Excerpts from NRPA Application

L-24089-4H-A-N

Application for

NRPA Coastal Sand Dune Permit

March 14, 2008

Stone Beachfront Protection

Prouts Neck; Scarborough, Maine

Applicant:

Marion Stone
14 Harmon Street
Prouts Neck
Scarborough, Maine

Submitted To:

DEP
Division of Land Resource Regulation
312 Canco Drive
Portland, ME 04103

BAKER DESIGN CONSULTANTS
Civil, Marine and Structural Engineering
11 Stony Brook Lane, Yarmouth, Maine 04096

APPLICATION FOR A COASTAL SAND DUNE PERMIT

→PLEASE TYPE OR PRINT IN *BLACK INK ONLY*

1. Name of Applicant:	Marion Stone	4. Name of Agent: (if applicable)	Barney Baker PE Baker Design Consultants
2. Applicant's Mailing Address:	Attn: Gregg Stone Kestrel Management Associates One Liberty Square; Suite 1200 Boston, MA 02109	5. Agent's Mailing Address:	11 Stony Brook Lane Yarmouth, Maine 04096
3. Applicant's Daytime Phone #:	(617) 451-6722 (Gregg Stone)	6. Agent's Daytime Phone #:	207 846-9724

7. Location of Project (Nearest Road, Street, Rt.#):	14 Harmon Street	8. Town:	Scarborough	9. County:	Cumberland

10. Type of Dune:	☑ Front (D-1) ☑ Back (D-2)	11. Type of Project:	☐ New Building or Addition ☐ Vertical Addition ☐ Reconstructed Building ☑ Other Revetment	13. FEMA Flood Zone:	☑ A-Zone ☑ AO-Zone ☐ B-Zone ☑ V-Zone
		12. Variance Request:	☐ Section 8A ☐ Section 8B		☐ Shaded X-Zone ☐ Non-Flood (C-Zone)

14. Type of Vegetation on Lot:	☑ Native ~75 % of Lot Covered ☑ Lawn/Landscaped ~25 % of Lot Covered	15. Adjacent to or in Essential or Significant Habitat:	☑ Yes ☐ No
16. Brief Project Description:	Replacement of existing timber bulkhead that was damaged in the April 2007 storm.		
17. Size of Lot and % of Existing and Proposed Coverage Note: One acre = 43,560 sq. ft.	41360 Square feet 7 % existing building coverage 0 % proposed building coverage 23 % existing development coverage 9 % proposed development coverage	18. Proposed Foundation Type:	NA
19. Title, Right or Interest:	☑ own ☐ lease ☐ purchase option ☐ written agreement		
20. Deed Reference Numbers	Book #: 6213 Page #: 059	21. Map and Lot Numbers (Town Tax Map):	Map #: U018 Lot #: 016
22. DEP Staff Previously Contacted:	Bill Bullard		

23. Resubmission of Application?	☐ Yes→ ☑ No	If yes, previous application #		Previous project manager:	
24. Written Notice of Violation?	☐ Yes → ☑ No	If yes, name of DEP enforcement staff involved:		25. After-the-Fact Application:	☐ Yes ☑ No

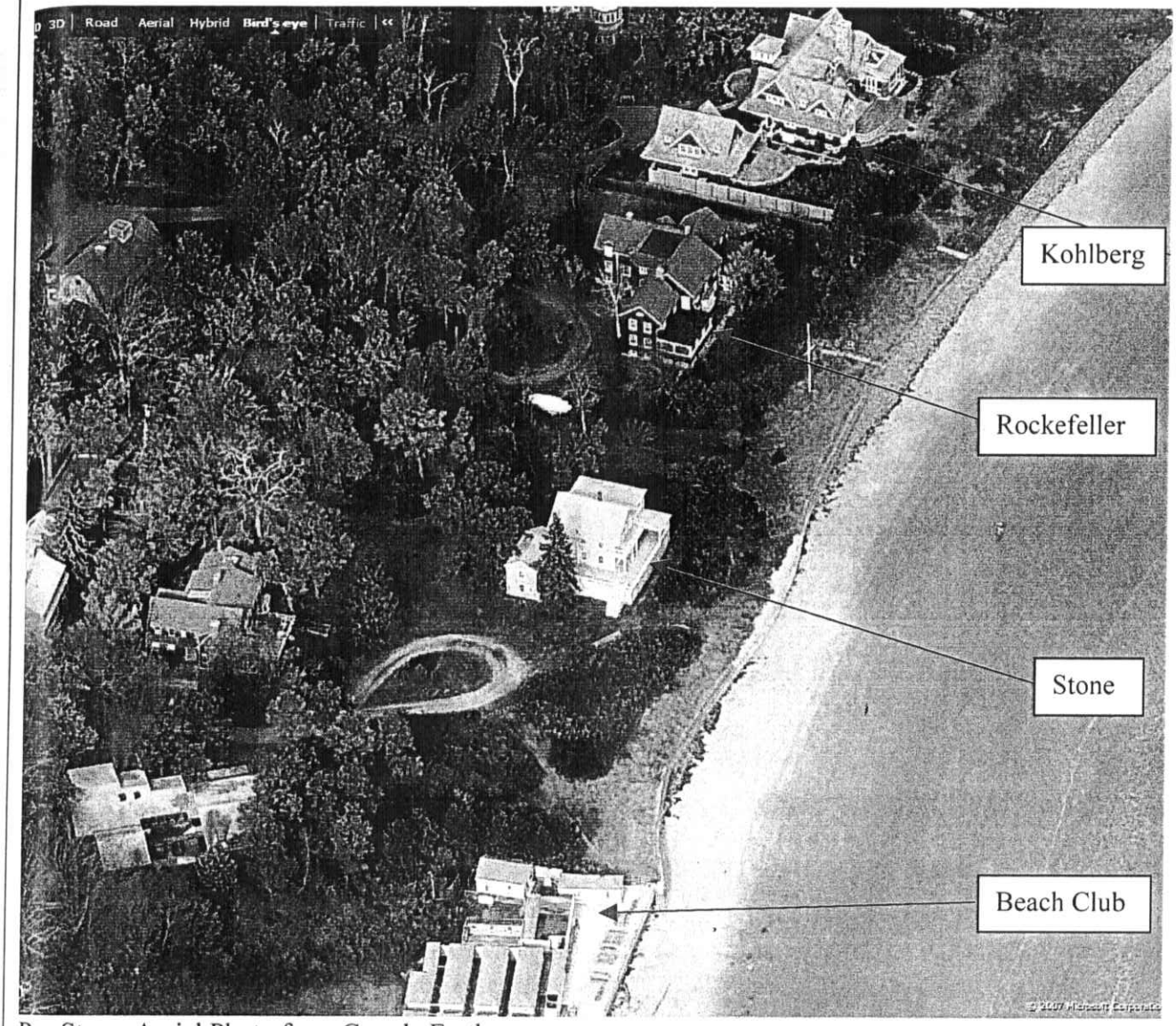
26. Detailed Directions to the Project Site:	I295 S to Exit 2 (Scarborough/Old Orchard), merge onto Scarborough Conn (Route 1), Left Black Pnt Road (ME - 207), left on Harmon Street. Refer to Location Map.

27. Basic Attachments: Note: A copy of the complete application must be submitted to the municipality.

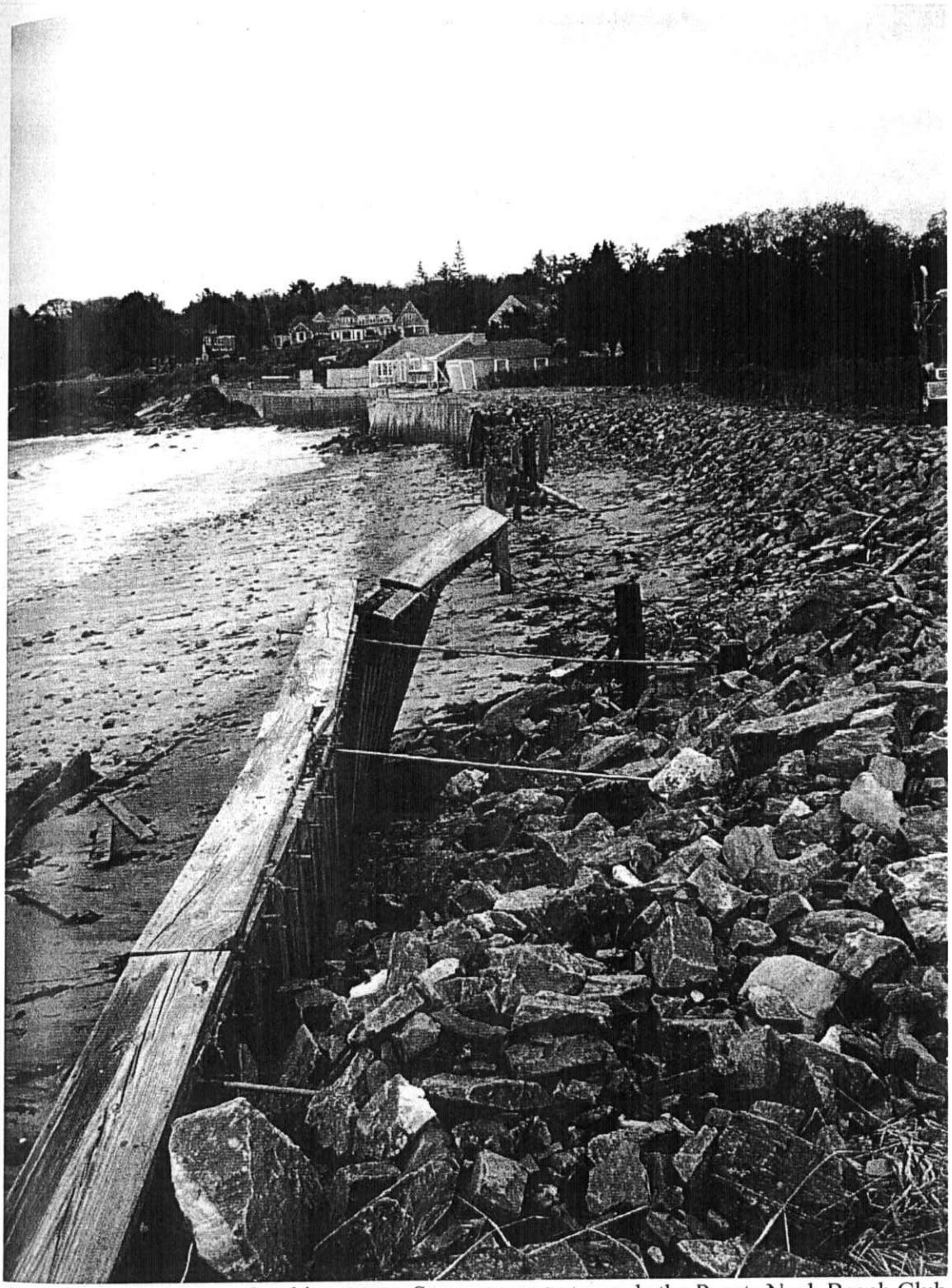
☑ Fee ☑ Agent Letter of Authorization ☑ Documentation of Title, Right or Interest ☑ Topographic Map	☑ Copy of Beach & Dune Geology Aerial Photo ☑ Flood Insurance Rate Map ☑ Photographs of Lot ☑ Project Description ☑ Project Drawings

28. FEES, Amount Enclosed:	302+80=$402

ATTACHMENT 5 Color Photographs



Pre Storm Aerial Photo from Google Earth



April 07 storm damage. Looking across Stone property towards the Prouts Neck Beach Club.

Pre-storm damage condition of Stone property above. Note 'bump' in horizontal wall alignment. Contrast with April 2007damage below. Note that the Prouts Neck Beach Club wall was replaced in 2006.

Close up of April 2007 storm damage.

Replacement of Dune Grass on Rockefeller Property. Kohlberg property beyond.

b. Seasonal Footprint

The beach elevation varies at the site depending on season and storm activity. Typically the sand builds up in the Spring/Summer and recedes each winter exposing stone cobbles below. Because the stone revetment is sloped, the footprint of the wall in the winter is greater than in the summer when the beach sand is restored. In contrast, the footprint of the existing vertical timber bulkhead does not change with changes in beach elevation at the base of the wall.

In recognition that the toe of the revetment varies during the year and to interface revetment construction with adjacent properties, the stone revetment cut-off wall was selected to define the wall alignment.

c. Horizontal Alignment

The horizontal alignment of the revetment is based on the location of the timber bulkhead that it replaces. As shown on plan sheet C-3 Proposed Plan and Profile, the proposed wall alignment is 'smoothed out' to eliminate a 'bump' in the previous wall location. Based on observation, this anomaly served to promote scour at this location of the wall. By reconstructing the wall on the gradual alignment shown, the tendency for localized storm scour is reduced or eliminated. The net effect is to balance upland loss with gain on the new wall alignment.

2. Structural Elements

a. Sloped Stone Surface

The construction relies on massive boulders/stones fitted together to form a uniform sloped face that is a common feature on the hurricane coastlines of Massachusetts and Rhode Island. The result is a structure that is exceptionally resistant to wave action. Not to be confused with machine placed Riprap, the interlocking uniform surface is extremely durable and attractive.

b. Cut-off Wall

This is a sheet pile wall that is the 1st element of the revetment construction. The cut-off wall eases construction, provides additional defense against scour action in the highly erodable granular beach material and prevents loss of fine material below the wall. The wall ensures a positive connection with seawall construction on adjacent properties.

c. Stone Mattress or Trap Rock

This element facilitates construction by providing an early defense against storm damage while the revetment is under construction. In the long-term, it provides a line of defense against further damage should the dune grass area be eroded or obliterated by wave action.

d. Dune Grass Reinstatement

Dune grass is planted to stabilize the ground surface and to provide a natural buffer above the revetment.