



CAPE COD COMMISSION

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Date: June 22, 1995
To: The Town of Chatham represented by Margaret Swanson, Town Planner
From: Cape Cod Commission
Re: Development of Regional Impact, Section 12, Cape Cod Commission Act
Project #: TR 93131
Project: Chatham Revetments Project Phase 2

<u>Applicant</u>	<u>Book/Page or Certificate #</u>
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Charles Chapman 5335 SE Miles Grant Rd. Stuart, FL 34997	1465/1017
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William K. Dogget 8 Arlington Road Wellesley, MA 02151	ctf. 108315, 885/75
John and Muriel Horne 24 Windmill Lane Chatham, MA 02633	204/50 ctf 63995 (Horne/Rudnick pcl) ctf 26590, ctf 67021
Peter Hallock 234 Seaview Ave. Swansea, MA 02777	518/83, ctf 64323
S.A. Morse Morse and Co. 6616 Ridgeview Circle Dallas, Texas 75240	ctf 113099, 925/59
Roberta Gove 75 Lincoln St. Newton Highlands, MA 02161	ctf 63985, ctf 85041
Ronald Rudnick 433 Main St. Chatham, MA 02633	ctf 85049
Morris Island Nominee Trust 433 Main St. Chatham, MA 02633	C-109
Thomas Marshall Seagull Lane Chatham, MA 02633	ctf. 84902
United States Dept. of Fish and Wildlife 30 Wikis Way Chatham, MA 02633	
Tilipi Run Nominee Trust Allan S. Blank, Trustee 65 Montclair Terrace San Francisco, CA 94109	ctf 69538
Paul P. Broutas Lynn T. Broutas 22 Conant Rd. Weston, MA 02193	ctf 83514

John H. Hammett
Margaret Hull
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Chatham, MA02633

464/104, ctf 57864

Decision of the Cape Cod Commission

Summary

The Cape Cod Commission (Commission) hereby approves, with conditions, the application of The Town of Chatham for a Development of Regional Impact (DRI) permit under Sections 12(i) and 13(b) of the Commission Act (Act), c. 716 of the Acts of 1989, as amended. This decision is rendered pursuant to a vote of the Commission on June 22, 1995.

Project Description

The Phase II portion of the project extends from the Chatham Tennis Club to Morris Island. The shoreline in this area contains a number of protected resource areas including coastal dunes and coastal banks, coastal beach and salt marsh. The Draft EIR (DEIR) states that there are 35 shorefront lots in this area with 28 separate owners. The DEIR further states that within the study area there are 7 lots designated as undevelopable, 3 lots designated as parks and open space, 3 lots designated as developable, 1 lot designated as commercial, 1 lot designated as multi-family and 20 lots designated as single family residential areas. This area has been divided into three segments: the Little Beach area, the Morris Island Dike, and Morris Island. None of the properties within the study area have constructed a revetment or other permanent shoreline protection structure to date. Armoring of the shoreline with a combination of revetments and groins, supplemented by beach nourishment, has been recommended in the EIR and subsequently, during the DRI hearing process. The armoring is proposed to be phased as certain "triggering" conditions are met.

Fugro East, Inc., consultant to the Little Beach Erosion Protection Association, has further refined the shoreline protection design contained in the DEIR to: reduce the extent of coastal engineering structures (i.e. elimination of groins and majority of toe scour apron); locate any structures as far landward as possible; minimize the vertical height of the revetment to match existing grade elevations; provide cover material and vegetation over the proposed revetment; incorporate and maintain continued beach access over Bearse's Lane; and to provide additional sediment to the coastal system if the revetment becomes exposed. These refinements will reduce adverse impacts which may result from construction of the revetment.

Background History

The coastal areas in the Town of Chatham experience dynamic shoreline changes that are the result of storm, tidal and ocean current induced erosion. Accelerated erosion of the coast has occurred as a result of a breach that opened in the Nauset Barrier Beach in January 1987 (the Breach). The Breach subsequently expanded, leaving many areas of the Chatham coast exposed to attack from open ocean and storm related wave action.

Procedural History

An Environmental Notification Form (ENF) was filed in February of 1988 by the Town of Chatham (Applicant) which was subsequently directed to prepare an EIR as noticed in the

September 27, 1988 issue of the Environmental Monitor. The preparation of an EIR triggered mandatory Commission review of this project.

Although initial action on the project took place in 1988, the large number of separate individuals in the study area made it difficult to coordinate the preparation of the EIR. Town actions in 1991, including revetting of the area that fronts the Coast Guard Lighthouse and the creation of the Coastal Erosion Advisory Committee, prompted the Town of Chatham to prepare the required EIR and to file for a Joint Review with the MEPA Unit and the Commission. The MEPA review commenced prior to the Town's application to participate in the Joint Review process.

A duly authorized Subcommittee of the Commission met on January 19, 1994 to discuss the DEIR. The Final EIR (FEIR) was certified by the Secretary of Environmental Affairs June 30, 1994, and the subcommittee met on August 10, 1994 to discuss the project as a DRI. The subcommittee held its final public hearing on November 7, 1994. A public hearing before the full Commission was noticed for March 16, 1995 and continued to March 30, 1995 and again continued to April 27, 1995. The hearing was closed on April 27, 1995 and a public meeting was scheduled for May 11, 1995. A public hearing on the draft written decision was opened on June 8, 1995 and continued to June 22, 1995. The hearing was closed on June 22, 1995.

The Subcommittee included the following members: Sumner Kaufman, Chair, Don LeBlanc, Don Near and Bruce Rosinoff.

The Commission, through staff, participated in two mediation sessions facilitated by the Massachusetts Office of Dispute Resolution. The purpose of the mediation is to reach consensus on conditions concerning permitting and construction of the proposed revetments. Parties to the mediation include: The Massachusetts Department of Environmental Protection (the "DEP"), Massachusetts Coastal Zone Management, the Town of Chatham through its town planner, a representative of the Chatham Conservation Commission, property owner's representative William Doggett, property owner's representative Attorney Nicholas Soutter, property owner's representative Engineer Stanley Humphries, and the Cape Cod Commission.

Materials Submitted for the Record

The application and notices of public hearings relative thereto, the Commission staff notes, exhibits and correspondence, the minutes of meetings and hearings and all written submissions received in the course of the proceedings for this project are incorporated into the record by reference.

Submittals from the applicant

1. Letter from William Doggett to Cape Cod Commission, May 9, 1995
2. Letter from William Doggett, LBEPa., to Cape Cod Commission, May 1995
3. Letter from Stanley M. Humphries, Fugro East, Inc. to Cape Cod Commission, April 1995
4. Phase II Final Environmental Impact Report, May 1994
5. Phase II Draft Environmental Impact Report, December 1993
6. Photocopy of Typical Revetment Section, no date
7. Photocopy of Conceptual Design plan, John Gaithwaite, April 12, 1995
8. Photocopy of portion of Conceptual Design plan with handwritten amendments, received from Stan Humphries May 19, 1995
9. Color photocopy of arial photograph of the Little Beach area

Staff Reports and Correspondence

1. Extension Agreement, June 23, 1995
2. Letter from Chatham Commissioner William Riley to Ken Brock, June 7, 1995
3. Extension Agreement, May 26, 1995
4. Extension Agreement, March 31, 1995
5. Extension Agreement, March 24, 1995

6. Extension Agreement, January 3, 1995
7. Staff Report, November 7, 1994
8. Letter to Trudy Coxe with comments on the FEIR, June 23, 1994
9. Extension Agreement, June 1, 1994
10. Extension Agreement, February 1, 1994
11. Letter to Trudy Coxe, January 21, 1994
12. Staff Report, January 21, 1994
13. Principals Discussed at 6/895 meeting
14. Proposed Changes to 6/16/95 Draft Decision, June 22, 1995

Submittals from the Town

1. Letter to Ken Brock from CCC Chatham Rep. William Riley, June 7, 1995
1. Letter from Margaret Swanson, Director, Chatham Department of Planning and Development to Sumner Kaufman, CCC Member, June 2, 1995
2. Letter from Margaret Swanson, Chair, Coastal Erosion Advisory Committee, to Cape Cod Commission, May 10, 1995
3. Letter from the Chatham Conservation Commission to Cape Cod Commission, May 9, 1995
4. Letter from the Chatham Coastal Erosion Advisory Committee to Cape Cod Commission, May 3, 1995
5. Letter from Chatham Conservation Commission to DEP, February 16, 1994
6. Letter from the Chatham Conservation Commission to Margo Fenn, January 24, 1994
7. Letter from the Chatham Conservation Commission to Aubrey Consultants, October 18, 1993
8. Proposed conditions from Chatham Coastal Erosion Committee and project area property owners, June 8, 1995
9. Assessors Map of area of proposal, faxed May 17, 1995

Submittals from the State

1. Letter to Ken Brock from Vince Maraventano, Deputy General Counsel, DEP, June 8, 1995
2. Letter to Dennis Finn from Scott Melvin, Division of Fisheries & Wildlife, June 7, 1995
3. Letter from Vince Maraventano, Deputy General Counsel, DEP to Cape Cod Commission, April 27, 1995
4. Letter from Vince Maraventano, Deputy General Counsel, DEP to Cape Cod Commission, April 26, 1995
5. Guidelines for Managing Recreational Activities in Piping Plover Breeding Habitat on the U.S. Atlantic Coast to avoid take under Section 9 of the Endangered Species Act, NE Region, U.S. Fish and Wildlife Service, to Patty Daley, Staff Counsel, April 15, 1994
6. DEP Final Decision in the Matter of Nelson/Hicks, December 23, 1994
7. DEP Order Clarifying Close of Record, October 26, 1994
8. Certificate on FEIR, July 5, 1994
9. DEP Decision on Bifurcation, March 25, 1994
10. MA Appeals Court Memorandum, March 2, 1994
11. Letter from DEP to Bruce Gilmore, February 10, 1994
12. Certificate on the DEIR, February 10, 1994
13. Letter from Margaret Brady, Director of MA CZM to MEPA, February 2, 1994
14. Piping Plover Revised Recovery Plan and Technologies to Benefit Shoreline Property and Rare Species Habitat, U.S. Fish and Wildlife Svc and U.S. Office of Technology Assessment, recv'd June 15, 1995
15. Draft Order of Conditions for Little Beach Revtment Project, Conditions #1-32, no date

Submittals from the Public

1. Letter from Douglas Doe to CCC, June 8, 1995
2. Letter from James Wolf to Dick Emmet, Conservation Law Foundation, June 1, 1995
3. Letter from Douglas Doe to Vince Maraventano, DEP, May 31, 1995
4. Letter from Peter van S. Rice to CCC, May 25, 1995

5. Letter from Douglas Doe to Cape Cod Commission, May 17, 1995
6. Letter from Douglas Doe to Patty Daley, May 12, 1995
7. Letter from Jack Horne to Cape Cod Commission, May 9, 1995
8. Letter from Nicholas Soutter to Cape Cod Commission, May 9, 1995
9. Letter from Jack & Muriel Horne to CCC, May 8, 1995
10. Letter from Peter Hallock, November 9, 1994
11. Homeowners Sample Questionnaire from W.K. Doggett, November 7, 1994
12. Letter from Douglas Doe, July 12, 1994
13. Letter from Douglas Doe to Trudy Cox, May 16, 1994
14. Letter from Nicholas Soutter, February 7, 1994
15. Letter from Douglas Doe to the Editor of the Cape Cod Chronicle, January 31, 1994
16. Letter from Nicholas Soutter to MEPA, January 17, 1994
17. Letter from Marcia D. Corrigan, January 13, 1994
18. Letter from Douglas Doe to Trudy Cox, January 12, 1994
19. Letter from Nicholas B. Soutter, to Cape Cod Commission, January 11, 1994
20. Letter from James Wolf to Commission, June 21, 1995
21. From James Wolf, copies of newspaper articles from the 6/16/95 Cape Codder and the 6/12/95 Cape Cod Times re: revetment injury; poster boards containing pictures of revetted and nonrevetted shorelines (shown, not submitted for record)

Additional Material Relating to the Nelson and Hicks vs. the Commonwealth of MA Dispute

1. Discrimination in Seawall Permits, Chatham, MA, February 21, 1995
2. Complaint for Relief from Agency (DEP, MEPA, CZM etc.) Final Decision, January 24, 1995
3. Motion for Reconsideration of Final Decision, January 6, 1995
4. DEP Opposition to Reconsideration of Final Decision, January 6, 1995
5. Memorandum from Nicholas Soutter, December 13, 1994
6. Memorandum on Chatham Seawalls Consisting of Court Exhibits, December 13, 1994
7. Petition For a Writ of Certiorari, October 1994
8. Prefiled Testimony of Robert Weaver, March 22, 1994
9. Prefiled Testimony of Walter F. Bohlen and Ole S. Madsen, March 22, 1994
10. Prefiled Testimony of Exhibits, March 22, 1994
11. Letter to Vincent Maraventano, DEP from Douglas B. Wells, Chatham Conservation Commission, February 15, 1994

Testimony

A public hearing was held by a subcommittee of the Cape Cod Commission on January 19, 1994, to take public testimony on the DEIR. John Ramsey of Aubrey Consulting, Inc. (ACI) appeared on behalf of the Applicant. He discussed the predictive model developed by ACI with regard to shoreline erosion and sediment migration which was presented in the Draft EIR. He noted that shoreline migration has followed a cyclical model over time. He displayed an aerial photograph of the area and explained that a "swash platform" has formed and is growing at the end of North Beach. The deep part of the channel has been forced to the south and the South Beach area is being starved of sand. South Beach is lowering in elevation due to wave erosion. Currents are also eroding the mainland. He showed historical diagrams of the area depicting previous breaches in the outer beach and explained historical shoreline changes. They have made short and long term predictions, but know there is uncertainty with long-term predictions. The model predicts that South Beach will migrate southward, break up and move landward and North Beach will continue to grow southward gradually. The Little Beach area is the area likely to be most affected in the future by erosion.

He presented the recommended plan which is designed to preserve the existing landform and existing houses. They are proposing a two-phase project with revetments and groins. Phase 1 will be a low lying revetment 10' above sea level following the existing landform. This is proposed to be constructed immediately with temporary groins. The groins will be buried in the dune system,

planted, and kept filled to entrapment or shortened if erosion occurs. The second section involves revetment and temporary groins as well and construction would be triggered by the breach of South Beach or exposure to open wave activity. A sand revetment and culverts (or a lined channel) would be installed near the marina to allow upland drainage in the event of flooding. A groin would also be placed next to the marina to help keep sand from migrating into the Morris Island dike area. The Morris Island dike would have the east side armored if necessary. They are assuming that the marsh will be lost and the area will be used as a dredge spoil location in the future which would provide a buffer for the dike. The trigger for the armoring of the coastal bank on Morris Island would be similar to Blank-Brountas (a breach in South Beach or a 20 year buffer to the homes). Mr. Ramsey offered to answer questions.

Dennis Finn presented the staff report noting the purpose of the hearing is to comment on the draft EIR for Phase 2. He said that the staff has questions about the accuracy of the information on the historical fill area. He noted comments were received by the staff regarding this issue. He noted that this relates to the bank vs. dune delineation discussion and that this needs to be resolved before the Commission can permit this project. He requested that additional information be submitted regarding resource areas that would be impacted by the project. He noted the need for a long-term commitment to monitoring and mitigation. The EIR needs to address compliance with the Regional Policy Plan's Minimum Performance Standards. He said there is a need for a regional coordinating mechanism. He noted that the EIR focuses on structural solutions, but does not explore the long-term costs of such solutions.

Sumner Kaufman asked if the DEIR contains a definition of sand berm or sand revetment. Is it a sacrificial structure?

John Ramsey responded that it was a sacrificial structure. It is a soft solution and would not be built against a landform. It will be lower than the revetments to the north, although no exact height has been specified. Mr. Kaufman asked if its loss would affect other structures. Mr. Ramsey said it would be required to be maintained. It cannot be allowed to go away. Mr. Kaufman asked who would have the responsibility for this maintenance. Mr. Ramsey said that he could not answer that question.

Nick Soutter, attorney for Nelson/Hicks said that the history of beach nourishment in the U.S. is that \$8 billion has been expended to protect the coast in the last 20 years and 26% of that has failed in the first five years. He said that beach nourishment is not a serious alternative for Chatham. The Army Corps originally suggested using beach nourishment to fill the breach, but it was too expensive to consider. Sand bags are not a solution because they are subject to vandalism. They cause scouring and you cannot put a toe on them. The manufacturers say that you cannot use them in Chatham -- they are not recommended for the kind of waves there. He said that he does not believe that the proposed revetment is high enough.

Russell Haddleton, a property owner in Little Beach area said that he finds the conclusion in the staff report offensive. The Coastal Erosion Advisory Committee has retained the best professionals to look at options. Their goal was to develop something that would work, not to justify a preconceived project. He believes that the staff should apologize to Aubrey for this.

Will Joy addressed the subcommittee regarding beach nourishment. He does not believe that it will take care of the problem. He said that beach nourishment is not an appropriate solution due to the tidal range in this area and the materials disappear quickly and in an unpredictable manner. Regarding Little Beach, he suggested that cutting off the sediment supply to this area may not be detrimental.

Wick Doggett, a property owner in the Little Beach area, asked if the staff report represents a summary of staff's questions. Mr. Finn responded that it was.

Jean Norris, a cottage owner in the Little Beach area, thanked the staff for their report and said it had raised good questions. She noted that flooding will only be partially addressed by this project and suggested that the town seek additional FEMA funds for elevating structures.

Don Near asked if anyone from the town can address the long-term monitoring, maintenance, and mitigation issues. Margaret Swanson, Town Planner said that this project poses complex issues. The purpose of the DEIR is to look at the science -- what can be done? The FEIR needs to get serious about mechanisms. There is no point in starting to organize everyone or set up legal entities if we are not going to get anywhere in the permitting process. Our next step would be to look into how to do this financially and legally. Some have started working on this, but they don't have it figured out yet.

Bruce Rosinoff asked a question regarding flooding issues on p. 3 of staff report. He said he was confused about this. Mr. Finn responded that the revetments will not prevent flooding, and these flooding impacts are not relevant to the discussion. Lee Weishar said that this section was expanded in response to comments from state agencies. Ms. Sferra suggested that staff was recommending that continued flooding not be presented as a negative impact of some of the alternatives and that the EIR specifically state that the project is not aimed at preventing flooding.

A DRI hearing was held on November 7, 1994 in Chatham where the Staff discussed the major unresolved issues with regard to the project. The issues include: Who is responsible for construction? How will timing and financial issues be coordinated among the property owners? It was noted that a homeowners association has been formed and they are working with a consulting engineer to develop a plan to implement the recommendations. Mr. William Doggett is the contact person for the association.

It was further stated that the subcommittee is required to close the public hearing today due to the expiration of the 90 day procedural timeframe. The staff had been in contact with DEP regarding the pending variance request and it was staff's understanding that a decision was expected from them on November 29th.

Mr. Near asked about the role of the town in the homeowners association. Margaret Swanson responded that the work of the Coastal Erosion Advisory Committee is on hold until they hear back from the homeowners. They have hired an engineering firm to look at design, construction and maintenance costs and will decide as a group how to proceed. She added that any betterment arrangement would need to go to town meeting, but a betterment formula could recoup most or all of the cost of the revetment.

Mr. Kaufman stated that it is imperative that all owners belong to the association and he said that in his experience it is difficult to get 100% cooperation. Ms. Swanson responded that at a minimum everyone in the front line of homes along the coastline would need to belong. She noted that the group that has been formed is a loose group, not a homeowners association.

Mr. Near asked about trigger mechanisms and how long the conditions that apply to this project would need to be effective. Mr. Finn responded that staff had no idea and it depended on geologic events and variables. Mr. Near asked if the conditions would need to extend beyond the present property owners. Mr. Finn said that they would; the permit should go with the property, not the owner.

Charles Hathaway, Coastal Erosion Advisory Committee, said he believes that the homeowners will join forces quickly when the beach breaks through and the danger is imminent.

Paul McGovern from Atty. Soutter's office said the houses may be lost before the property owners get their act together. He called the FEIR a substandard plan, said there was no guarantee that the seawall plan would be accepted. He said that there had been no hearing on their waiver request and they did not know when it would be scheduled by DEP. He said that the majority of seawalls in Chatham are 20'. A lesser seawall will not stop floodwaters. The report recommends a substandard seawall which Nelson and Hicks are opposed to. He believes that everyone should have the same protection. He added that Graham Geise says that Chatham should have all seawalls or no seawalls.

Margaret Swanson, Chatham's Director of Planning, noted that there were no Section 61 findings issued by the state with the EIR approval to give guidance as to how the state will handle the permit. She doesn't know how the state will review the permit applications and whether a variance will be required. She questioned the relationship between the Nelson/Hicks project and the larger project. She said that the betterment district would not require unanimous agreement of the property owners, it required a favorable vote at town meeting. The betterment formula would be determined by the Selectmen with the understanding that it would recoup the cost.

Don Near asked if DEP has approved the EIR. Mr. Finn stated that it has been certified by MEPA. Ms. Sferra clarified that MEPA's decision means that enough information has been gathered for the permitting agencies to make a decision on the project.

A DRI hearing was noticed for March 16, 1995 and continued to March 30, 1995. Mr. Ernst took over as acting Chair of the Commission so Mr. Kaufman could act as Subcommittee Chair. Mr. Ernst noted a request from Commission member Bill Riley, who was unable to attend today's hearing, to extend the hearing. He then explained the hearing process.

Dennis Finn, Planner, explained the project and showed maps for orientation purposes. The project proposes to armor 6500 feet with a coastal linear structure. The structure would protect 35 buildings. Mr. Kaufman explained that the subcommittee voted to deny (3-1) because the project doesn't meet two of the Minimum Performance Standards of the RPP, in particular 2.2.2.3 which prohibits construction on a coastal dune. He reported that this standard is more strict than the Wetlands Protection Act. Mr. Kaufman further noted that no nourishment was being offered as mitigation which would result in adverse impacts to the beach in front of the revetment and downdrift and a loss of public trust rights, and because the benefits do not outweigh the detriments, the subcommittee was recommending denial.

Thomas Groux, Chatham Town Administrator, asked the Commission to consider the Conservation Commission's request to continue the hearing because they could not be present today.

Margaret Swanson stated that the subcommittee's recommendation comes as a surprise and hopes that some flexibility can be taken into consideration when looking at standards of the Regional Policy Plan because the RPP doesn't recognize a catastrophic event.

Wick Doggett, property owner and spokesperson for the Little Beach homeowners association, supported a specific proposal which was discussed in mediation. He stated that this proposal is a collective system, not individual revetments. He referenced the Aubrey report which discusses revetting in sections and hopes that the Commission will approve this suggested solution.

Charles Hathaway, Coastal Erosion Committee, expressed that the solution offers a good compromise and that if it's not done and the beach breaks open, there will be a panic situation and individual requests for revetments. Mr. Hathaway noted that there are no traffic issues, etc. therefore this is not "development."

Doug Wells, Conservation Commission, spoke personally that there really is no good solution for Little Beach and even though he dislikes revetments and hard structures, he sees no other alternative. He stated that it is desperately important to treat the project as a single unified approach, that there is no development, it won't restrict access, and that this is a compromise solution.

Nick Soutter, attorney representing Nelson & Hicks, property owners along this coastline, stated that the revetment is wetlands protection at its best. He further noted that to protect the houses will allow the homeowner as well as the revetments to protect the wetlands.

Vincent Moraventano, DEP, agrees that individual revetments would not be allowed and that soft solutions will not be effective. He noted that DEP has concluded that the Fugro Plan is permissible given the unique situation and that there is no other alternative for this area.

Bruce Rosinoff asked what the public interest is that would be served by coastal armoring. Mr. Moraventano stated that there are benefits to the project, but that the test for a variance from DEP is not met.

Sumner Kaufman asked whether this would set a precedent. Mr. Moraventano replied that DEP is concerned about setting precedent by allowing armoring of a dune but feels this is a unique situation.

Stan Humphries, Senior Manager for Fugro, noted that he was hired by the Little Beach property owners and he spoke to the Commission about his proposed plan. He said they will provide plans to the Commission.

Mr. Kaufman noted that the elements of the Regional Policy Plan made this project not acceptable, as well as the elements of the Chatham Conservation Commission bylaws and the Wetlands Protection Act. Mr. Kaufman stated that the Commission has been waiting for the state to make its decision and that by statute, the Commission got involved when the proposed project tripped MEPA thresholds. He stated that the purpose of the hearing today is to receive comments and that there has been a request to postpone the decision and leave the hearing open. He reported that the subcommittee did not see justification for use of the flexibility clause and has recommended denial.

Ms. Ritchie noted that there seemed to be more work to do on this project. She wondered if this would change the subcommittee's position.

Mr. Moraventano noted that the matter has been referred to mediation and that there are future meetings and hearings planned to discuss the matter further.

Mr. Kaufman asked that DEP put today's comments in writing and submit them to the Commission.

Mr. Silverman suggested waiting until sometime in June after the state has completed its review.

Kathy Sferra, Planner, noted that some of the subcommittee members will be gone after April and there may no longer be a quorum of the subcommittee.

Patty Daley, Staff Counsel, noted that mediation has been helpful in moving toward a decision more quickly and toward possible solutions.

Vicky Lowell asked whether there was any plan to regulate or limit development in this fragile area. Margaret Swanson replied that the area has been maxed out. Mr. Moraventano said he knew of one vacant lot in the first phase.

Don Near asked who will take responsibility for beach nourishment. He said this item was never agreed upon. Mr. Moraventano replied that they were hopeful that the Town of Chatham would.

Margo Fenn, Chief Planner/Deputy Director, stated that this has been one of the most difficult projects the Commission has had come before them. Ms. Fenn noted that because there is no perfect solution she has been encouraged by the mediation which is seeking to establish terms for a conditional approval. Ms. Fenn noted that the best solution would be to dovetail the Commission's decision with DEP's decision and to set a timeframe that coordinates with DEP.

Ms. Sferra noted that the Commission has different standards than DEP and the Commission may not be able to wait for DEP to make its decision. She recommended that if the Commission feels a conditional approval is appropriate, they move forward and let DEP follow suit.

Mr. Kaufman noted for the record a letter dated 3/30/95 received from Douglas Doe, a resident in the area who is opposed to the project.

Alix Ritchie moved to continue the hearing to 4/27/95 @ 3 p.m. in the Assembly Chambers at the Commission's regularly scheduled meeting and to extend the decision period to 5/26/95. Mr. Kaufman seconded the motion and it was unanimously approved.

The DRI hearing was continued to April 27, 1995 where Chairman Brock explained that members not present at the last public hearing could not participate in any vote on the project. They could however participate in discussion before the hearing was closed. Mr. Brock suggested that after the hearing was closed, staff would be instructed to prepare a decision for the Commission to act on at their next meeting.

Mr. Kaufman, Subcommittee Chair, suggested that since the Chatham Conservation Commission was not able to attend the last hearing, they could be heard from first and then comments from Staff Counsel, Patty Daley.

Bill Riley, Chatham Commission representative, stated that it was important for members to understand the significance of this project and that if they haven't visited the site yet, perhaps a site visit should be arranged. Mr. Riley further suggested that because of the cyclical erosion process, the uniqueness of the area, the public road at risk and the tax revenues generated by the affected properties, members should vote to approve the revetments as requested.

John Geiger, Chatham Conservation Commission, underscored everything Mr. Riley stated and further reported that although the Conservation Commission does not like revetments, they do not see any practical alternative. Mr. Geiger reported that the ConCom endorses the EIR and changes to the original Aubrey report proposed by Fugro, i.e. the elimination of groins, and highly recommends the project be permitted.

Patty Daley, Staff Counsel, provided a synopsis of the process to date. Ms. Daley requested that direction be given to staff as to which way to proceed.

Mr. Moraventano stated that the primary reason DEP was looking to approve the revetment is because this is a scientifically unique situation and appears to be the only sensible solution.

Ms. Ritchie, seeking clarification, asked whether the subcommittee had DEP's position before making their decision. Mr. Kaufman responded that they did not.

Ms. Bebout asked whether any other solutions had been considered such as relocating the homes. Mr. Moraventano replied that there were no other solutions as some structures could be relocated however, many could not.

Mr. Riley noted that even if the structures were to be relocated or elevated, the roads, etc. would still not be protected.

Mr. Prince expressed that he was having difficulty not giving others the same opportunity to save their homes. He stated that he liked the idea of trigger mechanisms and would be interested in looking at proposed conditions for a conditional approval. Mr. Silverman stated that he agreed with Mr. Prince and urged applying the flexibility clause.

Mr. Kaufman, reminded members that he has been on the subcommittee since Phase I, and has been looking at the benefits vs. detriments. He stated that he has had to ask what is best for Cape Cod in the future and feels that armoring the coast is not appropriate for the Cape.

Ms. Ritchie stated that there is a powerful variable in terms of natural processes here and if indeed, this is a scientifically unique situation the project may be approved without setting a precedent.

Mr. Near wished an alternative method could be reached to the same end without the Minimum Performance Standards being violated.

Mr. Kaufman suggested a field trip for Commissioners that have not seen the site.

Margaret Swanson stated that the mediation session findings are helpful in making a determination.

Mr. Moraventano stated that since 2/94 they have tried to meet consistently with various groups. DEP expects the area to recover naturally, and that it is appropriate for the Commission to apply the flexibility clause of the Regional Policy Plan in his opinion.

Mr. Riley asked Mr. Kaufman if he had reviewed Ms. Daley's memo and asked if Mr. Kaufman could explain why the flexibility clause cannot be met.

Mr. Kaufman replied that he had read the RPP and the flexibility clause and could not see a way to recommend that it be used in this instance.

Ms. Bebout inquired about the mediation process and the Commission's role in it.

Ms. Daley replied that the DRI review and the mediation discussions are separate processes and the Commission has volunteered to participate in the mediation, but the Commission is in no way bound by discussions.

Wick Doggett stated that the plan is environmentally sensitive and meets all the requirements of the concerned parties in the best manner possible. The revetment plan has been done in an exemplary fashion he said.

Ms. Swanson stated that if the benefits outweigh the detriments in applying the flexibility clause, she would argue how the revetments will be detrimental with the "pittance of sand" they would leave.

Ms. Sferra replied that the coastal dunes are significant in the interests of the Wetlands Protection Act as determined under the Commission's RPP, the subcommittee's recommendation and the DEP adjudicatory decision on the specific issue of significance.

Mr. Ernst suggested looking more closely at the benefits vs. detriments analysis before seeking the flexibility clause.

Ms. Ritchie moved to close the hearing. Mr. Mason seconded the motion.

It was voted unanimously.

Mr. Kaufman moved the Commission accept the subcommittee report denying the project and direct staff to prepare an appropriate decision based on the subcommittee report. Ms. Bebout seconded the motion. A roll call vote was taken and the motion failed.

Mr. Silverman moved to accept the subcommittee report and prepare a draft decision based on the possible finding that the proposed use would justify the flexibility clause in this manner. Mr. Mason seconded the motion.

The motion was amended to reflect the receipt of the subcommittee report rather than the acceptance and directing staff to prepare an approval with conditions that addresses the issues and clearly shows the benefits outweigh the detriments. The amendment to the motion was seconded and a roll call vote was taken. The motion carried 7-3 and one abstention and agreed that a vote on the written decision would be put on the 5/11/95 CCC agenda.

Further public testimony was heard on 6/8/95 and at a continued hearing on 6/22/95.

Jurisdiction

The proposed Chatham Revetment Project Phase II qualifies as a DRI under Section 12 (i) of the Act, as "Any proposed development project for which the secretary of environmental affairs requires the preparation of an environmental impact report..." The applicant voluntarily entered into the joint MEPA/Cape Cod Commission review process.

FINDINGS

In its deliberations of the project the Commission makes the following findings:

1. This decision will address issues raised in Phase II of the EIR concerning the proposed shore protection structures located in Chatham, Massachusetts.
2. The applicant is the Town of Chatham, filing for MEPA and DRI approval on its own behalf and on behalf of 28 private property owners along the Chatham shoreline from Bearse's Lane to Morris Island. The Town of Chatham engaged in information gathering, impact analysis, and mitigation analysis in order to obtain MEPA and DRI approval for shoreline protection structures for the properties noted above.
3. The Cape Cod Commission approved construction of proposed revetments, subject to trigger conditions, on properties owned by Paul Brontas and Allan Blank on Morris Island on July 23, 1992 (TR 91094). Phase 3 of this decision applies to the same parcels. To the extent that conditions imposed by this decision are different from conditions imposed by the earlier decision, and Mr. Brontas and Mr. Blank come forward with other property owners within Phase 3 for construction of a continuous revetment for Phase 3, the conditions of this decision shall apply. However, if Mr. Brontas and Mr. Blank proceed independently with construction of an individual segment of Phase 3 as previously proposed, the conditions of the July 23, 1992 decision shall apply.
4. Given the gradual migration of the barrier beach/island system, it is appropriate to construct the proposed project in phases, subject to "trigger" mechanisms whereby the Commission allows each phase of the project to go forward when specific environmental conditions are met. For the purposes of this decision, the following phases are established:
Phase 1: Bearse's Lane south to Outermost Harbor Marina (Little Beach)

Section A: Bearse's Lane to southern end of Hicks' property

Section B: Southern end of Hick's property to Outermost Harbor Marina

Phase 2: Morris Island Dike

Phase 3: Morris Island (east side)

5. The Chatham shoreline is in a very dynamic state and there is a great degree of uncertainty over the possible future migration of North Beach and/or break up of South Beach, a barrier beach/island system providing protection for the shorefront property owners from the open ocean. This dynamic situation complicates the conclusions with respect to the necessity and timing for revetting the shoreline. The erosion rate in this area could increase or decrease significantly depending on these shoreline changes and coastal storms are likely to result in episodic erosion and dramatic changes in a relatively short period of time.

6. The Phase 1A area contains a "coastal dune" as defined by the Wetlands Protection Act and regulations at 310 CMR 10.28 which is significant for storm damage prevention and flood control. These determinations (of resource area type and significance) were made by the Department of Environmental Protection in its Final Decision at Adjudicatory Hearing (Docket #92-140 and #92-152). The construction of individual revetments/shoreline protection structures does not meet the performance standards for coastal dunes set forth in 310 CMR 10.28(3)(a-f). The Phase 1A area also contains a coastal bank.

7. Two of the applicants within the Phase 1A area have sought variances from DEP from the standards in the Wetlands Protection Act. These variance requests are pending. Additional permits are needed from local, state and/or federal agencies before any phase of the proposed project can proceed.

8. The Phase 1B area contains a coastal dune and costal bank. The Phase 1B revetment should be constructed landward of any primary dune(s) to minimize its effect on the height, stability, and use of the dune as a natural sediment source, as conditioned below. In addition, to the extent that construction of the Phase 1B revetment impacts the primary dune, the dune should be restored as conditioned below.

9. The Phase 2 area contains a coastal marsh. Construction of Phase 1A and 1B shoreline protection structures is expected to effect the transport of sediment into the harbor and marsh. Construction of a jetty immediately to the north of the Outermost Harbor Marina is expected to slow the infilling of the marsh area with sand.

10. The Phase 3 area contains coastal dune and coastal bank.

11. Phases 1A, 1B and 3 of the project are not in compliance with Minimum Performance Standard 2.2.2.3 of the Regional Policy Plan which prohibits construction on coastal dunes. Phases 1A, 1B and 3 of the project are not in compliance with Minimum Performance Standard 2.2.2.4 which states in part that "Development. . . on . . . a coastal bank or dune shall be designed to have no adverse effect on the height, stability, or the use of the bank or dune as a natural sediment source."

12. The Regional Policy Plan provides that "if it can be demonstrated by an applicant that the interests protected by a given Minimum Performance Standard can be better served by an alternate approach, the Commission may modify the application of these standards. In approving such a modification, the Commission must make a finding that the proposed use will not be more detrimental to the protected resource than would be allowable under the applicable Minimum Performance Standard."

13. The Commission finds that it is appropriate to modify the application of Minimum Performance Standards 2.2.2.3 and 2.2.2.4 to allow the construction of a continuous revetment along the

Chatham shoreline. In making this finding, the Commission notes: 1) that the coastal processes occurring on the Chatham shoreline are cyclical and unique and give rise to tremendous uncertainty regarding shoreline erosion; 2) the shorefront property owners, through the Town of Chatham, have come forward and presented a comprehensive regional approach to the protection of this section of the Chatham shoreline which is designed to maximize protection for the shoreline through a coordinated and continuous approach to construction and mitigation thereby minimizing the adverse impacts of construction of individual (single lot) structures; 3) construction of the revetment would also provide a significant public benefit by protecting Morris Island Road (a public way) from being undermined by shoreline erosion. This road is the sole means of access for the Morris Island area; 4) the project, as conditioned, will be required to compensate for the natural sediment that would be lost due to construction of the revetment; and 5) the impacts of the proposal are temporary due to the expectation that once the inlet, or Breach, migrates far enough southward, the area will be protected by a barrier beach and is thereafter expected to stabilize. Due to the unique characteristics of the Chatham shoreline proposed to be revetted, the cyclical nature of erosion in the area, the present opportunity for a comprehensive, regional approach to solve the problems associated with erosion of the subject shoreline, and compensation for the loss of sediment provided through the imposition of conditions, the Commission finds that approval of the proposed revetment, with conditions, will not be more detrimental to the protected resource than would be allowable under the applicable standards and that it is appropriate to invoke the flexibility clause to find that the project may be approved notwithstanding noncompliance with Minimum Performance Standards 2.2.2.3 and 2.2.2.4.

14. None of the residences in the project area are immediately threatened by coastal erosion at this time, however, the nature of shoreline changes described in Finding #5 could result in exposure of some of the properties to direct open ocean wave attack in the event of a severe storm. The permitting process for coastal engineering structures is lengthy and as a result some of the homes may be threatened in the event that South Beach is breached or breaks up. Therefore, the Commission finds that it is appropriate for Phase 1A to commence at this time.

15. The proposed revetment would eliminate the coastal bank and coastal dunes as a natural sediment source for downdrift coastal areas. In order to comply to the maximum extent feasible with Minimum Performance Standard 2.2.2.4 within the Phase 1A and 1B areas, Phase 1A and 1B property owners must establish a trust fund prior to construction sufficient to cover the cost of beach nourishment and restoration and provide a deed of easement to allow for beach nourishment and restoration. The trust fund shall be used to compensate for this loss of sediment as the sole source of funding for beach nourishment and restoration. The Chatham Conservation Commission, in consultation with the DEP and others, shall determine when to expend trust funds for nourishment and restoration consistent with this decision. To further mitigate these identified impacts, the revetment should be constructed as far landward of the existing coastal dune and as far landward as possible and should be covered with sediment, sand fencing and vegetation to maximize sand retention.

16. Through the ongoing mediation process, facilitated by the Massachusetts Office of Dispute Resolution, or through an ongoing negotiation process, parties will establish an amount of money to be contributed to a trust fund sufficient to provide adequate nourishment and to restore the beach as required herein and as described in Condition #15 above. The DEP will condition the proposal to require a trust fund consistent with the mediated/negotiated agreement.

17. The EIR estimates that the Phase 1A revetment will render approximately 15,000 cubic yards of sand currently in the coastal dune system unavailable for sediment transport, creating an adverse effect on the use of the dune as a natural sediment source.

18. Other Development Review Policy 3.2.3 states that "Resource-based economically productive areas including ... harbors, fishing grounds, and recreational areas should be maintained

specifically for those uses." The construction of a groin/jetty immediately to the North of Outermost Harbor Marina, as identified in the Phase II EIR, will trap longshore sediment which would be transported into the Marina entrance channel and into the marsh fronting Morris Island Dike and will form an impoundment area immediately to the North, slowing the natural accretion of sediment in the Outermost Harbor and the salt marsh.

19. Modifications proposed by Fugro East include the elimination of groins proposed in the Phase II EIR.

20. The land area between mean low water and mean high water is used pursuant to the Commonwealth's public trust rights for fishing, fowling and navigation. Construction of the revetment would result in a violation of Minimum Performance Standard 2.2.1.1 of the Regional Policy Plan if it eliminates the public access at Bearse's Lane. The Town of Chatham and the Phase 1A property owners propose to incorporate and maintain continued beach access via Bearse's Lane. Construction of the revetment could result in a violation of MPS 2.2.1.1 by lowering beach profiles on the seaward side of the revetment thus interfering with these public trust rights, unless adequate monitoring and beach nourishment occurs in accordance with the conditions of this decision. The Chatham Conservation Commission will monitor the area.

21. The Massachusetts Department of Fish and Wildlife (DFW) and the National Fish and Wildlife Service (FWS) have identified a potential piping plover habitat within the Phase 1A and 1B area. In order to avoid a "taking" of piping plovers, a listed endangered species, construction and nourishment shall not occur during the bird's nesting season, April 1st through August 1st, unless DFW or FWS provide a written determination that such construction/nourishment will not impact Plover habitat. Construction, nourishment, restoration and planting techniques for revegetation should be coordinated with the state and federal authorities to minimize the potential for a taking of plovers.

22. Section 4 of the Cape Cod Commission Act empowers the Commission to "make use of alternate dispute resolution mechanisms such as negotiation, mediation or arbitration" and to "coordinate its regulatory functions with local, state and federal authorities..."

23. The project, as proposed, is not designed to minimize or eliminate flooding of homes in the project area. Flood prevention measures are not precluded by this decision.

24. There are other alternatives to construction of the revetment that may, in the short term, help minimize coastal erosion. The shorefront property owners may continue to make use of sand bags and nonstructural solutions to protect their property and/or may elevate or relocate the structures on their lots landward to minimize flooding and erosion damage without any further review by the Cape Cod Commission and subject to compliance with all federal, state and local regulations.

25. Given the dynamic nature of the Chatham shoreline, the Cape Cod Commission will consider future modification of the conditions of this decision in response to unanticipated changes in the Chatham shoreline upon request by the applicant(s). Prior to making any such modification, the Commission will consult with the Chatham Conservation Commission and Department of Environmental Protection with regard to the appropriateness of such modification.

26. All conditions of this decision shall run with the land and shall apply to all of the shorefront property owners within Phases 1, 2 and 3 and their successors in title.

27. With the conditions set forth below, the project is consistent with the Minimum Performance Standards in the Regional Policy Plan, with the exception noted in Finding #13.

28. The town has not developed a Local Comprehensive Plan and at this time there are no Districts of Critical Planning Concern in Chatham. Therefore, these review standards are not applicable to the proposed project.

REVIEW STANDARDS

Under Section 13(d) of the Act the Commission is required to review a DRI under the following standards:

1. Probable Benefits vs. Probable Detriments;
2. Consistency with Regional Policy Plan/Local Comprehensive Plan;
3. Conformance with Municipal Development By-laws.

CONCLUSION

Based upon the findings above, the Cape Cod Commission hereby concludes:

The probable benefit of the proposed project, as conditioned, outweighs the probable detriment that would result from the development. This conclusion is supported by the fact that the project will protect both public and private property and public infrastructure in a manner which provides for a comprehensive regional program for shoreline armoring and beach nourishment. Further, the adverse impacts to the coastal beach/bank/dune system are short-term in nature and will be mitigated by the proposed beach nourishment and restoration program which will restore beach profiles once North Beach migrates in a southerly direction and provides protection for this area. These benefits outweigh the following detriments: visual and environmental impact of armoring coastal bank and dune areas, and loss of sediment to the natural coastal system (mitigated by beach nourishment/restoration program).

This project, as conditioned, is consistent with the Minimum Performance Standards of the Regional Policy Plan. The construction of individual shoreline protection structures within coastal dune areas also requires approval under the Town of Chatham bylaws and the Wetlands Protection Act. Commission approval is granted with the understanding that it is necessary for the applicant(s) to receive approval for the project under the state Wetlands Protection Act and Chatham bylaws as well as all other necessary approvals.

The Commission hereby approves, with conditions, the proposed Chatham Revetments project in Chatham MA as a Development of Regional Impact, pursuant to Section 13(d) of the Act, provided that the following conditions are met:

CONDITIONS

I. Phase 1A

1. All federal, state and local permits for all parcels within Phase 1A of the proposed revetment must be obtained prior to the commencement of any construction, including site preparation work, of this Phase. In addition, the following items must be submitted to and approved by the Cape Cod Commission prior to commencement of site work. The submitted items will be reviewed by the Cape Cod Commission, or its designee, for consistency with this Decision:

- a) Final engineering drawings of the proposed revetment at a scale of 1"=50';
- b) A construction schedule for the Phase. The construction schedule shall provide for the continuous construction of the entire revetment within the phase, beginning at the

northernmost point and proceeding southward. Site work, including site preparation and construction of the entire phase, must be completed within a period not to exceed one year. Construction of non-contiguous sections of the revetment is prohibited;

- c) Proof of a financial commitment by each of the property owners within Phase 1A to construct that portion of the revetment on their lot(s) and/or a binding agreement providing for such construction through a private agreement among the property owners, or proof of establishment of a betterment district or equivalent mechanism.
- (d) Proof of creation of a trust fund of a form and content satisfactory to counsel to the Cape Cod Commission consistent with this decision, of an amount as required by the DEP, provided, however, such trust fund shall be sufficient to cover the cost of beach nourishment and restoration for the Phase 1A area. The trust fund shall be expended by the Trustee at the direction of the Chatham Conservation Commission, in consultation with the DEP and others, and the amount of the fund shall be established through the ongoing mediation/negotiation process.

2. Phase 1A of the proposed revetment shall be constructed to the following general specifications:
 - a) The north end of the revetment shall be tied into existing revetment at the Chatham Beach and Tennis Club;
 - b) The elevation of the revetment shall not exceed 15.5' NGVD in front of Bearse's Lane and shall be tapered gradually to a height not to exceed 13.4' NGVD at the middle of the Hicks property.
 - c) The depth of the revetment shall not exceed -7' NGVD;
 - d) The revetment shall be located as far landward as feasible and shall be designed with its "pivot point" at the middle of the Hicks property. The Phase 1A revetment shall be designed in a manner that will not preclude the placement of the Phase 1B revetment landward of the primary dune and as far landward as is feasible. The Phase 1A revetment shall include a proper return at the southern terminus. The exact location of the Phase 1A revetment is subject to approval by the Commission pursuant to Condition #1 above.
 - e) The revetment shall be designed as a continuous structure of uniform material, and no grout or cement is permitted as construction material.

3. This approval is for the construction of the proposed revetment and associated mitigation. The proposed groins within Phase 1A are hereby denied and shall not be constructed. The Town of Chatham shall maintain public access over Bearse's Lane in perpetuity. The Phase 1A property owners shall construct a stairway from Bearse's Lane over the revetment to the beach. The Town of Chatham shall maintain the stairway for public access.

4. Following construction of the revetment, the beach shall be restored and disturbed areas revegetated with beach grass to minimize wind and wave erosion. All sand displaced by the revetment shall be placed on the beach fronting the revetment or covering the revetment on the seaward side.

5. The Chatham Conservation Commission, in consultation with the DEP and others, shall determine when to expend trust funds for nourishment and restoration consistent with this decision. The Conservation Commission's determination about when to expend trust funds for nourishment shall be based upon, but not limited to, the following factors: (1) when any portion of the revetment becomes exposed or when the beach profile is lowered sufficient to threaten the public's trust rights and (2) when the deposit of sediment is likely to provide a long term environmental benefit to the system or a short or long term benefit to public access.

6. The Phase 1A property owners, through the trust agreement, shall provide a deed of easement to allow for beach nourishment and restoration as ordered by the Chatham Conservation Commission.

7. Construction activity, nourishment and revegetation shall be coordinated with the Massachusetts Department of Fish and Wildlife (DFW) and the National Fish and Wildlife Service (FWS). Unless DFW or FWS provide a written determination to the contrary, no construction activity, nourishment or restoration shall occur between April 1st and August 1st of each year. Phase 1A property owners shall provide the FWS and DFW with a copy of any revegetation plans contemporaneous with submission of such plan(s) to the Chatham Conservation Commission.

8. Once North Beach has migrated to the south and provides protection to the Phase 1A area from direct wave attack, beach and dune nourishment shall be required. The Chatham Conservation Commission, in consultation with the DEP, shall determine when such restoration is required. A beach shall then be constructed which is 75 feet in width, measured from the seaward face of the restored dune to mean high water, with an approximate slope of 15:1 to the extent that trust funds are available to accomplish the same.

II. Phase 1B

9. Trigger Mechanism: Phase 1B shall not be constructed until the inlet between North Beach and South Beach has migrated south so that this section of the shoreline is exposed to direct wave attack from the open ocean, or South Beach is breached such that an accelerated rate of erosion of the shoreline on these properties occurs and the mean high water line is within 200 feet of the proposed location of the revetment, or at such time as the Chatham Conservation Commission makes a finding that the danger of severe erosion is imminent and that construction is timely.

10. All federal, state and local permits for all parcels within Phase 1B of the proposed revetment must be obtained prior to the commencement of any construction, including site preparation work, of this Phase. In addition, the following items must be submitted to and approved by the Cape Cod Commission or its designee prior to commencement of site work. The submitted documents will be reviewed by the Commission, or its designee, for consistency with this Decision:

a) Final engineering drawings of the proposed revetment at a scale of 1"=50'.

b) A construction schedule for the Phase. The construction schedule shall provide for the continuous construction of the entire revetment within the phase, beginning at the northernmost point and proceeding southward. Site work, including site preparation and construction of the entire phase, must be completed within a period not to exceed one year. Construction of non-contiguous sections of the revetment is prohibited.

c) Proof of a financial commitment by each of the property owners within Phase 1B to construct that portion of the revetment on their lot(s) and/or proof of establishment of a binding agreement providing for such construction through a private agreement among the property owners, betterment district or equivalent mechanism.

(d) Proof of creation of a trust fund of a form and content satisfactory to counsel to the Cape Cod Commission consistent with this decision, of an amount as required by the DEP, provided however, such trust fund shall be sufficient to cover the cost of beach nourishment and restoration for the Phase 1B area. The trust fund shall be expended by the Trustee at the direction of the Chatham Conservation Commission, in consultation with the DEP and others, and the amount of the fund shall be established through the ongoing mediation/negotiation process.

11. Phase 1B of the proposed revetment shall be constructed to the following general specifications:

- a) The north end of the revetment shall be tied into the southerly end of Phase 1A.
- b) The elevation of the revetment shall not exceed 13.4' NGVD in front of the Hicks' property and shall be tapered gradually to a height not to exceed 10' NGVD at the north end of the sand berm.
- c) The depth of the revetment shall not exceed -7' NGVD.
- d) The revetment shall be constructed as far landward as is feasible (immediately seaward of the "fill" line on these lots) and behind the coastal dune system, as identified in the Aubrey Report.
- e) A sand berm not to exceed 10' NGVD in height shall be constructed from the last Horne property to the Outermost Harbor Marina with a lined channel or culvert to allow the relaxation of flood waters flowing from Stage Harbor to Chatham Harbor.
- f) No revetments are permitted by this decision between the Outermost Harbor Marina and the Morris Island Dike.
- g) With the exception of the sand berm, the revetment shall be designed as a continuous structure of uniform material.

This decision may be modified to allow construction of a revetment within the Phase 1B area to a height not to exceed 13' NGVD upon a vote of the Commission's Regulatory Committee, without further public hearing.

12. This approval is for the construction of the proposed revetment and associated mitigation. The proposed groins within Phase 1B are hereby denied and shall not be constructed. The proposed jetty immediately to the north of the Outermost Harbor Marina may be constructed subject to approval by the Commission or its designee of final construction drawings and materials.

13. Following construction of the revetment, the beach, and any dune disturbed during construction, shall be restored and disturbed areas revegetated with beach grass to minimize wind and wave erosion. All sand displaced by the revetment shall be placed on the beach fronting the revetment or covering the revetment on the seaward side.

14. The Chatham Conservation Commission, in consultation with the DEP and others, shall determine when to expend trust funds for nourishment and restoration consistent with this decision. The Conservation Commission's determination about when to expend trust funds for nourishment shall be based upon, but not limited to, the following factors: (1) when any portion of the revetment becomes exposed or when the beach profile is lowered sufficient to threaten the public's trust rights and (2) when the deposit of sediment is likely to provide a long term benefit to the system or a short or long term benefit to public access.

15. The Phase 1B property owners, through the trust agreement, shall provide a deed of easement to allow for beach nourishment and restoration as ordered by the Chatham Conservation Commission.

16. Construction activity, nourishment and revegetation shall be coordinated with the Massachusetts Department of Fish and Wildlife (DFW) and the National Fish and Wildlife Service (FWS). Unless DFW or FWS provide a written determination to the contrary, no construction activity, nourishment or restoration shall occur between April 1st and August 1st of each year. Phase 1B property owners shall provide the FWS and DFW with a copy of any revegetation plans contemporaneous with submission of such plan(s) to the Chatham Conservation Commission.

17. Once North Beach has migrated to the south and provides protection to the Phase 1B area from direct wave attack, beach and dune nourishment shall be required. The Chatham Conservation Commission, in consultation with the DEP, shall determine when such restoration is required. A

beach shall then be constructed which is 75 feet in width, measured from the seaward face of the restored dune to mean high water, with an approximate slope of 15:1 to the extent that trust funds are available to accomplish the same.

III. Phase 2

18. Trigger Mechanism: Phase 2 shall not be constructed until the barrier spit in front of the marsh adjacent to Morris Island Dike has been breached allowing waves to attack the marsh and the roadway is regularly scoured from overtopping or eroded by waves on a frequent basis resulting in noticeable impacts, or at such time as the Chatham Conservation Commission makes a finding that the danger of severe erosion is imminent and that construction is timely.

19. All federal, state and local permits for all work within Phase 2 must be obtained prior to the commencement of any construction, including site preparation work, of this Phase. In addition, the following items must be submitted to and approved by the Cape Cod Commission or its designee prior to commencement of site work. The submitted items will be reviewed by the Cape Cod Commission, or its designee, for consistency with this Decision:

- a) Final engineering drawings for the Morris Island Dike armoring at a scale of 1"=50'.
- b) A construction schedule for the Phase. The construction schedule shall provide for the continuous construction of the entire revetment within the phase. Site work, including site preparation and construction of the entire revetment within the phase must be completed within a period not to exceed six months.

20. Phase 2 of the proposed revetment shall be constructed to the following general specifications:

- a) Armoring shall occur only on the east side of the Dike.
- b) The marsh fronting the dike shall not be used as a dredge disposal site unless the marsh vegetation is destroyed or lost due to sand inundation or wave scour and it is apparent that the marsh is fully destroyed or lost.

IV. Phase 3

21. Trigger Mechanism: Construction of the revetment for Phase 3 shall not commence until one of the following occurs:

- a) The coastal bank in front of the residences erodes to a point where the AVERAGE distance from the residences (Hammett, Blank and Brontas) to the top of the coastal bank at its nearest point is less than or equal to 66 feet (Avg. annual erosion rate (3.3') x 20 years); or
- b) Phase 3 shall not be constructed until the inlet between North Beach and South Beach has migrated south so that this section of the shoreline is exposed to direct wave attack from the open ocean, or South Beach is breached such that an accelerated rate of erosion of the shoreline on these properties occurs. A breach is defined as an opening that permits the flow of water at tides equal to or greater than mean low tide and stays open for a period of greater than 30 days. The applicant shall demonstrate to the Commission or its designee that one of these requirements has been met before proceeding with construction of the revetment.

22. All federal, state and local permits for all parcels within Phase 3 of the proposed revetment must be obtained prior to the commencement of any construction, including site preparation work, of this Phase. In addition, the following items must be submitted to and approved by the Cape Cod Commission or its designee prior to commencement of site work. The submitted items will be reviewed by the Cape Cod Commission, or its designee, for consistency with this Decision.

- a) Final engineering drawings of the proposed revetment at a scale of 1"=50' which provide for the construction of a continuous structure of uniform material.

- b) A construction schedule for the Phase. The construction schedule shall provide for the continuous construction of the entire revetment within the phase, beginning at the northernmost point and proceeding southward. Site work, including site preparation and construction of the entire phase, must be completed within a period not to exceed one year. Construction of non-contiguous sections of the revetment is prohibited.
- c) Proof of a financial commitment by each of the property owners within Phase 3 to construct that portion of the revetment on their lot(s) and/or a binding agreement providing for such construction and maintenance, including necessary nourishment, through a private agreement among the property owners, or proof of establishment of a betterment district or equivalent mechanism.
- d) A beach nourishment program which provides for the required nourishment specified in condition #23 (ongoing nourishment) below. In order to ensure the performance of the nourishment program the Phase 3 property owners shall deposit a sum of money in an escrow account to cover the cost of the beach nourishment program. The Phase 3 property owners shall prepare and submit to the Commission a written estimate of the cost of carrying out the nourishment program for two years, based upon a calculation of $[\text{Length} \times \text{Height} \times 3.3\text{ft/yr}] \times 2$. The amount of the escrow account shall be established by the Commission. The escrow account shall be established prior to the beginning of construction of Phase 3 and the use of escrow funds shall be governed by an Escrow Agreement in form and content satisfactory to counsel to the Commission. The escrow account is to be held for a period of 5 years to ensure that the nourishment required for Phase 3 will be satisfactorily carried out. As an alternative, the Phase 3 property owners may submit documentation to the Commission demonstrating that the Town of Chatham has committed to providing the nourishment required for Phase 3, in whole or in part, and has appropriated sufficient funds therefor, and the escrow account will be reduced accordingly.

23. Following construction of the revetment, the beach shall be restored and low lying areas revegetated with beach grass to minimize wind and wave erosion. All sand displaced by the revetment shall be placed on the beach fronting the revetment or covering the revetment on the seaward side.

24. Baseline information regarding existing beach profiles for this phase shall be submitted to the Cape Cod Commission prior to construction. This shall include baseline information on beach profiles spaced along 200' intervals extending 25' beyond the southerly end of the revetment and to wading depth from mean low water.

25. The property owners within Phase 3 shall prepare a plan for and undertake an ongoing beach nourishment program to mitigate the impacts of construction of the revetment. Said nourishment program shall provide for the initial deposit of an amount of sediment equivalent to the volume of sediment in the coastal bank that would be eroded over a one year period, utilizing an erosion rate of 3.3' per year over the length of the coastal bank to be revetted. The nourishment program shall include planting of suitable native vegetation at the top of the coastal bank above the revetment as needed to stabilize the coastal bank. The composition of nourishment materials shall be compatible with bluff or beach materials existing on the site. The amount of nourishment to be placed on the beach annually thereafter shall be determined by the Commission or its designee based upon annual reports provided by the applicants to the Commission. Said annual report shall summarize the effects of the revetment and the beach nourishment program on the coastal bank and the beach in front of the revetment as well as adjacent areas including beach profile data in the same locations as the baseline surveys. The annual report may include a discussion of any factors that relate to changes in the beach profile or erosion rate on the site. The amount of nourishment may be decreased or increased by the Commission or its designee based on the outcome of the annual report but shall not exceed an average of 1600 cu. yds. annually. If, through monitoring, it is determined that less than 1600 cu. yds. is needed in any given year, the unused number of cu. yds.

may be required to be applied in succeeding years should it be needed to maintain the originally established profile. In no event, however, shall the amount of nourishment required in any one year exceed 2500 cu. yds. The annual report shall include a description of the beach nourishment proposed in the succeeding year and shall be submitted no later than February 1st of each year. Beach nourishment shall occur by May 15th of each year. The annual report shall be prepared by a registered professional engineer and the form and content of the annual report shall be agreed upon in advance by the applicant and the Commission. The nourishment program may be terminated by the Commission if on-site inspection or evaluation determines that the nourishment is not constructive, but rather is deleterious to on-going coastal processes.

26. At the end of the five year period referenced above, the Phase 3 property owners may provide a comprehensive report to the Commission. The Commission shall review the annual reports, the comprehensive report and any supporting documentation provided by the applicant, and shall make a determination regarding the impacts of construction of the revetment on the adjacent or downdrift coastal banks and beach, the effectiveness of the beach nourishment program, the short-and long-term erosion rates at the site, and other factors relating to the Cape Cod Commission Act and Regional Policy Plan. At this time, the Commission may: a) order a continuance of the beach nourishment program and reporting requirements and/or a renewal of the escrow account established pursuant to Condition 20(d) above, with adjustments as necessary for inflation; b) order continuing study and monitoring of the impacts of the revetment; c) terminate the beach nourishment program if it finds that such program is no longer necessary to mitigate the impacts of the revetment; d) modify the conditions, or other responsibilities of the applicant imposed pursuant to this permit, except that nourishment shall not exceed amounts specified above; and/or e) order modification of the revetment if there have been improvements in the technology of revetments that result in significant improvement in the effects of the revetment on the beach and downdrift areas, or other resources protected by the Cape Cod Commission Act and Regional Policy Plan.

27. Pedestrian access is currently and historically available along the beach on Fish and Wildlife Service property in the proposed revetment area. After construction of the revetment, a sandy strip for public access purposes shall be maintained in front of the revetment at all times except during the two hours that precede and follow high tides.

V. General Conditions (applicable to all Phases)

28. The Commission, after notice and opportunity for a hearing, may order the removal of the revetment at the expense of the property owners or to take such other remedial measures as are deemed necessary. Failure of the Applicant and/or property owners to comply with these conditions is subject to an enforcement action in Barnstable Superior Court or the Land Court.

29. The Applicants agree to allow the Commission or its designee the right to enter and inspect the properties for compliance with these conditions upon 48 hours notice.

30. The Applicant shall obtain all necessary state and local approvals for construction of the revetment and beach nourishment program. The Applicant shall forward to the Commission, forthwith, copies of any and all permits and approvals issued in relation to this project and issued subsequent to this decision prior to commencement of construction.

The Commission hereby grants an approval with conditions as a Development of Regional Impact, pursuant to Sections 12(i) and 13(b) of the Act, for a proposed revetment in Chatham, MA.

Kenneth Brock
Kenneth Brock, Chairman

6/28/95
Date

COMMONWEALTH OF MASSACHUSETTS

Barnstable, ss.

Subscribed and sworn to before me this 28th day of June 1995

Katharine L Peters

NAME, Notary

My Commission expires: