

VOLUME COMPUTATIONS		
AREA A: ENTRANCE CHANNEL	MLLW=0	CU. YD.
AVAILABLE TO PROJECT DEPTH (PD)	-16.0	6
AVAILABLE TO MAX PAY DEPTH (MP)	-17.0	42
AVAILABLE SIDE SLOPES (SS) AT 3:1 (H:V) & 25' WIDE	VARIES	0
AREA B: BASIN (WESTERN) AREA		
AVAILABLE TO PD	-13.0	103
AVAILABLE TO MP	-14.0	195
AVAILABLE SS AT 3:1 (H:V) & 25' WIDE	VARIES	96
AREA C: BASIN (CENTRAL) AREA		
AVAILABLE TO PD	-11.0	3
AVAILABLE TO MP	-12.0	52
AVAILABLE SS AT 3:1 (H:V) & 25' WIDE	VARIES	1
AREA D: BASIN (EASTERN) AREA		
AVAILABLE TO PD	-9.0	231
AVAILABLE TO MP	-10.0	453
AVAILABLE SS AT 3:1 (H:V) & 25' WIDE	VARIES	179
TOTAL MAXIMUM VOLUME AVAILABLE (MP + SS)		1,018



NOTES

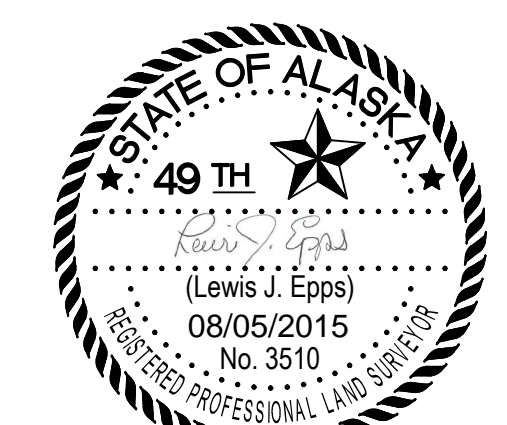
- PRIMARY PROJECT HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 5, NAD83 (GCS98) IN U.S. SURVEY FEET BASED ON A FULLY CONSTRAINED STATIC GPS NETWORK HOLDING THE 2000 EPOCH VALUES OF OPUS DB DERIVED STATIONS: 'OH-1 2009' (PID BBLL1) AS NORTHING 1,435,735.70; EASTING 1,932,826.95; '7287 A 2009' (PID BBLL2) AS NORTHING 1,435,853.33; EASTING 1,931,816.34.
- LOCAL PROJECT HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 5, NAD83, IN U.S. SURVEY FEET HOLDING NOAA/NOS DOMED BC '7287 A 2009' AS N 1,435,853.33; E 1,931,816.34.
- VERTICAL CONTROL IS MEAN LOWER LOW WATER (MLLW=0.0), BASED ON THE NOAA/NOS TIDAL BENCH MARK LIST '345 7287, OUZINKIE, ALASKA' PUBLISHED 7/31/2014. THIS TIDAL DATUM IS BASED ON THE 2007-2011 TIDAL EPOCH AND IS REFERENCED BY HOLDING NOAA/NOS TIDAL BENCH MARK '7287 A 2009' (VM#19348/PID BBLL2) AS 11.07.
- VERTICAL TIES TO THE NATIONAL SPATIAL REFERENCE SYSTEM ARE BASED ON PUBLISHED NAVD88 (GEOID 12A) ELEVATIONS HOLDING NOAA/NOS TIDAL BENCH MARK '7287 A 2009' (VM#19348/PID BBLL2) AS 9.83.
- SOUNDINGS ARE IN FEET AND ARE MINUS UNLESS OTHERWISE INDICATED.
- BATHYMETRY WAS COLLECTED MARCH 31, 2015. SOUNDINGS WERE COLLECTED USING AN R2SONIC 2022 MULTIBEAM ECHOSOUNDER @ 200 KHZ. SOUND VELOCITY THROUGH THE WATER COLUMN WAS DETERMINED WITH AN AML BASE X SOUND VELOCITY PROBE. POSITION AND VESSEL ORIENTATION WERE MEASURED USING AN APPLIX POSMV 320 V4 SYSTEM. DATA WAS COLLECTED AND PROCESSED USING CHRYSLER'S SOFTWARE. HORIZONTAL CONTROL WAS SURVEYED USING RTK & STATIC GNSS EQUIPMENT AND TECHNIQUES. VERTICAL CONTROL WAS SURVEYED USING DIFFERENTIAL LEVELING TECHNIQUES.
- THIS DRAWING INDICATES GENERAL CONDITIONS AT THE TIME OF THE SURVEY.
- MAP SOUNDINGS ARE BINNED AT 24 FEET AND ARE SHOAL-BIASED. CONTOURS ARE BASED ON 12 FEET BINNED SHOAL-BIASED SOUNDINGS. VOLUME SOUNDINGS ARE BINNED AT 3 FEET AND ARE MEAN VALUE SOUNDINGS.

SURVEY CONTROL DATA				
STATION	NORTHING	EASTING	MLLW	DESCRIPTION
7287 A 2009	1,435,853.33	1,931,816.34	11.07	3-1/2 NOAA/NOS BC
NO.2 1933	1,435,243.26	1,931,819.83	12.29	3-1/2 NOAA/NOS BC
OH-1 2009	1,435,735.76	1,932,826.94	12.37	3-1/4 SBC
OH-2 2009	1,435,156.54	1,932,913.67	19.67	3-1/4 SBC
OH-3 2015	1,435,173.02	1,933,135.64	20.58	3-1/2 USACE BC
OH-4 2015	1,435,563.96	1,933,235.76	49.45	3-1/2 USACE BC
USACE PK	1,435,749.64	1,932,799.31	11.10	NAIL

NAVIGATION AIDS			
USCG NO.	NORTHING	EASTING	DESCRIPTION
26463	1,435,405	1,932,720	OUZINKIE BREAKWATER LIGHT 2

PROJECT LIMITS			PROJECT LIMITS		
CORNER#	NORTHING	EASTING	CORNER#	NORTHING	EASTING
1	1,435,535.02	1,932,602.17	10	1,435,174.62	1,932,936.69
2	1,435,611.48	1,932,625.72	11	1,435,199.00	1,932,922.73
3	1,435,541.82	1,932,851.81	12	1,435,445.37	1,932,781.62
4	1,435,505.21	1,932,970.65	13	1,435,487.10	1,932,757.72
5	1,435,481.65	1,933,047.13	14	1,435,273.62	1,933,061.13
6	1,435,475.19	1,933,068.09	15	1,435,245.72	1,933,051.15
7	1,435,200.69	1,933,106.60	16	1,435,225.70	1,933,002.81
8	1,435,170.52	1,933,073.20	17	1,435,228.67	1,932,994.33
9	1,435,164.17	1,932,968.22			

PROJECT LIMITS CURVE DATA			
CURVE	RADIUS	ARC LENGTH	DELTA ANGLE
C1	120.00'	124.84'	059°36'25.0"
C2	350.00'	285.39'	046°43'10.1"
C3	270.00'	214.06'	045°25'32.2"
C4	20.00'	33.38'	095°37'58.7"



THIS HYDROGRAPHIC SURVEY WAS COMPLETED UNDER THE OVERSIGHT OF AN ACSM/THOSOA CERTIFIED HYDROGRAPHER

David R. Neff
 David R. Neff C.H. (275)

US Army Corps of Engineers - ALASKA DISTRICT

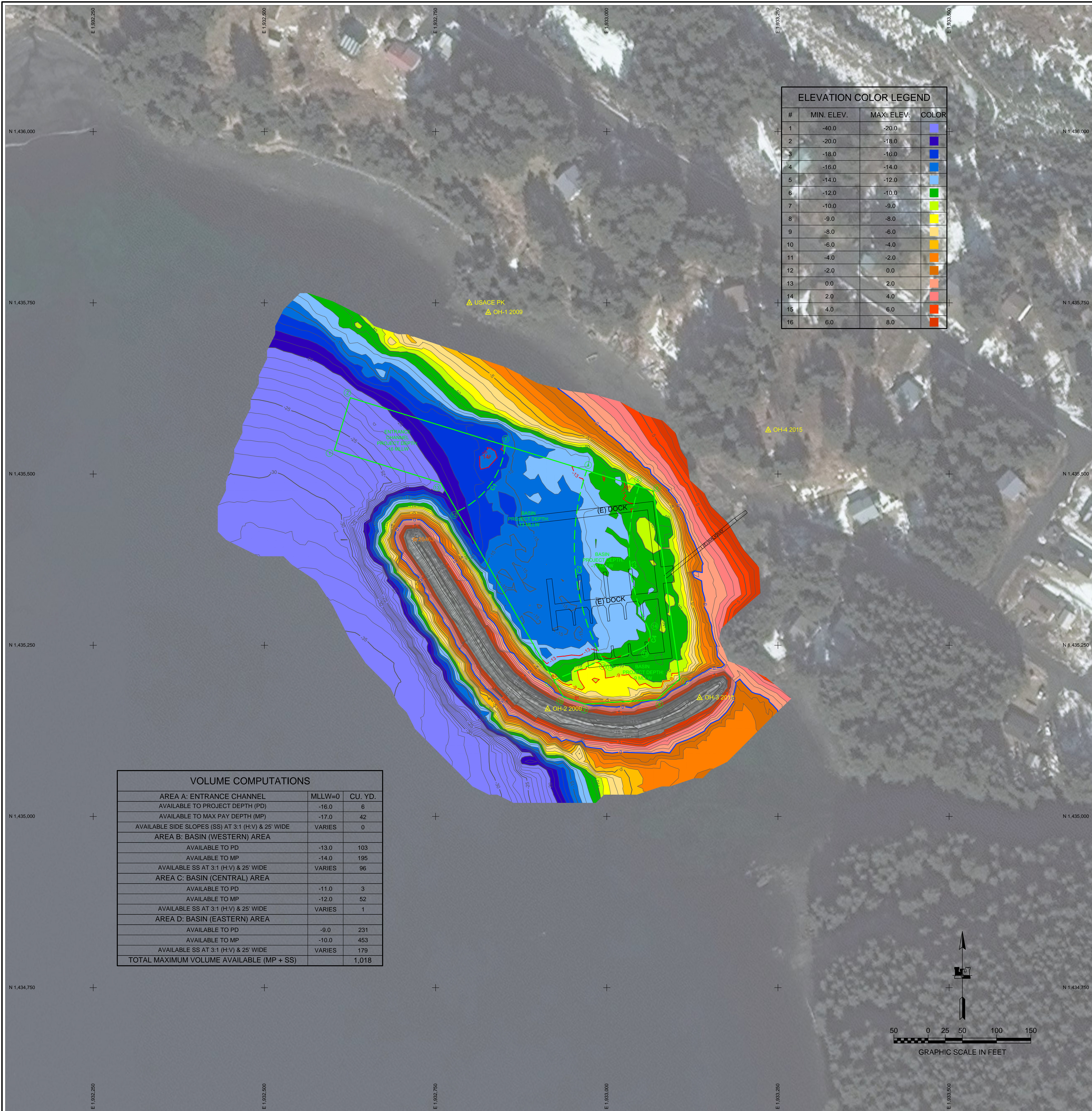
CONTRACT NO. W11H6144-0111-0000
 CONTRACTOR: ETIAC, INC.
 CITY: SAN RAFAEL, STATE: CALIFORNIA
 RECOMMENDED BY: THOMAS A. BLANN
 APPROVED BY: MICHAEL MEYER, DISTRICT ENGINEER

DATE: 08/05/2015
 SCALE: AS SHOWN
 SHEET: 5-OUZ-92-07-02

U.S. ARMY CORPS OF ENGINEERS
 ALASKA DISTRICT
 JBER, ALASKA 99506-0888
 637 1st Street, Ste 100
 San Rafael, CA 94901

KODIAK, ALASKA
OUZINKIE HARBOR
PROJECT CONDITION SURVEY
SURVEY REQUIREMENTS

SHEET IDENTIFICATION
 5-OUZ-92-07-02
 Sheet 1 of 2

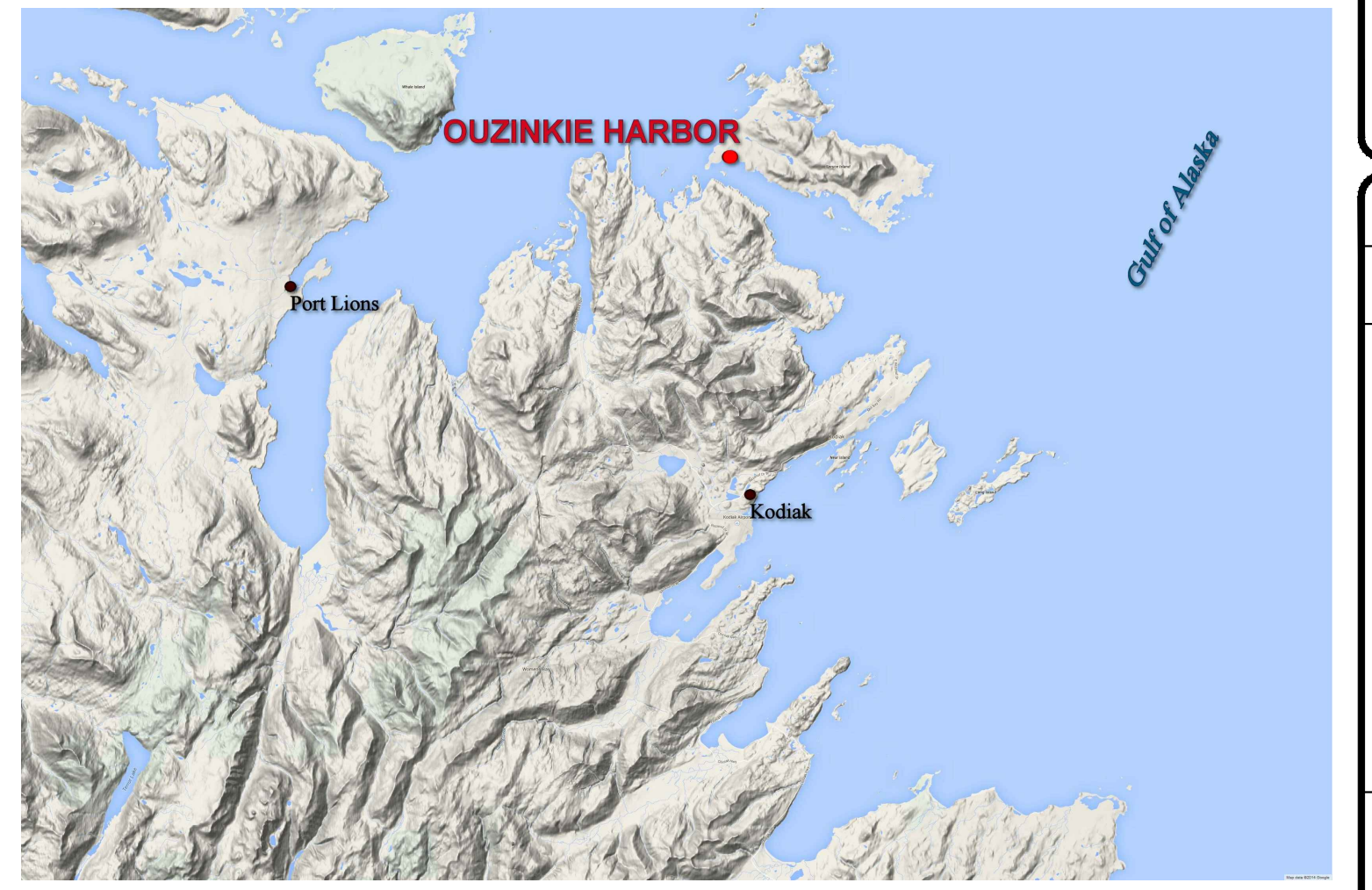


ELEVATION COLOR LEGEND

#	MIN. ELEV.	MAX. ELEV.	COLOR
1	-40.0	-20.0	Blue
2	-20.0	-18.0	Dark Blue
3	-18.0	-16.0	Light Blue
4	-16.0	-14.0	Light Blue
5	-14.0	-12.0	Light Blue
6	-12.0	-10.0	Light Green
7	-10.0	-9.0	Light Green
8	-9.0	-8.0	Light Green
9	-8.0	-6.0	Light Green
10	-6.0	-4.0	Light Green
11	-4.0	-2.0	Light Green
12	-2.0	0.0	Light Green
13	0.0	2.0	Light Green
14	2.0	4.0	Light Green
15	4.0	6.0	Light Green
16	6.0	8.0	Light Green

VOLUME COMPUTATIONS

AREA	AVAILABLE TO PROJECT DEPTH (PD)	AVAILABLE TO MAX PAY DEPTH (MP)	AVAILABLE SIDE SLOPES (SS) AT 3:1 (H:V) & 25' WIDE	MLLW=0	CU. YD.
AREA A: ENTRANCE CHANNEL	-16.0	-17.0	VARIES	6	42
AREA B: BASIN (WESTERN) AREA	-13.0	-14.0	VARIES	103	195
AREA C: BASIN (CENTRAL) AREA	-11.0	-12.0	VARIES	3	52
AREA D: BASIN (EASTERN) AREA	-9.0	-10.0	VARIES	231	453
TOTAL MAXIMUM VOLUME AVAILABLE (MP + SS)					1,018



- ### NOTES
- PRIMARY PROJECT HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 5, NAD83 (CORS96) IN U.S. SURVEY FEET BASED ON A FULLY CONSTRAINED STATIC GPS NETWORK HOLDING THE 2003 EPOCH VALUES OF OPUS DB DERIVED STATIONS: 'OH-1 2009' (PID BBLL1) AS NORTHING 1,435,735.70; EASTING 1,932,826.95; '7287 A 2009' (PID BBLL12) AS NORTHING 1,435,853.33; EASTING 1,931,816.34.
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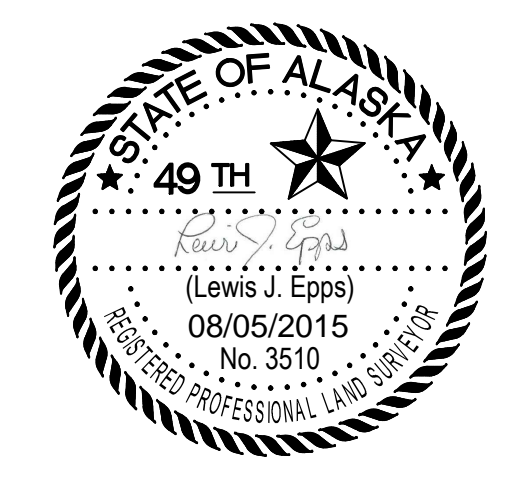
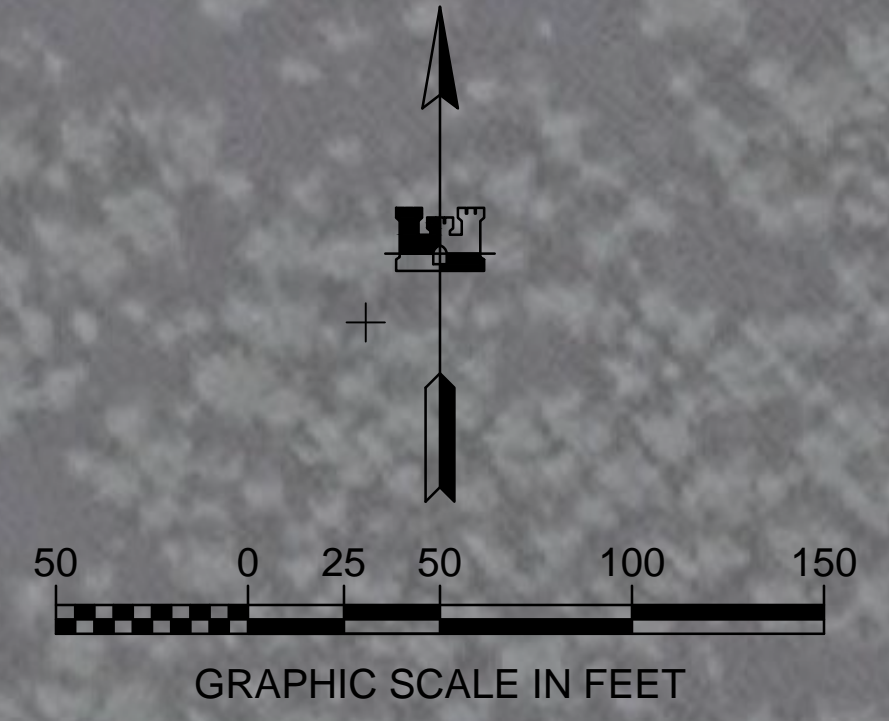
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US Army Corps of Engineers - ALASKA DISTRICT

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 OF: 2

**KODIAK, ALASKA
 OUZINKIE HARBOR
 PROJECT CONDITION SURVEY
 SURVEY REQUIREMENTS**

SHEET IDENTIFICATION
 5-OUZ-92-07-02
 Sheet 2 of 2