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CAPE COD
COMMISSION

Via Email

July 8, 2016
Matthew A. Beaton
Secretary of Energy and Environmental Affairs
Massachusetts Executive Office of Energy and Environmental Affairs (EEA)
Attn: MEPA Office, Holly Johnson, Project Analyst
100 Cambridge Street, Suite 900
Boston MA 02114

Re: Final Environmental Impact Report (FEIR) - EEA No. 14272
Herring River Restoration Project- Herring River Restoration Committee
Herring River Estuary System
Towns of Wellfleet and Truro, incl. land within the Cape Cod National Seashore
(Cape Cod Commission Project No. 08009)

Dear Secretary Beaton:

The Cape Cod Commission held a Joint Review hearing under its MOU with EEA to hear comment and presentation on the above-referenced project in Wellfleet June 30, 2016. The Commission prepared a staff report for this hearing; the report was subsequently updated to reflect testimony and presentations made at the hearing. This revised staff report is attached as the Commission's comments on the FEIR.

The Cape Cod Commission supports granting a Certificate on the FEIR, whereupon the project could commence Development of Regional Impact review with the Commission.

Thank you for the opportunity to provide the comments on the FEIR. Cape Cod Commission staff is available to answer any questions about the comments.

Sincerely,

Patty Daley
Deputy Director

ENC
Cc: Project File
Tim Smith, Cape Cod National Seashore via email
Margo Fenn, Herring River restoration Committee via email
Cape Cod Commission Project Subcommittee members via email

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CAPE COD COMMISSION

STAFF REPORT

JOINT REVIEW
HERRING RIVER RESTORATION IN WELLFLEET AND TRURO
FINAL ENVIRONMENTAL IMPACT REPORT
(CCC #08009/ EOEA # 14272)

COMMISSION SUBCOMMITTEE
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Tom Cambareri (Water Resources Program Manager)
Heather McElroy (Natural Resources Specialist)
Jonathon Idman (Chief Regulatory Officer)
Sarah Korjeff (Historic Preservation Specialist)
Jeffrey Ribeiro (Regulatory Planner)
Steven Tupper (Technical Services Planner)

DATE
June 30, 2016/ Revised July 8, 2016

INTRODUCTION

The Cape Cod Commission (Commission) has received a copy of the Final Environmental Impact Report (FEIR)[1] for the proposed Herring River Restoration Project from the Herring River Restoration Committee (proponent). The project is located in the towns of Wellfleet and Truro within the Herring River estuary system, in and adjacent to the Cape Cod national Seashore. The Herring River Restoration Committee includes representatives from the Towns of Wellfleet and Truro, the National Park Service, and other state and federal agencies.

[1] The FEIR is also styled as a Final Environmental Impact Statement (FEIS) to satisfy review requirements under the National Environmental Policy Act (NEPA). The document is referred to herein alternately as the FEIR and FEIS/FEIR.

The project is currently undergoing Joint Review by and between the Commission and under Massachusetts Environmental Policy Act (MEPA), pursuant to a Memorandum of Understanding between the Commission and the Secretary of the Massachusetts Executive Office of Energy and Environmental Affairs (Secretary). After the project completes review under MEPA, the Commission will undertake Development of Regional Impact (DRI) review of the project. It is anticipated that the proponent will file for Project of Community Benefit status as part of its DRI application. The project requires DRI review because it was required to prepare an Environmental Impact Report under MEPA.

A public hearing was held by a subcommittee of the Cape Cod Commission on Thursday, June 30, 2016 at the Wellfleet Senior Center/Council on Aging, 715 Old Kings Highway, Wellfleet, MA, at 5:30 PM for the purposes of hearing comments and other information on the FEIR, which will increase public awareness and engagement about the project, and inform the Commission's comment letter on the FEIR to the MEPA office, and the Commission's subsequent Development of Regional Impact review of the project. The FEIR was published in the *Environmental Monitor* on June 8, 2016. Comments on the FEIR are due to the Massachusetts Environmental Policy Act (MEPA) office by July 8, 2016.

The Commission previously: held a joint review hearing on the project's Environmental Notification Form (ENF) under MEPA in summer 2008, and submitted a comment letter on the ENF to the MEPA office dated October 23, 2008; and held a joint review hearing on the project's Draft EIR under MEPA in November 2012, and submitted a comment letter on the draft EIR to the MEPA office December 2012. On June 20, 2008, the Secretary issued a Certificate establishing a Special Review Procedure under MEPA for the project. On November 7, 2008, the Secretary issued a Certificate on the ENF that set out the Draft EIR scope. On December 21, 2012, the Secretary issued a Certificate on the Draft EIR. Commission staff has also participated on the Herring River Restoration Committee's working group on general project planning during the Committee's development of the FEIR.

PROJECT DESCRIPTION

As described in the *Purpose* section of the FEIR/FEIS, *"the project is to restore self-sustaining coastal habitats on a large portion of the 1,100-acre Herring River estuary in Wellfleet and Truro,"* and has similarly developed objectives and proposed actions intended to meet this purpose. The FEIR further describes project alternatives discussed in light of meeting the purpose and objectives of the project, including the proponent's Preferred Alternative (Alternative D), the primary components of which are construction and installation of a new tidal control structure at Chequessett Neck Road and a new dike at the mouth of Mill Creek. Other project components include:

- Adaptive Management approach to long-term management of the new structure,
- Replacement of culverts at road crossings upstream of Chequessett Neck Road,
- Raising or relocating certain low lying roadways located within the Herring River floodplain,
- Management of woody vegetation within the Herring River floodplain to promote recolonization of salt marsh vegetation,
- Restoration of natural tidal channels and marsh surfaces, and
- Management of flooding impacts to private properties.

The project proposes management actions defined as either primary (e.g. construction of tidegates) or secondary (e.g. vegetation management), and involves both direct and indirect impacts to resources areas. The core project and alternatives have remained constant since the filing of the ENF, though additional details and response to comments and other issues raised have been provided throughout the EIR process.

COMMISSION SUBCOMMITTEE RECOMMENDATIONS- JOINT REVIEW HEARING 6/30/16

The Joint Review hearing afforded the Commission's subcommittee an opportunity to learn more about, and hear presentation and testimony, on the project prior to commencing DRI review. Based on its observations at the hearing, the Subcommittee recommends the proponent provide or undertake the following as the project proceeds to DRI review with the Commission:

- More analysis about the relationship between higher water levels and tidal exchange in the Herring River, and potential effect on any remaining contaminants within the town of Wellfleet's closed landfill site on Coles Neck Road;
- Private Property Impacts/ Proposed Flood Proofing Measures
    - Broader outreach efforts to and dialogue with all private property owners who could be impacted by the project pursuant to the proponent's impact modeling;
    - Greater details about the scope and proposed process of offering/ performing flood proofing measures, including in light of the full project's implementation and funding timelines;
    - Greater details about the assumptions and analysis underlying the proposed, selective flood proofing program in light of all properties likely to be impacted by the project;
- Project Budgeting and Funding
    - Greater details about proposed funding sources and funding timelines for the project;
    - Project budget breakdown, including percentage of budget anticipated to go towards flood proofing measures on private properties;
    - Greater details about the entity who would be legally and financially responsible for proposed flood proofing measures on private properties;
    - Consider a phasing/ funding plan that would allow the project to commence and its attendant construction and operational impacts to be addressed before full funds are raised for full implementation of the project;
    - Consider contingency issues for unforeseen flood proofing issues after project is implemented.

RPP ISSUE AREA COMMENTS

Commission staff reviewed the FEIR/FEIS in light of the Barnstable County Regional Policy Plan and offers the following issue area comments relevant and material to the project. Such comments are intended to inform the Secretary's decision to issue a Certificate on the FEIR, and guide the Commission's subsequent DRI review of the project and the proponent's preparation of a DRI application.

Given the nature of MEPA review, Commission staff suggests that the FEIR contains sufficient detail for purposes of MEPA, addresses the broad scope of concerns under MEPA, and supports the issuance of a Certificate on the FEIR, subject to proposed Section 61 Findings and mitigation. Additional detail will be required in DRI filings to the Commission, to address Regional Policy Plan goals and standards and other statutory provisions contained in the Commission's regulations. Among other more specific information anticipated for submission to the Commission, the development of a sufficiently detailed Adaptive Management Plan, based on the framework in the FEIR, will be a critical feature of DRI review, and central to successful implementation of the project, given its stated objectives. The AMP should ultimately contain clear and certain decision points and phasing plan, and conditions to determine whether or not certain actions or components of the project may proceed at certain times, or at all. Decision-making under the AMP should also consider and balance the natural resource impacts that might be created by addressing flooding on low-lying properties in the project area. Staff notes a difference between resource area impacts and impacts to private properties, and proposed measures to address such different impacts, which might require different regulatory analysis and treatment.

In sum, the Commission supports the broad array of benefits that could be achieved by the project, subject to developing realistic controls and measures to justify, minimize or mitigate various resource impacts, and address other likely impacts associated with the project.

NATURAL RESOURCES:
COASTAL, WILDLIFE/PLANT HABITAT & WETLANDS

This large-scale ecological restoration project does not fit neatly into the Cape Cod Commission's regulatory framework. The project's outcomes anticipated and desired by the proponents will bring broad ecological benefits to the Herring River system in Wellfleet and Truro, and as a result will likely benefit human health and the local and regional economy. However, the proposed changes associated with the project, including to the existing man-made structures within the estuary such as the Chequessett Neck Road dike, and upstream dikes, culverts and roadways, are not without impacts to natural resources.

The purpose of these staff comments on the Herring River Restoration Project is to identify where proposed actions described in the final EIS/EIR may be inconsistent with the RPP, and to offer some perspective as to how any of those inconsistencies may be balanced against the anticipated gains, or benefits, of the project. Under a typical DRI review, inconsistencies with MPSs deemed acceptable by the Commission may be addressed, among other mechanisms, through mitigation to impacted resources; in the context of this ecological restoration project, "mitigation" may take several forms, depending on the nature of the impact.

The National Park Service, together with the Towns of Wellfleet and Truro, have invested years of research and analysis, engaging technical experts and concerned residents, and consulting regulatory agencies, into the development of this project and the parameters of possible alternatives. One of the roles the Commission may serve through the review of this project is to receive and filter public comments on the various options presented in the final EIS/EIR, and make recommendations on options that will best serve the residents of Wellfleet, Truro, and the region. While staff comments focus on the benefits and impacts of the preferred Alternative D,

staff comments also include evaluation of Alternative C, the "smaller build" alternative that the proponent maintains would largely eliminate impacts to the CYCC and other low-lying properties within the Mill Creek sub-basin, and the resource areas associated with these properties.

Project Purpose and Potential Outcomes

The National Park Service (NPS) and the Herring River Restoration Committee (HRRC) have identified several objectives in pursuing this project:

1. Reestablishment, to extent practical, the natural tidal range within the 1,100 acre Herring River estuary,
2. Improve estuarine water quality for resident and migratory animals,
3. Protect and enhance harvestable shellfish resources,
4. Restore the estuary's functions as a nursery and source of organic matter,
5. Improve migratory fish and eel runs,
6. Re-establish the salinity gradient within the floodplain to improve estuarine habitats,
7. Restore normal sedimentation processes within the floodplain to counter marsh subsidence,
8. Restore ecological balance to improve mosquito control,
9. Cultural and socio-economic benefits, including restoration of expansive salt marshes within the floodplain for esthetic and recreational benefits.

The following staff comments are structured around the *Impact Topics* presented in the final EIS/EIR:

- Wetlands Habitats and Vegetation
- Aquatic Species
- Federal and State-listed Rare, Threatened and Endangered Species
- Terrestrial Wildlife

Remaining comments in this section then address *Elements Common to All Alternatives* presented in the final EIS/EIR.

- Incremental Tidal Restoration and Adaptive Management
- Vegetation management

- Restoration of Tidal Channel and Marsh Surface Elevation
- Low-Lying Road Crossings and Culverts
    - High Toss Road
    - Pole Dike, Bound Brook, and Old County Roads
- Low-Lying Properties
- Public Access and Recreation Opportunities
- Project Alternatives (Alternative A, the 'no-action' alternative, is not discussed below as it is not recommended by Commission staff or desired by the proponents).
    - Alternative B
    - Alternative C
    - Alternative D

Wetlands Habitat and Vegetation

The restoration effort will require 'development' activity within resource areas protected by the RPP. Direct impacts common to Alternatives C and D include:

- the temporary alteration of 2.4 acres of wetlands resource areas to replace the dike and culverts at Chequessett Neck Road;
- permanent alteration of 12,500 sf feet of wetland and 2.4 acres of temporary alteration of wetlands at Mill Creek to install the dike;
- 4,000 sf of permanent wetland alteration to elevate Pole Dike and Bound Brook Island Roads, and possible additional wetland impacts due to the need to elevate other road sections;
- vegetation management and/or removal within areas of the 900+ acre restoration area;
- dredging to create channels and salt pannes; and
- application of sediment to the marsh surface

Indirect impacts will result due to changes within the restoration area that result from the change in salinity, tidal exchange, and flood levels including: changes from freshwater and brackish wetlands to salt and estuarine habitats, impacts to dunes, impacts to rare species habitat, changes in aquatic species, impacts to terrestrial species, and impacts to low-lying properties, including the Chequessett Yacht and Country Club (CYCC) (see discussions, below).

Aquatic Species

The project anticipates significant improvement to shellfish and finfish populations. Adverse impacts that may be observed through monitoring may be addressed through the Adaptive Management Process, and implementing either primary or secondary management actions. See comments below on Adaptive Management.

Federal and State listed Rare, Threatened and Endangered Species

The project will result in indirect impacts to habitat of the Northern Harrier, Diamondback Terrapin, Eastern Box Turtle, American Bittern, Least Bittern, and Water Willow Stem Borer, all state-listed species. Additionally, there may be impacts to the habitat of the federally-listed Red Knot and Northern Long-eared Bat. The project will likely result in some positive habitat changes for some of these species (e.g. increased estuarine habitat for Diamondback Terrapin and Red Knot), and in the loss of habitat for others (loss of freshwater marsh habitat for American and Least Bitterns, forested upland for the Northern Long-eared Bat). The Commission will seek guidance from the Natural Heritage and Endangered Species Program in determining whether the project complies with the RPP performance standard for rare species, and whether impacts to rare species should be mitigated by means other than those planned for the restoration project generally, as articulated in the FEIS/FEIR (e.g. creation or preservation of specialized habitat within the project area, or elsewhere within the seashore).

Terrestrial Wildlife

Changes to habitats and natural communities will result from the project, requiring relocation of many of the amphibians, reptiles, birds, and mammals that currently utilize the floodplain. The changes will be gradual, however, presumably allowing time for terrestrial wildlife to shift their dens, nests, and foraging ranges. These changes are not inconsistent with RPP requirements. Additionally, the project will potentially require clearing of woody vegetation by mechanical means. The process for vegetation management identified in the Adaptive Management Process allows for incremental changes that by their nature will help to minimize the need for physical clearing of the floodplain.

Incremental Tidal Restoration and Adaptive Management

The project will allow for the gradual re-introduction of tidal exchange to the Herring River system over a period of several years. The Adaptive Management Process (AMP) addresses the need to monitor the progress of the restoration effort over time, and to make management decisions that respond to the conditions-of-the-moment consistent with the objectives and limitations of the project. Actions contemplated in the *Overview of the Adaptive Management Process*, found in Appendix C of the final EIS/EIR, include primary and secondary management actions. Primary actions involve the opening or closing of the tide gates incrementally and in varying combinations. Secondary actions include:

- vegetation management including removal of woody vegetation and for invasive species,
- sediment management, including the application of layers of sediment to subsided areas to promote reestablishment of salt marsh habitats, and
- restoration of tidal channels, creation of salt pannes and pools to promote fish habitat

The Adaptive Management Process sets up a framework for making decisions that appears to have adequate checks and balances; three separate committees will review management decisions, including a regulatory oversight group, and stakeholders will be engaged prior to decisions being made. The AMP also sets up appropriate objectives that structure the decision making process, and which take critical natural resource impact-related issues and weave them

into a series of decision trees (influence diagrams). The structure appears to support a methodical approach to managing the restoration effort.

Vegetation Management

The project anticipates the need to remove existing vegetation within the restoration area prior to, and/or during the course of the restoration. The removal of vegetation would be governed by protocols within the AMP. The removal of vegetation from wetlands and/or their buffers is inconsistent with some performance standards in the RPP, but supported by others. As a change in wetland type and vegetation is an objective of the project and contributes toward the many anticipated benefits of the project, staff suggests that vegetation management is a necessary and appropriate project element.

Restoration of Tidal Channel and Marsh Surface Elevation

This project element involves several potential secondary management actions to reverse the effects of diking, drainage, and subsidence of the marsh surface. These actions could include dredging of sediment within the Herring River channel, creation of small channels and ditches, restoring stream sinuosity, removing berms, and applying dredged materials to the marsh surface. These actions are regulated by performance standards in the RPP. However, the Adaptive Management Process lays out a system of checks and balances that would minimize these actions to those necessary to achieve the project objectives, while avoiding adverse impacts to other sensitive resources.

Low-Lying Road Crossings and Culverts

High Toss Road

High Toss Road forms another upstream barrier to tidal restoration within the Herring River system in the form of a 1,000 ft earthen berm and culvert. The final EIS/EIR explores feasibility of options for restoring tidal flow upstream, including abandoning and removing the road, or closing the road during flood events. In the time since the EIS/EIR was published, the Wellfleet Board of Selectmen have voted to discontinue use and maintenance of the road, allowing the removal of the earthen berm, but maintain the legal right-of-way. Removing the road would result in the restoration of 12,000 sf of wetlands (salt marsh).

Other Low-Lying Roads

Segments of paved and sand or fire roads within the floodplain, totaling approximately 20,124 linear ft, would be subject to flooding following restoration. The final EIS/EIR indicates that these segments would need to be elevated, relocated, or closed during storm events to mitigate the effects of flooding, and that there is the possibility that culverts within these road segments would have to be replaced. As mitigating the effects of flooding on these roads is necessary to achieve the objectives of the project, staff suggests that the proposed alterations are necessary and appropriate project elements.

Low-Lying Private Properties

The impacts on low-lying properties are in areas located mostly outside of the Seashore boundary, and which areas contain between 145 and 179 privately owned parcels within the historic floodplain. Approximately 125 acres of degraded wetlands could be restored with the

reintroduction of tidal flow within the Upper Pole Dike Creek sub-basin, and 53 acres within the Mill Creek sub-basin. The HRRC would address impacts to low-lying properties within these areas on a site-by-site basis. Flood protection measures could include acquisition and undevelopment of properties with structures, elevating driveways, relocating structures, constructing berms or rip-rap walls, and moving drinking water wells. The project might require the proponent to relocate/ reconstruct CYCC's low-lying golf course onto higher ground, requiring excavation and fill. The SEIR indicates that fewer private properties would be impacted in Alternative C vs.Alternative D, though Alternative D would be more beneficial in terms of water quality and habitat improvements.

Public Access and Recreation Opportunities

The HRRC intends to improve public recreational access opportunities as part of the restoration project, and through the design of specific project elements (such as the new Chequessett Neck Road tide-control structure).

Project Alternatives

The previous sections address the elements which are common to all of the potential alternatives. The following comments address only those elements which are unique to a project alternative.

1. Alternative B
   This alternative would achieve the lowest high tide elevation to achieve the project objectives through the construction of a tide control structure at Chequessett Neck Road. This alternative would not include a new dike structure at Mill Creek, and thus some action would be necessary to mitigate flooding to the Chequessett Yacht and Country Club (CYCC). Options include 1. relocating or 2. elevating the flooded portions of the course.

2. Alternative C
   This alternative would achieve the highest possible high tide elevation given the current constraints within the floodplain, while excluding tidal restoration to the Mill Creek sub-basin through the construction of a dike. This second dike would allow for out-flow of fresh water, but would eliminate any tidal influence into this portion of the floodplain. The CYCC and other low-lying properties in the Mill Creek sub-basin would be unaffected by the restoration project, and thus no mitigation of these properties would be required.

3. Alternative D
   This alternative would achieve the highest possible high tide elevation given the current constraints within the floodplain, and would include a dike at Mill Creek with a tidal control structure to allow for management of tidal influence within the Mill Creek sub-basin. Because flooding would be re-introduced to this portion of the floodplain, some action would be necessary to mitigate flooding to the CYCC, and other low-lying properties. Options include 1. relocating or 2. elevating the flooded portions of the course. The project differences between

Alternatives C&D are largely operational, driving the differences in the anticipated results and impacts of these respective alternatives.

Each of these alternatives will result in impacts to coastal resources, freshwater wetlands, wildlife and plant habitat, and rare species habitat, as previously discussed. Through an alternatives analysis workshop, the HRRC identified the "full build" Alternative D as the preferred alternative for the project.

Alternative D will require mitigating actions to protect the CYCC that will have impacts on resources protected under the CCC Act. Option 1, relocating the affected portions of the CYCC course, would result in 12 acres of course reverting to salt marsh, and 30 acres of upland (presently providing box turtle habitat) being converted to new fairways. Option 2, elevating the affected portions of the CYCC course, would result in 10 acres of fill within low-lying, wet areas of the course, 7 acres of the course reverting to salt marsh, and the clearing and excavation of 5 acres of upland (presently providing box turtle habitat) to supply the fill. See also the discussion of impacts to Low-Lying Properties in Mill Creek, above.

Regardless of whether Alternative C or D is selected, a dike at Mill Creek must be constructed in order to protect the CYCC and other Mill Creek low-lying properties. In terms of wetlands and wildlife resource impacts within Mill Creek, the tradeoffs between Alternatives C and D (essentially the difference between restoring the Mill Creek sub-basin (Alt D) and not restoring it (Alt C)), include the potential gain of 53 acres of restored salt marsh from existing mixed freshwater wetland and vegetated upland, and the loss of between 5 and 30 acres of upland rare species habitat for conversion to golf course fairways or practice area. The impacts to upland at the CYCC would also impact an area that has been identified as having a good likelihood of archaeological sensitivity (see Historic Preservation comments).

Floodplain Management

As the project Alternatives relate to the management of the Herring River floodplain, there is a delicate balance between commercial benefits, flood control measures and environmental impacts; especially at the present time when anticipated changes in climate which will likely bring significant alteration of existing coastal areas and flood regimes.
With this large scale restoration project, certain areas of the Herring River will likely be impacted by tidal flooding. Historically, the Herring River functioned as a natural floodplain with about 1,100 acres of salt marsh, intertidal flats and open water habitats. This area has been impacted by more than 150 years of human manipulation; the most substantial impact was the construction of the Chequessett Neck Road Dike at the mouth of the river in 1909. The dike functions both as a tide control structure, restricting tides in the River system from approximately 10 feet on the downstream harbor side to about 2 feet upstream of the dike. Beginning in 1929, houses were built in low lying areas that may not have been permittable under current regulations and a nine-hole golf course was built directly on drained former salt marsh within the floodplain.

Increased tidal flooding will substantially affect Mill Creek, a sub-basin of the Herring River system. The effect of tidal influence on Mill Creek is of particular concern because it has the highest number of privately owned structures that could be vulnerable to flooding without protective measures in place. Alternatives B, C, and D include the installation of a new tide

control structure at Chequessett Neck Road, but all three alternatives differ in their treatment at Mill Creek (see descriptions below).

Under Alternative B, the Mill Creek sub-basin would be left open to the Herring River and the tide regime in the creek would be controlled at the new Chequessett Neck Road Dike. As a result, Alternative B does not require the construction or cost of a dike at Mill Creek because essentially, tidal flow would be controlled by the Chequessett Neck Road Dike. However, flood proofing measures for the Chequessett Yacht and Country Club golf course and other low-lying properties would be required including elevating property or relocating structures out of the floodplain.

Alternative C provides the highest practicable high tide water surface elevations possible through modifications to the Chequessett Neck Road Dike, but a tidal exclusion dike would be constructed at the mouth of Mill Creek. The Mill Creek dike would eliminate tidal influence to the sub-basin and serve as a flood protection measure to avoid flooding to low-lying properties. With the dike at Mill Creek, no additional flood protection measures would be required at the Yacht Club or other Mill Creek properties.

Under Alternative D, a new dike will be constructed at Mill Creek and would allow tidal flow to the sub-basin. This alternative would require the same flood protection measures in Alternative B (i.e. property elevation and/or relocation).

Each alternative uses a dike to restore tidal flow and control flood water. Dikes are used to confine a waterway to a predefined size, flow and capacity and often this control structure maximizes the extent of developable land and keeps flood water away from people and property. A benefit is that one dike can protect many low-lying properties. However, dikes are expensive to install, they are fixed to the land and cannot adapt to rising water from sea level rise or storm surge.

This project offers important ecological benefits to the Herring River floodplain. As the tidal regime in the Herring River is restored in each of the alternatives, the floodplain will return to a more natural state and function. One benefit of a natural floodplain is floodwater storage capacity. Depending on the topography, soil composition and ecology of the area, expansive floodplains provide a broad area to spread out and temporarily store floodwaters. As tidal regime is restored to the Herring River system, water levels will increase in the estuary's wetlands, leading to varied and increased sediment transport and deposition on the wetland surface. With changes in tidal regime and sediment deposition, the flood storage capacity will likely increase in the Herring River floodplain.

Another benefit to the sedimentation of the marshes in the Herring River is protection from sea level rise. Upstream of the Chequessett Neck Road Dike, the tidal marsh plain of the Herring River has subsided up to 3 feet below its pre-dike elevation; this is below the surface of the existing salt marsh seaward of the dike. As tidal range increases within the new Chequessett Neck Road Dike, the subsided wetland will likely increase in elevation as more sediment moves into the system. With higher sediment transport and deposition, the marsh would become less water logged throughout tidal cycles and encourage the re-establishment of tidal marsh plants; both will allow the marshes to keep up with rising sea levels.

WATER RESOURCES

Restoring tidal flow to the Herring River system will result in improvements to water and sediment quality within the river and provide benefits to its ecology.

Staff comments provided on the DEIR suggested that the proponent identify private wells that could be impacted by the project. The FEIR identifies private drinking water wells that could be impacted by the project, and discusses measures to address such impacts, such as relocating such wells. The Adaptive Management Plan to be developed according to the framework in the FEIR should specifically include such measures.

The AMP will require sufficient detail (certainly more than is contained in the FEIR) about the plans to establish pre- and post-groundwater monitoring points and analysis in the basin, including modeling and monitoring. Commission staff was asked in 2015 by the Friends of the Herring River (FOHR) to make a groundwater presentation and then review information relative to changes in anticipated groundwater at the CCYC occasioned by the project. Since then the FOHR have used a consultant to review the same work and they recommended a more detailed plan for a monitoring program and the establishment of a new groundwater model. Commission staff has recently been requested to attend a kick-off meeting with the USGS, which was recently contracted by the FOHR, to review and come up with a more detailed monitoring plan and potentially a groundwater model. The Commission will participate in the AMP, and water resources staff will be involved in reviewing and decision-making for appropriate and detailed groundwater modeling and monitoring plans.

HERITAGE PRESERVATION AND COMMUNITY CHARACTER

The preferred Alternative D involves potential upland disturbance of 5 to 30 acres in an area that is highly sensitive for archaeological resources. While the extent of archaeological resources and their significance will not be known until an archaeological survey is performed as required by the Programmatic Agreement with Massachusetts Historical Commission (MHC), it is fair to assume that significant archaeological sites may be found that need to be avoided or mitigated. The SEIR indicates that Alternative C would avoid these potential cultural resource impacts. The preferred alternative would have the greatest potential impact on archaeological resources because it includes altering a large area for relocating the Chequessett Yacht and Country Club golf course.

This project has the potential to uncover or disturb archaeological resources either during construction of the dikes, during relocation/elevation of impacted low-lying development, or when tidal waters are increased. There are numerous known archaeological sites in the project area, representing both pre-contract and post-contact periods. The project proponent hired an archaeological consultant (PAL Inc.) who has identified areas of high and moderate archaeological sensitivity where survey work should occur once the final project design is confirmed. They have also prepared a Programmatic Agreement to comply with Section 106 of the National Historic Preservation Act. The Programmatic Agreement spells out how survey work will proceed in areas of archaeological sensitivity, with oversight by Massachusetts Historical Commission and consulting parties. If resources are identified, they will apply National Register criteria to determine their level of significance, and MHC and Tribal Historic Preservation Officers will be consulted to develop a plan to minimize adverse effects to these resources. The PA also defines the process for protecting unanticipated discoveries during

construction activities. This process allows for consideration of archaeological resources, and appears to satisfy requirements for protection of archaeological sites in Cape Cod's Regional Policy Plan, but staff has concerns that waiting until late in the planning process will make it more difficult to mitigate impacts on any resources that are found.

The SEIR states that exact quantification of impacts from the Mill Creek dike will depend on the dike siting and design, so they will be presented in detail once the design is finalized. To understand the full cultural resource impacts of Alternative D, the applicant will also need to present the results of the archaeological survey of potentially impacted areas. The Programmatic Agreement with MHC appears to allow this archaeological survey work to wait until ground disturbance is imminent, but it would be more appropriate to conduct the survey work prior to making a final decision about the preferred alternative so that the extent of impacts to the historic Mill Creek dike and other archaeological sites are fully understood.

One area in the AMP where the proponent should more greatly consider impacts is cultural or archaeological resources, based on staff's review of the AMP framework in the SEIR. The 5 to 30 acres of upland that could be cleared to mitigate flooding impacts from Alternatives B or D have high archaeological sensitivity and should be taken into account in the AMP. The AMP should address the Programmatic Agreement and its basic elements, and a detailed discussion of predicting and monitoring adverse impacts on cultural or archaeological resources. For the Mill Creek portion of the project to move forward, archaeological survey work required by the Programmatic Agreement with the Massachusetts Historical Commission (MHC) would begin. Archaeological resources found during the survey would be evaluated for National Register eligibility. Any significant archaeological findings from this survey would influence how the proponent pursues and proceeds with the preferred alternative.

No historic structures are expected to be impacted by the proposed project. The Massachusetts Cultural Resource Inventory (MACRIS) does not identify any historic structures in the area of project impact, though the remains of many structures that existed in the past may be found. These resources are being addressed as part of the archaeological resource agreement.

The proposed work will impact some low lying roadways and landscapes in the project area. In general, it does not appear to have a negative effect on the cultural landscape as it will re-introduce natural elements of the landscape that were there in the past.

TRANSPORTATION

Staff comments are similar to those provided on the DEIR. The Final Environmental Impact Statement/Environmental Impact Report (Final EIS/EIR) for Herring River Restoration project presents the preferred alternative for tidal restoration of the Herring River flood plain.
As detailed in the Final EIS/EIR, the increase in tidal flow from the preferred alternative would result in the flooding of a number of local paved and unpaved roads. The affected roads, including High Toss Road, Pole Dike Road, Bound Brook Road, Old County Road, and numerous fire roads, would need to be elevated, relocated, closed during high tides, or abandoned. The impacts of this project on the roadway network should continue to be detailed in subsequent work and submissions to the Commission under DRI review. Where paved roadways are significantly altered, accommodations for non-motorist should be maintained and, to the extent feasible, improved.

In addition to permanent impacts, temporary construction impacts on the roadway network should be addressed in subsequent analyses and submissions to the Commission.

ECONOMIC DEVELOPMENT

The FEIR accurately identifies tourism as the major sector of Wellfleet's economy, as well as that of the broader Cape Cod economy. The National Park Service estimates that the roughly 4.5 million visitors to the Cape Cod National Seashore in 2015 spent nearly $200 million in the local economy, creating almost 2500 jobs. The restoration of the Herring River will increase recreation areas, thus further enhancing the attractiveness of the Cape Cod National Seashore as a destination.

The FEIR also identifies the importance of shellfish aquaculture to the local economy. In recent years, shellfish aquaculture in Massachusetts has been one of the fastest growing maritime industries. The industry employs over 900 people and adds $45 million to the state's economy, with 58% of state-wide oyster production occurring on Cape Cod. While the applicant does not anticipate any impacts to existing shellfish propagation areas, there is significant monitoring proposed as part of the project. Additionally, the restoration may open additional areas to shellfish propagation currently closed due to water quality issues.

Commercial fishing also remains an important sector of the economy on Cape Cod. Outer Cape ports landed 20 million pounds of seafood in 2014 valued at $29 million. Further, recreational fishing in Massachusetts has grown into a $1 billion industry state-wide supporting over 14,000 jobs. Groups such as the Cape Cod Commercial Fishermen's Alliance have embraced NOAA's Ecosystem-Based Fisheries Management as a means to ensure the continued success of Cape Cod's fishing industry. One opportunity identified as part of this approach is to protect the supply of forage fish available to larger, higher-value fish species. While likely not a significant impact, the increased breeding habitat for finfish such as Atlantic herring created as part of the project should have a net beneficial impact on the overall health of the region's fishing industry.

Any impacts to individual property owners, including the Chequessett Yacht and Country Club, will be mitigated through actions included in the plan as a condition to actions or development that could create impacts on these properties proceeding. Additionally, Commission staff suggests these changes are primarily local in nature and are unlikely to have an effect on the regional economy.

* SENT EMAIL(S) ON 6-29 AS WELL!

To:
**Secretary Matthew Beaton
Env.internet@state.ma.us
**Attorney General Maura Healey
Ago@state.ma.us
**Cape Cod Commission
Capecodcommission.org

From:
Jodi Birchall
50 Peace Valley Rd. Wellfleet, Ma. 02663
Jbirchall@netzero.net

PO BOX 418
S. WELLFLEET, MA 02663

Date:
June 29, 2016

Re:
Comments and concerns regarding the Herring River Restoration Project
CCC No. 08009 / EEA No. 14272

Dear Secretary Matthew Beaton, Atty General Maura Healey and the Cape Cod Commision;

My name is Jodi Birchall and I am writing to you today to share concerns about the Herring River Restoration Project (HRRP), prior to tomorrow's meeting at the Wellfleet COA at 5:30 for the Joint Review by the Cape Cod Commission, Mass Environmental Policy Act and MEPA.
Not only is my property at 50 Peace Valley Road in Wellfleet(upper pole dike creek) in line to be directly affected by the HRRP, but so is my lifestyle choice and how I choose to live and enjoy the town I have called home since 1966. I am very upset about the prospect of ANY impact on my personal property , which I have owned and farmed since 1980(36 years). I purposely bought in this area of town because of the proximity to High Toss Road and multiple riding trails in town ,as well as, the wonderful soil for gardening. I am an avid gardener and have had horses for 36 years. The flooding of the upper pole dike will negatively impact my property, as well as , any access for me to any riding trails. I have attended many meetings to only have concerns fall on deaf ears.
My mother , Carol North, was the first women selectmen in the town of Wellfleet in the late 60's and early 70's. My Dad was a fighter pilot in the USAF and was a POW in Vietnam for seven years. My Mom worked directly with Nixon and Kissinger as co chair of the National League of Families to help bring the POW's home. I am not a stranger to the workings of government. In 1973, when the dike broke, it went before the Town at town meeting to repair or open up the dike and the town voted NO....the town wanted the dike repaired and no flooding or losing High Toss Rd. When purchasing my property in 1980, there was never any concern about future property loss or damage where the river/water was concerned. So it was not a "foolish" purchase, or you "didn't do your homework"

when concerning the purchase of this property....which is what some officials are saying to me. Really?

First and foremost, I...(we....which is over 320 home owners directly affected), have NO say as to what is going to happen to MY/OUR property. No town vote at all. How is that remotely constitutional to take my land, offer no compensation ,whatsoever, and NO guarantee of protection from the flooding and not one resident is being allowed a vote to help direct this project. Many in town do not want to see this project happen AT ALL! Plans to remove a well used recreational road in town (High Toss Rd.) is being eliminated with NO town vote, which I believe is illegal. Prior to the dike being built , over 100 years ago, High Toss Rd was never under water and there was a bridge built over the river. The HRR folks want to scrape the road down four feet to really open it all up , which is beyond the scope of restoration.....it is creating something completely new. The town has also continued to issue building permits in the areas of concern. My young neighbors had to jump through hoops with the conservation committee, health and building committees and were issued all permits, only to be told months after completion that they will be directly affected, will lose land and will have to deal with flooding in the future. How is that fair? They speak of bringing back the old niches/ecosystems from 100 plus years ago. What about the current ecosystem(s) in place? I love my land because of the diversity of animals. Mostly, the songbirds. But I also really enjoy the deer, coyotes, turkeys, fox, bunnies, ducks, geese and a myriad of other creatures. In my case, they are talking about flooding over an acre of MY land and the other acre will be impacted by flooding and well. This all will be totally eliminated... How is trading off an existing system for another, beneficial? It is my understanding that there is an endangered bird in the area of concern, as well as, the brown rabbits that are fewer and fewer. The spade foot toad and other creatures of concern are all over this intended projects scope. I understand the "reported" science. I teach upper level sciences and math at the local High School so I understand some of what they are talking about. However, you can spin anything to support an argument and I don't believe the whole story is being told. The mosquito population will not go away like they purport. Some of the biggest mosquito problem areas are along marshes and estuaries. But, along with the mosquitos...the salt intrusion will bring in green heads, black flies and lace wing deer flies, which currently are non existent on the properties of the upper pole dike area. They are also only paying attention to the psi at the dike and upstream. No one is looking at how the bottom of Wellfleet Bay is exponentially changing year after year. I have spent my whole life on the water in Wellfleet and the "shifting sands of time" are closing off and pinching in the opening to the cove, which is where the water will come to enter the river. Over time, there may not be any real tidal flow. And if the increased silt on the bottom doesn't alter the water flow, (proof of the changing bottom can be seen in the newly created benthic mapping of Wellfleet Harbor), most certainly the far side of the cove, where the Seashore removed all the snow fencing, is now getting more and more narrow and over time will break through and create a cut through to Cape Cod Bay....also altering any real flow of water to the river. I have mentioned this in many meetings and no one is paying attention to this. They are only looking at the dike and upstream from it. This is real.....I have a boat and have observed these changes over time.....and it is happening at a greater rate every year. Great Island currently has four "break/cut throughs" from Wellfleet Harbor out to

Cape Cod Bay , due to the shifting sands and currents.
If you currently look out over my two acres....in the marsh you see: Maple trees, birch trees, pine trees, shad,honeysuckle, willow and oak.....it looks like a very mature meadow. ....NOTHING like a wetland. The rot and decay, if the upper pole dike creek is opened, will be horrendous. I do not believe it will have the outcome they are looking for but will certainly ruin my land, view and lifestyle. No one is accepting responsibility for future damage to the structures or the land, salt water well intrusion, septic system intrusion or any other myriad of potential problems. No one will guarantee me any protection. They have offered possibilities like, "we will relocate your structures"....um NO, "we can build a berm to hold back the water"...um NO...how great did that work for New Orleans, "we can fill where necessary" ....um...what?....you don't want to fill in order to create safe roadways, but fill my property. to a desired height?? Also, Flood insurance....who's paying for that, property tax increase.....who's paying for that? What about the loss of my apple trees, pear trees, peach trees, berry bushes, strawberry patch, asparagus patch, rhubarb patch...and it goes on and on.
The roads they are proposing, some of which, have to be raised up to six feet in some areas, are not being planned in a safe and thoughtful manner either. No pull over space for safety, steep drop offs on the side (a 1:3 ft pitch....crazy unsafe for bikers or pedestrians.). They say they don't want to have to fill or impact the marsh too much! What! They are planning on destroying and flooding well over 100 years of growth and wildlife over 1000 acres, as well as , scraping down a road....that comment makes NO sense! What about sea level rise.....this isn't even being taken into account at all! There is also a town right of way over a property that enables me to get out of my neighborhood, that will be underwater if the project goes through and NOTHING is being done about relocation/replacing that right of way either!
Who is paying for this project anyway? There are so many more important things the government can be doing with their money and time. Not sacrificing the blue collar workers' homes, property and lifestyle. Although the have done some good things in town , the Seashore has intruded enough on our small town.....no MORE!! PLEASE!! If I have to hear about how wonderful the kayaking will be for all the tourists and what a great attraction for the tourists , I am going to scream! What about us citizens that live, work and support this town year round....don't we count for anything?
I truly do appreciate all of your time, I am so frustrated and honestly do believe the scope of this project is far too large. It would make some sense if the HRR folks brought forth a plan to widen and deepen the current Herring River and pole dike creeks to get the herring back and increase tidal flush. This would accomplish the true goal "a healthy River"...not the altruistic goal..."won't it be so nice and pretty" and not negatively impact long standing, hard working families properties .
The seemingly illegal nature of how this project is being handled, the amount of money it will cost...upwards of 50 million (a low ball estimate, more than likely at least double that amount), the lack of consideration for the homeowners that will be directly affected, no insurance or guarantees for property protection, the lack of protection for the current ecosystems in place, no voice or vote in any of the decisions....are just a few of the things that need to be considered in the decision to allow this project to go forward.
I say, have them go back to the drawing board and come up with a viable plan that they CAN offer insurance and guarantees to the towns folk about town and private property at

risk. Please stop this project in it's tracks until all voices are heard and a realistic, affordable plan is offered. There needs to be more consideration and cooperation with those of us it will directly affect!
Thanks for your time.
Respectfully,

Jodi Birchall

Jodi Birchall

Judith Newcomb Stiles

79 Briar Lane

Wellfleet, MA 02667

Dear Herring River Project Managers;

I am a business owner in Wellfleet (Newcomb Hollow Shop) and I live at 79 Briar Lane where my great great grandfather, Benjamin Oliver Newcomb lived. (I know he would want me to ask you these questions if he was confronted with these issues).

From what I understand, the plume of toxic material under the town dump has had minimal leaching and has been relatively stable for many years as it remains in an identifiable area under the dump. If the proposed Herring River Project floods the road near the dump and the proposed waterway circulates in that area in an unprecedented way, what guarantee can you give that the Herring River Project waterway will not co-mingle with the plume or disrupt toxic chemicals in the plume, especially in a storm or hurricane? Also, what guarantee can you give that the proposed Herring River Project water in that area will not adversely affect the plume? People are very worried that you have not given a clear answer to this question and we all know that disrupting the plume has potentially disastrous consequences. I look forward to your response.

Sincerely,

Judith Stiles

Judith Stiles

APCC
Association to
Preserve Cape Cod

Ed DeWitt
Executive Director

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July 7, 2016

Secretary Matthew Beaton
Executive Office of Energy and Environmental Affairs
Attn: MEPA Office
Holly Johnson, EEA # 14272
100 Cambridge Street, Suite 900
Boston, MA 02114

Superintendent George Price
Cape Cod National Seashore
Attn: Cape Cod National Seashore and Herring River Restoration Committee
Herring River Restoration Project, Final EIS/EIR
99 Marconi Site Road
Wellfleet, MA 02667

RE: Herring River Restoration Project Final EIS/EIR

Dear Secretary Beaton and Superintendent Price:

The Association to Preserve Cape Cod (APCC), the Cape's nonprofit environmental advocacy and education organization, has reviewed the Herring River Restoration Project Final Environmental Impact Statement/Final Environmental Impact Report (FEIS/FEIR) and believes the FEIS/FEIR provides sufficient information for the project to proceed to the next phase in the permitting process.

APCC was one of the earliest voices calling for restoration of the Herring River in the 1970s. Once completed, the project will have restored up to 1,100 acres of estuarine and salt marsh habitat, producing significant ecological benefits in this highly sensitive and critically important wetland system. We commend the project partners for conducting a careful and exhaustive multi-year study of the project. The effort is notable for its extensive public input throughout the process.

In moving forward, further refinements to project planning should include development of a comprehensive adaptive management plan that is highly responsive to changing conditions and emerging data. In such a complex environmental restoration effort with a diversity of stakeholders, adaptive management must play a prominent and essential role in minimizing unintended impacts and ensuring the ultimate success of the project.

APCC thanks the Secretary and Superintendent for the opportunity to provide comments.

Sincerely,

Ed DeWitt
Executive Director

cc: Cape Cod Commission

482 Main Street I Dennis, MA 02638
Tel: 508-619-3185 I info@apcc.org I www.apcc.org
A NON-PROFIT ORGANIZATION. DUES AND CONTRIBUTIONS TAX DEDUCTIBLE AS PROVIDED BY LAW.

Nutter

Eliza Z. Cox
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Sarah A. Turano-Flores
Direct Line: (508) 790-5477
E-mail: sturano-flores@nutter.com

June 30, 2016
117088-00001

Secretary Matthew A. Beaton
Executive Office of Energy and Environmental Affairs
Attn: Holly Johnson, MEPA Office
100 Cambridge Street, Suite 900
Boston MA 02114

Cape Cod Commission
Attn: John Idman, Esq., Chief Regulatory Officer
P.O. Box 226
3225 Main Street
Barnstable MA 02630

Re: Herring River Restoration Project, Final EIS/EIR
EEA No. 14272

Secretary Beaton and Attorney Idman:

This office represents the Chequessett Yacht & Country Club, Inc. (CYCC) and, on its behalf, respectfully submits these written comments concerning the Final Environmental Impact Statement/Final Environmental Impact Report (FEIS/FEIR) for the above-referenced Herring River Restoration Project (hereinafter, "the Project"). These comments are submitted in anticipation of the Joint Review Hearing presently scheduled for June 30, 2016, and conducted pursuant to Section 2(d)(ii) of the Cape Cod Commission's Enabling Regulations Governing Developments of Regional Impact, the Massachusetts Environmental Policy Act (MEPA), G.L. c. 30, §§61, 62-62H, and the Memorandum of Understanding Between the Cape Cod Commission and the Secretary of Massachusetts Office of Energy and Environmental Affairs.

As the owner of over a hundred acres of property located directly adjacent to the Project area, CYCC is an important stakeholder in these public hearings. According to the FEIS/FEIR, there will be extensive flooding throughout the CYCC property if certain of the alternatives are implemented. In particular, if Alternatives B and D are implemented, approximately 30-32 acres of the CYCC property will either have to be cleared, graded and planted (Option 1), or alternatively will have to be filled and reconstructed (Option 2), to create new facilities in place

of those lost to flooding as a result of the Project. During this reconstruction period (presently estimated to take at least 20 months), the CYCC will have to be closed, resulting in significant lost revenues and lost access for its membership.

While the FEIS/FEIR concludes that Alternative C will not cause the flooding predicted with Alternatives B and D, CYCC's expert hydrologist, Dr. Bruce Jacobs, has concluded that there is not sufficient data to support this conclusion. A copy of a report Dr. Jacobs prepared for CYCC after reviewing the FEIS/FEIR is attached hereto and incorporated herein as Exhibit A. In his report, Dr. Jacobs notes that Project proponents concede there will be upstream impacts as a result of the implementation of Alternative C, yet no suggested mitigation measures are provided for abating those impacts. In particular, due to the flat topography within the floodplain, groundwater-surface water interactions not considered in the proponent's analyses, and because the mean water surface elevation within the Lower Herring River is expected to increase by approximately 2 feet as a result of the proposed Mill Creek dike, Dr. Jacobs anticipates greater impacts within the Mill Creek subbasin than projected by the Project proponents. In addition, Dr. Jacobs notes that the FEIS/FEIR includes only the summary version of the Hydrodynamic Modeling Report utilized by the Project proponents to support the conclusion that Alternative C will not cause flooding at CYCC. Without that Report, a thorough engineering review of the methodologies and underlying assumptions cannot be undertaken.

It must be noted that the Project proponents have worked extensively with CYCC for over a year to ascertain the projected impacts of the various alternatives, and to devise protection measures intended to mitigate those impacts to the greatest extent possible. We understand that, through the Adaptive Management Process (AMP), the Project proponents hope to proceed in phases over the course of several years, allowing them to monitor each phase, collect and analyze data from the monitoring, assess problems that might develop during each phase, design and implement solutions to address those problems, and make adjustments as needed to adjust outcomes. Given the scope and complexity of this Project, the AMP provides the Project proponent with a great deal of flexibility and we understand why it is favored by the proponents.

Unfortunately, while it might provide flexibility for the Project proponents, it results in a great deal of uncertainty for the other stakeholders. At this stage of Project planning, the bulk of the details regarding the AMP are unknown and, as such, it cannot be concluded that the proffered alternatives (B, C or D) will not adversely impact CYCC. As noted by Dr. Jacobs, the Project's proposed "overlapping and redundant protection" measures (itemized on Page 291 of the FEIS/FEIR) are highly subjective and contain no objective means of ascertaining when those measures should be implemented. There are no benchmarks against which conditions can be measured to ascertain when impacts rise to a level requiring mitigation. Although monitoring is

suggested, no parameters are provided to establish quantitative and objective criteria for when and what mitigation will be triggered.

While the FEIS/FEIR suggests that these details will be memorialized in separate agreements between the affected landowners and the Project proponents, the Project proponents have no legal authority to enter into binding agreements regarding these details unless and until funding is appropriated to satisfy those contractual obligations.. It is, therefore, imperative that the details regarding the "overlapping and redundant protection" measures be considered as part of any thorough analysis of the Project, including this Joint Review. At a minimum, these details must be included within the Project permit applications, and the permits should be conditioned on their implementation, as well as conditioned upon the requirement that funding be appropriated and escrowed in amounts sufficient to cover the mitigation and protection work, before construction on the Project commences. Indeed, unless funding for potential response actions is secured prior to Project implementation, the AMP approach does not work.

This concludes our general written comments submitted on behalf of the CYCC. Please also refer to the technical comments prepared by Dr. Jacobs on behalf of CYCC, enclosed herewith as Exhibit A.

Thank you and please do not hesitate to contact us should you have any questions.

Very truly yours,

Eliza Z. Cox

Eliza Z. Cox

Sarah Turano-Flores / eac

Sarah A. Turano-Flores

cc: Cape Cod National Seashore and the Herring River Restoration Committee
99 Marconi Site Road, Wellfleet, MA 02667

3211442.1

EXHIBIT A

EI LLC
33 Clark Road, No. 1
Brookline, Massachusetts 02445
617-308-7074

June 30, 2016

Ms. Sarah A. Turano-Flores
Nutter McClennen & Fish LLP
1471 Iyannough Road
Hyannis, MA 02601

Dear Ms. Sarah A. Turano-Flores:

Per your request I have reviewed the Herring River Restoration Project Final Environmental Impact Statement / Environmental Impact Report (FEIS/EIR) dated May 2016. The report describes the project proponent's evaluation of the environmental impacts resulting from the implementation of Alternatives B, C, and D. The alternatives differ in the proposed configuration and operation of gates in the Chequesset Neck Road dike and in the proposed mitigation strategies for the Mill Creek sub-basin and other low-lying properties. Alternative B proposes a somewhat lower tidal range than Alternatives C and D. Alternative C would include the construction of a dike at the mouth of Mill Creek that would be equipped with a flap gate outlet to allow for discharge of water from Mill Creek during the relatively short portions of the tidal cycle when the water level in the Herring River would be sufficiently lower than the water level within Mill Creek to allow for flow through the flap gate. Alternative D would be equipped with gates that allow tidal flows upstream into the Mill Creek subbasin. Alternatives B and D include upstream mitigation activities within the Mill Creek sub-basin designed to allow for continued use of the golf course at the Chequesset Yacht and Country Club.

Herein are my comments on the FEIR/FEIS as they pertain to impacts on the Chequesset Yacht and Country Club within the Mill Creek sub-basin.

- The FEIS/EIR is inconsistent in its assessment of impacts to Mill Creek under Alternative C. Typically, the FEIS/EIR asserts as on page 285, that "Under alternative C, no changes attributable to the project would be expected within the Mill Creek sub-basin. The addition of a dike at Mill Creek would block tides, and flood proofing of the golf course and other individual properties in the Mill Creek sub-basin would not be needed." Elsewhere as in Section 2.5.2 this presumption of no-impact is contradicted in the acknowledgement of potential impacts upstream of the proposed dike under Alternative C: "Given the generally flat land surface of the flood plain and naturally occurring high water table, mechanical pumping may be necessary at times to facilitate freshwater drainage." Also, as noted in the executive summary of the hydrodynamic model, "Simulations of freshwater storm events in the Mill Creek sub-basin indicated that proposed alternatives would decrease the ability of the additional water to drain

from the system." No evaluation seems to have been made of the depth, duration, or frequency of flooding that would result from the implementation of the Alternative C system.

- The no-impact finding for Alternative C fails to take into account the impacts within the Mill Creek sub-basin that would result from a greater than 2-foot increase in the mean water surface elevation within the Lower Herring River relative to existing conditions. The anticipated post-construction water elevation outside the Mill Creek dike under the Alternative C condition is 1.68 feet (Section 3.2.1, Fuss & O'Neill, 2016). The existing mean water elevation is approximately -0.9 feet (Figure ES-9, WHG, 2012). Presuming that there is no increase in the water elevation within Mill Creek – as presumed by the project proponents – the duration of the tidal period over which the Lower Herring River will be low enough to allow discharge from Mill Creek is likely only to be several hours (see for example Figure ES-8 of WHG, 2012). Further, increased water elevations on the downstream side of the dam will increase the inward flux of groundwater towards CYCC that will likely discharge to the portions of Mill Creek upstream of the proposed dike on Mill Creek. A conceptual Mill Creek dike design has been produced by the proponents. The design-report alludes to seepage calculations, but fails to present a calculation of seepage flows through or under the dam. The anticipated no-impact projections for the Mill Creek sub-basin fail to take into account the compromised outflows of water from Mill Creek and the complicated groundwater – surface water interactions that will govern the post-construction water elevation in Mill Creek.

- The FEIS/EIR describes the hydrodynamic model executed by the Woods Hole Group as playing a central role in development of the restoration plan (pg. 17 and elsewhere) and references to model results are made throughout the document. The report's Table of Contents and the text refer to Appendix B as the Hydrodynamic Modeling Report. In fact, Appendix B represents only an Executive Summary of the Hydrodynamic Modeling Report as noted in the text contained in Appendix B. The attached Appendix B is typical of an Executive Summary, in providing a brief summary of findings without providing for a detailed discussion that would allow for a thorough engineering review of the methodologies and underlying assumptions. For instance, a discussion of simulations of storm events in the Mill Creek sub-basin on Page ES-14 notes impacts to water elevations within Mill Creek. The discussion fails however to describe the duration or intensity of the simulated events or the anticipated return period of the simulated events. It also fails to describe the initial and bounding conditions within the Herring River. Hydraulics of flow through the flap valve itself would be a highly complex function of the upstream and downstream water elevations and merits some discussion in and of itself. Further discussion on the same page refers to the evaluation of impacts of sea level rise on groundwater levels in the Mill Creek sub-basin, however the method and underlying hydrogeologic conditions used in those evaluations are not reported. A complete review of the modeled conditions and the reported conclusions is only possible with sufficient documentation of the executed simulation conditions. The full report that presumably contains this information was not made available on release of the FEIS/EIR and is not readily available through other sources on the internet.

- In the discussion of Mitigation of Low-lying Property Impacts in Section 4.10.5, references are made to "overlapping and redundant protection" afforded by monitoring of the tide range and

water levels during the initiation of the opening of Chequesset Neck Road Dike. These statements carry no quantitative targets for assessment of impacts and are as such highly dependent on a subjective judgments of impacts. As noted in this section, the exact nature of monitoring will be specified as components of landowner agreements to be resolved between individual property owners and another unspecified party.

My opinions described above draw on both my formal education and my work experience that includes tens of projects in the area of water resources engineering. I have a Ph.D. in Environmental Engineering, awarded in 1998 by the Massachusetts Institute of Technology Department of Civil and Environmental Engineering. I have been a Registered Professional Engineer in the field of Civil Engineering for the past 24 years and am currently serving as Vice President of the Boston Society of Civil Engineers Section. I have attached a copy of my resume that describes my engineering experience in more detail.

Sincerely,

Bruce Jacobs

Bruce Jacobs, P.E., Ph.D.

BRUCE L. JACOBS

EDUCATION

1998	Ph.D.	Environmental Engineering	Massachusetts Institute of Technology
1987	M.S.	Water Resources Engineering	Massachusetts Institute of Technology
1985	B.S.	Civil Engineering	Wayne State University

PROFESSIONAL HISTORY

2016 – date	EI LLC
1998 - 2016	HydroAnalysis, Inc.
1999 - 2000	Northeastern University
1994 - 1998	Massachusetts Institute of Technology
1987 - 1994	Camp, Dresser & McKee
1984	US Army Corps of Engineers

REGISTRATION

Professional Engineer, Massachusetts

REPRESENTATIVE EXPERIENCE

As an environmental engineering consultant, Dr. Jacobs has broad experience in hydrology and environmental water quality, environmental subsurface site characterization and remedial design, and the generation and the application of numerical models in support of these efforts. Dr. Jacobs is an expert in the application of numerical models for ground-water, hydrologic, and hydraulic analysis, is the developer of the visualization code, EnviroInsite, and is the co-author of Camp Dresser & McKee's proprietary ground-water visualization software. Dr. Jacobs has also contributed to a variety of ground- and surface-water quality studies. These studies include well capture-zone analysis, modeling the impact of channel modifications on stream water quality, and performing statistical analysis of streamflow. Dr. Jacobs is the current chair of the Boston Society of Civil Engineers Section branch of the Environmental Water Resources Institute.

Ground-water Analysis and Modeling

Developed ground-water flow and transport model for determination of travel times to Wilmington, Massachusetts water supply wells.

Served on peer review panel for regional, transient ground-water flow model prepared by South Florida Water Management District. Important issues addressed included calibration indices, methods for calibration of transient models, sensitivity analysis procedures and interpretation, and modeling of surface water – ground water interaction.

Created flow and transport model of regional aquifer at Los Alamos National Laboratory. Prepared impulse response functions for interactive assessment and ranking of health risks from multiple sources.

Prepared assessment of modes of transport through vadose zone at Los Alamos National Laboratory and provided guidance on use of vadose zone characterization strategies.

Provided expert witness testimony in case involving the depletion of water table due to leaking infrastructure. Evaluated multiple causes of water table depletion and timing of impacts.

Constructed models to support site characterization and remedial design at numerous ground-water contamination sites nationwide including regional studies, Superfund sites, capture zone analysis, and pump test assessment.

Lead site characterization and design of ground-water monitoring program for China Petroleum Corporation tank farm in Kaohsiung, Taiwan.

Simulated measures to alleviate saltwater contamination inland of a system of injection wells at West Coast Basin Barrier, Southern California. Modeled operation of Dominguez Gap Barrier injection wells and tested alternative strategies to improve effectiveness of barrier in reducing salt water intrusion in Southern California.

Surface Water / Water Supply

Analyzed overflows of Fitchburg, Massachusetts combined sewer system and assisted in conceptual design of projects to reduce overflows through system expansion, separation of storm and sanitary sewers, and additional system storage.

Evaluated spatial distribution of contaminants within Wilmington, Massachusetts water distribution system. Adapted water distribution model to determine spatial distribution of contaminants that were introduced at water supply wells. Recreated historical system configurations by modification of existing model data and applied to determine change of exposure concentrations over time.

Optimized design and operation of flood gate-reservoir system in Singapore. Involved consideration of both water supply and safety issues, the application of HEC1 and enhancement of in-house FORTRAN code for simulation of receiving basin operation.

Developed network simulation model for long range planning of San Francisco water supply system. Simulations used to assess facilities expansion and siting and improvement of system operations incorporating hydraulic constraints, reservoir operating rules, unit cost functions, and distributed demand.

Assessed spatial distribution of contaminants in water distribution system using University of Kentucky codes for hydraulic modeling and transport, Tucson, Arizona.

Performed river quality simulations of Tiete River in Brazil using QUAL2.

Software Development

Extensive experience in the development and maintenance of C++ and FORTRAN software applications. Developed decision support system for analysis of water quality including database, mapping and model interface (STORM) capabilities. Developed pre/post-processors for water hammer simulation code of US Army Corps of Engineers (WHAMO) and EPA Water Quality Analysis and Simulation Program (WASP).

Responsible for maintenance and development of graphic interface to CDM ground-water numerical models; author of three-dimensional plotting, grid generation, and database query capabilities.

Expert Testimony

Dr. Jacobs has provided deposition testimony in the following:

Charles Dumbaugh v. MDC, BW&SC, MWRA, City of Boston and CR Maguire, Inc. (Mass., Suffolk County)

American Motorists Insurance Co. v. Stewart Warner (U.S. District Court, Northern District of Illinois)

Courtroom testimony was provided in the following cases:

Phyllis Madanian v. Michael Prendergast and Madeleine Prendergast (Mass. Middlesex County, Superior Court Department Civil Action No. MICV2006-00003).

Indian Brook Cranberry Bogs, Inc. and Wanda Jane Warmack v. Board of Appeals of the Town of Plymouth, Peter Conner, William Sims, Patrick Mulvey-Welsh, in their capacity as members of the Plymouth Boards of Appeals, and Sawmill Development Corp. (Mass., Plymouth County, Land Court Department, Misc. Case No. 06-322281).

First Class, LLC, and Perfection Fence Corp. v. Carl Russell, Karen Tepper, Joseph Kelleher, Edwin Parsons, and Michael Harrington as they are members of the Town of Marshfield Zoning Board of Appeals and Town of Marshfield (Mass., Plymouth County, Land Court Department of the Trial Court, Misc. Case No. 333504).

Appeal of groundwater discharge permit awarded to Sawmill Development Corporation by the Massachusetts Department of Environmental Protection (Massachusetts Department of Environmental Protection, Office of Appeals and Dispute Resolution, Docket No. 2014-016).

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Surampalli, R. S.K. Ong, E. Seagren, J. Nuno and S. Banerji, editors, *Natural Attenuation of Hazardous Wastes,* American Society of Civil Engineers, 2004. (ISBN 0-7844-0740-1)
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Durant, J.L., B. Jacobs, and P. Shanahan, "Historical Inputs of N-nitrosodimethylamine to the Public Drinking Water Supply in Wilmington, Massachusetts," In: Roger W. Babcock, Jr. and Raymond Walton, editors, Proceedings of The World Environmental & Water Resources Congress, May 12-16, 2008, Honolulu, Hawai'i. American Society of Civil Engineers, Reston, Virginia.

Till, J., H. Grogan, L. Hay-Wilson, J. Rocco, A. Rood, B. Jacobs, and P. Shanahan, "Overview of Environmental Transport Models Contained in the Risk Analysis, Communication, Evaluation, and Reduction (RACER) Software Tools at Los Alamos National Laboratory," WM2009: HLW, TRU, LLW/ILW, Mixed, Hazardous Wastes & Environmental Management, March 1-5, 2009, Phoenix, Arizona (accepted)

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