1. Project Name: Kawaihae Small Boat Harbor

2. Date of Inspection: May 21, 2003

3. Inspection Personnel:

	Name	Agency/Office	Telephone No.
a.	Dan Meyers	COE	438-8875

4. Discussion:

West Breakwater:

STATION	REACH	COMMENTS
0+00 to 0+89	#1	Root
0+90 to 5+43	#2A	Trunk
5+44 to 8+59	#2B	Trunk
8+60 to 8+82	#2C	Trunk
8+83 to 11+89	#2D	Trunk
11+90 to 12+60	3	Head

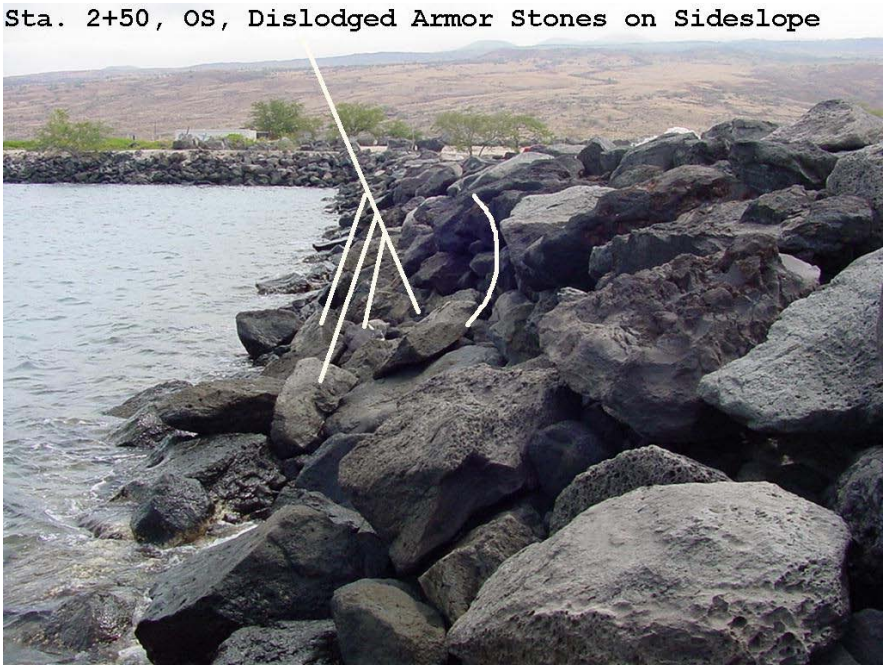
East Breakwater:

STATION	REACH	COMMENTS
0+00 to 0+10	#1	Root
0+11 to 2+65	#2A	Trunk
2+66 to 2+80	#2B	Trunk
2+81 to 7+10	#2C	Trunk
7+11 to 7+30	#2D	Trunk
7+31 to 7+80	3	Head

West Breakwater 1,260LF:

a. Breakwater warning sign missing.

b. Sta. 0+00, Overview photo for reference.



c. Sta. 2+50, OS, Dislodged armor stones on sideslope.

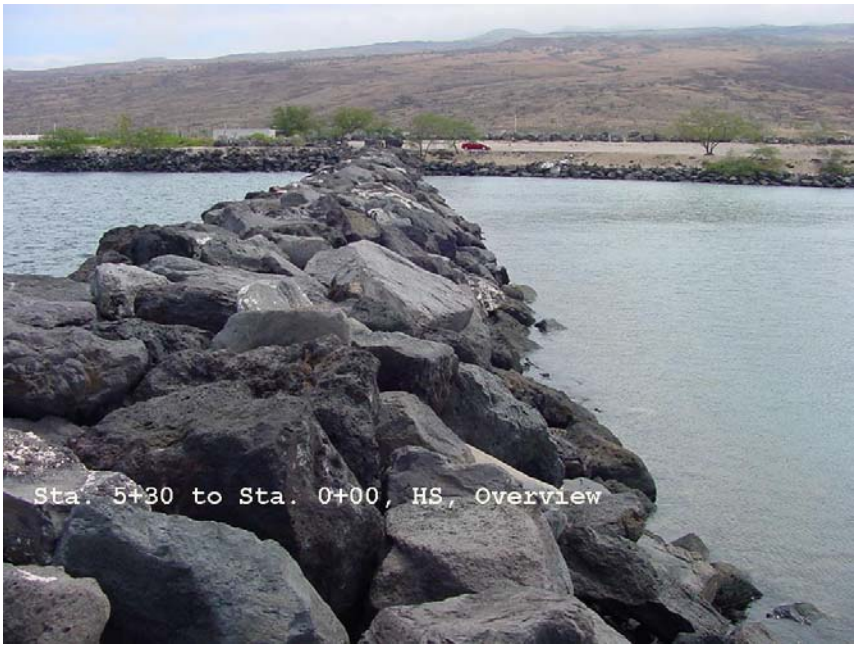
d. Sta. 2+80, OS & HS - Crest, Settling of armor stones approx. 4′ deep. Monitor this area.

e. Sta. 3+00, OS, Displaced armor stone & exposed underlayer at waterline.

f. Sta. 3+45, Settling at crest, armor stone displacement at toe.

g. Sta. 4+00, OS, Sideslope settling.

h. Sta. 5+00, Crest, cracked armor stone.



i. Sta. 5+30, HS, Photo for reference.

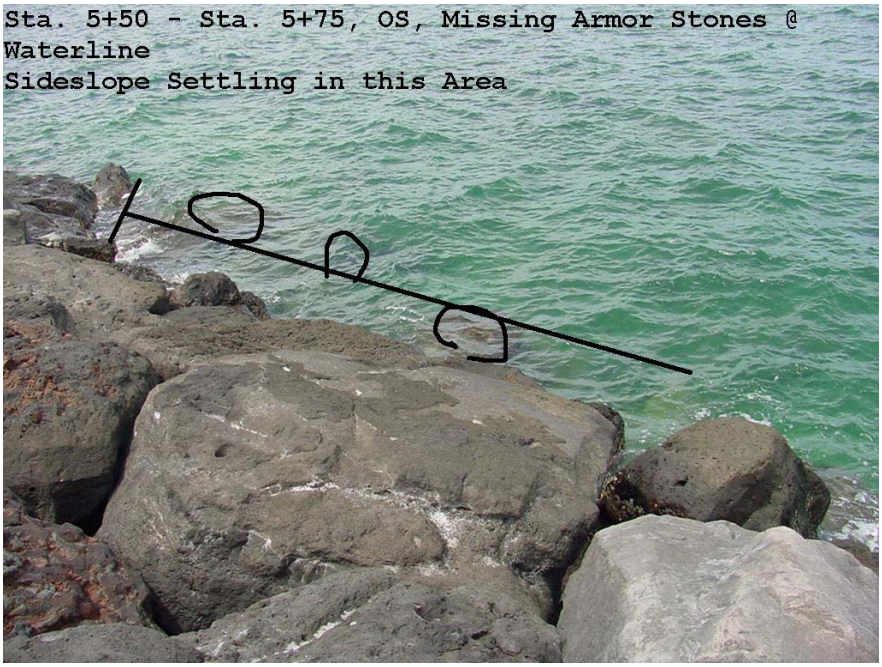
NOTE: Construction QA Report: Sta. 5+43, 6+50, 8+60 to 8+83, underwater inspection report states "…vertical placement, slide potential".

j. Sta. 5+35, OS, Possible sideslope sliding, dislocated armor stones, void.

k. Sta. 5+35, OS, Sideslope settling, armor stones missing.

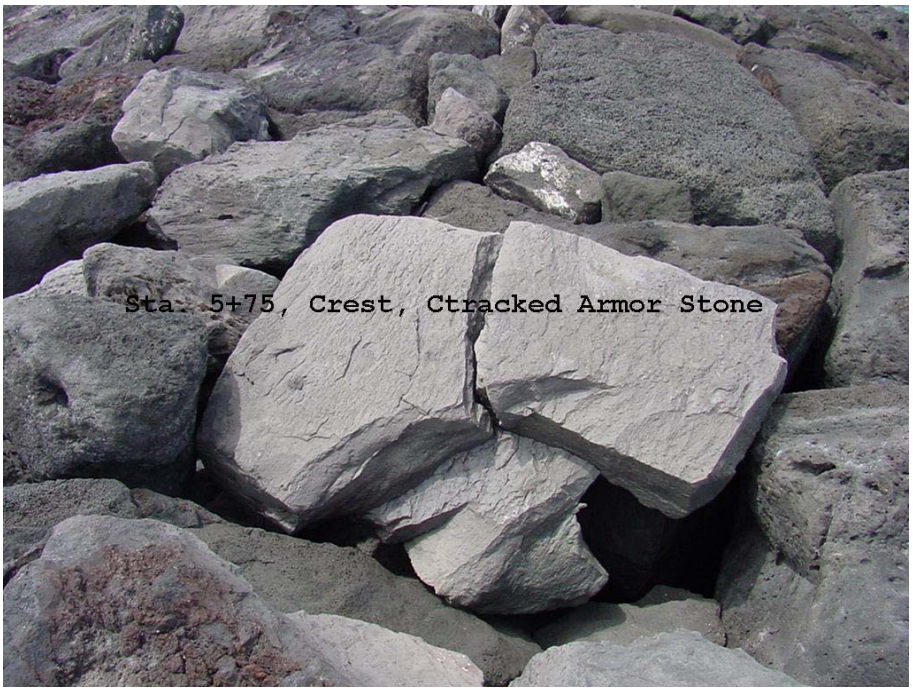
l. Sta. 5+40, Overview photo for reference.

m. Sta. 5+45, HS, 1 ea. dislocated armor stone at toe.



o. Sta. 5+50 - Sta. 5+75, OS, Possible sideslope failure, toe stones missing, void, approx. 20LF.

p. Sta. 5+50 - Sta. 5+75, OS, Possible sideslope failure, toe stones missing, void, approx. 20LF.



q. Sta. 5+75, Cracked armor stone at centerline of crest.

r. Sta. 6+00, OS, Dislodged armor stone @ toe, cavity/void.

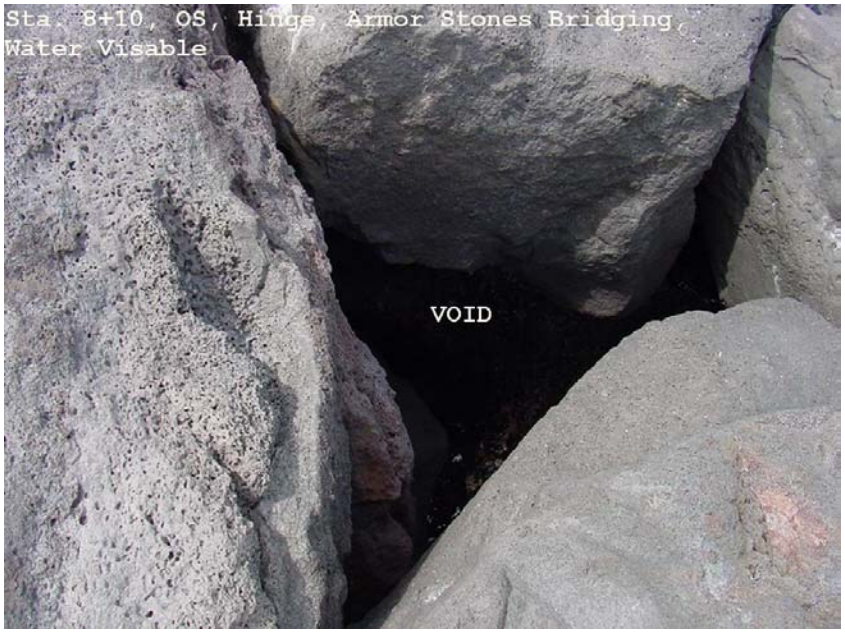
s. Sta. 6+50, OS, Cavity, five foot dia., sideslope steeping.

t. Sta. 7+10, OS, Bridging of armor stone, large cavity.

u. Sta. 7+50, OS, 1ea. 12T armor stone dislodged.

v. Sta. 7+52, 7+90, and 8+00 OS, one 12T armor stone perched on a 100# stone.

w. Sta. 8+04, Toe stones have a vertical face, ocean side.



x. Sta. 8+10, OS of crest, large void.

y. Sta. 8+72 OS of crest, large void and numerous perched stones.

z. Sta. 9+00, OS, Settling of sideslope.

aa. Sta. 9+00, OS, Settling of sideslope. (FY 2002 Photo)

bb. Sta. 9+45, HS, Several dislocated armor stones.

cc. Sta. 9+75, OS, Overview photo for reference.

dd. Sta. 10+20, HS, 1ea. armor stone with cavity under the top layer.

ee. Sta. 10+00, OS, Bridging, armor stone @ toe w/o contact.

ff. Sta. 11+00, Crest, Cracked armor stone.

gg. Sta. 11+00, HS, Chinker 2/3 up the sideslope, no bottom contact.

hh. Sta. 11+20, HS, 3ea. chinkers, one 12T-15T armor stone bridging.

ii. Sta. 11+50, OS, 2ea. armor stones at waterline dislodged.

jj. Sta. 12+15, OS, Armor stone larger than specified in the contract specs, 15T-18T.

kk. Sta. 12+20, OS, 1ea. armor stone bridging.

ll. Sta. 11+80, OS hinge of crest, Armor stone separating (FY 2002 Photo).

mm. Sta. 12+10, OS Hinge, Split armor stone (FY 2002 Photo).

nn. Sta. 12+60, OS Head, Sideslope settling (FY 2002 Photo).

oo. Sta. 12+60, Head, 0 deg., Possible 8’ void at the head’s waterline (FY 2002 Photo).

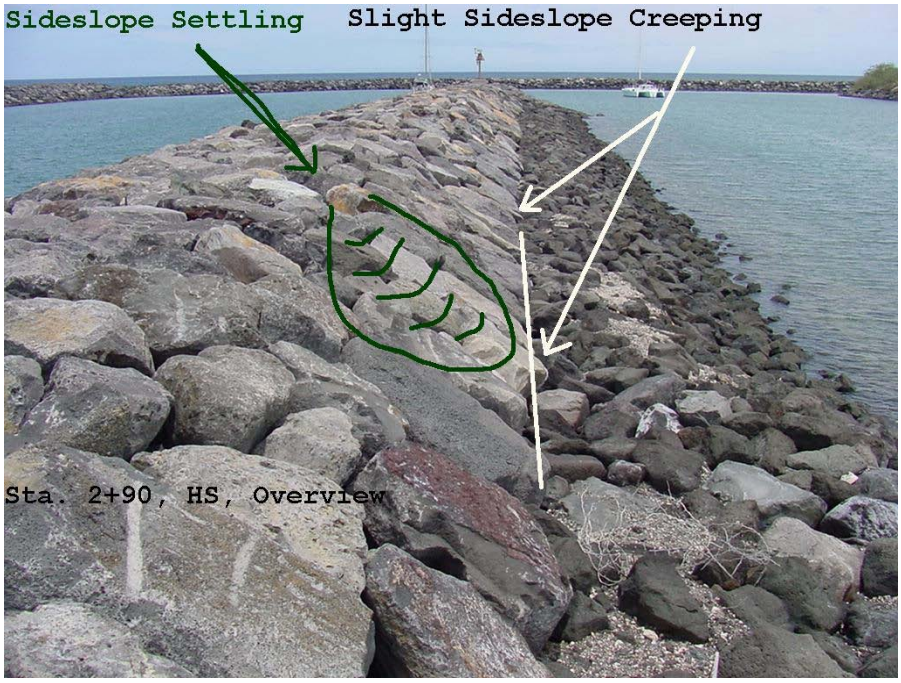
pp. Sta. 12+60, Head, 45 deg., HS, 1ea. armor stone bridging (FY 2002 Photo).

East Breakwater 780LF:

a. Sta. 0+50 to 2+00, harbor and ocean side. Numerous voids in the armor layer, which expose the underlayer. Underlayer and armor stones are undersized. Most undersized stones appear to be located within the splash zone of both the HS and OS.

b. Sta. 2+65 to 2+80 missing armor stones in bend, HS. Coral material has washed up and is filling the voids.

c. Sta. 2+80 to 4+00, OS, Monitor minor settling on sideslope.



d. Sta. 4+36 - Sta. 4+60, HS, The sideslope has begun to creep.

Note: Sta. 3+30 to 7+10, HS. Armor stones lacks adequate contact with underlayer section. Armor stones are perched (by the use of very small stones) above the underlayer section.

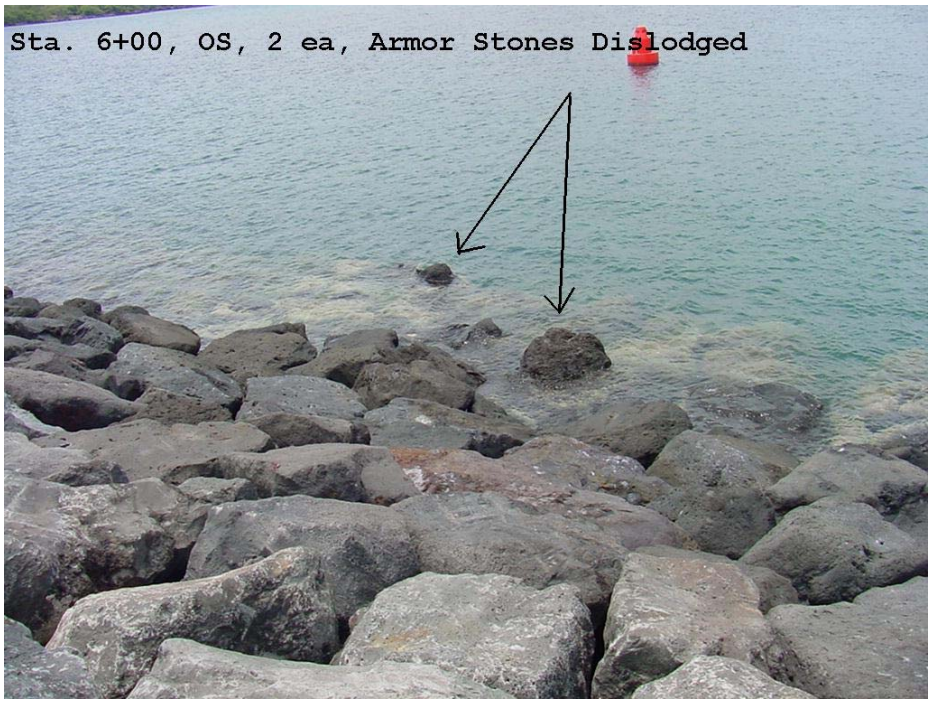
e. Sta. 4+36, OS, Minor settling, area approximately 30’ x 40’, sideslope.

f. Sta. 4+50, HS, Chinkers have begun to break due to weight of armor stone.

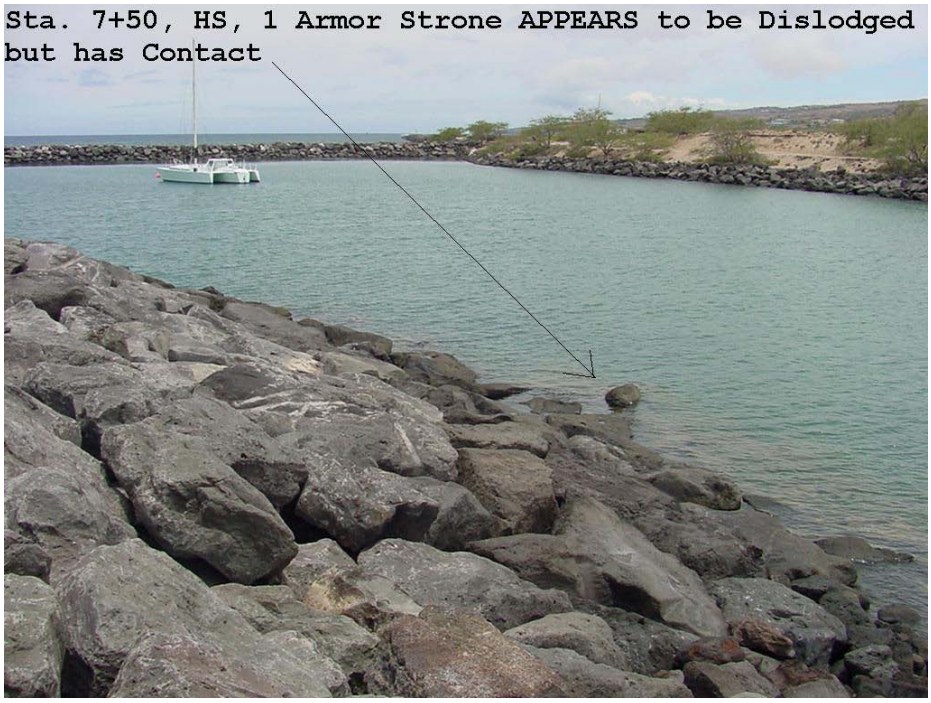
g. Sta. 4+50, HS, Chinkers have begun to break due to weight of armor stone, sideslope beginning to separate @ the hinge and creep @ the toe.

Last Year's Note: Sta. 3+50 to 5+00, OS, 4-5 ea. undersized armor stones, bridging, 3 chinking stones.

h. Sta. 6+00, OS, 2 ea. armor stones are displaced @ the toe.



i. Sta. 6+80, 2 ea. armor stones are flipped @ the toe.



j. Sta. 7+50, HS, 1 armor stone appears to be dislodged but has contract.

k. Sta. 7+80, 0 Deg., 1 ea. armor stone dislodged @ toe.

l. Sta. 7+80, OS of Head, 9pm, 4-5 ea. armor stones are dislodged and separated from the toe.

m. Sta. 7+80, HS of head, 1 ea. armor stone dislodged at the toe small void.

5. Findings/Conclusions:

West B/W - Good, Only minor deterioration are evident, but function is not significantly affected. East B/W - Fair, Deterioration is clearly evident, but the structure still appears sound. Project should be inspected after all high wave actions to determine if repairs are required.

Signed: _____
Dan Meyers, CEPOH-EC-T

Signed: _____
Jim Pennaz P.E., Ch, CEPOH-EC-T