



MARGARET PAUL CELLUCCI
Governor

COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
ONE WINTER STREET, BOSTON, MA 02108 617-292-5500

TRUDY COXE
Secretary

DAVID B. STRUHS
Commissioner

September 29, 1998

In the Matter of

Docket No. 97-028

Helen Valovcin

File No. SE 19-745

Eastham

FINAL DECISION

Under the attached order of conditions, the applicant is allowed to construct a revetment in order to protect a home constructed prior to 1978. The order incorporates a revised plan submitted by the applicant after a hearing and issuance of a tentative final decision.

Helen Valovcin, applicant

John A. Mostyn, Esq., (Mostyn & Mostyn), Abington, for the petitioner

Elizabeth Kimball, Esq., Boston, for the Department of Environmental Protection

Introduction

After a hearing, I issued a tentative final decision on March 12, 1998 in which I found that the applicant's plan did not meet the requirements at 310 CMR 10.30 (3) because it failed to minimize, using best available measures, adverse effects on adjacent or nearby coastal beaches. Nonetheless, because the applicant's home was at risk due to its proximity to the top of an eroding coastal bank and because there was sufficient evidence presented at the hearing from which I could identify the design elements of a revetment plan that would satisfy the regulation, I allowed her an opportunity to submit a revised plan.

The applicant submitted a plan prepared by Francis Lajoie, P.E. on May 14, 1998. The Department drafted a proposed final order of conditions that incorporates the revised plan. The Silver Spring Beach Association (petitioner) filed comments on the proposed order, together with an affidavit from its expert witness at the hearing, Robert M. Perry, P.E. Both the Department and the applicant filed objections to the petitioner's comments and Perry's affidavit.

At page 16 of the tentative final decision, I identified the design elements of a revetment on the applicant's property that would satisfy the standard at 310 CMR 10.30 (3). Mr. Perry takes issue with two of these elements --- that the revetment be constructed "as far landward as possible, maintaining a 1.5:1 design slope for the revetment face" and that "the right angle return area maintain the 1.5:1 design slope below ground".¹ Mr. Perry contends that the revetment extends further seaward than necessary and that the northern end could be pulled back 5-10 feet by "maintaining the existing bank slope ...". Mr. Perry also states that the revised plan does not show the full extent of the revetment below ground, including the toe stones, and does not include a cross section of the revetment's northern end. He concludes that, at the northern end, a portion of the revetment below ground would extend approximately 12 feet seaward of an existing bulkhead on the property and that a wide plateau then would exist at the top of the revetment's northern end.

In order to clarify information shown on the revised plan and Mr. Perry's comments on the plan, I issued an order directing Mr. Perry and Mr. Lajoie to file affidavits responding to certain questions. In particular, I asked Mr. Perry to address his statements about the landward extent of the revetment and its seaward extent at its northern end. I asked Mr. Lajoie to explain the meaning of a note on the plan and whether the northern end of the revetment was placed as far landward as possible.

¹ It is undisputed that the revised plan as conditioned by the proposed final order incorporates the remaining design elements.

Discussion

A. Landward Extent

The principal reasons for requiring the revetment to be constructed as far landward as possible were to reduce the sharp right angle return at its southern end and to move the revetment landward of MHW. The applicant's revised plan shows a more gentle return at the southern end with the wall angled seaward toward the northern end. Mr. Perry does not take issue with the design of the return area. He concludes that the wall can be moved landward because a wide shelf still would exist at the top of the revetment. He bases his opinion on the revised plan that shows that the area behind the 20 foot high wall would be filled up to the existing 20 foot contour.

The revised plan shows that some portion of the wall underground would lie seaward of the April 29, 1998 MHW line. As discussed in the tentative final decision at 9-10, moving the wall below grade further landward of the April 29, 1998 MHW line would reduce the possible exposure of the wall below grade through wave action. It also would reduce scour should the MHW line revert to a more landward location as it has in the past.

In response to my inquiry concerning whether the northern end of the revetment was positioned as far landward as possible, Mr. Lajoie responded that "further landward location of the proposed revetment at the northerly end increases the 'stepped alignment' and may create further problems to the northerly abutting revetment..." He did not explain a need for the wide shelf. Nor did he conclude that the wall was positioned as far landward as possible.

Mr. Lajoie's concern about increasing the stepped alignment between the applicant's wall and the existing wall to the north was addressed at the hearing, at which he did not testify. Based on Mr. Perry's testimony at the hearing, I conclude that a small increase in the stepped alignment would not increase the potential for adverse effects upon the coastal beach. See tentative final decision at 13 -14, 16.

I conclude that the wall should be moved back toward the existing 20 foot contour so that the shelf along the top of the revetment would be no wider than five feet. The necessary change to the revised plan is readily accomplished by adding special condition No. 5A to the final order requiring the applicant to submit a revised plan to the Department for its approval before construction can begin. The only other alternative would be to deny the project and require the applicant to begin the permit process again. Under the circumstances presented here, a denial would serve no useful purpose. The Department can easily determine whether the plan comports with the special condition. A denial would in all likelihood subject the applicant's property to another season of winter storm damage, thus placing it at greater risk. At the same time, however, with the condition in place, the applicant cannot go forward until she submits an approvable plan.

B. Seaward Extent

In his affidavit, Mr. Lajoie confirmed that a note on section B-B of the plan was intended to indicate that the 1.5:1 design slope was to be maintained along the length of the revetment both above and below ground. Section A-A is a cross section from the middle of the revetment and shows the extent of the toe stones. I conclude that the below ground extent of the revetment and its slope is adequately shown on the revised plan. A separate cross sectional view of the northern end may be desirable, but is not necessary.

C. Petitioner's Proposed Additional Conditions

In addition to Mr. Perry's comments on the revised plan, the petitioner proposes that two additional special conditions be included in the final order. The Department and the applicant oppose both conditions. One condition would require the applicant to make all reasonable efforts during construction to avoid damage to the stairway and bank in the vicinity of a right of way used by the petitioner to access the beach, and to restore the area to its pre-existing condition should any damage occur.

The construction of the revetment will occur right up to the applicant's property line adjacent to the right of way and approximately 12 feet from the stairway. It would appear to be impossible to perform the necessary work and not have some impact on the bank, although it is not clear to me that the stairs would be affected. The petitioner's proposed condition is not unreasonable in light of the proximity of the work to the right of way. Neither the Department nor the applicant object to it as unnecessary, or assert that no impact will occur. I have added special condition No. 11A to the final order, although I have modified the language suggested by the petitioner.

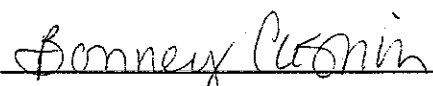
A second condition would prohibit the applicant from placing additional structures, such as fencing, within the coastal beach seaward of the revetment. As stated in the final order, all work must conform to the revised plan. The plan does not show additional structures such as fencing on the coastal beach. Such a condition therefore is superfluous and I decline to include it.

Disposition

The Department's superseding order of conditions is vacated. The project shown on the revised plan is approved as conditioned in the attached final order of conditions.

Reconsideration and Appeal Rights

The parties to this proceeding are notified of their right to file a motion for reconsideration of this decision, pursuant to 310 CMR 1.01 (14)(d). Such a motion must be filed with the Docket Clerk and served on all parties within seven business days of the postmark date of this decision. Any party may appeal this decision to the Superior Court pursuant to M.G.L. c. 30A, sec. 14 (1). The complaint must be filed in the Court within thirty days of receipt of this decision.


Bonney Cashin
Administrative Law Judge

* * * * *

I adopt this decision as my final decision in this proceeding.

A handwritten signature in dark ink, appearing to read "David B. Struhs", is written over a horizontal line.

David B. Struhs
Commissioner

97-028\final.fd

SERVICE LIST

In Re: Helen S. Valovcin

Docket No. 97-028 File No. SE19-745

Representative

Party

Helen S. Valovcin
12 Cornell Road
Framingham, MA 01701

APPLICANT

John A. Mostyn, Esq.
P.O. Box 2063
231 Centre Avenue
Abington, MA 02351

PETITIONER
Silver Spring Beach
Association

Elizabeth A. Lane, Esq.
Kopelman and Paige, P.C.
31 St. James Avenue
Boston, MA 02116

EASTHAM
CONSERVATION COMMISSION

Elizabeth Kimball, Esq.
Samuel Bennett, Esq.
DEP - Office of General Counsel
One Winter Street - 3rd Floor
Boston, MA 02108

DEPARTMENT
Dept. of Environmental
Protection

cc:

Christopher Ross
DEP - Southeast Regional Office
20 Riverside Drive
Lakeville, MA 02347

Edward S. Englander, Esq.
Englander & Associates
Two Newton Place, Suite 200
Newton, MA 02158-1634

date: September 29, 1998

DEP File No. SE 19-745

(To be provided by DEP)

City/Town EASTHAM

Applicant Helen Valovcin

**Final Order of Conditions
Massachusetts Wetlands Protection Act
G.L. c.131, §40**

From Department of Environmental Protection

To Helen Valovcin (Name of Applicant)

Address 12 Cornell Road, Framingham, MA 01701 (applicant)

To Same (Name of Property Owner)

Address Same (owner)

This Order is issued and delivered as follows:

☐ by hand delivery to applicant or representative on _____ (date)

☒ by certified mail, return receipt requested on September 29, 1998 (date)

This project is located at 15 West Road, Map 7, Parcel 36

The property is recorded at the Registry of Deeds, Barnstable

Book 4034

Page 277

Certificate (if registered) _____

The Notice of Intent for this project was filed on March 18, 1996 (date)

The public hearing was closed on August 20, 1996 (date)

Findings

The Department of Environmental Protection has reviewed the above-referenced Notice of Intent and plans and has held a public hearing on the project. Based on the information available to the Department of Environmental Protection at this time, the Department of Environmental Protection has determined that the area on which the proposed work is to be done is significant to the following interests in accordance with the Presumptions of Significance set forth in the regulations for each Area Subject to Protection Under the Act (check as appropriate):

<input type="checkbox"/> Public water supply	<input checked="" type="checkbox"/> Flood control	<input type="checkbox"/> Land containing shellfish
<input type="checkbox"/> Private water supply	<input checked="" type="checkbox"/> Storm damage prevention	<input type="checkbox"/> Fisheries
<input type="checkbox"/> Ground water supply	<input type="checkbox"/> Prevention of pollution	<input type="checkbox"/> Protection of wildlife habitat

Total Filing Fee Submitted \$304.00

State Share \$139.50

City/Town Share \$164.50

(½ fee in excess of \$25)

Total Refund Due \$ 0

City/Town Portion \$ 0

State Portion \$ 0

(½ total)

(½ total)

Therefore, the Department of Environmental Protection hereby finds that the following conditions are necessary, in accordance with the Performance Standards set forth in the regulations, to protect those interests checked above. The Department of Environmental Protection orders that all work shall be performed in accordance with said conditions and with the Notice of Intent referenced above. To the extent that the following conditions modify or differ from the plans, specifications or other proposals submitted with the Notice of Intent, the conditions shall control.

General Conditions

1. Failure to comply with all conditions stated herein, and with all related statutes and other regulatory measures, shall be deemed cause to revoke or modify this Order.
2. The Order does not grant any property rights or any exclusive privileges; it does not authorize any injury to private property or invasion of private rights.
3. This Order does not relieve the permittee or any other person of the necessity of complying with all other applicable federal, state or local statutes, ordinances, by-laws or regulations.
4. The work authorized hereunder shall be completed within three years from the date of this Order unless either of the following apply:
 - (a) the work is a maintenance dredging project as provided for in the Act; or
 - (b) the time for completion has been extended to a specified date more than three years, but less than five years, from the date of issuance and both that date and the special circumstances warranting the extended time period are set forth in this Order.
5. This Order may be extended by the issuing authority for one or more periods of up to three years each upon application to the issuing authority at least 30 days prior to the expiration date of the Order.
6. Any fill used in connection with this project shall be clean fill, containing no trash, refuse, rubbish or debris, including but not limited to lumber, bricks, plaster, wire, lath, paper, cardboard, pipe, tires, ashes, refrigerators, motor vehicles or parts of any of the foregoing.
7. No work shall be undertaken until all administrative appeal periods from this Order have elapsed or, if such an appeal has been filed, until all proceedings before the Department have been completed.
8. No work shall be undertaken until the Final Order has been recorded in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property. In the case of recorded land, the Final Order shall also be noted in the Registry's Grantor Index under the name of the owner of the land upon which the proposed work is to be done. In the case of registered land, the Final Order shall also be noted on the Land Court Certificate of Title of the owner of the land upon which the proposed work is to be done. The recording information shall be submitted to the Department of Environmental Protection on the form at the end of this Order prior to commencement of the work.
9. A sign shall be displayed at the site not less than two square feet or more than three square feet in size bearing the words, "Massachusetts Department of Environmental Protection, File Number SE 19-745."
10. Where the Department of Environmental Protection is requested to make a determination and to issue a Superseding Order, the Conservation Commission shall be a party to all agency proceedings and hearings before the Department.

11. Upon completion of the work described herein, the applicant shall forthwith request in writing that a Certificate of Compliance be issued stating that the work has been satisfactorily completed.

12. The work shall conform to the following plans and special conditions:

Plans:

Title: "Site Plan 15 West Road Prepared for Helen Valovcin"

Dated: April 30, 1998

Signed & Stamped by: Francis Lajoie, RPE

On File With: DEP

Special Conditions (Use additional paper if necessary)

1. Prior to the commencement of construction, General Condition No. 8, above, must be complied with.
2. All construction must comply with the above-referenced plans and the conditions of this Order. For any proposed change in the approved plans or in the work, the applicant shall file a new Notice of Intent or inquire, in writing, of the Department whether the change is substantial enough to require a new Notice of Intent. No change in plan, under this filing, is permissible without prior written approval from the Department allowing this change.
3. It is the responsibility of the applicant, owner and/or successor(s) to ensure that all conditions of this Order are complied with. The project engineer and contractors are to be provided with a copy of this Order and referenced documents before commencement of construction.
4. Members and agents of the local Conservation Commission and the Department shall have the right to enter and inspect the property at all reasonable times to evaluate compliance with the conditions stated in this Final Order, and may require the submittal of any data deemed necessary by this Department for that submittal.

See the attached sheet for additional conditions numbered 5 through 22.

Final Order of Conditions - Eastham - File No. SE 19-745

5. Prior to commencement of construction the existing timber bulkhead shall be razed and the materials disposed of in accordance with all applicable laws.
- 5A. The 4/30/98 plan referenced in Condition No. 12 shall be revised to move the revetment landward toward the existing 20 foot contour so that the shelf at the top is no wider than five feet. Prior to the commencement of construction, the Department shall approve this revision to the plan.
6. The sloping stone revetment shall be constructed as shown on the plan of record with the toe stones set at elevation 0.0 +/- MLW, the top at 20.0 +/- MLW and a slope of 1.0 vertical to 1.5.
7. Access to the site shall be along the shore from Cook's Brook beach. Permission for access must be obtained from the appropriate property owner(s).
8. Filter fabric shall be placed as described on the plan of record with Mirafi 600X or equivalent.
9. The timber bulkhead shall be constructed prior to the sloping stone revetment unless otherwise approved by the Department.
10. All piles shall be driven with the top of the piles set at elevation 21.5 +/- MLW.
11. Excavation for placement of wales, tongue and groove bulkhead wall and tie rods shall be kept to a minimum. In order to minimize excavation temporary shoring of the bank may be required and is recommended.
- 11A. During construction, all reasonable efforts shall be used to avoid damage to the staircase and bank in the right of way adjacent to the construction site. Upon completion of construction and if such damage occurs, the staircase and bank shall be restored to the condition they were in immediately prior to construction.
12. Any sediment used as beach nourishment, bank nourishment, or backing for the revetment shall be of a grain size compatible with the existing beach sediments. Grain size analysis shall be submitted to the Department and the Eastham Conservation Commission prior to each phase of beach nourishment or construction.
13. On an annual basis, commencing with completion of construction of the shore protection structure, 145 cubic yards of compatible grain size sediment shall be placed as

beach nourishment. The majority of the sediment shall be placed adjacent to the return, on the Southern end of the property.

14. The beach nourishment shall be placed in a manner so as not to present an obstruction or impede the use of the beach for the individuals that utilize the staircase from Silver Spring Beach Road.
15. The beach nourishment shall be placed in the spring of each year following completion of construction unless otherwise approved by the Department.
16. The area from the top of the proposed revetment to the top of the bank shall be vegetated with indigenous plantings as proposed following construction of the revetment.
17. If sediment for the beach nourishment program and/or the sloping stone revetment is placed seaward of mean high water, then a license under M.G.L., C. 91 will be required from the Department prior to implementation of the beach nourishment program.
18. A minimum stock of stone shall remain on the beach during revetment construction. Upon completion of each construction phase, no construction material(s), other than that specifically allowed by this order, shall remain on the beach.
19. Prior to construction a pre-construction meeting shall be held on site or at a suitable mainland location with the contractor, the applicant, the Conservation Commission and the Department so as to review and discuss the plans, narratives and this Final Order of Conditions.
20. The existing set of stairs, that were reconstructed under an Emergency Certification issued by the Department on May 24, 1996 may be reconstructed/maintained in perpetuity. The Department recommends that the lower and upper section of the stairs be made removable so as to minimize the potential for future damage.
21. Special conditions 13, 14, 15 & 20 do not expire with this order or transfer of title and remain in effect for perpetuity. A request to modify or eliminate these conditions may be made in writing no sooner than three years following completion of construction.
22. This order does not relieve the permittee or any other person of the necessity of complying with all other applicable federal, state or local statutes, ordinances, by-laws or regulations.

Issued by the Department of Environmental Protection

Signature David S. Struhs

David Struhs, Commissioner Department of Environmental Protection

On this 29 day of September, 1998, before me
personally appeared David Struhs

to me known to be the person described in and who executed the foregoing
instrument and acknowledged that he/she executed the same as his/her free act and
deed.

E. H. Travis
Notary Public

MY COMMISSION EXPIRES FEBRUARY 17, 2000
My commission expires

Detach on dotted line and submit to the Department of Environmental Protection
prior to commencement of work.

.....
To Department of Environmental Protection, Issuing Authority. Please be advised
that the Order of Conditions for the project at 15 West Road, Map 7, Parcel 36,
File Number SE 19-745, has been recorded at the Registry of Deeds, Barnstable
and has been noted in the chain of title of the affected property in accordance
with General Condition 8 on _____, 19____.
If recorded land, the instrument number which identifies this transaction is ____.
If registered land, the document number which identifies this transaction is ____.



COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
ONE WINTER STREET, BOSTON MA 02108 (617)292-5500

ARGEO PAUL CELLUCCI
Governor

TRUDY COXE
Secretary

DAVID B. STRUHS
Commissioner

March 12, 1998

In the Matter of

Helen Valovcin

Docket No. 97-028
File No. SE 19-745
Eastham

TENTATIVE FINAL DECISION

Summary

The applicant's revetment proposal is denied since it does not minimize adverse effects to coastal beaches using best available measures. Given the proximity of the house to the edge of the eroding coastal bank, the applicant may submit for approval in a final decision a plan that contains the elements identified in this tentative final decision.

Helen Valovcin, applicant
John A. Mostyn, Esq., (Mostyn & Mostyn), Abington, for the petitioner
Elizabeth Kimball, Esq., Boston, for the Department of Environmental Protection

Introduction

Ms. Helen Valovcin (the applicant) owns property on an actively eroding coastal bank in Eastham overlooking Cape Cod Bay. She proposes to construct a sloping stone revetment in order to protect her house that was constructed in 1958. The project is

opposed by the Silver Spring Beach Association (the petitioner).¹ Members of the Association use a right-of-way adjacent to the applicant's property to access the beach.

After a hearing, I find that the proposed revetment does not satisfy the performance standards at 310 CMR 10.30 (3) because it does not minimize, using best available measures, adverse effects on adjacent beaches.

Background

The applicant filed a Notice of Intent under M.G.L. c. 131, §40, the Wetlands Protection Act (the Act), on February 26, 1996. The Eastham Conservation Commission (Commission) denied the project on August 23, 1996 and the applicant requested a superseding order of conditions (SOC) from the Department. On February 20, 1997, the Department issued an SOC approving the project. The petitioners requested an adjudicatory hearing on March 3, 1997.

The coastal bank, exposed to the southwest, west and northwest, has eroded to the point where the applicant's house is within 10-12 feet of the top of it. The bank is approximately 48 feet high with a 1:1 slope. Portions of the property are within a velocity zone (V-zone) as mapped by the Federal Emergency Management Agency; the V-zone extends to elevation 20.

When the applicant purchased the property, a timber bulkhead was located on the coastal beach in front of the bank. It has

¹ The petitioner alleges without contradiction that it is an incorporated entity.

since fallen into disrepair and offers no protection from wind and wave action. This bulkhead marks the approximate location of the mean high water (MHW) line. The toe of the bank is now landward of the old bulkhead.

I held a hearing on October 21, 1997. The applicant testified on her own behalf. Robert M. Perry, P.E. testified on behalf of the petitioner. Christopher Ross testified for the Department.

Legal Framework

The resource areas on the property that are protected by the Act are coastal beach and coastal bank. It is undisputed that the bank is significant to the wetlands interests of storm damage prevention and flood control because it supplies sediment to the adjacent coastal beaches. It is also undisputed that the applicant's home was constructed before 1978. Thus the relevant section of the Wetlands Regulations is 310 CMR 10.30 (3), which pertains to coastal engineering structures on a coastal bank. It provides:

(3) No new bulkhead, revetment, seawall, groin or other coastal engineering structure shall be permitted on such a coastal bank except ... when required to prevent storm damage to buildings constructed prior to ... [1978] ... provided the following requirements are met:

- (a) a coastal engineering structure ... shall be designed and constructed so as to minimize, using best available measures, adverse effects on adjacent or nearby coastal beaches due to changes in wave action, and
- (b) the applicant demonstrates that no method of protecting the building other than the proposed coastal engineering structure is feasible.
- (c) protective planting designed to reduce erosion may be

permitted.²

(emphasis added.)

Minimize, in this context,

means to achieve the least amount of adverse effect that can be attained using best available measures or best practicable measures, whichever is referred to in the pertinent section. "Best available measures" means the most up-to-date technology or the best designs, measures or engineering practices that have been developed and that are commercially available.

310 CMR 10.23.

A project permitted under 310 CMR 10.30 (3) (a) is exempt from the performance standard for coastal beaches set forth at 310 CMR 10.27 (3).³

The petitioner, focusing on 310 CMR 10.30 (3) (a), argues that the regulation requires the use of the best design available to achieve the least amount of adverse effects. After the Department issued the SOC, the petitioner had Robert M. Perry, P.E. prepare a revetment plan (Perry Plan). The petitioner contends that this Plan offers the "best" design because it incorporates several feasible design changes that minimize adverse effects beyond that achieved by the applicant's plan.

The Department, focusing on 310 CMR 10.30 (3) (b), submits that

² The applicant's proposal includes planting of beach grass on the bank above the revetment and the installation of snow fencing. These elements of the proposal, and consequently 310 CMR 10.30 (3) (c), are not at issue in this proceeding.

³ "Any project on a coastal beach, except any project permitted under 310 CMR 10.30 (3) (a), shall not have an adverse effect by increasing erosion, decreasing the volume or changing the form of any such coastal beach or an adjacent or downdrift coastal beach." 310 CMR 10.27 (3).

the term "method" refers to different ways of protecting the building, such as revegetation, durabags (sandbags), or gabions (wire mesh filled with stones). According to the Department, the regulation addresses the feasibility of protective measures other than a revetment, not the feasibility of one revetment design versus another. Adverse effects are minimized under the applicant's plan, the Department argues, because it utilizes the standard revetment design slope of 1.5:1 and includes a beach nourishment proposal.

I agree with the Department that the term "method" refers to alternate methods of protecting the building other than a coastal engineering structure. 310 CMR 10.30 (3) generally prohibits coastal engineering structures on coastal banks that supply sediment to coastal beaches. It is thus reasonable to require an applicant to first examine the feasibility of less damaging measures before concluding that a coastal engineering structure is necessary.

The comparison of alternative revetment designs can come into play when evaluating whether a particular design minimizes adverse effects using best available measures, as required by 310 CMR 10.30 (3)(a). Christopher Ross, the Department's witness, acknowledged that he has suggested design alternatives to an applicant, as he did here, in order to minimize adverse effects.

Whether Revetment Is Only Feasible Method

This was not an matter of serious dispute among the parties.

Consequently, the testimony on this point was minimal. Under 310 CMR 10.30 (3), however, the first question that must be answered is whether a method of protection other than a coastal engineering structure is feasible. Mr. Ross testified that it was not feasible to move the house further back on the property and, given the proximity of the house to the top of the bank, the bank's height and rate of erosion, and the fact that the area is mapped as a V-zone, a revetment is the only feasible method of protecting the house.

Mr. Perry, on behalf of the petitioner, took the view that moving the house had been insufficiently explored. Significantly, he did not conclude that the applicant could avoid constructing a revetment if the house was moved. He testified that leaving the house at its current location limited the revetment designs available. His testimony does not support a conclusion that the applicant has failed to demonstrate that a revetment is the only feasible method of protecting the house.⁴

The remainder of this decision will address whether the applicant's revetment plan minimizes adverse effects using best available measures.

⁴ Mr. Perry did not offer an alternative revetment design based upon moving the house; he testified only that moving the house would eliminate the need for the timber bulkhead. His testimony in this regard also fails to support a conclusion that a revetment design premised on moving the house minimizes, using best available measures, adverse effects.

Applicant's Proposed Revetment

According to the plan, the applicant's revetment, or seawall, is approximately 20 feet high, 105 feet long and would be constructed with a 1.5:1 (horizontal to vertical) face slope. The base of the revetment above ground is approximately at the MHW line; below grade the revetment extends approximately 15 feet seaward of MHW.⁵ At its northern end the revetment would meet an existing revetment. At its southern end the revetment has a right angle return into the coastal bank with a vertical timber bulkhead above the stone face. Below grade, the rocks in the return area are stacked vertically. Fill would be placed behind the structure in order to attain the 1.5:1 slope. The applicant proposes a 15-foot wide horizontal ledge, or shelf, at the top of the revetment. The existing timber bulkhead would be removed.

Petitioner's Proposed Revetment

The Perry Plan retains the basic elements of the applicant's plan, with several important differences. The height and slope of the face of the revetment remain the same; however, the shelf is reduced to 4 feet. This reduction allowed Mr. Perry to move the revetment landward approximately 10-15 feet so that it occupies

⁵ The applicant's plan shows two MHW lines: "mean high water 2/10/96" at elevation 10 and "mean high water 4/23/96" at elevation 9.5. The petitioner's proposal shows MHW on 8/11/97 as "approx. 9.5." I do not find these figures to be inconsistent, as they were recorded at different times of the year and Mr. Ross testified that the form and volume of the beach changes dramatically from winter to summer.

less beach area and is entirely landward of the MHW line both above and below ground. This design change creates an offset with the revetment to the north; the Perry Plan calls for the two seawalls to be blended together at the property line.

The southern return area is shorter than that proposed by the applicant, with a smooth face. The Perry Plan shows a 1.25:1 slope in this area, rather than the vertical alignment proposed by the applicant. It shows a durabag array at the southern end in the adjacent right-of-way behind the stairway, although the parties agree that this is not an integral part of the Perry Plan and could be deleted. An unspecified amount of beach nourishment at the southern end of the seawall is contemplated as a part of the proposal.

I do not consider the Perry Plan to be an alternative that I could approve instead of the applicant's proposal. According to the Department, the applicant is opposed to any plan other than the one prepared by her engineer.⁶ However, I do consider the Perry Plan as evidence against which to measure whether the applicant's plan minimizes adverse effects, using best available measures, which includes the best designs commercially available.

Discussion

In evaluating the applicant's plan, I examine the extent to

⁶ If that is the case, it is all the more puzzling why the applicant did not offer the engineer who prepared the plan as a witness at the hearing.

which it minimizes the adverse effects of three components of the proposal --- the seaward extent of the revetment, the design at its northern terminus and the design of the southern return.

a. seaward extent of revetment

The applicant did not present expert testimony. Mr. Ross testified for the Department. He is an environmental engineer with a bachelor's degree in civil engineering technology, with graduate work in architectural engineering. He has been employed by the Department's wetlands division since August, 1989. Mr. Ross opined in his direct testimony that the applicant's proposal minimized adverse effects. The steeper revetment slope in the Perry Plan would increase erosion, he concluded, and thus any minimization of adverse effects was "negligible, at best." He later explained, however, that as a result of a drafting error on the Perry Plan, he thought the revetment had been moved landward at the expense of maintaining the 1.5:1 slope.⁷ As was made clear at the hearing, the slope of the revetment face is the same under both proposals. I discount Mr. Ross's original opinion to the extent it is based on this misunderstanding.

Mr. Perry is a registered professional engineer with over 13 years of experience, including extensive experience with projects in coastal areas. He testified that his proposal on behalf of the

⁷ Mr. Ross testified that the 1.5:1 slope, which is referenced in the U.S. Army Corps Shoreline Protection Manual, is the maximum recommended slope for a revetment in a V zone, although the slope could be steeper if dictated by site conditions. Mr. Perry testified that it was an average figure that could be considered a standard.

petitioner would have significantly less impact on the coastal beach because, by moving the revetment landward, approximately 40% more beach area would remain unarmored. The further seaward a structure is located, he testified, the more often water will strike the wall, increasing turbulence and the potential for scouring the beach.

Mr. Ross agreed with Mr. Perry that, in general, more adverse effects would occur the further seaward a revetment extends. He acknowledged that, if the structure were seaward of the MHW line, on an average day (i.e., under non-storm conditions) waves would hit the seawall more frequently. Conversely he testified, if a revetment were landward of the MHW line, waves would strike it less frequently, resulting in less potential for scouring the beach. Mr. Ross opined that moving the wall landward together with reducing the width of the 15-foot shelf was a design improvement. His concern was that this change also resulted in the offset at the revetment's northern terminus, discussed below at 13-14.

b. right angle return at southern terminus

Mr. Perry testified that the greater impacts associated with the right angle return were due to the fact that any relatively sharp change in shape can spawn eddies. When there is significant wave energy, the return acts as a divider that can result in "end scour", an impact generally limited to within 10-15 feet of the structure. Nonetheless, Mr. Perry stated, a return is necessary because the applicant's property ends at that point. According to Mr. Perry, a shorter, more gentle return with a non-vertical rock

alignment and smooth return face would minimize turbulence and scour. He stated that beach nourishment in an amount calculated to replace the armored bank's current sediment contribution would reduce erosion impacts to the beach at the southern end.

Mr. Ross testified that he approved the right angle return as proposed in the applicant's plan because of the proximity of the house to the southern property line and the height of the coastal bank. Mr. Ross agreed with Mr. Perry that the proximity of the house to the southern property line constrained the design possibilities at this location. Mr. Ross did not address Mr. Perry's testimony regarding the shorter, more gentle return other than to say that the Perry Plan required permission to place the durabags in the right-of-way. Mr. Ross acknowledged on cross examination that the less sharp the angle of a return had to be, the less significant would be the impacts resulting from end scour. Adverse impacts also would be reduced by lengthening and tapering the return.

Mr. Perry and Mr. Ross agreed that the sharp return and vertical bulkhead could be reduced or eliminated if the revetment was extended into the right-of-way. This design change, they agreed further, would reduce adverse effects upon the beach, particularly scour. Additionally, Mr. Ross testified that the vertical stacking of rocks below grade beneath the timber bulkhead in the applicant's plan could create instability if the beach level dropped. This adverse effect could be avoided, he said, if the revetment was extended into the right-of-way. Mr. Ross testified

that he had suggested this option to the parties; however, they were unable to reach any agreement on this point. In its closing brief the petitioner states that extension of the revetment into the right-of-way should be explored despite the applicant's previously expressed unwillingness to do so.

I concur with the conclusion of Mr. Ross and Mr. Perry that extending the revetment into the right-of-way would minimize adverse effects beyond that achieved by ending the revetment with the proposed sharp right angle return. Nevertheless (and the petitioner's apparent willingness to explore this option now aside), I do not think that a fair reading of 310 CMR 10.30 (3)(a) requires an applicant to look off-site for design alternatives that may further minimize adverse impacts, although such an option is to be encouraged where it is feasible. While the evidence supports a finding that the theoretical "best" design in order to minimize adverse effects would be to extend the seawall into the right-of-way, I cannot impose that design alternative here.

The SOC required the applicant to provide 145 cubic yards of beach nourishment on an annual basis commencing with the completion of construction. According to Mr. Ross, this figure was derived by multiplying the length of the property by the historic erosion rate for this area by the height of the bank. Most of the sand is to be placed adjacent to the right angle return where erosion would increase the most, according to Mr. Ross, and is intended to mitigate the loss of sediment that would have been provided to the beach by the bank if it remained unarmored.

c. northern terminus

Under the Perry Plan, the revetment would be offset from the existing revetment to the north approximately 10-15 feet, creating a "stepped alignment". The Perry Plan contains a notation that permission should be obtained from the northern property owner to blend the two revetments together. According to Mr. Perry, the wall to the north stops short of the property line. Mr. Perry testified that the discontinuity created would be a positive feature as it would dissipate wave energy before it reached the southern end of the wall, the area of greatest impacts. He also testified that he recently revisited other revetments with a stepped alignment he had designed that are located approximately 1/4-1/2 mile from the Valovcin property. His observations over a 4-5 year period showed no destabilization, significant scour or holes at the juncture of the revetments. The petitioner's photographs of these revetments supported Mr. Perry's testimony.

The offset was the major drawback to the Perry Plan because, in Mr. Ross's opinion, it would create the potential for increased scour where the walls meet and jeopardize the stability of both walls. However, on cross examination, Mr. Ross acknowledged that the revetments in the petitioner's photographs did not show perceptible scour or evidence of destabilization. Mr. Ross further acknowledged that the offset was landward of the MHW line. Consequently, he acknowledged, the wave impact and potential for scour would be less frequent than if it were located at or seaward of the MHW line.

Mr. Ross also testified on cross examination that upon closer examination of the applicant's plan, it was unclear to him whether the wall to the north was constructed up to the property line. If it was not, he said, then permission would be needed to blend the walls together to avoid a space between them.⁸

It appears from the testimony that permission from the property owner to the north would be needed under both plans. My review of the applicant's plan leads me to believe that the designing engineer intended some blending where the walls meet, given the way the rocks are drawn in that area. This view is supported by Mr. Perry's testimony that the northern revetment stops short of the property line. Under either plan, the work proposed on the adjacent property is minimal. The applicant did not rule out the feasibility of obtaining permission from the property owner to the north.

d. whether applicant's plan minimizes adverse effects

As Mr. Ross testified, evaluating a proposal under 310 CMR 10.30(3) involves weighing all relevant design factors and their impacts. This balancing ultimately results in a decision whether a plan comports with 310 CMR 10.30 (3) (a) by minimizing, using best available measures, adverse effects on adjacent or nearby coastal beaches. I conclude that, taken as a whole, the applicant's plan

⁸ I note also that the SOC required that site access be obtained from along the shore through Cook's Brook Beach, an area to the north of the applicant's property that includes the abutting northern property. Permission of the property owner(s) is required under the SOC.

fails to comply with this requirement. My conclusion is based on the following subsidiary findings.

The seaward extent of the revetment under the applicant's plan necessitates the sharp right angle return in order to bring the wall back into the bank on the applicant's property. This is the location of greatest impact because the wall is adjacent to an unarmored area and, according to Mr. Ross, the direction of sediment transport is southerly. A shorter, more gradual angle on the return design is possible if the wall is moved further landward, as demonstrated by the Perry Plan. I credit Mr. Perry's uncontradicted testimony that a shorter, more gentle return with a smooth face would minimize the potential for end scour in this area and reduce adverse effects on the adjacent coastal beach. I infer from Mr. Ross's support for extending the revetment into the right-of-way that he agrees that a shorter, more gentle return would reduce adverse effects on the adjacent coastal beach beyond the reduction achieved by the applicant's plan.

I find that moving the revetment landward of the MHW line has the additional benefit of moving it out of the intertidal zone, thereby reducing the potential for adverse impacts to the beach caused by more frequent wave action. It also leaves more beach area unarmored and thus able to provide sediment to adjacent beaches. Moving the wall landward can be accomplished and still allow the recommended design slope of 1.5:1 to be maintained simply by reducing the width of the 15-foot shelf, the purpose or necessity of which is not clear from the record before me.

I find further that the offset created by moving the revetment landward would not increase the possibility of adverse effects upon the coastal beach by increasing the potential for scour and erosion. I credit Mr. Perry's testimony because of his experience and direct observations of other revetments with stepped alignments nearby that did not show the adverse effects predicted by Mr. Ross. Mr. Ross acknowledged that, based on his review of the photographs, the revetments did not show these effects.

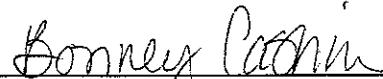
When he inspected the site during the fall of 1996, Mr. Ross concluded that the applicant's house was in danger, given its closeness to the top of the bank. In order to encourage the redesign of an approvable revetment, I find further, based upon the evidence at the hearing, that the design elements of a revetment on the applicant's property that minimizes, using best available measures, adverse effects to the adjacent and nearby coastal beaches would include the following:

- a. the revetment should be constructed as far landward as possible, maintaining a 1.5:1 design slope for the revetment face;
- b. rather than the vertical stacking of rocks, the right angle return area should maintain the 1.5:1 design slope below ground, unless a steeper slope is necessary to remain within the applicant's boundary;
- c. the right angle return should be shorter and the angle should be softened to the greatest extent possible;
- d. assuming permission from the property owner is granted, any offset at the north created by moving the wall landward should be blended into the wall to the north;
- e. beach nourishment should be provided, primarily in the return area, as mitigation for the sediment that would have been provided by the bank and, if necessary, to mitigate additional scour; and
- f. the revetment should remain at its proposed 20 foot height.

Disposition

The applicant's proposed revetment is denied. The SOC appealed from is vacated.

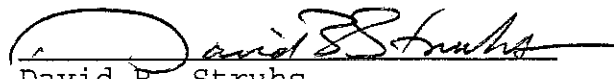
Recognizing that the proximity of the applicant's house to the edge of the coastal bank presents a risk to the house, this decision is issued as a tentative decision, in the interests of justice, see 310 CMR 1.01 (14). I am providing the applicant with an opportunity to file an approvable plan. The applicant shall file a statement within 10 days from the date of issuance of this decision indicating whether she intends to file another plan in accordance with this decision. If so, the plan and any necessary supporting information shall be filed within 30 days from the date of this decision. The applicant is encouraged to involve the Department and the petitioners in the plan's development. The Department shall prepare and file a final order of conditions incorporating the plan within 20 days from the date the plan is filed. The petitioners and the applicant shall have 10 days from the date the proposed order is filed to file comments on it.



Bonney Cashin
Administrative Law Judge

* * * * *

I adopt this decision as my tentative final decision in this proceeding.



David B. Struhs
Commissioner

SERVICE LIST

In Re: Helen S. Valovcin

Docket No. 97-028 File No. SE19-745

Representative

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date: March 12, 1998