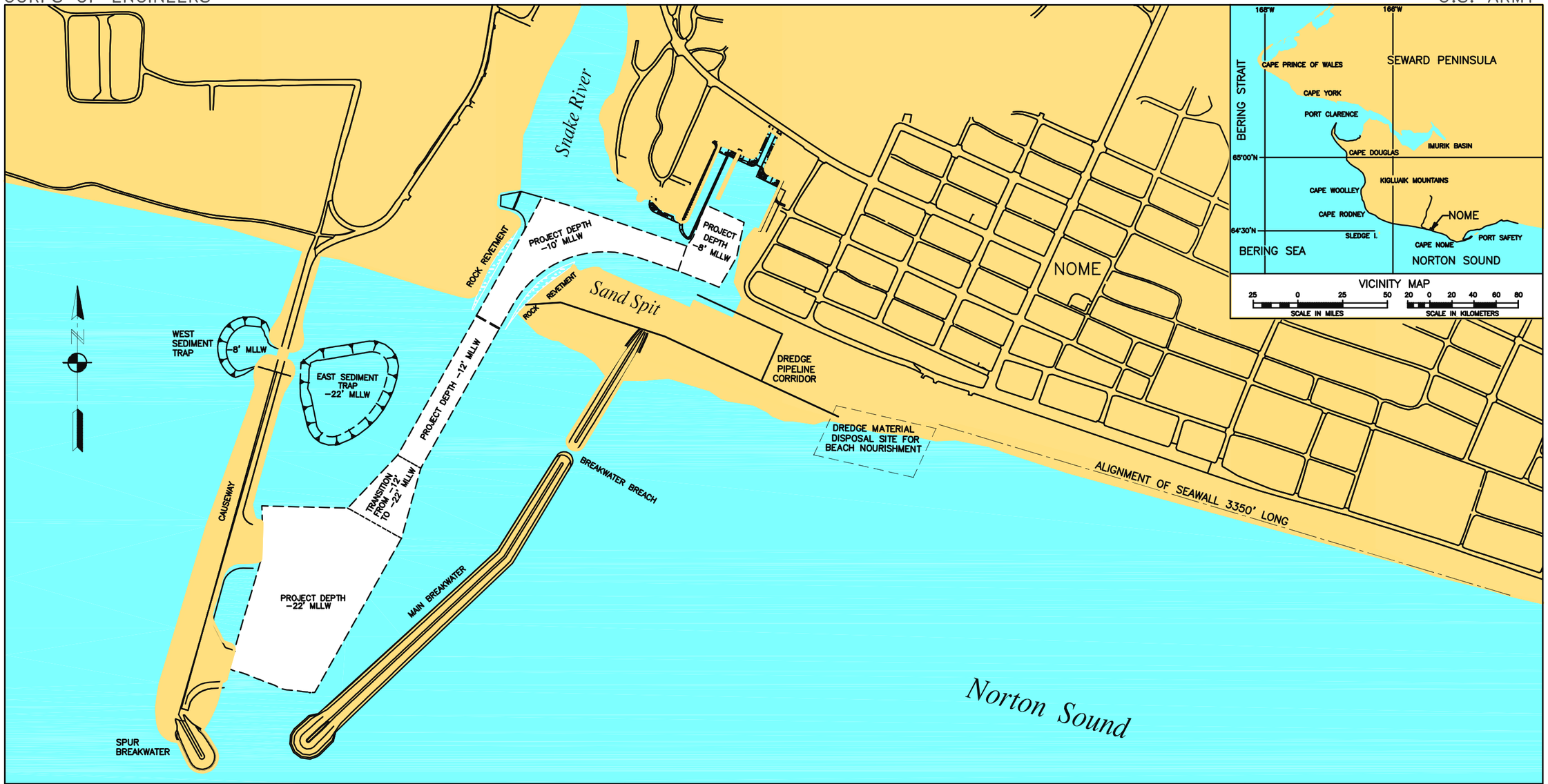
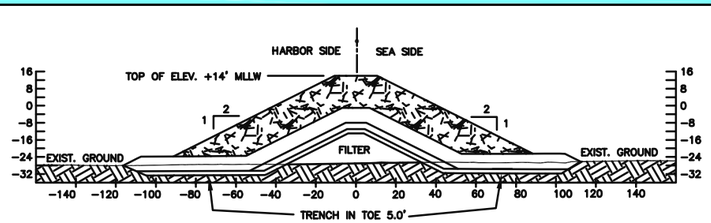
NOME HARBOR

CORPS OF ENGINEERS

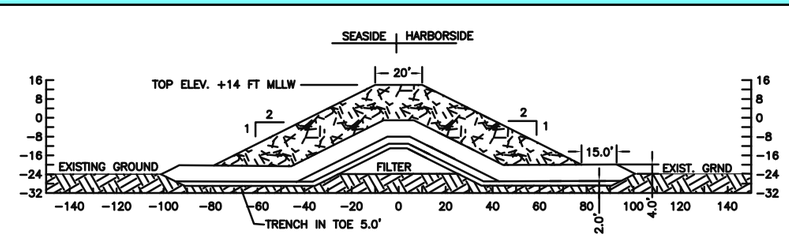
U.S. ARMY





TYPICAL SPUR BREAKWATER SECTION

SCALE AS SHOWN IN FEET



TYPICAL MAIN BREAKWATER SECTION

SCALE AS SHOWN IN FEET

Nome Harbor Alaska

Revised 2010

0 200 400 600

SCALE IN FEET

0 50 100 150 200

SCALE IN METERS

NOME HARBOR, ALASKA
(CWIS NOS. 72742, 87755, 12270, & 10422)

Condition of Improvement 30 September 2010

AUTHORIZATION: (1) Rivers and Harbors Act, 8 August 1917 (House Doc. 1932, 64th Congress, 1st Session) as adopted by Public Law No. 37 to complete the improvement to Nome Harbor, provides for an east jetty 335 feet long, a west jetty 460 feet long, a channel 75 feet wide to a depth of -8 feet MLLW from Norton Sound through the Snake River, ending in a basin of the same depth 250 feet wide and 600 feet long near the mouth of Bourbon and Dry Creeks, and revetment along the banks of the river. **(2)** Section 101 (a) (3), P.L. 106-53, Water Resource Development Act of 1999, 106th Congress, provides for a new entrance to Nome harbor consisting of a 2,986 foot long breakwater, 230 foot long causeway spur, and a 3,450 foot long entrance channel with supporting sediment traps and a causeway bridge.

ADDITIONAL WORK AUTHORIZATION: (1) Rivers and Harbors Act, 30 August 1935 (House Doc. 404, 71st Congress, 2nd Session, and the Rivers and Harbors Committee Doc. 38, 73rd Congress, 2nd Session) as adopted, provides for the extension of the east jetty an additional 616 feet, the extension of the west jetty another 216 feet, and the extension of the basin northward some 400 feet. **(2)** Rivers and Harbors Act, 16 June 1948 (Public Law 80-649) as adopted, authorizes construction of a rock mound seawall extending easterly from the east jetty along the water front for a distance of 3,350 feet.

ORIGINAL PROJECT:	LENGTH	DEPTH	WIDTH
Turning Basin	600 ft	-8 ft	250 ft
Entrance Channel*	1925 ft	-8 ft	75 ft
East Jetty*	240 ft		
West Jetty*	400 ft		
Seawall	3350 ft		
Revetment*	3815 ft		

* Removed in 2005 as part of new project construction

EXISTING PROJECT:			
Main Breakwater	2986 ft		
Spur Breakwater	230 ft		
Entrance Channel	3450 ft	-22, -12, -10 ft	Varies
Bridge	200 ft		35 ft

PROJECT USAGE: Ocean-going cargo and freight are lightered to and from shore through the Federal project. The basin is used for mooring various shallow draft craft, lighterage vessels, and for subsistence and commercial fishing boats. Nome serves as a center of transportation, general business, supply, and cargo distribution for the Seward Peninsula. All transportation to the area is by sea or air.

PROGRESS OF WORK:

1919 - Construction on the original project begins.
1922 - Dredging of the channel and the original 200 by 250 foot basin is completed.
1923 - The original 335 and 460 foot timber and concrete jetties, and the revetments are completed.

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NOME HARBOR, ALASKA (continued)

30 September 2010

1940 - The jetties are reconstructed with steel reinforced concrete to modified lengths of 240 and 400 feet.
1949 - Work begins on the seawall and the 400 foot extension to the turning basin. Records indicate annual maintenance dredging.
1951 - Construction of the seawall is completed in June. Extension of the turning basin to 600 feet in length is effectively completed, except for small areas in the northerly portion and around the Corps' marineway.
1954 - At the close of FY54, repair of the east jetty was completed, 18,800 cubic yards were removed from the project, and re-facing the timber revetment with sheet steel piling was concluded.
1964 - Contract is awarded for the repair of both jetties in July. Annual maintenance dredging continues.
1965 - Repair to the jetties is completed in October. Extensions to the jetties are reported as "inactive."
1978 - Maintenance of the revetments, jetties, and dredging is carried out by government plant and hired labor through this fiscal year. The seawall is maintained by local interests.
1979 - Maintenance dredging by contract accounts for the removal of 13,000 cubic yards during the ice-free season.
1982 - The east jetty incurs damage in the spring of 1982; the last 40 feet is detached from the remainder of the structure.
1986 - Interim repairs are effected on the sheet pile wall in the entrance channel, September-October.
1989 - Sampling and testing is conducted; annual maintenance dredging is halted for three years due to environmental concerns and is not resumed until FY92.
1997 - The Corps' warehouse and marineway immediately to the west of the turning basin are transferred to the City of Nome.
2000 - Annual maintenance dredging removes 3,300 cubic yards from the entrance channel. Locals were notified of several areas requiring armor stone (1 to 6 units) to repair the seawall.
2001 - Maintenance dredging removes 5,000 cubic yards from the entrance channel in June. Emergency dredging at the end of July and 1st week of August removes an additional 3,000 cubic yards. The Nome seawall is found to be structurally sound, but forty-eight (9) ton armor stones are required to cover exposed core material at various locations. Local interests have been notified.
2002 - Annual maintenance dredging removes 7,222 cubic yards from the north-south entrance channel. The Nome seawall is found in “fair” condition but continues to need repair.
2003 - Annual maintenance dredging removes 5,334 cubic yards in June and another 4,289 is removed by emergency dredging in August due to shoaling in the outer entrance. Inspection of the Nome seawall finds the project functioning properly but still in need of some repair.
2004 - The annual maintenance dredging event removes 6,500 from the entrance channel. The Nome seawall is overtopped by a severe storm in October. The structure survived intact with minor damage. Local authorities have been notified of the needed repairs. Construction begins on the new breakwaters and entrance channel.

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NOME HARBOR, ALASKA (continued)

30 September 2010

2005 - The original entrance channel is dredged for the last time in June and closed off in July after construction of the new entrance channel. Construction on the new breakwater and causeway spur continues. The September inspection of the seawall finds conditions relatively unchanged since the 2004 post-storm inspection. Recommendation is made to perform the needed repairs.

2006 - The new entrance channel is dredged during two separate efforts in June and July resulting in the removal of 20,000 cubic yards. The breach through the sand spit is armored to prevent sloughing of material into the channel. New steel sheet pile is installed on the south side of the inner harbor. The Corps' inspection of the seawall along Front Street found the project in good condition except for an occasional missing stone and a small area missing an estimated six stones. It was recommended that the stones in the one area of concern be replaced. Aerial photography is also taken.

2007 - Dredging in the entrance channel and east sediment trap removes 30,000 yards of material. Construction of the sheet pile replacement on the south side of the inner harbor is completed.

2008 - A pre-dredge survey was conducted in June. Dredging removes 8,250 cubic yards from the inner harbor and another 25,927 cubic yards from the east sediment trap for a total of 49,595 cubic yards of material. A post-dredge survey was conducted in July. Construction of the sheet pile replacement on the Crowley (east) dock is completed.

2009 - Annual maintenance dredging in June removes 30,000 cubic yards of material.

2010 - Dredging in June and July was accomplished using a hydraulic pipeline dredge to remove 25,965 cubic yards of sediments from the project and place them on the beach east of the harbor for beach nourishment purposes.

COST TO DATE:

GI PED Appropriation 10422	$451,458
GI PED Costs 10422	$451,458
GI PED Contributed Appropriation 10422	$4,795,698
GI PED Contributed Costs 10422	$4,603,982
CG Appropriation 10422	$43,976,156
CG Costs 10422	$42,618,383
CG Contributed Appropriation 10422	$9,333
CG Contributed Costs 10422	$125
O&M Appropriation 72742	$31,362,974
O&M Costs 72742	$31,226,247
O&M ARRA Appropriation	$0
O&M ARRA Costs	$0
O&M Contributed Appropriation 12270	$187,500
O&M Contributed Costs 12270	$187,500

Continues on page 1-32c

NOME HARBOR, ALASKA (continued)

30 September 2010

RANGE OF TIDE:	Mean Range	Diurnal Range	Extreme Range
	1.0'	1.6'	7.5'

Water levels are influenced more by wind than tide. Levels of 5 feet below MLLW have been observed during offshore winds and a level of 14 feet above MLLW has been observed during a southerly storm.

CONTROLLING DEPTH: The post-dredge survey, July 2009, shows a controlling depth of -10.0 feet MLLW in the entrance channel, and a depth of -8.8 feet inside the inner harbor. July 2010 entrance controlling depth is -24.3 feet and the maneuvering area is -18.6 feet near station 38+00 on the eastern dredging boundary.

DREDGED QUANTITIES AND CONTRACT COSTS:

Item	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010
Quantity Cubic Yards	6,500	20,000	30,000	49,595	30,000	25,965
Contract Cost	$313,493	$435,963	$653,000	$956,349	$510,518	$330,692

MAINTENANCE DREDGING SUPPLEMENT:

A. General

1. The Federal project is dredged at Nome on an annual basis by contract.
2. Shoaling is the most pronounced in the outer or north-south portion of the entrance channel, followed by moderate to light shoaling in the turning basin.
3. The State of Alaska allows dredging after June 16.
4. Dredging has been accomplished with a clamshell and barge, but more recently a cutterhead and suction pipeline have been employed to dredge the project; material is typically disposed of in the waters of Norton Sound.

B. Sampling & Testing

1. Five sites were sampled in the Federal project, April 1989, and received classifications ranging (fine to coarse) from sandy silt in the basin to poorly graded sand in the N-S entrance channel. Three sites were sampled in the Ocean Disposal Site with sediments classed as poorly graded sand with silt or poorly graded sand.

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NOME HARBOR, ALASKA (continued)

30 September 2010

2. Chemical analysis was conducted using five tests as outlined with results below:

EPA Method 3050	(8) RCRA Metals	Arsenic 18.8 - 160 ppm *
		Mercury ND - 0.52 ppm *
EPA Method 8080	PCB's	none detected (ND)
EPA Method 8015	Petroleum Hydrocarbons	ND > 1 ppm
EPA Method 8270	BNA's, Semi-volatile Organics	all below management levels or ND
EPA Method 415.1	Total Organic Carbon	0.02 - 3.5 %

* Arsenic levels in the basin exceeded the minimum threshold; Mercury levels in the entrance marginally exceeded the threshold (0.41 ppm) but not significantly different than the disposal site (0.35 - 0.40 ppm). All others are below threshold or not detected.

C. Disposal

1. Dredge spoils are transported via pipeline or by barge to the open water site east of the project and discharged there.
2. The disposal site forms a four-sided polygon roughly 3,000 feet by 4,800 feet with corner (1) at (64°29'54.000"N 165°24'41.000"W), corner (2) at (64°29'45.000"N 165°23'27.000"W), corner (3) at (64°28'57.000"N 165°23'29.000"W), and corner (4) at (64°29'07.000"N 165°24'25.000"W).
3. The current disposal site is adequate for normal dredge spoils disposal. The material dredged at the head of the turning basin in 1995 was effectively deposited within the project and capped due to its hazardous nature. This process was repeated in FY96 to contain the contaminated sediment and still maintain project depth.

D. Environmental Permits and Reports

1. The Corps' Environmental Assessment report was completed in March 1990 followed by two Findings of No Significant Impact (FONSI's); the first dated, 4 June 1990, and the second, 22 July 1992.

2. The following permits or authorizations are listed by agency below:

Agency Name	Date of Issue	Date of Expiration
ADF&G	16 Mar 98	31 Dec 08
ADEC	15 Jul 92	n/a
ADGC	14 Jul 92	n/a
EPA	19 Jun 92	n/a
ADEC	25 June 98	n/a
ADF&G	16 June 09	31 Dec 2012
ADF&G	31 Oct 08	31 Dec 2010

3. Water quality: No field measurements were taken within the project and no chemical analysis has been conducted on any water samples.

Nome Harbor

Aerial view of the causeway, main breakwater, entrance channel, and turning basin.

Dredging in the entrance channel in 2008.