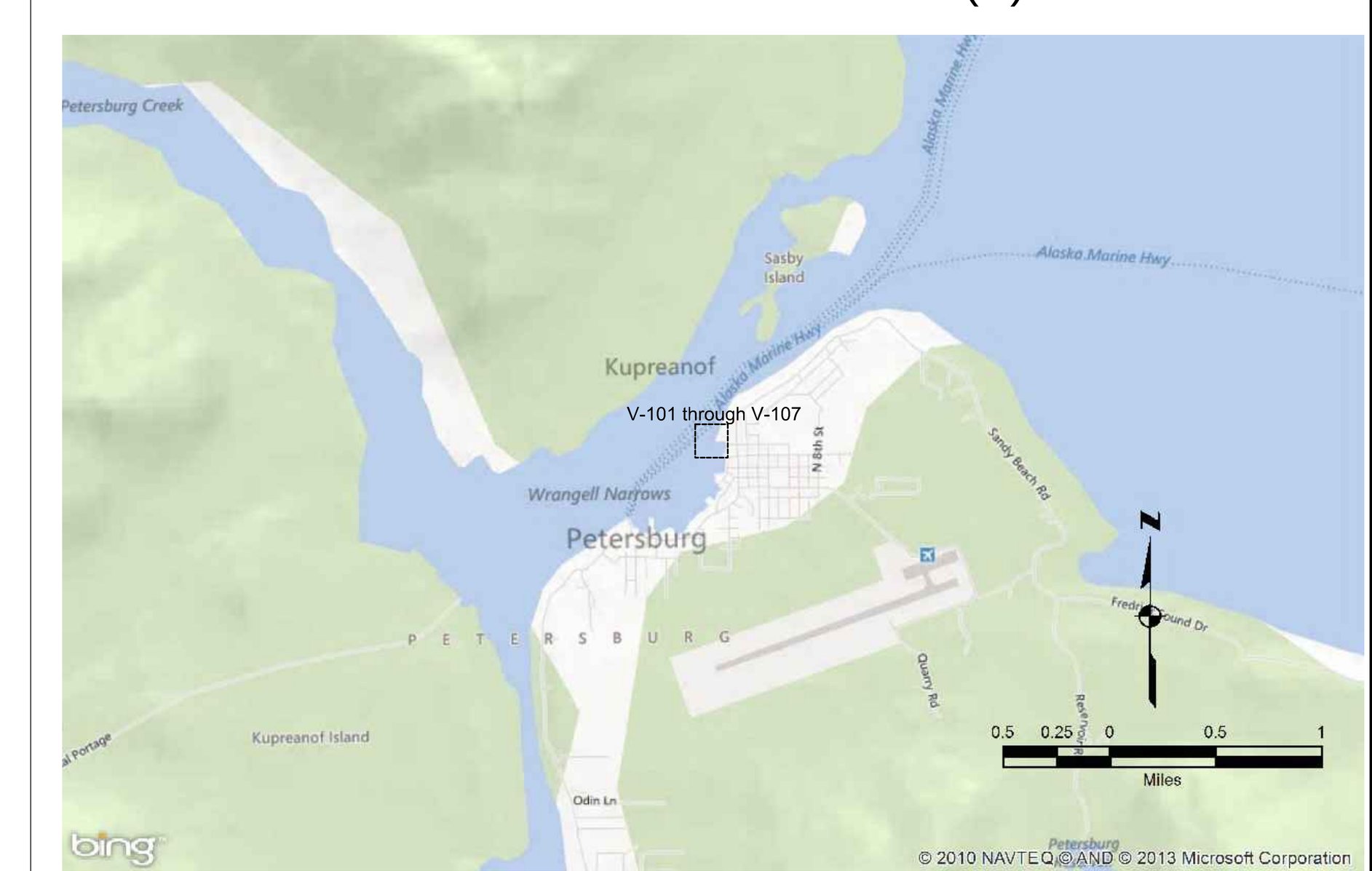








LOCATION/VICINITY MAP(S)



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CORNER	NORTHING	EASTING	CORNER	NORTHING	EASTING
1	1,819,002.75	2,827,079.82	9 I	1,819,305.50	2,827,701.45
2	1,819,007.75	2,827,073.82	10 A	1,818,934.72	2,827,657.02
3	1,819,116.75	2,826,959.81	11	1,818,986.77	2,826,544.63
4 A	1,819,178.41	2,827,017.41	12	1,818,982.28	2,826,511.28
5 A	1,819,320.84	2,826,872.78	13	1,819,133.70	2,826,573.34
6	1,819,543.80	2,827,099.80	14	1,819,378.72	2,826,814.01
7	1,819,605.27	2,827,452.88	15	1,819,587.12	2,827,348.65
8 A	1,819,610.10	2,827,530.94	16	1,820,127.45	2,827,565.21
9 A	1,819,593.84	2,827,736.00	17	1,820,127.45	2,827,630.81
9 B	1,819,464.87	2,827,720.55	18	1,820,114.24	2,827,651.87
9 C	1,819,460.99	2,827,646.77	19	1,819,947.13	2,827,615.75
9 D	1,819,424.48	2,827,650.61	20	1,819,948.72	2,827,665.39
9 E	1,819,428.87	2,827,716.24	21	1,819,804.21	2,827,616.43
9 F	1,819,396.78	2,827,712.39	22	1,819,799.27	2,827,530.63
9 G	1,819,391.21	2,827,652.97	23	1,819,949.84	2,827,700.10
9 H	1,819,303.00	2,827,659.51	24	1,819,809.38	2,827,706.12

CROSS SECTIONS

US Army Corps of Engineers ®
ALASKA DISTRICT

CONTRACT NO. W911KB-12-C-0021
CONTRACTOR S&S GENERAL CONTRACTORS & EQUIP RENTAL INC
CITY SITKA STATE ALASKA
Recommended: PRIME CONTRACTOR
Approved: CHIEF SURVEY SECTION
Date:

REVISION	DATE	DESCRIPTION	BY	APPVD

REVISION	DATE	DESCRIPTION	BY	APPVD

DATE: 31 January 2014
SURVEY NO.: 3141-13
CONTRACT NO.: W911KB-12-C-0021
CWIS or UPC & (P2) #'s: 72759
SURVEYED BY: TERRASOND LIMITED
DRAWN BY: LEP/KNB
CHECKED BY: C MCCRARY
APPROVED BY: A. CHURCHILL, BRANCH CHIEF (CO-O)
SCALE: 1" = 50' H 1"=20' V
PLOT DATE: 1/31/2014
SIZE: ANSI E
FILE NAME: PETERSBURG_HARBOR-PCS2013_POST_ALL_AREAS_121313.DWG

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

TERRASOND LIMITED
1617 SOUTH INDUSTRIAL WAY SUITE 3
PALMER, ALASKA 99645

PETERSBURG, ALASKA
PETERSBURG HARBOR
POST DREDGE SURVEYS
OCTOBER 08 & 31 AND NOVEMBER 02, 2013

SHEET IDENTIFICATION
V-107