



# CAPE COD COMMISSION

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*Date* December 17, 1998

*To* Sippewissett Marsh Trust II  
Douglas J. Backman, Trustee

*From* Cape Cod Commission

*Project* Sippewissett Marsh Trust II DRI  
Falmouth, MA

*Project #* CCC#TR97027

*Applicant* Douglas J. Backman, Trustee  
Sippewissett Marsh Trust II

*Map/Parcel* Map 25, Parcels 11A, B, & C  
Map 36, Parcels 6 through 13

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## DECISION OF THE CAPE COD COMMISSION

### SUMMARY

The Cape Cod Commission (Commission) hereby denies without prejudice the application of Sippewissett Marsh Trust, applicant (hereinafter the applicant) for a Development of Regional Impact (DRI) permit, under Section 13(d) of the Cape Cod Commission Act (Act), c. 716 of the Acts of 1989, as amended. This decision is rendered pursuant to a vote of the Commission on December 17, 1998.

### PROJECT DESCRIPTION

The proposed project is located at the lower end of Wigwam Road in the Black Beach/Sippewissett Marsh District of Critical Planning Concern in the Town of Falmouth. Currently one house and a garage are located on the site at the end of a lengthy, unpaved driveway leading over a culvert within the marsh. The project proposes to: 1) improve the existing driveway and convert it to a subdivision road, 2) reconstruct and enlarge the existing house and garage, and 3) to develop two additional houses on separate lots. The application indicates the total project area is 23.2 acres.



## PROCEDURAL HISTORY

The above-referenced project was referred to the Cape Cod Commission for review as a Development of Regional Impact (DRI) under Section 3(b) of the DRI Enabling Regulations on October 31, 1997. The subcommittee held a hearing in Falmouth on December 16, 1997 where it was determined that the applicant should provide additional information to address numerous Commission concerns. Additional hearings were scheduled during the following 90-day hearing period, but were conducted by hearing officers for lack of additional information. The hearing period was closed on March 10, 1998. An extension to the decision period to September 11, 1998 was granted in April, 1998. An additional extension to the decision period to December 23, 1998 was granted in July, 1998. A new public hearing was opened and held in Falmouth on November 19, 1998 where the subcommittee moved to deny the project. A public meeting was held on December 3, 1998. The Commission voted to deny the project on December 17, 1998.

## MATERIALS SUBMITTED FOR THE RECORD

### Applicant Submittals

- Plans, sheets 1-7 titled in order: *Definitive Plan (2)* dated 10/30/97, *Building Location Worksheet* dated 7/97, *Improvements to Existing Roadway* dated 7/12/97, *Road Improvement Worksheet, Details and Erosion Mitigation* dated 7/12/97, and *Resource Area Delineation Plan (2)* dated 8/10/96 and 8/11/96.
- Letter to the Commission from Richard Nysten dated 11/14/97, with enclosed *Information Booklet* prepared by DeFalco Engineering dated 9/97, and Project Description prepared by Sanford Ecological dated 9/17/97.
- Black Beach/Great Sippewissett Marsh DCPC Implementing Regulations dated 4/17/97.
- Plans, sheets 1-3 titled in order: *Tight Tank Design Lot A* dated 5/22/98, *Title 5 Disposal Works Design (2)* dated 5/22/98.
- Revisions to original plans, sheets 1-7 titled in order: *Definitive Plan (2)* dated 10/30/97, *Building Location Worksheet* dated 7/97, *Improvements to Existing Roadway* dated 7/12/97 and revised 6/18/98, *Road Improvement Worksheet, Details and Erosion Mitigation* dated 7/12/97 and revised 6/18/98, and *Resource Area Delineation Plan (2)* dated 8/10/96 and 8/11/96.
- Signed DRI application, received 12/9/97.
- Letter from Richard Nysten to the Commission dated 12/10/97.
- Sketches pertaining to the culvert from DeFalco Engineering dated 12/11/97.
- Nitrogen Loading calculations from DeFalco Engineering dated 12/16/97.
- *Natural Resources Inventory* prepared by Sanford Ecological, dated 12/97.
- Letter from Richard Nysten to the Commission with enclosed *Regional Policy Plan Compliance* dated March 10, 1998.
- Letter from Sanford Ecological to Douglas Backman dated 7/14/98.
- Letter from DeFalco Engineering to the Commission with enclosed Septic System information dated 6/25/98.
- Letter from Richard Nysten to the Commission dated 9/15/98.

- Letter from Richard Nylén to the Commission dated 11/10/98.
- Letter from Richard Nylén to the Commission dated 11/19/98.
- Letter from Richard Nylén to the Commission dated 11/24/98.

#### Commission Submittals

- Memo from the Commission to the Subcommittee dated 11/6/97.
- Letter from the Commission to Douglas Backman dated 11/6/97.
- Memo from the Commission to Town of Falmouth dated 11/20/97.
- Memo from the Commission to the Subcommittee dated 12/2/97.
- Commission Staff Report dated 12/10/97.
- Letter from the Commission to Richard Nylén dated 12/8/97.
- Letter from Patty Daley, Commission Counsel to JoAnn Muramoto, Falmouth Conservation Administrator dated 12/17/97.
- Letter to Patricia Daley, Commission Counsel from Choate, Hall & Stewart dated 12/18/97.
- Letter from the Commission to Richard Nylén dated 1/28/98.
- Letter from the Commission to Richard Nylén dated 2/20/98.
- Letter from the Commission to Richard Nylén dated 2/27/98.
- Letter from the Commission to Richard Nylén dated 3/18/98.
- Letter from the Commission to Richard Nylén dated 4/6/98.
- Extension agreement between the Commission and the applicant dated 4/6/98.
- Letter from the Commission to Richard Nylén dated 4/24/98.
- Letter from the Commission to Richard Nylén dated 6/9/98.
- Letter from the Commission to Brian Currie dated 7/7/98.
- Letter from the Commission to Richard Nylén dated 7/21/98.
- Memo from Heather McElroy to the Regulatory Committee dated 7/22/98.
- Extension agreement between the Commission and the applicant dated 9/27/98.
- Letter from the Commission to Richard Nylén dated 7/31/98.
- Letter from the Commission to Richard Nylén dated 8/13/98.
- Letter from the Commission to Richard Nylén dated 9/2/98.
- Letter from the Commission to Richard Nylén dated 9/30/98.
- Letter from the Commission to Frank DeFalco dated 10/1/98.
- Letter from the Commission to Richard Nylén dated 11/2/98.
- Commission Staff Report dated 11/13/98.
- Letter from the Commission to Richard Nylén dated 11/24/98.

#### Town Submittals

- Form C Application for Approval of Definitive Plan dated 10/30/97.

- DRI Referral Form received 11/3/97.
- Letter from the Falmouth Town Planner to Carol Martin dated 5/14/97.
- Packet of photos taken at the Backman property on 1/10/97.
- Memo from Jo Ann Muramoto to the Commission and the Falmouth Conservation Commission with enclosed Wetland Restriction Program maps dated 12/16/97.
- Summary Record of Permitting and Enforcement re: Backman, Sippewissett Marsh Trust from the Falmouth Conservation Commission dated 12/16/97.
- Copies of files from the Falmouth Conservation Commission of Permitting and Enforcement re: Backman, Sippewissett Marsh Trust.
- Black Beach/Sippewissett Marsh DCPC Draft Management Plan dated 8/97.
- Letter from Falmouth Historical Commission to the Commission dated 2/11/98.
- Enforcement Order to D. Backman from the Falmouth Conservation Commission received 6/4/98.
- Letter from Falmouth Conservation Administrator to Douglas Backman dated 7/6/98.
- Letter from Falmouth Conservation Administrator to Commission dated 7/16/98.
- Letter from Falmouth Town Planner to Commission dated 11/2/98.

#### State Agency Comment

- Letter from Massachusetts Historical Commission to the Commission dated 1/12/98.

#### Public Comment

- Letter from John Barnes to Commission with enclosures, dated 11/28/97.
- Letter from Emmett and Joan Eldred to the Commission received 12/2/97.
- Letter from Saconesset Hills Association to the Commission with enclosures, dated 11/30/97.
- Letter from Saconesset Hills Association to the Commission with enclosure, dated 12/8/97.
- Letter, including Review and Opinion regarding Sippewissett Marsh Trust II with enclosures, from Holmes and McGrath to the Commission dated 12/11/97.
- Letter from Joe Russell to the Commission with enclosures dated 12/16/97.
- Letter from Leo Delaney to the Commission dated 1/13/98.
- Letter from John Barnes to the Commission dated 9/11/98.
- Letter from Emmett and Joan Eldred to the Commission dated 11/14/98.
- Email from Hedy and Tom Whitney to the Commission dated 12/7/98.

The application and notice of the public hearings relative thereto, the Commission's staff reports, correspondence, notes and exhibits, minutes of the hearings and all written submissions received in the course of the proceedings, including materials submitted on file TR#97027, are incorporated into the record by reference.

## TESTIMONY

### December 16, 1997, Public Hearing

Attorney Richard Nysten, representing the applicant, presented the project. Gay Wells, planner, presented the staff report. Two town officials, JoAnn Muramoto, Falmouth Conservation Administrator and Mario DiGregorio, Falmouth Conservation Commissioner commented on the project. Several members of the general public spoke in opposition to the project, including: Jay Austin, David Lowering, Randy Walker, Jack Barnes, and Dean Proctor.

### November 19, 1998, Public Hearing

Heather McElroy, planner, summarized the staff report, recommending denial of the project. Richard Nysten presented comments and rebuttal to the staff report. Several people spoke in opposition to the project, including: Randall Walker, Jack Barnes, David Levering, and Dean Proctor.

### December 3, 1998, Public Meeting

The subcommittee discussed the draft denial of the project, and made a few revisions. The subcommittee voted to recommend the draft denial of the project to the full Commission, as amended.

### December 17, 1998, Public Hearing

The Commission discussed the draft denial of the project, made a few minor changes to the decision, and voted unanimously to deny the project without prejudice, as amended.

## JURISDICTION

The proposed Sippewissett Marsh Trust II project qualifies as a DRI under Section 12(c) of the Act. The project was referred to the Commission by the Falmouth Planning Board on October 31, 1997.

## FINDINGS

### *General*

- G1. The applicant has failed to submit materials addressing Commission questions and concerns regarding compliance with the Regional Policy Plan and other standards in a timely manner.
- G2. The project as proposed would need to seek numerous variances and waivers from local bylaws and permitting authorities.
- G3. The project fails to comply with the four standards for DRI approval required by the Act, Section 13(d), as follows: 1) the probable benefit of the project does not outweigh the probable detriment, 2) the project does not comply with the minimum performance standards of the Regional Policy Plan, 3) the project is inconsistent with local development bylaws, and 4) the project is inconsistent with the Implementing Regulations of the Black Beach/Sippewissett Marsh DCPC.
- G4. The Black Beach/Great Sippewissett Marsh District of Critical Planning Concern (DCPC) was designated in January 1996 pursuant to the Cape Cod Commission Act by Barnstable County Ordinance

96-1. The DCPC encompasses approximately 230 acres in West Falmouth. The purposes of this District are to maintain the integrity of the Black Beach/Great Sippewissett Marsh barrier beach system; to preserve the habitat value of the marsh/beach area; and to improve/upgrade septic systems and stormwater discharges and employ other means to alleviate shellfish bed closures and improve the water quality of the marsh.

G5. Denial of the project as proposed does not preclude the reconstruction of the existing house and garage, as construction or reconstruction of single family houses does not trigger Commission review as a DRI. Further, expansion of the existing dwelling of up to 25% is exempt from DRI review under §22(c) of the Act. Additionally, the Town of Falmouth permits expansion of an existing house of up to 25% without being subject to the requirements of the DCPC Implementing Regulations.

### *Coastal Resources*

CR1. The proposed houses and associated facilities are located within the boundaries of state-designated Barrier Beach #Fm-30. The barrier beach has also been designated a Coastal Barrier Resource Unit (Unit #C-19) by the U.S. Fish & Wildlife Service. The proposed project also lies within Land Subject to Coastal Storm Flowage (100-year coastal floodplain).

CR2. Barrier beach #Fm-30 has altered its shape, migrated landward (*ie* eroded), and the channel into the landward Great Sippewissett marsh area has changed its location considerably over the last 140 years, indicating instability of the adjacent barrier beach. The average longterm shoreline change rate for which data are available for the stretch of beach immediately south of the barrier beach (1845-1975) reveal that the shoreline is eroding at a rate of approximately -0.6 ft/yr. The barrier beach where the project is proposed is highly unstable; changes in the barrier form and location were too complex to measure using perpendicular transects, as depicted on the MCZM Shoreline Change Map #C-58.

CR3. The Regional Policy Plan (RPP) Minimum Performance Standard (MPS) 2.2.2.3 states, in part, "...no new development or redevelopment shall be permitted on barrier beaches and coastal dunes as defined by the Wetlands Protection Act and associated regulations and policies."

CR4. The designation of the barrier beach and associated aquatic habitat as CBRA Unit (#C-19) recognizes its unique characteristics as essential habitat for fin and shellfish, migratory birds, extraordinary scenic, scientific, recreational, natural, historic, cultural, aesthetic and economic importance, as well as a storm buffer, benefits which could be irretrievably damaged or lost due to development.

CR5. The sites of the proposed houses are located within the active coastal dune system of this barrier beach. 'Parent material descriptions' outlined in the December 1997 'Natural Resources Inventory, Sippewissett Marsh Trust...' conducted by the applicant's consultants confirm the existence of an active dune field. In the soil investigation notes accompanying this document, the consultant states, "With regard to that portion of the definition of 'dune' related to sediment composition (see Appendix D, CMR 10.28 (2) of the Massachusetts Wetlands Protection Acts implementing regulations), dune sediments are composed of 'wind action or storm overwash.'... Soil profile data provided demonstrate the presence of these dune sediments within profiles 4, 6, 7, 8, 9, 10, and 11". All of the soil profile stations cited above which lie within dunes are in the area of the proposed houses. The 'parent material' description of the other soil profile stations (*ie* soil profile stations #1, 2, 3, and 5) are also described as "fill/wind blown," indicating dune sediments.

CR6. The applicant's consultant, Sanford Ecological Services, Inc, stated that the landward limit of the coastal dunes was delineated and determined on the August 10, 1996 Sheet 6 of 7, and the May 22, 1998 engineering plans using a 'slope' criteria. Utilizing slope criteria is not an acceptable methodology for delineating coastal dune from other landforms. Coastal dunes are delineated and determined based on the method of deposition of the material (*ie* aeolian (wind-blown), overwashed, or artificially deposited material), and upon performance of certain beneficial functions by the landforms. "Coastal dune means any natural hill, mound or ridge of sediment landward of a coastal beach deposited by wind action or storm overwash. Coastal dune also means sediment deposited by artificial means and serving the purpose of storm damage and flood control" (Wetlands Protection Regulations, 310 CMR 10.28).

CR7. The entire barrier beach, including the site of the proposed houses and associated facilities, is within Land Subject to Coastal Storm Flowage (100-year coastal floodplain). The engineering plans, as well as the FEMA Flood Insurance Rate Maps (4/16/1993) show both A-zones and Velocity zones on the site, with the proposed houses and associated structures located in the A-zone. However, the Falmouth Flood Insurance Rate Maps have not as yet been updated to incorporate FEMA's regulatory requirements to include dune erosion, *ie* the '540 sq ft rule' discussed in finding CR8.

CR8. The Commission believes that the project is located in a Velocity zone, and has requested that the applicant provide calculations pertinent to the '540 sq ft rule.'

Both FEMA and the State of Massachusetts use the '540 sq ft rule' in review of projects in the 100-year coastal floodplain in appropriate circumstances, such as this proposal where portions of the proposed project lie on the landward edge, and immediately landward of the primary frontal dune. Relevant to the '540 sq ft rule,' the FEMA administered National Flood Insurance Program (NFIP) Regulations at §65.11 "consider storm-induced dune erosion potential in its determination of coastal flood hazards and risk mapping efforts.... Primary frontal dunes will not be considered as effective barriers to base flood surges and associated wave action where the cross sectional area of the primary frontal dune, measured perpendicular to the shoreline and above the 100-year stillwater flood elevation and seaward of the dune crest, is equal to, or less than, 540 square feet." That is, if the primary frontal dune reservoir is less than 540 sq ft, then the dune is expected to completely erode under 100-year storm conditions, consequently establishing the Velocity zone considerably farther landward than the landward limit of the primary frontal dune. This calculation is a FEMA regulatory requirement in mapping and determining "Coastal High Hazard Areas," or Velocity zones.

CR9. The applicant has not provided the required calculation of the '540 sq ft rule' to establish the true landward limit of the Velocity zone.

CR10. The 100-year stillwater level at the subject site is elevation 14 ft NGVD (sea level is approximately 0.5 ft above NGVD of 1929) and the dune crest on the engineering plans is approximately 14-15 ft MLW with intervening 9 foot contours; consequently, it is likely that much of the site now mapped as an A-zone is in fact a Velocity zone. It is visually apparent that fill has been placed in the frontal dune area laterally between the dune crests, likely as a remedial action due to extensive past overwash. This visual observation is reinforced by information submitted regarding the permitting history of the site.

CR11. MPS 2.2.2.1 states that "...no development or redevelopment shall be permitted within FEMA V-flood zones."

CR12. MPS 2.2.2.6 requires in relevant part that “no new public infrastructure... shall be made in flood hazard areas (A- & V-zones)... unless an overriding public benefit is provided...”

CR13. MPS 2.2.2.9 requires that “...new roads..., solid foundations, and new septic systems... shall be prohibited... within the V-zone of a beach, dune, or barrier beach.”

CR14. Falmouth Wetlands Regulations (FWR) 10.39(15) states “...no project... shall be permitted on a coastal dune or within 100 feet of a coastal due which would have an adverse effect on the dune by: ... b) disturbing the vegetative cover so as to destabilize the dune; c) causing any modification of the dune form that would increase the potential for storm or flood damage; d) interfering with the landward or lateral movement of the dune...”

CR15. FWR 10.39(23) requires that “... no septic tank may be placed in ground in a dune, and no changes in elevation may take place in a velocity zone.”

### *Water Resources*

WR1. The project site is located within the Black Beach/Sippewissett Marsh DCPC and within the watershed, or Marine Water Recharge Area (MWRA), to Sippewissett Marsh. Since it is located within a MWRA, the development must meet the requirements of MPS 2.1.1.2.C.2, which states that development shall “maintain or improve existing levels of nitrogen loading”. All DRIs within a MWRA are required to utilize DEP-approved denitrifying septic systems (MPS 2.1.1.2.C.3) unless a Cape Cod Commission-approved cumulative nitrogen loading assessment indicates that a Title 5 system is acceptable. No such cumulative nitrogen loading assessment has been conducted.

WR2. The existing nitrogen loading within the Sippewissett Marsh watershed is estimated at 3.1 kg/acre (CCC, 1995). If a tight tank is used on one of the three parcels and denitrifying systems are used on the other two, the estimated nitrogen load from the three proposed residences would be 2.0 kg/ac. Based on this analysis, the nitrogen loading standards of the RPP can be met if 1) a tight tank is used, as proposed, on the existing dwelling, 2) if DEP-approved denitrifying septic systems can be utilized on the other two lots, and 3) \$181.50 is provided toward the completion of a tidal flushing study of Sippewissett Marsh.

WR3. Title 5 and the RPP do not allow septic tanks or leachfields within V-zones (MPS 2.2.2.1, and 2.2.2.5). Title 5 also does not allow tight tanks in V-zones, though a variance may be sought. It is Commission opinion that the location of proposed septic system development is likely within V-zones. Even if the applicant’s proposed V-zone delineation is correct, each proposed septic system presents additional concerns, including adequate wetland setbacks, separation to groundwater, and topographic location.

WR4. A tight tank is proposed to replace a septic system near the existing residence on Lot A. The existing septic system is approximately 30 ft from the residence at an elevation of approximately 17 ft above mean sea level (msl). The tight tank is proposed to be approximately 120 ft from the residence at an elevation of approximately 8 ft above msl and within approximately 35 ft of a bordering vegetative wetland. The RPP requires a 100 ft undisturbed buffer from the edge of coastal and inland wetlands (MPS 2.3.1.1).

WR5. On Lots B and C, a septic tank and pump are proposed to be located on the first floor of the proposed three bedroom residence with effluent disposal in a mounded leachfield. Title 5 requires septic

tanks to have a minimum of 9 inches of cover (310 CMR 15.228(2)) and to be located a minimum of 10 ft from foundations and cellar walls (310 CMR 15.211). These minimums were adopted to ensure that homeowner contact with raw sewage is minimized, and health and safety are ensured. These minimums will not be met by the current proposal.

WR6. The proposed leachfields have difficulty meeting Title 5 minimums. Each proposed leachfield is mounded, with likely groundwater flow toward the depressions where the residences are proposed, and is located in a likely wind scour area at the eastern end of depressions between higher elevation dune mounds. The leachfield on Lot B is proposed to have approximately 2 ft of fill, while the leachfield on Lot C will have approximately 5 ft of fill. Since peat was encountered near the Lot C leachfield, even with 5 ft of fill, effluent may flow along the top of the peat into the depression near the proposed residence. It also appears that both leachfields have inadequate cover material proposed (Title 5 requires a minimum of 9 inches (310 CMR 15.240(9))), which will be difficult to maintain given likely scour effects. Questions remain regarding identification of adequate reserve leachfield areas (310 CMR 15.248), whether adequate separation to groundwater is attained by the proposed fill quantities, and the characteristics of the fill materials.

WR7. The septic system design proposals for the three residences may require variances from DEP Title 5 requirements. A letter from the Town of Falmouth Planner cites a Board of Health request that the Planning Board not approve septic system designs that require Title 5 variances.

WR8. Questions remain from submitted plans how the proposed systems on Lots B and C will address the denitrifying system requirement of the RPP. Each of the proposed systems consists of a 1,550 gallon polyethylene tank, pump chamber, distribution box, and leachfield. As currently configured, this system does not meet the definition of a DEP-approved denitrifying septic system as required in MPS 2.1.1.2.C.3.

#### *Wetland Resources*

WLR1. The proposed site includes numerous wetland resource areas protected through various provisions in the Massachusetts Wetlands Protection Act and Regulations, the Falmouth Wetlands Bylaw and Regulations adopted under the DCPC, and the Regional Policy Plan. These resource areas include: Land Subject to Coastal Storm Flowage, Riverfront Area, Coastal Dune, Barrier Beach, Salt Marsh, Salt Pond, Coastal Beach, Coastal Bank, Bordering Vegetated Wetland, Tidal Creek, Land Containing Shellfish, and Land Under Water

WLR2. On February 25, 1997, the Falmouth Conservation Commission issued a Determination of Applicability with regard to the presence of resource areas on the site. There is considerable disagreement between the applicant and the Falmouth Conservation Commission with regard to the interpretation of that Determination.

WLR3. The Commission disagrees with the applicant's interpretation of the Falmouth Conservation Commission's decision, particularly in relation to the delineation of coastal dunes and barrier beach on the site.

WLR4. The Commission is not bound by the resource delineations found by the Determination of Applicability issued by the Falmouth Conservation Commission.

WLR5. The applicant has failed to provide information regarding the possible presence of an isolated wetland, as defined by the Regional Policy Plan, in an area of hydric (wetland) soils identified by the applicant on Lot C in the vicinity of the proposed house. The applicant has refused to provide this information, citing his reliance on the Conservation Commission's decision as binding as to the presence or absence of wetland areas on the site. This information is pertinent to whether the project is consistent with MPS 2.3.1.1 regarding prohibition of wetland alteration.

WLR6. The applicant has failed to provide information on a plan of areas restricted in accordance with the Massachusetts Wetland Restriction Act, and to provide a copy of the Restriction Order. These areas were mapped by the Department of Environmental Management and are subject to permanent deed restrictions that prohibit development. The wetland restrictions may affect both marsh and dune areas on the property. This information is essential in order to determine whether construction is legally permissible within the areas shown on Lots B and C. Based on scaled approximations from the site plan, it appears that the dwelling on Lot B is located within an area subject to the restriction order, as are the two septic leaching fields.

WLR7. MPS 2.3.1.2 requires that: "Vegetated, undisturbed buffer areas of at least 100 ft width shall be maintained and/or provided from the edge of coastal and inland wetlands... to protect their natural functions... The Commission and local Conservation Commissions shall require a larger buffer area where necessary to protect sensitive areas or where site conditions such as slopes or soils suggest that a larger buffer area is necessary to prevent any adverse impact to wetlands and associated wildlife habitat."

WLR8. Through the process of designation of the DCPC and adoption of implementing regulations, the Falmouth Conservation Commission has established a buffer requirement of 200-300 ft. Specifically the Falmouth Wetland Regulations (FWR) 10.39 (7) state: "No project shall remove, fill, dredge, build upon, degrade, or otherwise alter land that is in a naturally vegetated condition and acts as a buffer to... land under the ocean; land under estuaries; salt marsh; land under a salt pond; land containing species that are endangered, rare or of special concern; freshwater wetland; land under waterbodies and waterways... A buffer width of at least 200 and no more than 300 feet is required unless otherwise specified in FWR 10.39. The Commission shall determine the exact buffer width based on the following factors: a) existing wetland functions, values and sensitivity to disturbance; b) buffer characteristics; c) land use impacts; and d) buffer functions."

WLR9. The need for an expanded buffer zone of 200-300 ft was determined by a process that included extensive study and deliberation by a Buffer Zone Subcommittee of the DCPC Advisory Committee. The Commission recognizes the need for this expanded 200-300 ft buffer area based on site conditions, as provided for in the Regional Policy Plan.

WLR10. The proposed project includes a large amount of work within wetland buffer areas. Specifically the following is proposed in the buffer to wetlands, salt marsh, and other resource areas (not including coastal dunes, beaches, banks, and other "dry" resource areas):

- a) Improvement of the existing 8-12 ft causeway (within the current limits of fill) including placement of sheetpile, gabions, installing drainage alongside the roadway and removing a majority of the vegetation occurring along the sides of the causeway. This work will occur within 1 (one) foot of salt marsh, bordering vegetated wetlands and a tidal creek, within 140 ft of a salt

pond, and within the 200 ft Riverfront Area along the tidal creek designated under the Rivers Protection Act;

- b) Construction of a cul-de-sac at the end of the roadway which will occur within 11 ft of salt marsh, 80 ft of bordering vegetated wetlands, 185 ft of salt pond, and within a portion of the Riverfront Area;
- c) Construction of a new driveway to serve Lot A which will occur within 23 ft of bordering vegetated wetland, 40 ft of salt marsh, 270 ft of a salt pond and 210 ft of mean high water;
- d) Reconstruction of the dwelling on Lot A which will occur within 162 ft of bordering vegetated wetland and 200 ft of salt marsh (this work could potentially qualify for a reduced buffer under Section 2.3.1.2. of the Regional Policy Plan as an already developed area);
- e) Tight tank construction on Lot A which will occur within 30 ft of bordering vegetated wetland and approximately 42 ft of salt marsh; water line construction on Lot A within 32 ft of bordering vegetated wetland and 48 ft of salt marsh;
- f) Construction of a dwelling on Lot B within 65 ft of bordering vegetated wetland and salt marsh, and 172 ft of mean high water; a driveway and other disturbances associated with this dwelling are not shown, but are likely closer to many of these resource areas; construction of a septic leaching field to serve Lot B within approximately 132 ft of mean high water and 145 ft of bordering vegetated wetlands and salt marsh;
- g) Construction of a dwelling on Lot C which could occur within 74 ft of salt marsh, 200 ft of a salt pond, associated driveways and other disturbance are not shown on the plan but are likely to be closer to many of these resource areas; construction of a septic leaching field and associated grading within 135 ft of bordering vegetated wetlands and salt marsh.

WLR11. None of this proposed work cited above meets the 200-300 ft buffer requirement in the DCPC and much of it is not in compliance with the 100 ft minimum buffer in the Regional Policy Plan. The applicant has failed to provide a detailed mitigation proposal to demonstrate that the interests of wetlands protection are better served by an alternate approach to the minimum buffer requirement on the project site, as required by the Flexibility Clause in the RPP.

WLR12. The applicant has proposed endeavoring to remove growth of the invasive reed, *Phragmites*, within the salt marsh. Removal of *Phragmites* from this location would be desirable, but details of a removal and management plan have not been submitted to address concerns about the longterm success of such a difficult program. This growth of *Phragmites* may be related to the flushing impairment caused by the culvert referenced in WLR13.

WLR13. The applicant cites improvements to the culvert within the causeway to the existing and proposed houses as a potential benefit of this project. Given the previous permitting history of the culvert, as discussed below, the culvert work should be viewed as an independent project, unrelated to, and not a benefit of the proposed development.

The existing causeway has a history of overtopping during storm events and has washed out at least twice in relatively recent history, due in part to the inadequate size of the culvert. The applicant sought and received a permit from the town in 1992 to upgrade the size of the culvert, and subsequently, having

not performed the construction, has been ordered on several occasions by the Falmouth Conservation Commission to increase the hydraulic capacity at the existing culvert. Enforcement Orders have been issued mandating that this work proceed. A letter submitted for the record from the Falmouth Conservation Commission (dated 12/16/97) states "The record of permits and emergency certifications issued to the Applicant reflect recurring and persistent storm damage, erosion, flooding as well as damage to Resource Areas from improperly conducted activities."

WLR14. The applicant has indicated that he will be seeking a variance from the DCPC Implementing Regulations from the Falmouth Conservation Commission with regard to wetland buffer issues.

WLR15. The project may also be located within the buffer to rare species habitat established in the DCPC Implementing Regulations, as discussed below. The DCPC Implementing Regulations require an additional 15 ft setback between the outer edge of the buffer zone and proposed structures. The proposed project will require a variance from this requirement. The DCPC regulations contain a variance process which makes use of a hearing officer to review the case and make findings to the Conservation Commission. In order to grant such a variance, the Conservation Commission must find that all of the following apply:

FWR 10.09(1)

- a) there are no reasonable conditions or alternatives that would allow the project to proceed in compliance with [the regulations];
- b) mitigating measures are proposed that will allow the project to be conditioned so as to contribute to the protection of the resource area values identified in Chapter 235 of the Code of Falmouth [the Falmouth Wetlands Bylaw]; and
- c) the variance is necessary to accommodate an overriding community public interest; or that it is necessary to avoid a permit decision that so restricts the use of property as to constitute an unconstitutional taking without compensation.

WLR16. The applicant proposed providing \$25,000 as mitigation for impacts to proposed work within the buffer to wetland resources.

#### *Plant and Wildlife Habitat*

NR1. The proposed project is located within a Significant Natural Resources Area identified by the RPP, as well as Critical Habitat, as mapped by the Association for the Preservation of Cape Cod. The Natural Heritage and Endangered Species Program (NHESP) has mapped the barrier beach area as estimated habitat for rare species, in particular, the Piping Plover, a state and federally listed rare species. The most significant threat to this species is human disturbance on the beach and disturbance and harassment by pets. The Natural Heritage Program has also identified the entire Black Beach/Great Sippewissett Marsh area as a "Priority Site of Rare Species Habitat and Exemplary Natural Community."

NR2. The applicant is required to submit the project for review to the Massachusetts Natural Heritage and Endangered Species Program. Commission staff contacted NHESP on October 28, 1998, and was told that the applicant failed to respond to requests by NHESP for more information. NHESP failed to

issue an opinion due to the incomplete nature of the application for request for an opinion. Therefore the applicant has not met the burden of proof of demonstrating that the project will have no adverse impact on habitat of piping plovers or other rare species that may be found at the site. The applicant has stated that he has no record of correspondence from NHESP regarding a request for additional information.

NR3. Virtually all of the wetland resources (including coastal resources such as dunes) identified on the site are significant with regard to wildlife habitat. The construction of additional dwellings on the barrier beach raises issues with regard to the potential for human and pet disturbance of waterfowl and other wildlife. The Fish and Wildlife Service Environmental Assessment for a proposed Sippewissett Marsh Wildlife Refuge notes: "The alteration or elimination of surrounding upland and backdune habitat, and associated transition zones has a pronounced adverse impact on resident and migratory wildlife."

NR4. The RPP requires that "Developments shall be planned to minimize impacts to wildlife and plant habitat." MPS 2.4.1.2 also requires that "Clearing of vegetation and alteration of natural topography shall be minimized, with native vegetation planted as needed to enhance or restore wildlife habitat."

NR5. MPS 1.1.4 requires that development be directed away from Significant Natural Resource Areas. The project is in the midst of a SNRA and therefore is not in compliance with this standard.

NR6. The applicant has proposed supplemental plantings of native woody plants between the salt marsh and the frontal dune in conjunction with this project. Testimony from the Falmouth Conservation Administrator indicates that these plantings may be detrimental, rather than beneficial for a number of reasons, including replacement of existing beach grass dominated areas with planted vegetation, interference with natural landward movement of the barrier beach/dune complex, and possible adverse impacts on rare species habitat.

### *Open Space*

OS1. The Regional Policy Plan requires that the applicant provide 65% of the upland area of the site as permanently protected open space because the project is located within a Significant Natural Resources Area. This open space must be either deeded to the town or to a local land trust, or placed under permanent conservation restriction. The applicant has proposed to place a restriction on a portion of Lot C to meet this open space requirement. Details of this proposal have not yet been provided. It should be noted that any restriction must be in the form of a permanent conservation restriction consistent with MGL Chapter 184. There is a dispute about the land area subject to the application: this may affect the open space requirement for this project.

### *Transportation*

TR1. Minimum Performance Standard 4.1.1.1 requires that DRI's mitigate traffic at all regional intersections and roadways where project traffic is expected to add 25 or more vehicle trips during the peak hour. The proposed development of two single-family homes is expected to generate 2 vehicle trips during the peak hour. Therefore, the peak hour project traffic will not significantly impact the regional roadways.

TR2. Minimum Performance Standard 4.1.2.1 requires DRI's to reduce 20% of their projected daily traffic volumes. The proposed project is expected to generate 20 vehicle trips per day. Therefore, the applicant is required to offset 4 daily vehicle trips. Due to the low intensity of development and the fact

that only two new building lots are proposed to be created, that the maintenance of existing trails be deemed sufficient to meet the 20% trip reduction requirements.

TR3. The proposed roadway design raises public safety concerns for the Town of Falmouth. A letter from the town planner indicates that the current design does not provide an acceptable width for safe passage of emergency and service vehicles. The applicant should design a roadway that minimizes impacts on the surrounding environment while providing safe vehicle travel.

#### *Heritage Preservation/Community Character*

H/C1. The Massachusetts Historical Commission (MHC) and the Falmouth Historical Commission have identified this project site as archaeologically sensitive based on a townwide survey conducted by UMAS Archaeological Services in 1996. The project area is considered to possess a strong likelihood for containing significant archaeological deposits associated with ancient Native Americans. MHC recommends that an intensive (locational) archaeological survey be conducted prior to any construction or related site preparation work in the project area.

H/C2. To comply with Regional Policy Plan Minimum Performance Standard 6.1.3, an archaeological survey of the site must be conducted prior to submission of a final design proposal and prior to any development of the site. No such survey has been conducted or submitted.

H/C3. The Falmouth LCP identifies several scenic areas surrounding the Great Sippewissett Marsh in West Falmouth. MPS 6.2.3 states that when new development is proposed adjacent to significant vistas, open landscapes, or historic districts, landscaped buffers shall be provided in order to limit visual impacts on these resources. It may be difficult to mitigate impacts with vegetated buffers in this area because of limited land area and sensitive resources. Should the project be permitted, elevations of the proposed buildings should be submitted for review.

#### *Black Beach/Great Sippewissett Marsh District of Critical Planning Concern (DCPC)*

DCPC1. The Black Beach/Great Sippewissett Marsh District of Critical Planning Concern (DCPC) was designated in January 1996 pursuant to the Cape Cod Commission Act by Barnstable County Ordinance 96-1. The DCPC encompasses approximately 230 acres in West Falmouth. The purposes of this District are to maintain the integrity of the Black Beach/Great Sippewissett Marsh barrier beach system; to preserve the habitat value of the marsh/beach area; and to improve/upgrade septic systems and stormwater discharges and employ other means to alleviate shellfish bed closures and improve the water quality of the marsh. Implementing Regulations for this District were certified by the Cape Cod Commission as being consistent with the Ordinance in April 1997. These implementing Regulations include amendments to the Falmouth Wetlands Bylaw and revisions and additions to the Falmouth Wetland Regulations.

DCPC2. The project is not consistent with the intent and purposes of the District. The project as designed would impact many resources and interests identified in the designation documents for the DCPC. The following key points are taken from County Ordinance 96-1 designating the District. Reference is made to the full text for additional information.

- "The area contains nationally significant ecological and natural resources including freshwater and tidal wetlands, waterfowl, shorebird and migratory bird habitat, rare species, shellfish and

finfish, mud and sand flats, and a barrier beach/dune/marsh system which possess recreational, scientific, and educational values.”

- “The Sippewissett Marshes have been identified by the Northeast Coastal Areas Study as one of seven sites from the Cape and Islands Region that provide significant coastal habitat. According to the Fish and Wildlife Service, five coastal habitat types and approximately 40 species of special emphasis or management concern are supported by the Sippewissett Marshes ecosystem. These marshes provide breeding/spawning, nursery, feeding/staging, wintering and migratory habitat of importance to several species of regional or national significance.”
- “The Massachusetts Natural Heritage and Endangered Species program has designated and mapped the area as a ‘high priority site of rare species habitat and exemplary natural community.’ The Fish and Wildlife Service identifies the presence of a number of state and federally listed species within the area including Least Terns, Northern Diamondback Terrapin, Saltpond Grass, Bushy Rockrose and Linear-Rowed sundew in the area.”
- “Natural buffer strips can significantly reduce contaminant loads from developed areas. The efficiency of buffer strips depend on their width, slope and vegetation. Buffer strips are also important for the role that they play in protecting and maintaining wildlife habitat. According to the Fish and Wildlife Service study for the area, ‘the alteration or elimination of surrounding upland and backdune habitat, and associated transition zones has a pronounced adverse impact on resident and migratory wildlife.’ Additional development within the District is likely to result in the removal of vegetation... This will result in alteration of vegetative structure, species composition and distribution patterns, and habitat fragmentation contributing to the direct loss of wildlife habitat and biodiversity.”
- “The area proposed for designation as a District contains two barrier spits [including] the Saconessett Hills Barrier Spit. The barrier spits protect both the Great Sippewissett Marsh and the shoreline areas behind the marsh by serving as a buffer to storm waves and storm surges. It is a dynamic area where the beach and dunes are constantly changing as a result of wind and wave action, influenced by natural and human activities as well as relative sea level rise. On an undeveloped barrier beach, this process can occur unimpeded, however, development on barrier beaches including buildings, septic systems, roadways, seawalls, revetments, and groins alters this natural cycle. Such structures prevent overwash and interfere with beachgrass and dune growth, contributing to erosion in surrounding areas. These disturbances are damaging to the stability and function of the system as a whole and over the long term will interfere with the landward migration of the barrier beach and make the beach increasingly susceptible to breaching.”
- “Most of the District is within FEMA V- and A-flood zones. Approximately 50% of the District is in the mapped FEMA Velocity zone. This is an area which is subject to hazardous flooding, wave impact, and erosion as a result of storm wave impact and scour. Development in these areas is at extreme risk — and can pose a hazard to nearby areas. For example, dredging or removal of materials within V-zones acts to increase the landward velocity and height of storm waves, thereby allowing them to break further inland and to impact upland and wetland areas which might not otherwise be impacted. Filling and the placement of solid structures within V-zones may cause the refraction, diffraction and/or reflection of waves, thereby forcing wave

energy onto adjacent properties, natural resources, and public or private ways potentially resulting in otherwise avoidable storm damage and/or increased rates of erosion and scour.”

- “Most of the remainder of the District is located in the FEMA A-zone. Alteration of land surfaces in FEMA A-zones will change drainage characteristics that can result in increased flood damage on adjacent properties. In addition, flooding within these areas leads to property damage. Loss of property resulting from wave and wind damage in V-zones, as well as from still-water flooding within A-zones, is responsible for millions of dollars in flood insurance claims and taxpayer costs in Massachusetts.”
- “The area within the District received a significant amount of storm damage as a result of Hurricane Bob. In addition, the elevation of the dunes was lowered due to lack of sediment supply as a result of revetments and groins along the coastline and redistribution of sand from Hurricane Bob, leaving the area vulnerable to future storms. Future hurricanes will likely affect this area in a similar manner.”

DCPC3. The project is not consistent with the Implementing Regulations for the District. While an exhaustive analysis of compliance with these standards was not undertaken, several examples of these inconsistencies are noted including:

- Falmouth Wetland Regulations (FWR) 10.39(7) prohibit a project from altering land which is in a naturally vegetated condition and acts as a buffer to a salt marsh. The project does not meet this standard. The applicant has noted that a variance from the FWR will be required.
- FWR 10.39(10) requires a building setback line of 15 feet from the edge of any required wetland buffer if the land is in its naturally vegetated condition. The project does not meet this standard. The applicant has noted that a variance from the FWR will be required.
- FWR 10.39(27) prohibits projects which will have any adverse effect on habitat sites of rare species. The applicant has failed to demonstrate that the project will not result in an adverse impact to rare species habitat as no opinion has been received from the Natural Heritage and Endangered Species Program, due to the applicant’s failure to provide information to complete the NHESP application file.
- FWR 10.39(4) and FWR 10.39(5) require that when work is performed within the District of Planning Concern, it meet other applicable performance standards in the FWR. As noted above, the applicant has failed to demonstrate that all applicable performance standards have been met.

#### *Consistency with Local Development Bylaws*

LDB1. The applicant has failed to demonstrate that the project is in compliance with local development bylaws as required by the Cape Cod Commission Act. In addition to the issues relating to the Falmouth Wetland Regulations and District of Critical Planning Concern noted above, the following inconsistencies are noted based on town comments:

- The Board of Health has required a subsurface sewage disposal system for each lot which can be approved without state or local variance. The plan shows septic systems that require variances,

- The house on lot C does not comply with the setback requirements of the Falmouth Zoning Bylaw,
- With regard to Frontage for Lot A, the access is illusory and in the opinion of the town planner fails the vital access test.

LDB2. In addition to the inconsistencies with town bylaws noted above, the project is inconsistent with local regulations, noted below based on town comments:

- the length of the dead end road is not in compliance with the Falmouth Subdivision Rules and Regulations,
- the width of the roadway is not in compliance with the Falmouth Subdivision Rules and Regulations,
- The minimum lot area/roadway easement is not in compliance with the Falmouth Subdivision Rules and Regulations (§305-19-A),
- Curves shown on the subdivision plan are not in compliance with the Falmouth Subdivision Rules and Regulations,

LDB3. The applicant was requested to provide the Commission with a list of required waivers and has not done so.

LDB4. The DCPC Implementing Regulations permit the reconstruction of roadways and common driveways in existence as of the date of designation of the DCPC, but do not permit the paving of such roadways where they are not currently paved. The town's Subdivision Rules and Regulations require the paving of a subdivision roadway. The applicant will need to obtain either a variance from the Implementing Regulations or a waiver of the Subdivision Rules and Regulations.

LDB5. The Falmouth Planning Board has at least twice denied a preliminary subdivision plan which is similar to the plan currently before the Commission for DRI review. The 1997 Preliminary Plan denial states, "In this case, the Planning Board sees issues which will be most difficult to overcome and for which there will be no simple solutions, if any at all." Issues presented by the Board include the dispute over the actual acreage (11 vs. 23) owned by Mr. Backman, as well as a large number of subdivision and site plan issues.

#### *Benefits/Detriments Test*

B/D1. The applicant has failed to demonstrate that the benefits of the project exceed the detriments as required by the Cape Cod Commission Act. Contrary to the applicant's assertion, Development Review Policy 1.1.7, which encourages redevelopment of already developed land in environmentally appropriate locations, is not applicable to this project. Additionally, the positive environmental impact of increased flushing of the salt marsh south of the access roadway, as a result of culvert construction, is already required by a Falmouth Enforcement Order, and therefore is not a benefit of this project.

B/D2. The project poses several potential detrimental impacts as set forth in the findings above. Detriments include: 1) construction of the houses, septic systems and driveways will adversely impact the migratory nature of the dune and barrier beach system, and the storm buffer protections that these

resources provide, 2) construction of the houses and septic systems (exposed and vulnerable to wave action in a storm) in this dynamic resource area may pose public health and safety risks should these structures be damaged, 3) similarly, public health and safety may be threatened by storm damage to fuel storage containers (as yet undefined) on site, 4) heightened human and pet activity will impact this significant wildlife habitat, 5) construction within the wetland buffer will impact the protections that the buffer provides in the form of stormwater control and recharge, sedimentation and erosion control, and removing nutrients from runoff, 6) site access in an emergency situation, 7) located on a barrier beach and Velocity-zone, the new construction will not be eligible for flood insurance.

**CONCLUSION**

The Cape Cod Commission hereby denies without prejudice the Development of Regional Impact proposal, Sippewissett Marsh Trust II pursuant to Sections 12 and 13 of the Cape Cod Commission Act. This conclusion is supported by the findings that the project fails to comply with each of the four approval requirements of the Act.

Herbert Olsen 12/18/98  
Herbert Olsen, Chair Date

**COMMONWEALTH OF MASSACHUSETTS**

Barnstable, ss

subscribed and sworn to before me this 18 day of Dec 1998.

Katharine L. Peters  
Katharine L. Peters, Notary Public

My commission expires:

