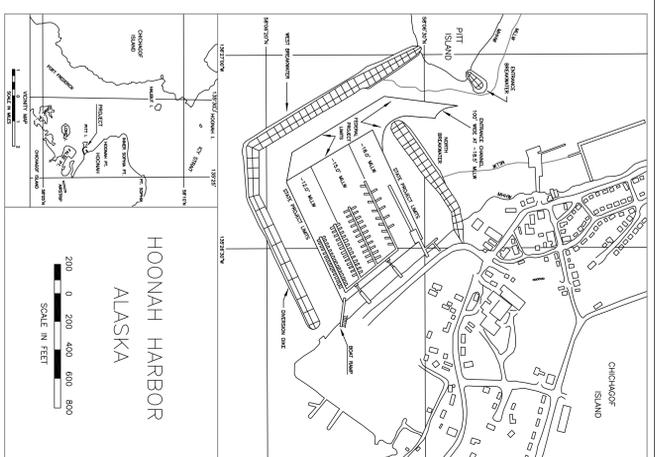


**VOLUME COMPUTATIONS**

Project Depth -18.5' MLW	1781 (cubic yards)
VOLUME AVAILABLE TO PROJECT DEPTH (-18.5' MLW)	2245 (cubic yards)
VOLUME AVAILABLE BETWEEN PROJECT DEPTH AND OVERBANK (-19.5' MLW)	960 (cubic yards)
VOLUME AVAILABLE along the side slope (3:1; H:V)	4986 (cubic yards)
<b>TOTAL</b>	



**NOTES**

- HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 1, NAD83, IN US SURVEY FEET, USACE SEC 1217-83-7, 1983\* AS N= 2,296,136.63; E= 2,340,733.89 AND USACE SEC 1217-83-1, 1983\* AS N= 2,296,136.63; E= 2,340,733.89
- GROUP TO COMPLEMENT OF THIS SURVEY, CONTROL NAVIGATION AIDS AND PROJECT LIMIT COORDINATES FROM USACE SURVEY, HOONAH HARBOR, FROM NAD83 IN US SURVEY FEET TO NAD83 IN US SURVEY FEET USING CORPSON V.11
- VERTICAL CONTROL IS IN FEET, REFERRING TO MEAN LOWER LOW WATER (MLLW-0.0'), HOLDING NOAA'S TIDAL BENCH MARK 'TERRY' 1987 AS 26.55'. THIS SURVEY REFLECTS A TIDAL DATUM UPDATE OF APPROXIMATELY +0.50' COMPARED TO USACE ON NOAA'S TIDAL BENCH MARK SHEET FOR STATION 452444 HOONAH HARBOR, PORT FREDERICK, ICY STRAIT, ALASKA, PUBLICATION DATE: 11/02/1989.
- SOUNDINGS ARE IN FEET AND ARE MINUS UNLESS OTHERWISE NOTED.
- THIS DRAWING INDICATES GENERAL CONDITIONS AT THE TIME OF SURVEY.
- HYDROGRAPHIC DATA ACQUISITION WAS CONDUCTED APRIL 15-18, 2002. SOUNDINGS SINCE OBTAINED USING AN ODOM HYDROTRAC DEPTH/SOUNDER, 200MH, 3 BEAM WIDTH RECEIVER OPERATING ON DOPS CORRECTIONS FROM A TRIMBLE ADONIS BASE STATION SET AT USACE SEC. 1217-83-9, 1983\*. DEPTH'S WERE CORRECTED FOR TIDE USING D.T.C. NAVIGATION, DATA COLLECTION AND DATA PROCESSING WERE PERFORMED BY HPACK MAX INTEGRATED SOFTWARE. HORIZONTAL CONTROL WAS SURVEYED UTILIZING HPACK MAX INTEGRATED SOFTWARE. HORIZONTAL CONTROL WAS SURVEYED UTILIZING OPTICAL INSTRUMENTS AND DIFFERENTIAL GPS TECHNOLOGIES.
- THIS SURVEY WAS PERFORMED UNDER CONTRACT DAWMS-01-D-0001 BY TERRA SURVEYS, LLC.

**CONTROL DATA**

STATION	NORTHING	EASTING	DESCRIPTION
1217-83-1, 1983	2,295,902.77	2,340,733.89	23.25 USACE SEC
1217-2	2,293,693.76	2,339,060.76	17.91 NOT SEARCHED FOR
1217-83-3, 1983	2,294,733.03	2,341,984.27	26.34 USACE SEC
1217-83-4, 1983	2,294,733.03	2,341,984.27	26.34 USACE SEC
1217-83-TIME 1983	2,295,100.83	2,342,552.91	23.97 USACE SEC
1217-83-TIME 1983	2,295,100.83	2,342,552.91	23.97 USACE SEC
1217-83-7, 1983	2,296,136.63	2,341,657.70	25.06 USACE SEC
1217-83-8, 1983	2,295,769.27	2,341,902.65	23.18 USACE SEC/ON NAVY BASE
1217-83-9, 1983	2,295,695.81	2,342,249.47	22.96 USACE SEC
HH-2, 1975	2,295,925.64	2,340,748.90	17.90 USACE SEC
HH-3, 1979	2,295,230.05	2,340,954.60	USACE SEC
HH-4, 1979	2,295,230.05	2,340,954.60	USACE SEC
HH-5, 2002	2,295,351.73	2,342,668.31	20.99 3 1/4' DOWMED BC

**PROJECT LIMITS**

CORNER	NORTHING	EASTING	CORNER	NORTHING	EASTING
1	2,295,650.29	2,341,068.40	6	2,295,651.98	2,341,468.93
2	2,294,989.36	2,341,428.50	7	2,295,657.80	2,341,203.65
3	2,294,950.94	2,341,617.80	8	2,296,244.39	2,341,271.83
4	2,295,911.83	2,342,041.63	9	2,296,244.39	2,341,177.83

**NAVIGATION AIDS**

DESCRIPTION	USCG NO.	NORTHING	EASTING
HOONAH BREAKWATER LIGHT 2	24150	2,296,325.9	2,341,006.9
HOONAH BREAKWATER LIGHT 3	24155	2,295,772.2	2,341,503.5

CONTRACTOR TERRA SURVEYS, LLC  
 STATE ALASKA  
 CITY PALMER

ALASKA DISTRICT  
 CORPS OF ENGINEERS  
 ANCHORAGE, ALASKA

HOONAH, ALASKA  
 HOONAH HARBOR  
 PROJECT CONDITION SURVEY  
 APRIL 15-18, 2002

SURVEYED: \_\_\_\_\_  
 DRAWN: DJB  
 CHECKED: LES  
 SUBMITTED: KDW  
 RECOMMENDED: \_\_\_\_\_  
 APPROVED: \_\_\_\_\_  
 DATE: \_\_\_\_\_

CONTRACT NO. DAWMS-01-D-0001  
 SURVEY NO. 1957-02  
 SCALE 1" = 100'  
 SHEET 1 OF 1