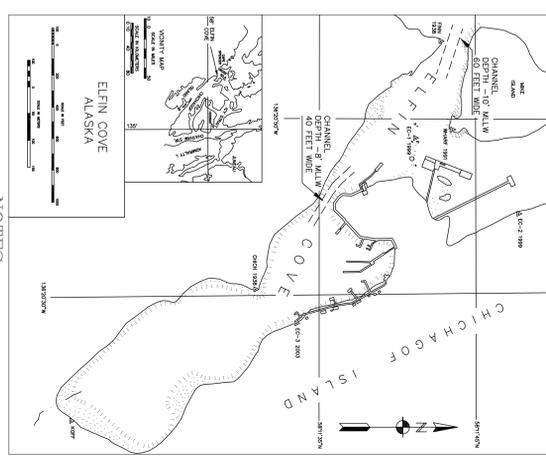


VOLUME COMPUTATIONS

Project Depth - 8' MLLW	CUBIC YARDS
MINIMUM PAY LINE (-8' MLLW)	71
Between MINIMUM PAY LINE and MAXIMUM PAY LINE (-9' MLLW)	39
VOLUME AVAILABLE ALONG SIDESLOPES (3:1 HV)	110
TOTAL	110
Project Depth - 10' MLLW	CUBIC YARDS
MINIMUM PAY LINE (-10' MLLW)	39
Between MINIMUM PAY LINE and MAXIMUM PAY LINE (-11' MLLW)	126
VOLUME AVAILABLE ALONG SIDESLOPES (3:1 HV)	165
TOTAL	165



- NOTES**
- HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 1, NAD83(CORS98). IN US SURVEY FEET BASED ON A STATIC GPS NETWORK HOLDING THE NGS EPOCH 2003.00 CORES L1 PHASE A5022) AND SUSTAINUS 2 (NSF PID A7221) (HARBOR CONTROL) WAS TRANSFORMED INTO THE NGS EPOCH 2003.00 DATUM USING USCS SBC TERN 1938 AS E 2,333,584.331, N 2,168,071.920 AND USACE DOWED BC EC-1 1999 AS N 2,333,400.555, E 2,169,581.241 (SEE NOTE 8 BELOW)
 - VERTICAL CONTROL IS MEAN-LOW-WATER DATUM, IN US SURVEY FEET (MLW=LO) BASED ON USCS TIDE BENCH MARK LIST (945-4634) SOUTHEAST ALASKA - 205, ELFIN COVE, PORT ALTHORP, CRESS SOUND, PUBLISHED 6/7/61.
 - SOUNDINGS ARE IN US SURVEY FEET AND ARE MINUS UNLESS INDICATED OTHERWISE.
 - THIS DRAWING INDICATES GENERAL CONDITIONS AT THE TIME OF SURVEY.
 - SURVEY DATA ACQUISITION WAS PERFORMED MAY 8-12, 2003. SOUNDINGS WERE COLLECTED USING AN OCEAN PROGNOSTIC PREDICTION SERVICE (OPPS) WITH A ZENITH 23 DEGREE BEAM-WIDTH RECEIVER OPERATING ON RTCM CORRECTIONS BROADCAST FROM A TRIMBLE 4000SSE RECEIVER SET AT USACE DOWED BC EC-1 1999 NAVIGATION. DATA COLLECTION AND DATA PROCESSING WAS PERFORMED BY TERRA SURVEYS, LLC. ALL DATA POINTS WERE CORRECTED FOR TIDE USING WATER LEVEL DATA COLLECTED WITH AN EMERCO TYPE 1029 WATER LEVEL RECORDER SET BY TERRA SURVEYS, LLC FOR THIS SURVEY. HORIZONTAL AND STATIC GPS AND CONVENTIONAL SURVEY TECHNIQUES, RESPECTIVELY, VERTICAL CONTROL WAS SURVEYED USING OPTICAL INSTRUMENTS AND DIFFERENTIAL LEVELING TECHNIQUES. LAND SURVEYING PHOTO TECHNIQUES WERE USED TO VERIFY HORIZONTAL AND VERTICAL CONTROL POINT POSITIONS.
 - CONTROL MONUMENTS OF RECORD WHICH WERE NOT SURVEYED ARE DENOTED IN THE CONTROL MONUMENT LIST. MONUMENTS NOT SURVEYED FOR THIS PROJECT WERE IDENTIFIED BY ASSOCIATED VALUES WERE CONVERTED FROM NAD83(CORS98) TO NAD83(CORS98) USING A FIXED-SCALE, LEAST SQUARES TRANSFORMATION WITHIN TRIMBLE GEOMATICS OFFICE (V1.60).

CONTROL DATA

STATION	NORTHING	EASTING	ELEV.	DESCRIPTION
FINN 1938	2,333,584.31	2,168,071.75	17.69	USCS SBC
FINN 1938	2,333,584.31	2,168,071.75	17.69	USCS SBC
WHARF 1991	2,333,603.96	2,168,566.55	12.44	NOS SBC
EC-1 1999	2,333,400.55	2,168,638.72	10.80	USACE DOWED BC
EC-2 1999	2,334,018.78	2,169,124.37	12.75	USACE DOWED BC
BM 4 1959	-	2,332,497.32	18.76	USCS SBC
EC-3 2003	2,332,497.32	2,169,733.70	11.14	USACE DOWED BC
DATA BM WAGER	VERTICAL ONLY	17.27	USACE DOWED BC	

PROJECT LIMITS

CORNER	NORTHING	EASTING	CORNER	NORTHING	EASTING
1	2,333,667.70	2,167,829.51	9	2,333,997.40	2,169,241.02
2	2,333,668.25	2,168,140.69	8	2,332,215.94	2,169,152.85
3	2,333,599.21	2,168,127.51	10	2,332,482.74	2,169,150.54
4	2,333,022.73	2,168,709.53	9	2,332,848.74	2,168,888.53

NAVIGATION AIDS

USCG NO.	DESCRIPTION	NORTHING	EASTING
24255	DAVBACON 3	2,333,544.47	2,168,375.47
24260	DAVBACON 5	2,333,379.46	2,168,528.45
24265	DAVBACON 6	2,333,178.63	2,168,525.19
24270	DAVBACON 7	2,332,754.76	2,169,150.59

CONTRACTOR TERRA SURVEYS, LLC
CITY ANCHORAGE, ALASKA
STATE ALASKA
CONTRACT NO. DACMS-01-D-0001

SURVEYED: WFR/COV
DRAWN: LES
CHECKED: KOW
SUBMITTED: PROJECT DEPTH SURVEY
 MAY 8-12, 2003

APPROVED: [Signature]
DATE:
SCALE: 1" = 50'
SHEET 1 **OF** 1
SURVEY NO. 2037-03