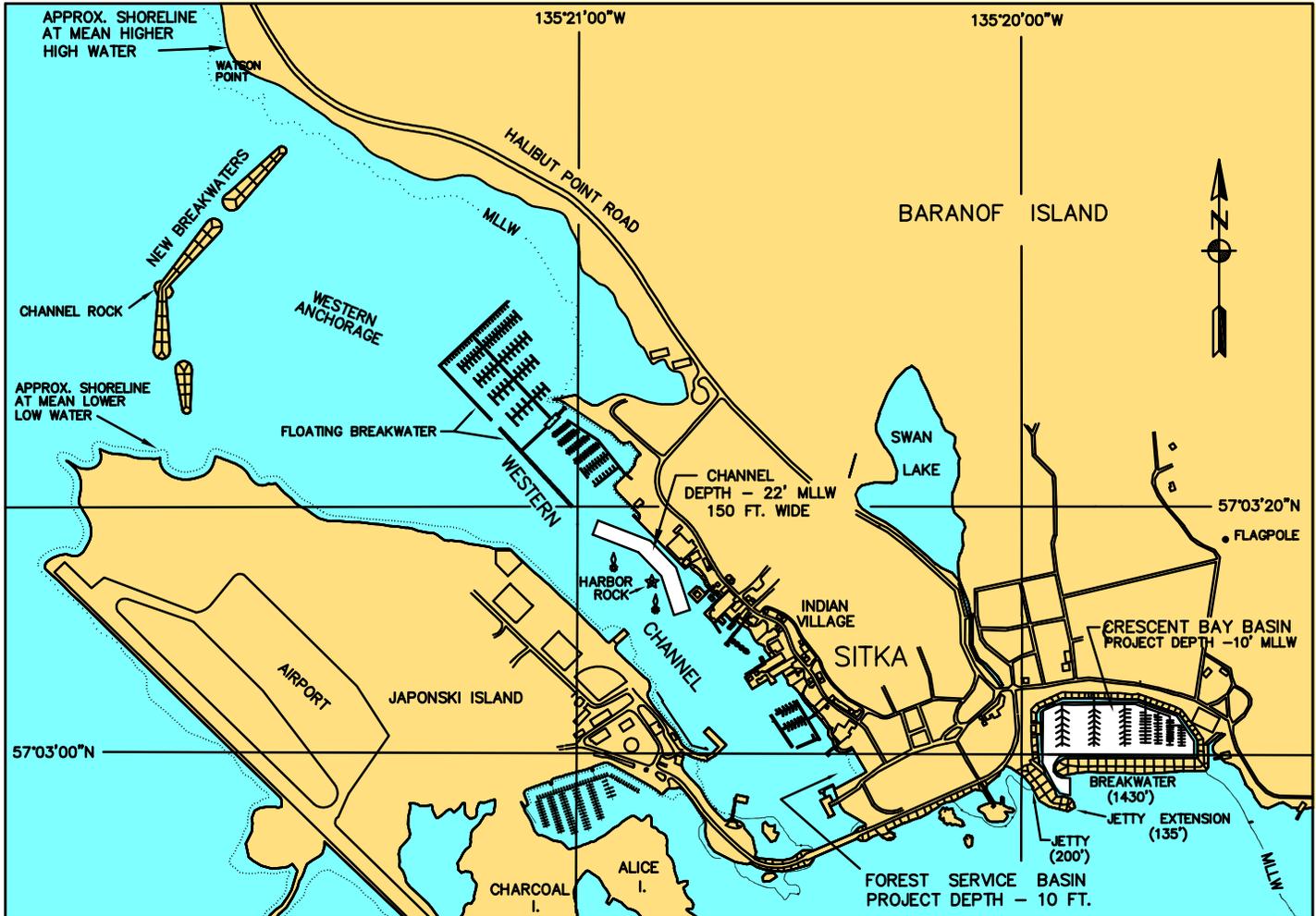
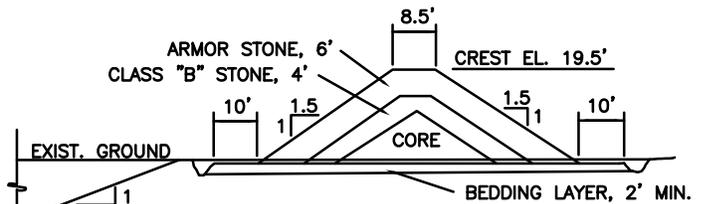


**SITKA**

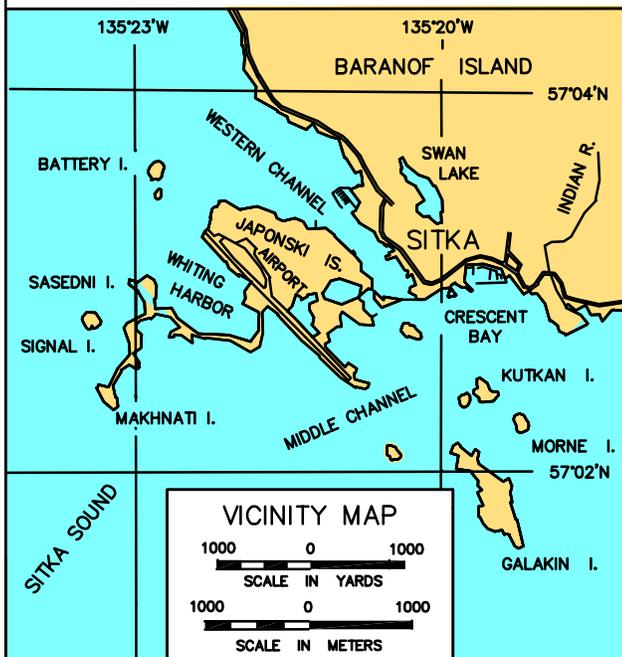


**NOTES**

1. ELEVATIONS AND DEPTHS ARE IN FEET AND REFER TO MEAN LOWER LOW WATER (MLLW = 0.0').
2. THIS LOCALITY IS SHOWN ON USC & GS CHART NOS. 17320, 17324, 17326, 17327.

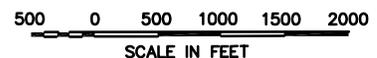


**TYPICAL BREAKWATER SECTION  
CRESCENT BAY**  
NOT TO SCALE



**SITKA ALASKA  
CRESCENT BAY BASIN  
AND  
WESTERN CHANNEL**

REVISED 2001



**SITKA HARBOR, ALASKA**  
 (Western Channel, Crescent Bay Basin, Channel Rock Breakwaters)  
 (CWIS NOS. 72845, 16840, 10322, 55030, 13787)

Condition of Improvement 30 September 2011

**AUTHORIZATION:** (1) Rivers and Harbors Act, 30 August 1935 (Rivers and Harbors Committee Doc. 59, 74th Congress, 1st Session) as adopted, provides a channel on the easterly side of Harbor Rock, 150 feet wide and 22 feet below MLLW, and for the removal of Indian Rock. (2) Rivers and Harbors Act, 2 March 1945 (House Doc. 744, 79th Congress, 2nd Session) as adopted, provides for the improvement of Crescent Bay by dredging a 13 acre area to a depth of 10 feet below MLLW, protected by two breakwaters. (3) Rivers and Harbors Act, 3 September 1954 (House Doc. 414, 83rd Congress, 2nd Session) provides for dredging the Forest Service basin, a 130 foot by 270 foot area, and its approach to a depth of 10 feet below MLLW. (4) Water Resources Development Act of 1992, Section 101 (Public Law 102-580, 31 October 1992) as adopted, and authorized by the Report of the Chief of Engineers, dated 29 June 1992 (House Doc. 103-37), provides for the construction of three breakwaters near the location of Channel Rock at Sitka, Alaska to create a protected harbor for a minimum of 315 vessels.

<b>EXISTING PROJECT:</b>	<u>LENGTH</u>	<u>DEPTH</u>	<u>WIDTH</u>
• Channel (in Western Channel) . . . . .	1300 ft	-22 ft	150 ft
• Basin, Crescent Bay . . . . .	15 acres	-10 ft	
• Entrance Channel (Crescent Bay) . . . . .	205 ft	-10 ft	Varies
• Main breakwater . . . . .	1430 ft		
• Jetty (with extension) . . . . .	335 ft		
• Forest Service Basin . . . . .	270 ft	-10 ft	130 ft
• Channel Rock Breakwaters (Thomsen Harbor)			
No. 1 . . . . .	480 ft		
No. 2 . . . . .	1200 ft		
No. 3 . . . . .	320 ft		

**PROJECT USAGE:** The channel on the easterly side of Harbor Rock in the Western Channel provides suitable access for ocean-going vessels. Crescent Bay basin provides a base of operations for commercial fishing and moorage for approximately 500 vessels. The Channel Rock Breakwaters provide protection for the new Thomsen Harbor expansion project, a major harbor addition to provide for current and anticipated future moorage needs.

**PROGRESS OF WORK:**

- 1937 - Indian Rock and an isolated boulder are removed; the channel on the easterly side of Harbor Rock in the Western Channel is completed.
- 1964 - Design Memorandum No. 2 is approved which increases the basin area to 15 acres and modifies the breakwater design to accommodate increased vessel activity. Construction of the small boat basin and dredging of the Forest Service Basin begins in July.
- 1965 - The project is completed in December; 304,300 cubic yards of common material were removed, and 27,100 tons of rock was placed during construction.

Continues on page 1-44a

**SITKA HARBOR, ALASKA** (continued)

30 September 2011

- 1972 - In order to reduce a wave surge problem in Crescent Bay basin, a 135 foot extension to the jetty is begun in September.
- 1973 - The jetty extension is successfully completed in January.
- 1988 - Sampling and testing is carried out on sediments from Thomsen Harbor.
- 1990 - The latest survey of the project in Western Channel is completed in February.
- 1992 - The most recent survey of Crescent Bay is conducted in July.
- 1994 - Construction begins on the Channel Rock breakwaters (Thomsen Harbor). 188,500 cubic yards of rock are placed during the construction season.
- 1995 - Construction is completed on the Channel Rock breakwaters. A total of 310,500 cubic yards of rock are placed to complete the contract.
- 2001 - Crescent Bay Harbor, Western Channel, the Forest Service Basin, and the Channel Rock Breakwaters are surveyed under contract.
- 2003 - Vertical and oblique aerial photography is taken in May.
- 2005 - The most recent condition survey of all three federal projects including the Forest Service Basin are conducted in May.
- 2008 - A Channel Rock breakwaters project condition survey was conducted in April 2008.
- 2010 - A project condition survey was completed in August of Crescent Harbor and Western Channel.

**COST TO DATE:**

GI PED Appropriation	\$445,109
GI PED Costs	\$445,109
CG Appropriation	\$10,089,006
CG Costs	\$9,888,954
CG ARRA Appropriation	\$45,930
CG ARRA Costs	\$45,930
CG Contributed Appropriation	\$1,228,915
CG Contributed Costs	\$1,228,915
O&M Appropriation	\$129,329
O&M Costs	\$129,329

**RANGE OF TIDE:**Mean Range

7.7'

Diurnal Range

9.9'

Extreme Range

18.4'

**CONTROLLING DEPTH:** Project depth was available in most of Crescent Bay with some light shoaling around the entire project limit, May 2005. For Western Channel a depth of -19.1 feet MLLW controls on the eastern side of the project limits. About half of the Forest Service Basin was found to be above project depth with +3.2 feet MLLW controlling in the eastern corner. The controlling depth for Crescent in 2010 is -11.6 feet in the mid maneuvering channel with -7.9 feet near corner 8 and -2.5 near corner 5. Western Channel 2010 controlling depth is -21.0 feet between corners 5 and 6.

Continues on page 1-44b

**MAINTENANCE DREDGING SUPPLEMENT:****A. General**

1. The Federal project at Crescent Bay Basin has not required dredging since original construction in 1965, and likewise Western Channel has required no maintenance dredging. Federal responsibility for Thomsen Harbor includes only breakwater repair, if necessary, and will not require Federal maintenance dredging.
2. Some shoaling has occurred around the entire limit of Crescent Bay Basin with heavier shoaling along the northern limit.
3. A dredging window from 1 June to 14 March was approved for the Thomsen expansion project; further agency review should be conducted prior to the dredging of Crescent Bay Basin.
4. The method of dredging depends in part on the selection of the disposal site which is yet to be determined.

**B. Sampling & Testing**

1. Nine sites were sampled in May of 1997, seven in Crescent Bay Basin and two in Western Channel. The basin samples were classified by ASTM D 2487 as follows:

Sample 01, 02	SM	Silty SAND with gravel
Sample 03	ML	Sandy SILT
Sample 06, 08	SM	Silty SAND
Sample 07	GM	Silty GRAVEL with sand
Sample 09	SP-SM	Poorly graded SAND with silt

The two samples from Western Channel were classified as GP-GM, Poorly graded GRAVEL with silt and sand.

2. Chemical analysis was performed using (7) tests as outlined with results below:

Method 9060	Total Organic Carbon	9,500 - 67,200 ppm
Method 8260A	Volatile Organic Compounds	All below management levels
Method 8270B	Semi-volatile Organic Compounds	(3) sites total (7) SVOCs over management levels
Series 6000-7000	(8) RCRA Metals + Copper	All below management levels
Method 8081	PCBs & Pesticides	All below management levels or thresholds not established
Method 9200	Nitrate + Nitrogen	All non-detect (ND)
Method 9035	Sulfate	560 - 5,200 ppm

**C. Disposal**

1. Designated upland sites, including intertidal if greater than +4 feet MLLW, has met previous agency approval. Environmental impacts are lessened and dredged material is put to good use when upland sites are utilized, but the costs of such activity can be prohibitive.
2. Deep water sites in the vicinity will have to be investigated and are subject to agency approval, if onshore options are exhausted.

## Sitka Small Boat Harbor and area, Sitka, Alaska



Sitka Channel Breakwater aerial oblique photographs taken in 2003.

## Sitka Small Boat Harbor and area, Sitka, Alaska



Crescent Harbor Sitka child safety (top) and harbor view in 2010.

## Sitka Small Boat Harbor and area, Sitka, Alaska



Crescent Harbor in Sitka during the summer of 2010.

## Sitka Small Boat Harbor and area, Sitka, Alaska



Western Channel Rock at Sitka looking north in 2010.



Western Channel Rock at Sitka in 2010.