

Form Name: FY22 MVP Action Grant Application  
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## FY22 Municipal Vulnerability Preparedness (MVP) Program Action Grant Application

<b>Lead Municipality</b>	Wellfleet
<b>City or Town</b>	Town
<b>Supporting Municipalities (if regional application)</b>	n/a
<b>Project Title</b>	Herring River Restoration Project Phase 1 Final Construction Plans and Bid Specifications
<b>Shorthand Project Title</b>	Herring River
<b>MVP Region</b>	Southeast
<b>Project Type (select best fit)</b>	Type 2: Design and Permitting

### Local Project Manager and Point of Contact:

<b>Name</b>	Rebecca Slick
<b>Job Title</b>	Assistant Town Administrator
<b>Department/Agency</b>	Town of Wellfleet
<b>Email</b>	Rebecca.Slick@wellfleet-ma.gov
<b>Phone</b>	774-383-2609
<b>Address</b>	300 Main Street Wellfleet, MA 02667

### Proposed Funding Summary:

<b>Grant Request Amount FY22</b>	\$700,000
<b>Grant Request Amount FY23 (not required)</b>	n/a
<b>Total Grant Request Amount (add previous two questions)</b>	\$700,000
<b>Match Amount. Must be at least 25% of total project cost. Total project cost = total grant request + total match</b>	\$175,000

**Match Description. Please provide a description of how the municipality's match will be met and source of funding (i.e., "in kind" hours, and/or local, private, federal funds). Please note, other state funding sources cannot be accepted as match. Further details on match requirements in Section 1.F of the RFR.**

The match for this grant will be obtain through "in-kind" work on behalf of Town of Wellfleet personnel, including staff from the Administrator's office, Department of Health and Conservation, Department of Public Works, and others, as well as from federal grant funding from the National Oceanic and Atmospheric Administration (NOAA) Coastal Restoration Center and from the National Fish and Wildlife Foundation (NFWF).

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## **Project Details:**

**Project Summary: 2-4 sentences describing the project, goals, and main tasks.**

Wellfleet identified the need to pursue funding for culvert replacement and salt marsh restoration as its #1 priority through the MVP planning process. The Town is co-applicant with Cape Cod National Seashore on the Herring River Restoration Project, which proposes to restore 570 acres of salt marsh in Phase 1 and a total of 890 acres of salt marsh at full restoration. Sea level rise was incorporated into hydrodynamic model runs and infrastructure design incorporates up to 2 feet of freeboard. Grants from NOAA, MassDER and others have funded design and permitting; this application is for funds to prepare final plans and bid specification packages.

**Is this project a continuation of a previous MVP funded project? If so, please describe:**

No

**Project Location(s): Please provide the address and lat/long coordinates for your project location or the closest addressed location. If the project will take place at multiple locations, please list all of them. (If the project is not at a specific location(s), for example a town-wide planning process, please enter N/A.)**

1. Chequessett Neck Road at Herring River: 41°55'52.82"N, 70° 3'52.23"W
2. High Toss Road (from Duck Harbor Road to Hopkins Drive): 41°56'36.23"N, 70° 3'26.60"W
3. Low-lying Roads (Pole Dike and Bound Brook Island Roads in Wellfleet and Old County Road in Truro): 41°57'10.97"N, 70° 3'26.33"W
4. Way #672: 41°56'33.61"N, 70° 3'12.85"W
5. 695 Bound Brook Island Road: 41°56'59.86"N, 70° 4'10.53"W
6. 680 Chequessett Neck Road: 41°55'55.35"N, 70° 3'15.45"W

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## **Project Narrative, Scope & Budget, and Attachments**

<p><b>Project Narrative: Please upload a document with your answers to all the questions in the "project narrative" section of the application of the RFR (pages 18-26). Please make sure to include the name of the lead municipality and the project title at the top of the document.</b></p>	<p><a href="https://massgov-my.sharepoint.com/:w:/g/personal/kara_runsten_mass_gov/ERAFQhghewBOjeaWFtPsvrUBLdljgEbS0exWGhYIFepuqA?name=/103494890_Wellfleet_HerringRiver_AttachmentA_ENV22MVP02.docx">https://massgov-my.sharepoint.com/:w:/g/personal/kara_runsten_mass_gov/ERAFQhghewBOjeaWFtPsvrUBLdljgEbS0exWGhYIFepuqA?name=/103494890_Wellfleet_HerringRiver_AttachmentA_ENV22MVP02.docx</a></p>
<p><b>Excel Version of Scope/Budget Spreadsheet (Attachment B in the RFR)</b></p>	<p><a href="https://massgov-my.sharepoint.com/:x:/g/personal/kara_runsten_mass_gov/EYH4w1I1v85PkqV5tNQ0GgoBzEL1dBBOdqXm-A5Sh4QMvA?name=/103494972_Wellfleet_HerringRiver_AttachmentB_ENV22MVP02.xlsx">https://massgov-my.sharepoint.com/:x:/g/personal/kara_runsten_mass_gov/EYH4w1I1v85PkqV5tNQ0GgoBzEL1dBBOdqXm-A5Sh4QMvA?name=/103494972_Wellfleet_HerringRiver_AttachmentB_ENV22MVP02.xlsx</a></p>
<p><b>Yearly Progress Report (use EEA-provided template in Attachment D of the RFR)</b></p>	<p><a href="https://massgov-my.sharepoint.com/:b:/g/personal/kara_runsten_mass_gov/EZ4XxYBCXtpKvuCKAfqzYE0B4YAUusyHuALWz67FCmh-cEw?name=/103495371_Wellfleet_HerringRiver_AttachmentD_ENV22MVP02.pdf">https://massgov-my.sharepoint.com/:b:/g/personal/kara_runsten_mass_gov/EZ4XxYBCXtpKvuCKAfqzYE0B4YAUusyHuALWz67FCmh-cEw?name=/103495371_Wellfleet_HerringRiver_AttachmentD_ENV22MVP02.pdf</a></p>
<p><b>Statement of Match from authorized signatory of the municipality (described in Section 1.F of the RFR)</b></p>	<p><a href="https://massgov-my.sharepoint.com/:b:/g/personal/kara_runsten_mass_gov/EVX6ya_ingRBriCRRdO-1-wBjqzRomvc6lxMYNrytIXcdQ?name=/103495335_Wellfleet_HerringRiver_MatchCommittment_ENV22MVP02.pdf">https://massgov-my.sharepoint.com/:b:/g/personal/kara_runsten_mass_gov/EVX6ya_ingRBriCRRdO-1-wBjqzRomvc6lxMYNrytIXcdQ?name=/103495335_Wellfleet_HerringRiver_MatchCommittment_ENV22MVP02.pdf</a></p>
<p><b>Required Information for Design and Construction Projects (Attachment C in the RFR) if applicable</b></p>	<p><a href="https://massgov-my.sharepoint.com/:w:/g/personal/kara_runsten_mass_gov/EbUnO2MOVFRNsULdzCUKfsgB8a58MVlWLeKqVBtDOF-Rg?name=/103495978_Wellfleet_HerringRiver_AttachmentC_ENV22MVP02.docx">https://massgov-my.sharepoint.com/:w:/g/personal/kara_runsten_mass_gov/EbUnO2MOVFRNsULdzCUKfsgB8a58MVlWLeKqVBtDOF-Rg?name=/103495978_Wellfleet_HerringRiver_AttachmentC_ENV22MVP02.docx</a></p>
<p><b>Document with all letters of support compiled</b></p>	<p><a href="https://massgov-my.sharepoint.com/:b:/g/personal/kara_runsten_mass_gov/EZ3XN-QliYNDuEvQ9_xRtLsBNQYXnB33yUFzpx8gqqS2ew?name=/104040250_Wellfleet_HerringRiver_SupportChronology_ENV22MVP02.pdf">https://massgov-my.sharepoint.com/:b:/g/personal/kara_runsten_mass_gov/EZ3XN-QliYNDuEvQ9_xRtLsBNQYXnB33yUFzpx8gqqS2ew?name=/104040250_Wellfleet_HerringRiver_SupportChronology_ENV22MVP02.pdf</a></p>
<p><b>Optional Additional Attachment- Please describe in comment box below and ensure file name is clear.</b></p>	<p><a href="https://massgov-my.sharepoint.com/:b:/g/personal/kara_runsten_mass_gov/EaydIIQ0XD9IoPUZ7_VX_4IBllcNtx6u1qc_mNKMeGpVJQ?name=/103584423_Wellfleet_HerringRiver_PlanSetCoverSheets_ENV22MVP02.pdf">https://massgov-my.sharepoint.com/:b:/g/personal/kara_runsten_mass_gov/EaydIIQ0XD9IoPUZ7_VX_4IBllcNtx6u1qc_mNKMeGpVJQ?name=/103584423_Wellfleet_HerringRiver_PlanSetCoverSheets_ENV22MVP02.pdf</a></p>
<p><b>Optional Additional Attachment- Please describe in comment box below and ensure file name is clear.</b></p>	<p><a href="https://massgov-my.sharepoint.com/:b:/g/personal/kara_runsten_mass_gov/EWthUGU5pWFDkCLYQI5FdV4BH7eoKd8Q_m9DJIIQG0QSVA?name=/105950807_Wellfleet_HerringRiver_PhotosFigs_ENV22MVP02.pdf">https://massgov-my.sharepoint.com/:b:/g/personal/kara_runsten_mass_gov/EWthUGU5pWFDkCLYQI5FdV4BH7eoKd8Q_m9DJIIQG0QSVA?name=/105950807_Wellfleet_HerringRiver_PhotosFigs_ENV22MVP02.pdf</a></p>
<p><b>Optional Additional Attachment- Please describe in comment box below and ensure file name is clear.</b></p>	<p><a href="https://massgov-my.sharepoint.com/:b:/g/personal/kara_runsten_mass_gov/ETzOv-TUsd9Hi6w3MXBvI7EBVANneoC4Nkz1kkhoZun_cQ?name=/105950839_Wellfleet_HerringRiver_RegulatoryInfo_ENV22MVP02.pdf">https://massgov-my.sharepoint.com/:b:/g/personal/kara_runsten_mass_gov/ETzOv-TUsd9Hi6w3MXBvI7EBVANneoC4Nkz1kkhoZun_cQ?name=/105950839_Wellfleet_HerringRiver_RegulatoryInfo_ENV22MVP02.pdf</a></p>

**Please add any additional clarifications about your application materials here.**

Attachments are referenced by the descriptive portion of the file names (e.g., "Photos & Figures" refers to <<Wellfleet\_HerringRiver\_Photos&Figs\_ENV22MVP02>>), and include:

- Match Commitments (letters from Town of Wellfleet and Friends of Herring River)
- Plan Set Cover Sheets (from 6 plan sets that are the subject of this request)
- Photos & Figures
  - o Project Locus, Project Area and Project Overview figures
  - o Photographs of Project element sites and issues
- Regulatory Information
  - o Table of required permits and status
  - o Agency correspondence
  - o List of 401 WQC application appendices with links to the application package, including folders for Permit-level Design plans and Landowner Consent letters allowing work to be shown on plans and included in permit applications)
    - o MEPA Certificate #14272 and comments received about the FEIR
- Support & Chronology
  - o Letters of Support from Project partners, local residents and business owners, non-profit organization and congressional delegates
  - o Chronology of key events and Project milestones

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**Signature of applicant- please leave this as the last thing you do before hitting the "submit form" button. Formstack may try to submit your form if you hit the enter key while filling it out, and leaving this until the very end will prevent your form from being submitted prematurely.**

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Signature image not available.

## Project Narrative

Please provide your full project narrative. Use the rating system as a guide for what information should be included in the narrative to ensure the maximum score possible for your project. Please keep in mind that reviewers will likely not have historic knowledge of your MVP process, this project, or supporting efforts – please provide a full, yet succinct explanation for each question. This section should be completed, saved as a PDF, and uploaded to the online form in the appropriate section. Total size of all documents attached to the online form cannot exceed 25 MB. Please keep responses to a reasonable length.

### 1. Project Description, Rationale, and Climate Data (13 points)

- Up to **8 points** for description & rationale, including:
  - What climate change impacts/vulnerabilities this project will address.
  - What the project's goals and objectives are.
    - If the project is one component/phase of a larger project, please succinctly describe previously completed or future work and the vision for the overall project in addition to the proposed component/phase.
  - Why the project was chosen.
    - How the project will positively impact the resiliency of the site and community.
    - If applicable, please include quantifiable information about the historic or expected future damages that are likely to occur if the project is not completed (e.g., number of people/homes/structures at risk, number of people depending on the infrastructure being improved, extent of past flooding, expected cost if infrastructure fails, etc.).
  - How the project reflects municipal priorities established in the community's MVP-approved report or subsequent climate resilience report that built upon the MVP process.
  
- Up to **4 points** for the degree to which the most up-to-date climate science and data (including data found on resilientma.org and/or local-level studies) will be utilized, including specific reference to the climate data utilized. (Note: If you completed the optional RMAAT Climate Resilience Design Standards Tool in [Attachment E](#) you may use those recommendations to inform this answer.)
  - **For Project Type 1:** Planning, Assessments, Capacity Building, and Regulatory Updates– What climate data will be used to inform the process or report and how will they be utilized? If it is a regulatory project, how will the regulations use climate data to ensure they will provide reasonable and effective guidance into the future?
  - **For Project Type 2:** Design and Permitting – What climate data and standards will be used to inform the design process and how will they be utilized?
  - **For Project Type 3:** Construction and On-the-Ground Implementation – What is the design life of the project? What climate data were incorporated into the design and how were climate data utilized to inform the process? If a different type of implementation project (e.g., land acquisition) describe how climate data informed the project.
  
- **1 point** for inclusion of MVP yearly progress report ([Attachment D](#)) or for indication that MVP Planning Grant process was completed within the past year. There is a place on the online form to upload [Attachment D](#). If regional application please include for all MVP-designated municipalities.

## **Background**

The Herring River system is a 1,100-acre tidally-restricted estuary located in the Towns of Wellfleet and Truro, in Barnstable County (Cape Cod), Massachusetts. Prolonged tidal restriction caused by the Chequessett Neck Road dike in Wellfleet has resulted in severe habitat degradation and nearly complete loss of native tidal wetland habitat. As a consequence, Herring River is listed as an “Impaired Water” in violation of several Federal Clean Water Act standards and the Chequessett Neck Road dike is a state-designated point source for bacterial contamination responsible for closure of downstream shellfish areas. The Town of Wellfleet and the National Park Service/Cape Cod National Seashore (NPS/CACO) have entered into a Memorandum of Understanding to implement the Herring River Restoration Project (“Project”) to re-establish tidal exchange to the Herring River estuary and thereby remediate degraded conditions and restore native wetland habitats and coastal marsh resilience. The Project represents an unmatched opportunity to restore the environment of Cape Cod and revive the ecological and economic benefits provided by a healthy natural coastal river and tidal wetland system.

The Project is the result of more than a decade of scientific study, extensive stakeholder involvement, federal, state and local collaboration and public discussions with local leadership. The Project design has been strengthened by the input of community and regional stakeholders. The Project team includes national experts in estuarine science, civil engineering and environmental resource management.

## **Project Description**

The Town of Wellfleet and CACO are seeking environmental permits necessary to implement Phase 1 of the Project and restore approximately 570 acres of native tidal wetlands. All of the Phase 1 area is currently under state and federal wetlands jurisdiction; 95 percent (540 acres) is owned by the NPS, and two percent involves private residential property. Phase 1 includes the construction of all water control infrastructure needed for full restoration of 890 acres.

The Project will re-establish tidal flow to the estuary incrementally, using a carefully calibrated adaptive management approach that will balance ecological goals with water level control measures, to allow the highest tide range practicable while protecting potentially vulnerable structures on public and private properties, including roads and homes. Tidal flow will be facilitated through (1) replacement of a portion of the existing earthen dike and tidal control structure at Chequessett Neck Road with a new bridge and sluice gate system; (2) construction or alteration of other tidal control structures at the entrances to the Mill Creek and Upper Pole Dike Creek sub-basins; (3) removal of a portion of High Toss Road where it crosses the marsh between the Lower Herring River and Lower Pole Dike Creek sub-basins; (4) vegetation and

marsh management; and (5) measures to prevent water intrusion impacts to structures on public and private properties. Project implementation will be governed by a locally-appointed decision-making council of Town and CCNS officials, and informed by extensive modeling, monitoring and analysis so that unexpected and/or undesirable responses can be detected early on and addressed with appropriate response actions. The Project will result in significant improvements in water quality, rare species habitat, fisheries, and recreational opportunities throughout the Herring River floodplain while improving its resiliency and ability to adapt to the effects of climate change. Restored tidal wetlands will significantly reduce greenhouse gas emissions by reclaiming lost carbon storage and reducing methane emissions.

The Project has been developed over many years in partnership with the Town of Wellfleet, NPS, and members of the community. At each stage of project development, the Project team has worked closely with federal, state and local entities to account for their interests and potential concerns. The Project has completed review under the Massachusetts Environmental Policy Act (MEPA), and received its Certificate of Compliance on July 15, 2016 (EEA # 14272). Phasing of the Project is contemplated in the Final Environmental Impact Report (EIR).

#### **Climate Vulnerabilities Addressed**

As discussed more fully below, tidal restriction has degraded the marsh and compromised many of its critical resilience functions. First, the marsh has lost the ability to absorb carbon and, instead, areas of former salt marsh that have become ponded freshwater wetlands and a source of methane emissions. Second, the marsh has lost the sediment source needed to maintain elevation against sea level rise. Due to the loss of sediment flow and the deterioration of peat soils, several hundred acres of the marsh have subsided up to three feet, thus eliminating the ability for the marsh to function as a buffer against storm surge or absorb flood waters, a condition that could worsen with increasing sea level rise.

A primary objective of the Project is to restore natural sedimentation processes upstream, allowing the marsh to accrete and maintain elevation with rising sea level. The restored salt marsh will, in turn, enhance coastal resilience as a natural buffer to storms and wave action to reduce erosion. Tidal restoration will also allow floodwaters from coastal storms to recede more quickly. This will help to protect roadways, wells, and other infrastructure.

In terms of mitigating specific risk to the neighboring coastal communities, the subsidence and degradation of the salt marsh resulting from decreased tidal flow has created large, low-lying areas vulnerable to sea level rise and associated storm surge. There are approximately 300 private residential properties and a small number of commercial businesses located in the Herring River floodplain. FEMA has designated the estuary as a "Special Flood Hazard Area." The Cape Cod Commission has created a mapping tool to assess risk and vulnerability, as well as visualizations that show potential impacts of hurricanes and sea level rise. Building on that information, and in view of concerns over severe winter storms and coastal flooding in 2018, the towns of Wellfleet and Truro and the Cape Cod Commission held a Municipal Vulnerability

Preparedness stakeholder workshop in May 2019. The workshop considered major environmental and infrastructure threats to the region due to sea level rise, severe weather and associated storm surge. Workshop participants, including local officials, community stakeholders and regional resiliency planners, found that “Addressing climate change impacts is an urgent matter for these neighboring Outer Cape communities . . . the towns are vulnerable to storm surges, coastal erosion, and sea level rise that threatens the built environment, drinking water aquifer, biodiversity and natural resources.” The workshop designated restoration of salt marsh as the top recommendation to improve resilience; the top priority action identified through the MVP planning process was to pursue funding for culvert replacement and salt marsh restoration. This Project fully responds to the designated MVP priority and represents the largest salt marsh restoration on Cape Cod and, in fact, within all of New England. An MVP progress report is attached.

The Town views restoring tidal wetlands and installing modern tidal control infrastructure as advancing resiliency on several fronts. A primary objective of the Project is to restore natural sedimentation processes upstream, allowing the marsh to accrete and maintain elevation with rising sea level. The restored salt marsh will, in turn, enhance coastal resilience as a natural buffer to storms and wave action to reduce erosion. Tidal restoration will also allow floodwaters from coastal storms to recede more quickly. This will help to protect roadways, wells, and other infrastructure. Additional infrastructure protection will occur with undergrounding of utilities in designated areas. The restoration will also replace existing methane-emitting freshwater wetlands with carbon-absorbing saltwater wetlands, thereby contributing to a reduction of greenhouse gases.

### **Scientific Basis for Resilience Impacts**

The scientific basis for the Project was largely drawn from a series of studies conducted by NPS researchers and others, beginning in the 1980s and summarized in the Herring River **Conceptual Restoration Plan in 2007 (link?)**. A two-dimensional hydrodynamic model was developed that established the feasibility of tidal restoration and analyzed the effects of restoring tidal flow to different parts of the estuary. This included three different scenarios for sea level rise over the next 50 years and analysis of numerous combined storm events. The model was also used to develop and analyze restoration alternatives based on balancing degrees of tidal restoration with necessary flood prevention.

Coincident with Project planning, risk and threat assessments from sea level rise and storm surge have been conducted by the Cape Cod Commission and depicted using interactive digital mapping (see the Wellfleet Risk and Vulnerability Map<sup>1</sup> and Cape Cod Commission Sea Level Rise Viewer.<sup>2</sup>) This information helped to inform the MVP workshop described above.

The Project will increase community resilience to sea level rise by (1) providing new infrastructure with tide gates that will allow flexibility in managing the level of tidal flow through the entrance to the Herring River system at Chequessett Neck Road; and (2) providing

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<sup>1</sup> <http://www.capecodcommission.org/resources/coastalresources/WellfleetPDM.pdf>

<sup>2</sup> <http://www.capecodcommission.org/sealevelrise/>



mitigation to protect upstream properties under extreme storm surge conditions. However, it is important to note that the Project is not intended nor designed to prevent or mitigate extreme coastal storm surges which would overtop the proposed new CNR bridge and water control structure, which could occur with the existing dike in place. There are numerous reasons for this [Note: all tidal elevations are referenced to NAVD88]:

a) As indicated by the latest Flood Insurance Rate Map (FIRM) prepared by FEMA for the National Flood Insurance Program, the current CNR dike was not designed or constructed as a FEMA-designated flood control structure. This means that the existing structure would not prevent impacts from the FEMA-defined 100-year storm surge, which produces a base flood elevation (BFE) of 15 feet, according to the latest FIRM and supporting Flood Insurance Study. This BFE is approximately three feet higher than the existing crest elevation of the dike, which is roughly 12 feet, and more than five feet higher than the storm-of-record for Wellfleet Harbor (9.7 feet, i.e., the highest tide ever observed locally, during the February 1978 blizzard).

b) The new structure proposed as part of the Project is designed to the same crest elevation as the existing dike. Constructing a new structure at Chequessett Neck Road to prevent overtopping during the FEMA defined 100-year coastal storm would require a crest height three feet higher than proposed and would incur costs and impacts that would make the Project infeasible. In addition, current FEMA maps show that the BFE overtopping a new CNR structure would also overtop the existing shoreline at Power's Landing and Duck Harbor. Without formidable elevation and stabilization at these locations, a new CNR structure built at or above the BFE (15 feet, plus required freeboard) would not provide protection against the FEMA-defined 100-year coastal storm. Such work on the dunes at Powers Landing and Duck Harbor is infeasible, unsustainable, and out of proportion with the scale of impacts that would occur within the Herring River floodplain if such an event were to occur.

c) Hydrodynamic modeling conducted for the Project shows that an extreme tidal event of lower magnitude than the BFE but not overtopping the proposed CNR structure (i.e., maximum coastal surge of 11.9 feet) with the new tide gate structure 100% open, would be dampened upstream of the structure, resulting in a maximum water surface elevation of approximately 8.6 feet in the Lower Herring River (i.e., just upstream of the structure). This storm event has never occurred and is calculated to have a 1-in-1,500-year return frequency. It is almost two feet higher than the storm-of-record for Wellfleet Harbor (9.7 feet, i.e., the highest tide ever observed, during the February 1978 blizzard).

d) If future sea level changes result in the actual occurrence of a storm of this magnitude, vulnerable properties would still be protected since all flood mitigation measures are designed for the effects of the 1978 storm-of-record high tide. This produces a storm surge of 9.7 feet in Wellfleet Harbor and a maximum water surface elevation in the Lower Herring River of 7.5 feet. Maximum water levels are gradually lower in more upstream locations. Flood mitigation measures include two feet of freeboard, meaning that maximum tides up to 9.5 would still not result in harmful impacts. As stated above, under both current and future conditions, a tidal surge above 11.9 feet would overtop both Chequessett Neck Road and the dunes at Power's Landing and Duck Harbor and impacts would occur no matter how high the new CNR structure was.

e) In summary of the above points, (i) designing the new CNR structure as a FEMA flood control structure would be ineffective, because water would still enter the system under extreme storm surge conditions by overtopping dunes at Powers Landing and Duck Harbor; (ii) this would still be true in the event of more severe (and never recorded) storm surge conditions possible under more aggressive sea level rise projections; (iii) for surge conditions below the crest height of the proposed new structure, the bridge and tide gates, even fully open, would still dampen tidal exchange and limit the height of storm surge into the river as described above. Any potentially adverse impacts resulting from tidal flow under current and foreseeably future tidal hydrology where high tide remains below the crest of the CNR structure (12 feet NAVD) will be prevented by site specific flood mitigation measures that are designed to a 9.5 maximum high tide water level (up to 7.5 feet for the observed storm-of-record impacts, plus up to two feet of freeboard).

### **Project Status**

In addition to the extensive environmental assessments described above, permit-level design plans have been prepared and stamped for the seven Project elements, six (6) of which are included in this funding request (see Section 2 for listing). All property owners have provided consent for seeking permits needed to conduct work on their property.

Environmental permitting for Phase 1 is underway (see Section 2 for additional detail) and is on schedule to be completed by the end of this calendar year. Comments and conditions from permitting agencies will be compiled with other inputs (utility companies, MassDOT, etc.) for incorporation into final design plans.

This MVP Action Grant request is to fund preparation of final design/construction plans, and development of construction bid packages including construction-level design plans and specifications for each Project element. The vital tasks proposed for MVP funding leverage the substantial progress the Project has achieved leading to the current permitting phase, and provide a needed bridge of funding to construction and implementation of tidal restoration and enhanced resilience.

## **2. Timeline, Scope, and Budget (15 points)**

- Up to **4 points** for project scope. Please detail each task/step of the project here and include a summarized version in [Attachment B](#). For each task, please identify if it is dependent on completion of another task.

Permit-level design plans have been prepared for seven (7) Project infrastructure construction and impact mitigation elements:

1. Herring River Restoration Project | Chequessett Neck Road, Wellfleet Massachusetts | **Chequessett Neck Road Bridge and Water Access Facility Construction** | Permitting Drawing Set | January 2021 | Not for Construction (53 sheets)
2. Herring River Restoration Project, Wellfleet and Truro, Massachusetts | **High Toss Road** Permit-Level Design Plans | March 12, 2021 | For Permitting Purposes Only (13 sheets)
3. Herring River Restoration Project | **Engineering Design to Elevate Low-Lying Roadways and**

**Replace Associated Culverts**, Truro and Wellfleet, Massachusetts | Permit Plans-Not for Construction | March 2021 (91 sheets)

4. Herring River Restoration Project **Permit Level Design for Low Lying Property Impact Prevention | Way #672**, Hirsch-Meek Property (25 Way #672), & Ellis Property (27 Way #672), Wellfleet, MA | Permit Plans-Not for Construction | March 2021 | **“Way 672”** (11 sheets). Construction-level plans and bid specifications will also be developed for a utility relocation proposed as further mitigation for these two low-lying properties.

5. Herring River Restoration Project **Permit Level Design for Low Lying Property Impact Prevention | Miller-Frederiksen Property (695 Bound Brook Island Road)**, Wellfleet, MA | Permit Plans-Not for Construction | March 12, 2021 (9 sheets)

6. **Chequessett Yacht and Country Club Reconfiguration** Permit Plans | Herring River Restoration Project Wellfleet and Truro, Massachusetts | 680 Chequessett Neck Rd, Wellfleet, MA 02667, AP 19 Lots 81, 81-2, 173, 11-1, and 12-1 | March 24, 2021 (37 sheets)

Currently, engineering plans for all six project elements are at permit-level design phase and these plans will be reviewed by up to a dozen local, state and federal regulatory agencies. It is anticipated that requests for modifications and refinements will be issued by regulatory reviewers, and some of these ultimately will be codified in permit conditions that will need to be reflected in construction phase plans. The scope of work for the Herring River Restoration Project Phase 1 Final Design and Bid Packages project is to advance to final design, develop construction-ready plans that fully reflect regulatory requirements and prepare construction bid specification packages. The Town has been working with three (3) engineering design firms on the development of design plans and propose to continue working with these firms to develop construction plans and technical bid specifications.

The scope of work to develop 100% construction plans and prepare technical bid specifications as described below is similar for all six project elements and is described once below for brevity. However, the level of effort to accomplish all tasks for each of the six project construction elements is reflected in the project budget. Phase 1 construction elements include installation of a WCS in Mill Creek; this work is entirely on federal property and will be funded separately, but information is included for clarity.

#### **TASK SET 1. REVIEW PERMIT LEVEL DESIGN DOCUMENTS AND UPDATE AS NEEDED**

Prior to starting the final design work, our consultants will meet with the Town and other Herring River project team members to discuss the status of design plans, specific modifications needed, any further analysis needed to finalize modifications, the review and approval process for final plans, and the schedule for this work. The consultants will review the status of Permit-Level Design documents and prepare updates, as applicable based on new information and permitting requirements, as applicable.

In some instances, it may be necessary for the consultants to contract a licensed Massachusetts surveyor to collect additional survey information of the project sites. This work will only be conducted as needed and will require Town approval prior to sub-contract award. The consultants will meet with the Project Team to discuss the need for additional or updated surveys.

#### **TASK SET 2. DEVELOP TRAFFIC MANAGEMENT PLANS**

The magnitude of construction work proposed to occur contemporaneously in a rural town setting emphasizes the significance of traffic management planning. Consultants will work with the project technical team, emergency services personnel, town DPW, local residents and businesses and other stakeholders to ensure that Traffic Management Plans are developed that meet all requirements and minimize disruption for local residents and businesses.

Where necessary, the consultants will use the existing design plans to prepare a Traffic Management Plan for the construction work, as applicable for each project component. The plan be prepared in accordance with AASHTO guidelines and MassDOT regulations as well incorporating local requirements for traffic management.

#### **TASK SET 3. PREPARE FINAL DESIGN PLANS, DRAFT FOR REVIEW**

Based on the reviewed and updated permit-level design plans, the consultants will prepare draft and final design plan documents, including project plans, specifications, and bid documents.

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The plans shall include the following components:

- Title Sheet
- General Notes and Legend
- Summary of Quantities
- Existing Conditions Plan
- Excavation and Grading Plan
- Soil Erosion and Sediment Control Plan
- Proposed Conditions Plan
- Typical Details, Site Profile and Cross-Sections
- Structural Design Plans for Project Components
- Planting and Seeding Plans and Details
- Water Control, Temporary Diversion, and Dewatering Details

The plans will clearly depict the location of areas of proposed excavation, fill placement, water control and soil handling methods, culverts, existing and relocated utilities, and potential construction staging areas.

Construction notes, soil and erosion control measures and planting and seeding measures will need to be standardized across all six infrastructure elements as necessary.

The consultants will provide the Project Team with draft Final Design plans and specifications for review. They will revise the plans, based on one collective set of project partner comments compiled and forwarded by the Town.

#### **TASK SET 4. UPDATE AND FINALIZE DESIGN PLANS, DETAILS, SPECIFICATIONS, BID DOCUMENTS AND COST ESTIMATE**

The consultants will finalize design plans for the Herring River restoration components that will be sufficient for bid and construction of this restoration project. The plans shall reflect any necessary modifications and/or updates to the previously completed design with input from and/or requirements by the regulatory agencies and the Project Team.

The final design plan set will include the following:

- Summary of Quantities
- General Notes and Legend
- Plan Views and Typical Sections
- Excavation and Grading Plans
- Structural Design
- Soil Erosion and Sediment Control Plan and Details
- Planting Plans
- Construction Details
- Construction Specifications and Sequence of Construction

The consultants will update and finalize the final design project construction specifications as part of the bid document package. The final technical specifications shall provide the construction details for the project, include details on the scope of work, identification of materials and equipment, structure details, construction phasing, measurement and payment and any other technical specifications. The consultants will provide the Project Team with digital draft final project construction specifications, an itemized bid sheet, and the engineer's estimate of probable costs. Following review and comment on these documents by the Project Team, the consultants will finalize the bid contract set and provide five (5) hard copies signed and stamped by the PE and one CD-ROM copy of the final design plans in PDF and CADD format.

#### **TASK SET 5. MEETINGS AND PROJECT COMMUNICATIONS**

These tasks will cover meetings and project communications that are necessary throughout the final design process. As much as possible, the consultants will communicate with the Project Team via conference call meetings. The design meetings will likely include meeting with Town officials, as well as project partners, and impacted adjacent property owners. The consultants

will prepare materials for the meetings in the form of agendas, presentations, reports and meeting minutes. They will also participate in phone check-ins with the Project Team to provide updates on project progress and any issues that may have arisen.

Cover pages from the permit-level design plan sets for the six construction-phase elements proposed for funding under this grant are attached. The plan sets, which are too large to attach, are posted on the Google drive at <https://drive.google.com/drive/folders/1O5oEI5NBCncZ8-CsKVHx9mqhjwZxoOC7?usp=sharing> and in a Dropbox folder at [https://www.dropbox.com/sh/rdx7la0pw4rzy5m/AAAb7BB3vP\\_Jt9Cg84UUbD0Wa?dl=0](https://www.dropbox.com/sh/rdx7la0pw4rzy5m/AAAb7BB3vP_Jt9Cg84UUbD0Wa?dl=0).

- Up to **4 points** for the project budget. Applicants will include budget numbers for each task and sub-task via [Attachment B](#). There is a place to upload Attachment B as an Excel spreadsheet on the online form. The second tab on the spreadsheet is **now optional** but can be used to calculate budget numbers to the extent helpful, identify assumed rates for project team time and municipal in-kind match, or justify high grant funding requests for specific tasks by providing greater detail. The Applicant may also use another format to provide greater detail on these items (e.g., a quote from a contractor) if available. There is a spot to upload additional materials on the online form.
  - Budgets for each project element have been provided to the Town by the engineering design consultants for each project elements seeking funding under the MVP grant.
  - The total project cost is \$793,184. The Town is requesting \$589,960 from MVP. The remainder of the project funds will be from both Cash Match and In-Kind Match. Sources of Cash match will come through grants received by Friends of Herring River from the National Oceanic and Atmospheric Administration (NOAA) Coastal Resiliency Center and the National Fish and Wildlife Foundation (NFWF), in the amount of \$171,00 total). In-kind match will come through the Town of Wellfleet (Amount \$19,474) and Friends of Herring River (\$12,749). Total matching funds will be \$203,224, or 26% of the Total project cost.
- Up to **4 points** for a clear project timeline that can be completed within the specified contract period. For projects that require completion of [Attachment C](#), please include major milestones, regulatory touchpoints and approvals, and information on how any project planning, design, and regulatory compliance efforts will be met during the grant period. Please ensure the timeline dates align with start and end dates for each task in [Attachment B](#).

Schedule of Project Tasks Leading to Construction Start

	Sep 2021	Oct 2021	Nov 2021	Dec 2021	Jan 2022	Feb 2022	Mar 2022	Apr 2022	May 2022	Jun 2022	July 2022	Aug 2022	Sep 2022	Oct 2022	Nov 2022	Dec 2022	
Finalize Permitting																	
Final Design Plans																	
Preparation of Bid Docs																	
Advertise Bids																	
Review/Select Proposals																	
Award Bids																	
Negotiate Contracts																	
Notices To Proceed																	
NPDES, Water Control, TMP																	
Site Mobilization																	

MVP Grant Tasks

Commented [CR2]: Use revised table attached

- Up to 3 points for identification of regulatory project components (including satisfactory completion of [Attachment C](#) if a design, permitting, or construction project). Documented coordination with applicable regulatory agency/ies is encouraged. Projects with significant regulatory compliance barriers identified through assessment of [Attachment C](#) or construction projects that do not have all necessary permits and permissions in hand may be disqualified. There is a place on the online form to upload [Attachment C](#).

The Project has completed review under the National Environmental Protection Act (NEPA) and Massachusetts Environmental Policy Act (MEPA), and received its Certificate of Compliance on July 15, 2016 (EEA # 14272). The MEPA Certificate establishes a Regulatory Oversight Group made up of applicable local, regional and state regulatory agencies to work with the Town and Cape Cod National Seashore as proponents, and members of the Herring River Technical Team. The Town and Project partners have identified all environmental permits required for implementing Phase 1 restoration and have been working with regulatory agencies at all levels; the attached file of Regulatory Information includes agency correspondence and a table of permits that are needed for the Project. The Town received Development of Regional Impact approval from the Cape Cod Commission on June 11, 2020. Recently filed permit applications include: Chapter 91 Waterways Licenses (application submitted to MassDEP on March 30, 2021), Section 401 Water Quality Certification (application submitted to MassDEP on March 30, 2021), and Section 404 General Permit Pre-Construction Notification submitted to U.S. Army Corps of Engineers on April 30, 2021. As required for these regulatory permits, the Town and

Project partners have consulted with Massachusetts Division of Marine Fisheries, Massachusetts Natural Heritage and Endangered Species Program, NOAA Fisheries and US Fish and Wildlife Service to ensure that all steps necessary to protect rare and endangered species, and aquatic and wildlife habitat are undertaken. Pursuant to the Massachusetts Wetlands Protection Act, Notices of Intent will be filed with the Wellfleet and Truro Conservation Commissions later this year. For each permit, the Project team has worked closely with regulatory agencies to understand the application of respective regulatory requirements to the Project and ensure that application materials are comprehensive.

The attached Regulatory Information file includes agency correspondence and a table of permits required for the Project.

### **3. Nature-Based Solutions and Environmental Co-Benefits (16 Points)**

- Up to **10 points** for the degree to which nature-based solutions (i.e., solutions that protect, restore, or manage ecological systems) are incorporated into the overall vision of this project and how the selected strategy/ies will help the community adapt to existing and projected impacts of climate change. More information about nature-based solutions can be found in the [MVP toolkit](#). Consider the following questions in your response:
  - a. **For Project Type 1:** Planning, Assessments, Capacity Building, and Regulatory Updates– How will this work “set the stage” for future implementation of nature-based solutions?
  - b. **For Project Type 2:** Design and Permitting – Describe all design options (including nature-based options) that will be evaluated or considered in the design process.
  - c. **For Project Type 3:** Construction and On-the-Ground Implementation – What are the nature-based solutions being implemented? If the project is not nature-based, describe a clear assessment of design alternatives and discussion of why a nature-based solution was not chosen.

(Note: Hard infrastructure projects in any phase may still receive a maximum of 5 points for a response to this question that demonstrates why this approach was deemed necessary over nature-based approaches and illustrates how environmental conditions will improve with grey infrastructure implementation.)

The Town of Wellfleet and Cape Cod National Seashore (CACO) propose an innovative nature-based approach to restore the natural resilience functions of the Herring River estuary that have been lost due to tidal restriction.

**Enhanced Flood Protection:** Replacement of degraded, outdated infrastructure will enhance flood protection and also allow floodwaters from coastal storms to recede more quickly. The following project outcomes are directly related to resilience:

- Restoration of 570 acres salt marsh and tidal wetlands during Phase 1 will enhance natural storm attenuation and flood storage.
- Measurable increases in the elevation of the now-subsided marsh plain through natural accretion of sediments and possibly thin layer deposition.
- Pole Dike Creek tide gates will be closed to allow drainage only, and will improve drainage following storm events.



- Chequessett Neck Road and Mill Creek water control structures and upgraded roadway culverts will allow for quicker drainage of sub-basins following heavy precipitation and storm events.
- Improved storm water management will be built into the Chequessett Neck Road bridge and road improvements, to improve storm drainage and avoid negative impacts to wetlands and water quality.

**Improved Public Health:** Tidal restoration will improve public health by remediating bacterial contamination in the water column and by reducing nuisance mosquitoes that may bear viruses.

Currently, the CNR dike is designated as a point source of bacterial contamination by the Massachusetts Division of Marine Fisheries, which has led to closure of hundreds of acres of downstream shellfish beds. Persistent bacterial contamination is a threat to human health through inadvertent consumption of shellfish taken from prohibited areas. Recent reports suggest that worsening bacterial contamination flowing out of Herring River toward Wellfleet Harbor also could pose a threat to downstream oyster aquaculture grants. Tidal restoration will effectively address this public health threat by increasing flushing and diluting concentrations of fecal coliform bacteria and by reducing water temperature and increasing salinity, which reduces the life span of bacteria.

Natural control of nuisance mosquitoes will be achieved by restoring tidal exchange and flushing and reducing conditions that are now conducive to mosquito habitat, and by increasing access for fish that prey on mosquito larvae. Another unfortunate consequence of the 1909 diking of Herring River has been the increase in freshwater swamp habitat suitable for mosquito species more likely to carry viruses. Restoration of tides and salt water will replace much of this habitat that is conducive to virus-bearing freshwater mosquitoes with healthy salt marshes throughout much of the estuary.

**Increase natural hazard resilience:** As described above, the Project will enhance coastal resiliency by restoring normal sediment deposition needed to allow the marsh plain to gain elevation and mitigate impacts of sea level rise, and by constructing state-of-the-art tidal control infrastructure to protect low-lying roads and other public and private structures. All Project tide control elements and mitigation measures have been designed to accommodate sea level rise. As described above, hydrodynamic modeling studies form the basis of design requirements for the overall restoration program, including the need for infrastructure modifications and additions to protect existing infrastructure and structures from increased water levels. The freeboard incorporated into the Project's infrastructure designs will prevent surface water impacts to structures and infrastructure for at least the next 50 years under the most severe sea level rise scenario analyzed. All measures intended to protect structures from the potential effects of tidal restoration are designed to protect the subject structures under full tidal restoration conditions. Additional infrastructure protection will occur with

undergrounding of utilities in designated areas.

**Carbon sequestration:** The Project contributes to the reduction of the greenhouse gas emissions that contribute to climate change. Blue Carbon refers to the carbon naturally stored in coastal wetlands and seagrass beds that would otherwise contribute to atmospheric carbon dioxide (CO<sub>2</sub>) loading and global climate change. Historically, the Herring River salt marshes absorbed large volumes of carbon in peat soils, which accumulated year after year as sea level slowly increased. However, decades of artificial tidal restriction have led to a massive release of carbon by altering sediment deposition and tidal circulation patterns. Blockage of tidal flow and accompanying carbon-laden sediment, has allowed carbon to remain suspended in the water column where portions of it are released to the atmosphere as carbon dioxide. In addition, conversion of hundreds of acres of salt marsh to freshwater marsh has increased methane emissions, adding further to greenhouse gas emissions associated with the degraded Herring River floodplain. Over a forty-year period, the restoration of the entire Herring River floodplain could result in greenhouse gas emissions reductions of 300,00 metric tons of CO<sub>2</sub> equivalent. For Phase 1 restoration, the greenhouse gas emissions reduction benefit is 150,000 metric tons of CO<sub>2</sub> equivalent.<sup>3</sup>

In addition to the resilience benefits of restoration, the Project will result in significant ecological and community co-benefits

- Reconnecting the Herring River estuary to Cape Cod Bay and the Gulf of Maine to recover the estuary's functions as: (1) a nursery for marine animals, and (2) a source of organic matter for export to near-shore waters.
- Restoring the natural coastal food web to support numerous fish and bird species and other wildlife that depend on healthy coastal marsh habitats and processes for their migration and survival.
- Reopening waterways to improve migration and spawning for a variety of fish species including River Herring, American Eel, Striped Bass and Winter Flounder, as well as Diamond-back Terrapin.
- Enhancing habitat to increase local fish production and remove physical impediments to migratory fish passage to restore once-abundant river herring and eel runs.
- Protecting and enhancing harvestable shellfish resources both within the estuary and in receiving waters of Wellfleet Harbor. Re-opening and expanding shellfish beds will benefit the local economy; in 2018, the shellfish harvest in Wellfleet was valued at \$7.2 million.

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<sup>3</sup> Herring River Carbon Project Feasibility Study. TerraCarbon. Version 1.4. August 2019

Shellfish habitat restoration will also help to sustain local shellfishing jobs, which are estimated to number 400-450.<sup>4</sup>

- Re-establishing the estuarine gradient of native salt, brackish, and freshwater marsh habitats in place of the invasive non-native and upland plants that have colonized most parts of the degraded floodplain.
- Enhancing opportunities for canoeing, kayaking, and wildlife viewing over a diversity of restored wetland and open-water habitats, including 6 miles of waterways for recreation and tourism. Tourism accounts for nearly \$11 million annually to the local community and supports jobs.
- Generating approximately \$624 million in local and regional economic benefits over the life of the project based on economic studies of other coastal restoration projects.

Tides will be restored incrementally using an Adaptive Management Plan (AMP) that balances ecological goals with flood control measures to allow the highest tide range practicable while protecting vulnerable structures. Project implementation will be informed by extensive modeling, monitoring and analysis as part of the AMP, which will be completed and refined based on regulatory review and permit conditions. The proposed adaptive management plan is a rigorous science-based process of predicting system responses to restoration actions; monitoring system conditions before, during and after management actions are implemented; comparing the predicted and observed system responses to update the understanding of the system response to management actions; and using the results to inform and refine management actions. Information obtained from monitoring improves the ability to predict future outcomes and make better ‘adaptive’ decisions regarding the selection of appropriate management actions throughout the course of implementation.

- Up to **6 points** for identifying and describing environmental co-benefits of the proposed project in the table below. For non-implementation projects, please identify how this work will “set the stage” for future co-benefits.

This MVP Action Grant request is for Herring River Restoration Project Phase 1 Final Design and Construction Bid Packages. This will set the stage for a host of benefits, including:

Co-Benefit		Description of how the project will produce this environmental co-benefit
Promotes Biodiversity (habitat restoration, creation, or enhancement)	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> <li>• Restoring the natural coastal food web to support numerous fish and bird species and other wildlife that depend on healthy coastal marsh habitats at critical stages of their life cycles.</li> </ul>

<sup>4</sup> Civetta, Nancy. Wellfleet Shellfish Department. Presentation to Herring River Stakeholder Group. November 6, 2019.

		<ul style="list-style-type: none"> <li>• Reopening waterways to improve migration and spawning for a variety of fish species including river herring, American eel (<i>Anguilla rostrata</i>), striped bass (<i>Morone saxatilis</i>), white perch (<i>Morone americana</i>), and winter flounder (<i>Pseudopleuronectes americanus</i>), as well as diamond-back terrapins (<i>Malaclemys terrapin</i>).</li> <li>• Enhancing habitat to increase local fish production; and removing physical impediments to migratory fish passage to restore once-abundant river herring and eel runs.</li> <li>• Protect and enhance harvestable shellfish resources both within the estuary and in receiving waters of Wellfleet Harbor.</li> </ul>
Restores/remediates Project Site	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> <li>• Reconnecting the Herring River estuary to Cape Cod Bay and the Gulf of Maine to recover the estuary's functions as (1) a nursery for marine animals and (2) a source of organic matter for export to near-shore waters.</li> <li>• Re-establish the estuarine gradient of native salt, brackish, and freshwater marsh habitats in place of the invasive non-native and upland plants that have colonized most of the degraded floodplain.</li> <li>• Re-establish the natural control of nuisance mosquitoes by restoring tidal flushing of, and predatory fish access to, potential floodwater-mosquito breeding habitat.</li> </ul>
Promotes Environmentally-Sustainable Development / Reduces Development in Climate Vulnerable Areas	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> <li>• A primary objective of the Project is to restore natural sedimentation processes upstream, allowing the marsh to accrete and maintain elevation with rising sea level. The restored salt marsh will, in turn, enhance coastal resilience as a natural buffer to storms and wave action to reduce erosion.</li> <li>• Freeboard incorporated into infrastructure designs will prevent surface water impacts to structures and infrastructure for at least the next 50 years under the most severe sea level rise scenario analyzed.</li> </ul>
Improved Water Quality and/or Increased Groundwater Recharge	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> <li>• Vegetation in restored marshes will enhance attenuation of pollutants</li> <li>• Project will establish or enhance naturally vegetated buffers. Vegetations slow the flow of stormwater runoff and allows suspended solids and adhered</li> </ul>

		pollutants to be removed
Improved Air Quality	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> <li>The freshwater wetlands of the Herring River currently emit large amounts of methane, which is not only a greenhouse gas roughly 30 times stronger than carbon dioxide, it is also considered, but it also contributes to ground-level ozone pollution. The restoration of salt water to these current freshwater wetlands will reduce methane emissions significantly.</li> </ul>
Climate Mitigation (carbon sequestration, site-scale improvements for cooling, reduced energy use)	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> <li>Enhance coastal resiliency by restoring normal sediment deposition and peat saturation needed to allow the marsh to gain elevation and mitigate impacts of sea level rise, and by constructing state-of-the-art tidal control infrastructure to protect low-lying roads and other structures.</li> <li>Project contributes to the reduction of greenhouse gas emissions that contribute to climate change by reducing methane emissions from ponded wetlands and increasing carbon storage in salt marsh.</li> </ul>
Other Environmental Co-Benefit:	<input type="checkbox"/>	

#### 4. Environmental Justice and Public/Regional Benefits (14 points)

- Up to **8 points** for a project located within a mapped EJ Population, identified through the Massachusetts [EJ viewer](#) with **demonstrated positive impacts to that community** and **demonstrated support from the community**. To receive full points, the Applicant should:
  - Provide specific relevant demographic information related to the Environmental Justice Population (i.e., income, race, and English isolation) and a description of where the community is located geographically relative to the project site.
  - Demonstrate how the project will increase climate resiliency for this EJ Population.
  - Demonstrate support from the EJ Population that the project is intended to benefit. Demonstration of support may include:
    - Letters of support from residents or community groups representing these populations.
    - Indication that residents or community groups representing these populations will be part of the project team (i.e., the community liaison model described in [Attachment E](#)) and, **if so, specifically how much of the project budget will be used to compensate them for their work and on what tasks?** (Please make sure this partnership is easily identifiable in your [Attachment B](#) scope/budget).

**Note:** Recognizing that there may be members of your community who are highly vulnerable to the impacts of climate change that do not meet the specific criteria or thresholds of an EJ population, the MVP program also recognizes benefits to and involvement of “Climate Vulnerable Populations.” Climate Vulnerable Populations are those who have lower adaptive capacity or higher exposure and sensitivity to climate hazards like flooding or heat stress due to factors such as access to transportation, income level, disability, racial inequity, health status, or age. Projects that benefit and involve Climate Vulnerable Populations outside of a mapped EJ area may receive **up to 4 points** in this category by answering the above questions for the Climate Vulnerable Population(s).

More information on Environmental Justice, Climate Vulnerable Populations, and the MVP program can be found in the [MVP toolkit](#).

- Up to **3 points** for the degree to which the project has broad and multiple community benefits. Rationale should include:
  - How the project will provide the highest level of climate resilience for the greatest number of people and/or largest geographic area possible.
  - What community co-benefits the project will provide (e.g., social, economic, public health, recreational, public access, equity, etc.). Please focus on non-environmental co-benefits as environmental co-benefits are included in Question 3 above.
- Up to **3 points** if the project is regional/has regional benefits, including:
  - If the project is being led by a regional partnership (i.e., two or more municipalities are submitting the application together). If yes, the application should include a letter of support from each partnering municipality.
  - To what extent resilience benefits of the project go beyond the boundaries of one municipality.

The Project is the product of extensive stakeholder involvement and public discussions with local leadership. A strong commitment to local engagement has marked the decade-long

journey from idea to concept, and from concept to design. Project planning and evaluation began in 2005 and has included more than 60 community meetings and presentations, 100 one-on-one meetings with property owners, 150 technical meetings with project technical team members and consultants, and Town and NPS staff. A chronology of events in the community-based restoration effort is included with the attached Letters of Support. This outreach has helped to build strong, broad-based support for the Project, evidenced by the support letters.

The community commitment and broad-based support of the Project stem from the extensive ecological and community resilience benefits that the return of tidal flow to the Herring River system will provide. The Project is recognized for benefits to the region and as the model for salt marsh restoration in other coastal communities nationally. Earlier this year, the Coalition to Restore Herring River Estuary was formed to help communicate the vital need and extensive benefits of this Project to prospective funders and agency reviewers. The Coalition also serves as a network for sharing information about restoration science for education, stewardship and advocacy on behalf of Herring River and other coastal restoration initiatives. The Coalition to Restore Herring River Estuary is a network of environmental, scientific, recreational, economic and civic stakeholders including The Nature Conservancy; Restore America's Estuaries; Mass Audubon; Ducks Unlimited, Inc.; National Park Conservation Association; Association to Preserve Cape Cod; Cape Cod Conservation District; The Compact of Cape Cod Conservation Trusts; and many others.

##### **5. Public Involvement and Community Engagement (12 points)**

- To complete this section, include a narrative and fill out the matrix below. **For guidance and an example showing how to fill out this section and suggested principal and assisting print, digital, and in-person strategies, see [Attachment F](#). Please note that all tasks proposed here should be clearly incorporated into the required Scope/Budget spreadsheet ([Attachment B](#)).**
  - 1 point for each principal strategy (**up to 3 points total**) as described in the narrative and table below. May have one per print, digital, and in-person category or distribute among those categories (e.g., two in-person, one print, no digital). **The review team will consider the effectiveness of each identified strategy and inclusion in the project scope/budget when awarding points.**
  - 0.5 points for each assisting strategy (**up to 3 points total**) as described in narrative and table below. May distribute among print, digital, and in-person categories as desired. **The review team will consider the effectiveness of each identified strategy and inclusion in the project scope/budget when awarding points.**
  - 1 point for each equitable engagement modifier (**up to 4 points total**) as described in the narrative and table below. May distribute among print, digital, and in-person categories as desired. **The review team will consider the effectiveness of each identified strategy and inclusion in the project scope/budget when awarding points.**
  - Up to **2 points** for how stakeholder feedback will be incorporated into the project and mechanism by which stakeholders will be notified of the results of the public involvement and community engagement process and the final project deliverables (see examples in [Attachment E](#)).

***NOTE: For Project Type 3: Construction and On-the-Ground Implementation** – Applicants may fill out the table/narrative and receive points based on community engagement strategies that have occurred in earlier phases of the specific project and how feedback has been incorporated into the final design. Applicants may also describe strategies that will be employed during this project phase. Please make clear which strategies have been completed and which are proposed to be conducted within the proposed phase of the project.*

**Public Involvement and Community Engagement Plan Narrative:**

As noted above, a robust public engagement program has shaped the Project as it has evolved over more than a decade of feasibility study and environmental assessment. An additional level of public engagement is facilitated through the permitting process, which includes required public meetings, public hearings, and public comment periods.

Public engagement is a centerpiece of the Adaptive Management Plan that will be used to guide restoration decision-making. Approximately 290 year-round and seasonal residents participated in a community survey designed to gauge public opinion about different potential restoration outcomes, including public safety, views, odors, and public access. Using a decision support tool developed by the USGS and technical team, the community survey results will be combined with other inputs to help assess the public’s satisfaction with potential alternative restoration management scenarios such as the size and timing of sluice gates openings to enable tidal flow to return. The survey was designed to allow participation any numbers of ways, through live polling events, online, QR codes or paper surveys.

Public engagement is also built into the governance structure for the Project. The Project is governed by the Herring River Executive Council, which consists of three members appointed by the Wellfleet Selectboard and two members appointed by the Cape Cod National Seashore Superintendent. The HREC is responsible for oversight of Project implementation and is a public body that meets in open public session. Public comment is allowed at each HREC meeting. In addition, the HREC has appointed a 19-member Herring River Stakeholder Group to provide advisory input on implementation matters. The HRSNG members represent the following stakeholder interests: property owners, businesses, conservation, shellfishing, open space protection, scientific community, recreation, and mosquito control. The HRSNG is also a public body that meets in open public session. Minutes and presentation materials from HREC and HRSNG meetings are posted on the Town of Wellfleet website and FHR website.

FHR oversees a number of public education, public engagement and outreach activities on behalf of the Project proponents. The FHR Outreach Committee meets regularly to plan, oversee and evaluate events. The Project budget has funds allocated annually for outreach and



education activities. These public outreach and engagement activities, as listed below, will continue during the MVP grant period:

1. One-on-one meetings with property owners and interested citizens upon request.
2. Preparation of informational brochures and newsletters that are periodically direct mailed to all property owners in Wellfleet, and are broadly available in print and electronic formats and available on the FHR website.
3. Production of informational videos that have been closed-captioned for hearing impaired viewers and are available on the FHR website.
4. Regular distribution of the *Herring Run*, an electronic newsletter featuring project news and updates that is emailed to more than 800 individuals and is available to anyone on request. Back issues of newsletters are also posted on the FHR website.
5. Design, production and distribution of educational posters about the Project, which are displayed at various businesses and publicly accessible locations throughout the community.
6. At FHR's request, the Town designated the month of May annually to be *Celebrate Herring River* month, which features a series of educational and cultural events related to Herring River and the Project and which are open and accessible to the public.
7. Regular meetings and presentations with Town committees and commissions to discuss the Project in open public meetings that are recorded and accessible on the Town of Wellfleet website.
8. Presentations and displays at annual community events, including the annual Wellfleet Conference and Wellfleet Farmers Market, where information about the Project is shared and interested citizens can ask questions.
9. Periodic sponsorship of special events and programs in collaboration with community organizations, including a special community program on Blue Carbon co-sponsored with *Climate Mobilization Outer Cape*.
10. Outreach to local print and radio media to provide updates on Project milestones and or publicize events and key meetings and hearings.
11. Managed use of social media platforms (Facebook, Instagram) to provide community updates, publicize events and engage community members in learning more about the project.
12. Presentations at public regulatory hearings as determined by regulatory agencies.

13. Project plans, studies and descriptions are posted on the Town of Wellfleet and FHR websites.

**Public Involvement and Community Engagement Plan Table**

<b>Wellfleet Herring River Public Involvement and Community Engagement Plan Table Summary</b>			
	Print	Digital	In-Person
Principal Strategies	Direct Mail Brochures to all property owners in town Posters displayed throughout the community	Publish Herring Run e-newsletter  Social media strategy	One-on-one meetings Presentations to Town and civic committees Attendance at special events HREC public meetings HRSG public meetings Special events sponsored by FHR and/or co-sponsored with other community organizations
Assisting Strategies	Outreach to print media to share project information and publicize events	Posting of all educational and information materials and meeting videos on FHR and/or Town website, including project plans, studies, narrative descriptions; meeting minutes/recordings; brochures and other educational materials.	Informational announcements at public comment portion of Selectboard meetings
Equitable Engagement Modifiers		Close captioning of videos	
<p>How community feedback will be incorporated into project and mechanism by which results will be shared:</p> <p>In addition to public comment opportunities at HREC and HRSG meetings, community members are invited to submit questions or comments to <a href="mailto:info@HerringRiver.org">info@HerringRiver.org</a>.</p>			

**6. Project Transferability, Measurement of Success, and Maintenance (8 points)**

- Up to **4 points** for projects that serve as a demonstration project and are transferable to other

communities (i.e., innovative projects that provide deliverables that can be easily adopted by other communities or outline processes that will streamline other similar projects). Please outline what these deliverables are and how they will be shared with other communities.

The Herring River Restoration will bring significant benefits and will serve as a model for restoring other estuaries in Massachusetts and America's coast.

Project designs reflect state of the art design of water control infrastructure for applications in resource sensitive areas. Final design plans for Project developed with MVP grant funds will be made available to the public, along with other documents developed for the PROJECT.

The project is also one of the best chances in the U.S. to tie greenhouse gas benefits to tidal restoration and could provide incentives for funding directly through carbon markets or indirectly by highlighting a newly recognized benefit of tidal restoration. A Herring River Carbon Market Feasibility Study conducted by TerraCarbon (2019) showed the potential for a carbon market program. The Project team is also continuing its collaboration with USGS and other partners studying the potential for methane emission reductions and carbon sequestration capacity resulting from salt marsh restoration, and this work is helping to advance science in that area.

The Project is implementing a robust adaptive management program that integrates data on ecological and social outcomes to guide restoration decision-making. The AMP has been developed with technical input from the Seashore, USGS and other technical partners. Posted on the USGS website in 2020, [A Decision Framework to Analyze Tide-Gate Options for Restoration of the Herring River Estuary, Massachusetts](#) will serve as a blueprint for the development of adaptive management plans for other large-scale restoration projects. This includes the Adaptive Management Plan framework described in the AMP, the methods used to elicit technical and community involvement in assessing restoration outcomes, and the structured decision-making tool that will be employed to develop management policies to achieve multiple restoration goals and objectives.

- Up to **2 points** for how project success will be measured and monitored. Please provide outcomes that can be linked to the project (e.g., reduction in flooding, increase in tree canopy cover, reduced risk of sewer overflows) and any metrics that the applicant will be able to track to indicate whether or not the project is accomplishing these outcomes over time. The review team is not looking for general statements around the completion of tasks in the scope of work (e.g., "the project is successful if we complete it on time").

The fundamental objectives of the Project are to: restore hydrography; restore ecological function/integrity; minimize adverse impacts; maximize ecosystem services; and minimize costs. For each fundamental objective, multiple sub-objectives have been identified, each with a performance metric and monitoring protocol. The tracking and balancing of performance metrics to maximize the achievement of restoration objectives will occur through the adaptive management process.

Adaptive management is an inclusive and formal iterative process of making predictions regarding outcomes of management, monitoring the system after management actions are

implemented, comparing the predicted outcomes to the observed outcomes, and using the result to formally update our understanding of the system response to our actions. Information obtained from post-implementation monitoring improves our ability to predict future outcomes and make better decisions regarding the selection of appropriate future management actions.

Adaptive management is an extension of the general principles of structured decision-making (SDM), an approach that was developed in the mid-20th century for applications in engineering, operations research, and economics. Adaptive management is a specific application of SDM characterized by those conditions mentioned above, with a focus on reducing the specific uncertainties that hinder our ability to make the best management decisions (Williams and Johnson 1995). Having been applied to natural resource management since the 1970s (Walters and Hilborn 1978), SDM is a logical framework for making decisions by distinguishing those components of a decision that are subjective and values-oriented from those that are objective and science-based. A SDM framework guides a transparent decision-making process by explicitly linking the anticipated outcomes of management alternatives to well-defined objectives and factoring how varied stakeholder viewpoints value these outcomes.

The project team will use the USGS decision support tool to evaluate the expected performance and trade-offs of various management strategies. The trade-off analysis will help identify which platform policies are most advantageous for achieving the objectives based on weighted preferences and attitudes toward risk taking. The software produces numeric scoring of available management strategies, but it will be up to the HREC and project team to evaluate the results, along with input from the HRSG and other sources to make informed and transparent decisions about the most appropriate actions at any given point in the project implementation timeline. This recognizes the potential that some decisions may carry higher risk than others and that it could be necessary to tolerate some less advantageous effects in the short-term in order to achieve broader, long-term project objectives. Trade-offs will be evaluated, monitoring data will be reviewed and management options available for advancing the PROJECT objectives will be considered.

The collection, analysis, and application of credible monitoring data to compare with predictions from modeling are the primary means in adaptive management to assess progress towards meeting project objectives. Equally important is the ability to predict the variation of expected outcomes across a range of alternative management actions that are under consideration. As previously described, in adaptive management output data from models and other predictive methods are used to conduct trade-off analyses so that predictions of how management actions influence objectives can be compared. After management actions are implemented, monitoring data are used to determine real outcomes, evaluate how models performed, and refine model predictions about the outcomes of future actions.

A copy of the [Herring River AMP](#) was included as an appendix to the WQC application, and is posted. Table 1 provides an overview of available monitoring methods and predictive tools for each objective within the adaptive management plan. These methods are discussed in detail; and both pre- and post-restoration monitoring activities are addressed.

- Up to **2 points** for clear description of plans for how any future maintenance needs of or updates to the proposed project would be addressed to ensure the project's goals continue in the long-term.
  - **For Project Type 1:** Planning, Assessments, Capacity Building, and Regulatory Updates–
    - Describe how the project deliverables will be utilized to continue local resilience work (e.g., regular meetings to track identified plan actions, list anticipated town meeting dates and/or plan to approve updated regulations, how data collection or modeling will support current/scheduled local efforts, etc.)
    - If applicable, how will the plan, assessment, or regulation be updated in the future to make sure it stays current?
  - **For Project Type 2:** Design and Permitting – Describe the path forward for the project – construction, further regulatory approval, potential funding sources. Describe any initial plans for how the asset would be maintained into the future if/when implemented.
  - **For Project Type 3:** Construction and On-the-Ground Implementation – Will this project produce an operation and maintenance plan? If applicable, who is responsible for future maintenance? If applicable, what is the plan for replacing the asset at the end of its useful life and how will you ensure the replacement asset is also resilient?

The Project is in the permitting process; a timeline and the regulatory framework are provided in Section 2. Permit-level design plans accompanied the permit applications. This MVP Action grant request is for funding for final engineering design for WCS and mitigation, funds to advance design to final completion and to generate construction-level plans and bid specifications that will allow the project to move forward into construction and implementation.

In anticipation of the Project bidding and construction process, the Project team has executed a contract for the following pre-construction planning services:

1. Recommendations for organizing the bidding packages to select contractors for construction of multiple project elements,
2. Construction sequencing scenarios and timelines for multiple project elements, and
3. Options for structuring and coordinating construction management activities for different project elements.

This analysis will generate advisory input to Town of Wellfleet and Seashore to ensure that construction activities proceed efficiently and minimize any disruptions on local roadways.

In addition to the completion of final design plans and bid specifications, next steps include:

- Secure Phase 1 construction funding (in process).
- Prepare final landowner agreements (preliminary consents provided)
- Prepare Traffic Management Plans & Maintenance & Protection of Traffic Plans (contractor)
- Prepare Site restoration planting plan (contractor)
- Prepare Develop Water Control Plans (contractor)
- Prepare NPDES GP soil management and erosion control plans (contractor)
- Construct Phase 1 Project elements (contractor)
- Initiate tidal restoration (HREC with technical input)

- Implement/ update AMP as needed (HREC with technical input)
- Ongoing Monitoring, Modeling, Analysis, Reporting (HREC with technical input)

### 7. Need for Financial Assistance (6 points)

- Up to **4 points** based on the equalized valuation per capita, **to be completed by EEA**
- Up to **2 points** for financial need as demonstrated through Applicant narrative, as described below:
  - o Demonstration that the municipal budget cannot accommodate this project, including specific examples beyond regular budgetary constraints.
  - o Demonstration that other grant programs were considered, and it was determined that MVP was the best programmatic fit.
  - o Demonstration that MVP funding would clearly address a funding gap that would make an otherwise robust project unlikely to be implemented.

The Town and Project partners have identified a funding gap of just under \$600,000 to complete final design plans and bid specifications needed to move the Project to the construction phase. This scale of project is beyond what a municipality of Wellfleet’s size can fund through its operating or capital budgets, particularly given competing needs for schools, emergency services, affordable housing, dredging, and other basic community needs. Like many towns, Wellfleet is contemplating cuts to government operating and capital budgets in the coming fiscal year. It is important to note that for more than a decade the Town has committed significant technical and staff support to the Project, from Conservation, Health Public Works and Administration departments, and this level of support will continue.

- o Demonstration that other grant programs were considered, and it was determined that MVP was the best programmatic fit.

The MVP Action Grant program is an appropriate funding source to meet the Project’s \$700,000 gap because the project is the single largest opportunity to achieve salt marsh restoration in the region, and salt marsh restoration is identified as a priority action in the Town’s MVP action plan. To date the Town and partners have garnered more than \$8 million in grants from other federal, state and private sources. An MVP Action Grant will leverage these considerable earlier contributions from NOAA Restoration Center, USFWS, CACO and MassDER, among others.

- o Demonstration that MVP funding would clearly address a funding gap that would make an otherwise robust project unlikely to be implemented.

With the support of other federal, state and private partners and donors, the Project has made significant progress through environmental impact assessments, permit level design, and permitting over the past decade, and has garnered broad local, state and national support. There is no other funding source identified to meet the \$700,000 shortfall needed to complete design plans and prepare bid documents. Unless the Project is able to secure these funds in a timely manner, all previous project work is at risk.

### **8. Project Feasibility, Support, and Management (6 points)**

- Up to **2 points** for a description of the project team's technical, financial, and management capacity. (Note: If your municipality has a previously awarded MVP Action Grant that will be ongoing at the same time as this proposed project, please list that grant and detail your municipality's capacity to manage multiple grants in FY22.)

The Town of Wellfleet and the National Park Service (NPS) entered into successive memoranda of understanding (MOUs) to study the feasibility of restoration (MOU I in 2005), develop a conceptual restoration plan (MOU II in 2007) and agree to implement the restoration plan (MOU III in 2016). The Town of Wellfleet and Seashore entered into a new Memorandum of Understanding (MOU IV) in 2019 to guide their collaboration. The MOUs set forth the structure and decision-making process for the Project. MOU IV establishes a Herring River Executive Council consisting of three members from Wellfleet and two from the Seashore to oversee implementation of the Herring River Restoration Project and approve all major Project decisions and activities.

MOU IV also describes a Herring River Technical Team (HRTT), an informal sounding board composed of intergovernmental technical staff to provide technical input for Project-related decisions as necessary or appropriate. Participants in the Technical Team include the Town of Wellfleet, National Park Service (NPS), U.S. Fish and Wildlife Service, National Oceanic and Atmospheric Administration, USDA/Natural Resources Conservation Service (NRCS), and Massachusetts Department of Fish and Game - Division of Ecological Restoration. Project management and coordination support is provided by Friends of Herring River (FHR).

FHR, a non-profit organization formed in 2008 to promote education, research and public awareness of the Herring River estuary, has an office and fulltime staff support with an Executive Director, Assistant Project Manager and Office Manager. Martha Craig, the FHR Executive Director, is a Professional Wetland Scientist with over 30 years of experience; several FHR Board members, including Dr. John Portnoy and Dr. Barbara Brennessel, provide technical expertise. FHR has successfully managed during the past six years over \$8 million in grant-funded contract management and administration activity.

FHR has contracted with Carole Ridley to serve as Project Coordinator, providing oversight of strategic planning and project management. Ms. Ridley has more than two decades of environmental management experience and has successfully coordinated other multi-partner restoration and resource management projects over the past decade. NPS will provide science expertise and the Technical Team will work closely with FHR to provide additional technical expertise and oversee all grant activities. In addition, using funding from one of the partner agencies (NRCS), FHR has engaged field technician to coordinate all data collection and assessment efforts.

Other federal partner agencies have also contributed substantial staff time and funding

for planning and design of the project, including over \$1.7 million for EIS preparation, modeling, monitoring, project coordination, adaptive management and related tasks. Federal agency representatives on the Technical Team include permanent staff from NOAA, NPS, USFWS, and NRCS. The NPS representative, Timothy P. Smith, is the Seashore's restoration ecologist, a GS-12 working nearly full-time on the Herring River project

- Up to **2 points** for letters of support from landowner, public, and/or community partners. Applications with 3+ letters of support from diverse groups (e.g., community-based organizations, local businesses, nonprofits, neighborhood groups, etc.) and a letter of support from landowner (if project is to take place on non-municipal land) will be scored highest. There is a place on the online form to upload support letters that have been combined into a single PDF document. Support letters should be submitted in this fashion and not sent in separately if at all possible.

Letters of Support are included in **Attachment XX**.

- Up to **2 points** for good standing in the MVP program – based on timely submittal of progress reports, lack of project extensions, timely correspondence, and compliance with program guidelines, **to be completed by MVP program team.**

**End of project narrative. [Note: An additional 10 points will also be allotted based on overall project quality at the discretion of the review committee.]**





	Total Task (Grant)			
		Town Administrator	As	
<b>Hourly Rate</b>		\$76.92		
<b>Tasks to be Completed by June 30, 2022</b>				
<b>Required Task 0: Project kickoff</b>		Hours	Total	Hours
Sub-task 0.1: Kick-off meeting with Town, EEA, and Consultant	\$0.00	0	\$0.00	2
Total Task 0 Cost	\$0.00			
<b>Task 1: Chequessett Neck Road Bridge and Water Access Facility Construction Plans and Bid Specifications</b>		Hours	Total	Hours
Sub-task 1.1 Review/Update 60% Design Documents				
Sub-task 1.2 Develop Traffic Management Plan				
Sub-task 1.3 Prepare Draft Final Design Plans				
Sub-task 1.4 Update/Finalize Design Plans, Details, Specifications, Bid Documents and Cost Estimate	\$0.00	0	\$0.00	0
Sub-task 1.5 MassDOT PS&E Final Review and Coordination	\$0.00	1	\$76.92	2
Sub-task 1.6 Town and DOT Review/Coordination Meetings	\$0.00	2	\$153.84	6
Total Task 1 Cost	\$0.00			
<b>Task 2: High Toss Road Construction Plans and Bid Specifications</b>				
Sub-task 2.1 Review/Update 60% Design Documents	\$0.00	0	\$0.00	0
Sub-task 2.2 Develop Traffic Management Plan	\$0.00	1	\$76.92	2
Sub-task 2.3 Prepare Draft Final Design Plans	\$0.00	0	\$0.00	0
Sub-task 2.4 Update/Finalize Design Plans, Details, Specifications, Bid Documents and Cost Estimate	\$0.00	0	\$0.00	2
Sub-task 2.5 Meetings and Project Communication	\$0.00	1	\$76.92	2
Total Task 2 Cost	\$0.00			
<b>Task 3: Low-Lying Roads Elevation and Culvert Replacements Construction Plans and Bid Specifications</b>				
Sub-task 3.1 Review/Update 60% Design Documents	\$0.00	0	\$0.00	0
Sub-task 3.2 Develop Traffic Management Plan	\$0.00	0	\$0.00	2
Sub-task 3.3 Prepare Draft Final Design Plans	\$0.00	0	\$0.00	0
Sub-task 3.4 Update/Finalize Design Plans, Details, Specifications, Bid Documents and Cost Estimate	\$0.00	0	\$0.00	1
Sub-task 3.5 Meetings and Project Communication	\$0.00	1	\$76.92	2
Total Task 3 Cost	\$0.00			
<b>Task 4: Low-Lying Property Mitigation, Way #672 (25 and 27 Way #672) Construction Plans and Bid Specifications</b>				
Sub-task 4.1 Review/Update 60% Design Documents	\$0.00	0	\$0.00	0
Sub-task 4.2 Develop Traffic Management Plan				
Sub-task 4.3 Prepare Draft Final Design Plans	\$0.00	0	\$0.00	0
Sub-task 4.4 Update/Finalize Design Plans, Details, Specifications, Bid Documents and Cost Estimate	\$0.00	0	\$0.00	0
Sub-task 4.5 Meetings and Project Communication	\$0.00	2	\$153.84	3
Total Task 4 Cost	\$0.00			
<b>Task 5: Low-Lying Property Mitigation, Miller-Frederiksen (695 Bound Brook Island Road) Construction Plans and Bid Specifications</b>				
Sub-task 5.1 Review/Update 60% Design Documents	\$0.00	0	\$0.00	0
Sub-task 5.2 Prepare Draft Final Design Plans	\$0.00	0	\$0.00	0
Sub-task 5.3 Update/Finalize Design Plans, Details, Specifications, Bid Documents and Cost Estimate	\$0.00	0	\$0.00	1
Sub-task 5.4 Meetings and Project Communication	\$0.00	1	\$76.92	2
Total Task 5 Cost	\$0.00			
<b>Task 6: Chequessett Yacht and Country Club Reconfiguration Construction Plans and Bid Specifications</b>				
Sub-task 6.1 Review/Update 60% Design Documents	\$0.00	0	\$0.00	0

Sub-task 6.2 Draft and Final Construction Plans	\$0.00	0	\$0.00	0
Sub-task 6.3 Draft and Final Bid Specifications	\$0.00	0	\$0.00	0
Sub-task 6.4 Meetings and Communcation	\$0.00	1	\$76.92	2
<b>Total Task 6 Cost</b>	<b>\$0.00</b>			
<b>Task 7: Public Involvement and Community Engagement Plan</b>				
Outreach Material	\$0.00	0	\$0.00	0
Public meetings (HREC, HRSG)	\$0.00	8	\$615.36	4
Special Events; personal meetings	\$0.00	0	\$0.00	0
	\$0.00	0	\$0.00	0
	\$0.00	0	\$0.00	0
<b>Total Task 7 Cost</b>	<b>\$0.00</b>			
<b>Required Task 8: Reporting</b>				
Sub-task 8.1 Monthly progress reports FY22 (template provided)	\$0.00	0	\$0.00	6
Sub-task 8.2 Project Case Study (template provided)	\$0.00	0	\$0.00	2
<b>Total Task 8 Cost</b>	<b>\$0.00</b>			
<b>TOTAL PROJECT COST FY22</b>	<b>\$0.00</b>			
<b>Tasks to be Completed by June 30, 2023</b>				
<b>TOTAL PROJECT COST FY23</b>	<b>\$0.00</b>			
<b>TOTAL PROJECT COST OVERALL</b>	<b>\$0.00</b>			

**Optional FY22 [/FY23] MVP Action Grant Budget Details Worksheet**

**MATCH**

**Project Team Hours**

st. Town	DPW Director		Asst. DPW Director		Harbormaster		Conservation Agent		FHR
\$46.86	\$55.43		\$46.51		\$45.59		\$43.43		
<b>Total</b>	<b>Hours</b>	<b>Total</b>	<b>Hours</b>	<b>Total</b>	<b>Hours</b>	<b>Total</b>	<b>Hours</b>	<b>Total</b>	<b>Hours</b>
\$153.84	0	\$0.00	0	\$0.00	0	\$0.00	2	\$86.86	2
<b>Total</b>	<b>Hours</b>	<b>Total</b>	<b>Hours</b>	<b>Total</b>	<b>Hours</b>	<b>Total</b>	<b>Hours</b>	<b>Total</b>	<b>Hours</b>
\$0.00	20	\$1,538.40	40	\$3,076.80	1	\$76.92	2	\$86.86	1
\$153.84	10	\$769.20	20	\$1,538.40	1	\$76.92	0	\$0.00	1
\$461.52	6	\$461.52	10	\$769.20	2	\$153.84	4	\$173.72	2
\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	2	\$86.86	0
\$153.84	2	\$153.84	3	\$230.76	0	\$0.00	0	\$0.00	0
\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	2
\$153.84	1	\$76.92	2	\$153.84	0	\$0.00	0	\$0.00	1
\$153.84	2	\$153.84	4	\$307.68	0	\$0.00	1	\$43.43	1
\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0
\$153.84	2	\$153.84	8	\$615.36	0	\$0.00	0	\$0.00	0
\$0.00	1	\$76.92	4	\$307.68	0	\$0.00	0	\$0.00	0
\$76.92	1	\$76.92	2	\$153.84	0	\$0.00	0	\$0.00	1
\$153.84	1	\$76.92	4	\$307.68	0	\$0.00	1	\$43.43	1
\$0.00	1	\$76.92	0	\$0.00	0	\$0.00	0	\$0.00	2
									1
\$0.00	1	\$76.92	0	\$0.00	0	\$0.00	0	\$0.00	1
\$0.00	1	\$76.92	1	\$76.92	0	\$0.00	0	\$0.00	1
\$230.76	3	\$230.76	6	\$461.52	0	\$0.00	0	\$0.00	3
\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0
\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0
\$76.92	0	\$0.00	1	\$76.92	0	\$0.00	0	\$0.00	1
\$153.84	1	\$76.92	2	\$153.84	0	\$0.00	2	\$86.86	1
\$0.00	0	\$0.00	0	\$0.00	4	\$307.68	0	\$0.00	0





\$0.00	2	\$69.22	\$146.14		0	\$ -	\$0	\$146.14
\$56.04	8	\$276.88	\$563.68		0	\$ -	\$0	\$563.68
\$56.04	4	\$138.44	\$656.00		0	\$ -	\$0	\$656.00
								\$1,742.72
\$1,120.80	10	\$346.10	\$1,466.90		1	\$ 5,000.00	\$5,000	\$6,466.90
\$560.40	0	\$0.00	\$1,483.44		0	\$ -	\$0	\$1,483.44
\$2,241.60	0	\$0.00	\$2,241.60		0	\$ -	\$0	\$2,241.60
\$0.00	0	\$0.00	\$0.00		0	\$ -	\$0	\$0.00
\$0.00	0	\$0.00	\$0.00		0	\$ -	\$0	\$0.00
								\$10,191.94
\$336.24	20	\$692.20	\$1,653.74		0	\$ -	\$0	\$1,653.74
\$168.12	10	\$346.10	\$793.38		0	\$ -	\$0	\$793.38
								\$2,447.12
								\$37,144.28
								\$0.00
								\$37,144.28

100.00%

<b>Total Project Cost</b>
\$491.22
\$491.22
\$5,527.22
\$3,017.42
\$2,977.92
\$11,522.56
\$156.08
\$684.58
\$181.30
\$648.30
\$1,068.63
\$2,738.89
\$138.44
\$1,061.48
\$523.04
\$709.82
\$991.71
\$3,424.49
\$465.88
\$263.70
\$479.06
\$555.98
\$1,591.10
\$3,355.72
\$69.22
\$69.22
\$348.32
\$742.86
\$1,229.62
\$376.90



\$146.14
\$563.68
\$656.00
\$1,742.72
\$6,466.90
\$1,483.44
\$2,241.60
\$0.00
\$0.00
\$10,191.94
\$1,653.74
\$793.38
\$2,447.12
\$37,144.28
\$0.00
<b>\$37,144.28</b>

(Note: Match must be at least 25% of total project cost)

**Attachment C: Required Information for Design, Permitting, and Construction Projects  
MUNICIPAL VULNERABILITY PREPAREDNESS PROGRAM FY 22**

**MVP ACTION GRANT  
RFR ENV 22 MVP 02**

*This attachment is required for all projects that contain design, permitting, or construction components.*

**1. Project Location Map, Plans, and Site Photographs**

1.1. The ownership of the project site is held by:

- Municipality
- Private
- Non-Profit
- State
- Federal

X Multiple Owner Types (*please list*): municipal, private, non-profit and federal

1.2. Please provide a project locus map(s) with:

- Site address:

The Herring River Restoration Project (the “Project”) is comprised of seven (7) infrastructure and mitigation construction elements in various locations in Wellfleet, with a limited amount of work in south Truro, six of which are the subject of this funding request. Construction will occur on Chequessett Neck Road at Herring River; elevation of low-lying roads and replacement of associated culverts as needed will occur on Pole Dike Road, Bound Brook Island Road, Old County Road (Truro), High Toss Road and Way #672; and mitigation will occur on low-lying private property at 680 Chequessett Neck Road (Chequessett Club), at 695 Bound Brook Island Road, and at 25 and 27 Way #672.

A water control structure (WCS) will be installed on federal property off Old Chequessett Neck Road in Wellfleet; information about the Mill Creek WCS is included in this application for clarity, but funding for Mill Creek WCS construction bid packages will be funded separately.

A Project Locus map is included in the Photos & Figures attachment.

- Site-specific location of project (include street names or other identifying features of project location). Add geographic coordinates (if possible). [See here for guidance on getting coordinates.](#)

A Project Area figure showing the maximum extent of Phase 1 Restoration (mean high water spring tides) and Extent of Full Restoration (pending future permits and landowner agreements) is included in the Photos & Figures attachment.

1. Chequessett Neck Road Bridge and Water Access Facility Construction (Chequessett Neck Road at Herring River) - Lat: 41°55'52.82" N/ Long: 70° 3'52.23" W
2. High Toss Road (between Duck Harbor Road and Hopkins Drive) - Lat: 41°56'36.23" N/ Long: 70° 3'26.60" W
3. Elevation of Low-Lying Roads and Replacement of Associated Culverts (Pole Dike and Bound Brook Island Roads in Wellfleet and Old County Road in Truro) - Lat: 41°57'10.97" N/Long: 70° 3'26.33" W
4. Low-lying Property Mitigation, Way #672 (25 and 27 Way #672) - Lat: 41°56'33.61" N/Long: 70° 3'12.85" W
5. Low-lying Property Mitigation, Miller-Frederiksen (695 Bound Brook Island Road) - Lat: 41°56'59.86" N/Long: 70° 4'10.53" W
6. Chequessett Yacht & Country Club Reconfiguration (680 Chequessett Neck Road) – Lat: 41°55'55.35" N / Long: 70° 3'15.45"W

Note: funding for Mill Creek WCS bid package is not part of this request; however, this Project element is shown on figures and referenced in documents for clarity and completeness.

1.3. Attach relevant supporting materials as PDF documents (studies, plans, design specifications, as applicable).

Attachments are referenced by the descriptive portion of the file names (e.g., "Photos & Figures" refers to Wellfleet\_HerringRiver\_Photos&Figs\_ENV22MVP02), and include:

- Match Commitments (letters from Town of Wellfleet and Friends of Herring River)
- Plan Set Cover Sheets (from 6 plan sets that are the subject of this request)
- Photos & Figures
  - Project Locus, Project Area and Project Overview figures
  - Photographs of Project element sites and issues
- Regulatory Information
  - Table of required permits and status
  - agency correspondence
  - a list of 401 WQC application appendices with links to the application package, including folders for Permit-level Design plans and Landowner Consent letters allowing work to be shown on plans and included in permit applications)
  - MEPA Certificate #14272 and comments received about the FEIR

- Support & Chronology
  - letters of support from Project partners, local residents and business owners, non-profit organization and congressional delegates
  - chronology of key events and Project milestones

Links are provided for some documents that are too large to attach, including the [Environmental Impact Statements/Reports](#), [Herring River Hydrodynamic Modelling Final Comprehensive Report](#) , [Conceptual Restoration Plan](#) and permit application appendices such as [Permit Level Design drawing sets](#) and the [Herring River Adaptive Management Plan](#).

- 1.4. Attach site photographs to document existing field conditions and features (as applicable).

A PDF compilation of Photographs & Figures is attached.

**2. Anticipated Approvals and Agency Coordination. Please consult the [Environmental Permitting in Massachusetts guide](#) for guidance on the questions below.**

- 2.1. What planning phase best describes the overall current status of the proposed project?

- Preliminary Design and Project Planning
- X Permitting and Final Design
- Construction, Installation, and/or Monitoring

- 2.2. Will the project include alteration of a wetland or waterway\*?

No

- Yes. If yes, please attach any relevant correspondence or a project understanding statement regarding the anticipated regulatory processes for this project.

This MVP funding request is for final design and construction bid packages; no construction work is proposed. However, wetlands and waterways will be altered by the Herring River Restoration Project, for which the plans and bid packages are needed. The Project has benefitted from almost 2 decades of regulatory review and input, initially from the Technical Working and Stakeholder Groups established via legal agreement between Wellfleet and NPS in 2005. A Conceptual Restoration Plan finalized in 2007 evolved into Draft (2012) and then Final Environmental Impact Reports; the MEPA process was completed in 2016, and a Regulatory Oversight Group was formed in accordance with the MEPA Certificate. Project partners

continue working closely with regulatory agencies, including pre-application submittal and review; regional approval from Cape Cod Commission was received in 2020, applications have recently been filed with MassDEP for Chapter 91 licenses and 401 Water Quality Certification, and Pre-Construction Notification was submitted to US Army Corps of Engineers for coverage under the Section 404 General Permit for Restoration Projects. Agency correspondence and a chart of required permits are included in the Regulatory Information attachment.

- 2.3. For coastal projects, has the Applicant consulted or held a pre-filing meeting with the MA Office of Coastal Zone Management (CZM)?

N/A

No

X Yes

Please identify when the pre-filing meeting occurred and/or attach a copy of all comment letters received.

Members of the Project team met with Bob Boeri (CZM Project Review and Dredging Coordinator) and Steve McKenna (CZM Cape Cod & Islands Regional Coordinator) to discuss Federal Consistency Review. Subsequent to that meeting, the decision was made to apply for coverage under 404 General Permit #23. Individual Federal Consistency Review is not required; review will occur as part of joint agency review. CZM is also represented on the Regulatory Oversight Group.

- 2.4. Does the project meet or exceed any of the Massachusetts Environmental Policy Act (MEPA) review thresholds (301 CMR 11.03) found [here](#)?

No

Yes

If yes, has the Applicant held a pre-filing meeting with the MEPA Office or completed MEPA review?

No  Yes.

Please identify when the pre-filing meeting occurred and/or attached a copy of the MEPA Certificate and all comment letters received.

Herring River Restoration Project completed MEPA review; EOECA Certificate #14272 was issued July 15, 2016; the certificate and comments on the FEIR are included in the Regulatory Information attachment.

- 2.5. Is any portion of the proposed project located within a designated Area of Critical Environmental Concern (ACEC)? Map of ACEC can be found [here](#).

No

Yes. ACEC Name: Wellfleet Harbor ACEC

The Herring River Restoration Project is partially within the Wellfleet Harbor ACEC.

2.6. For dam projects, is it identified on Department of Ecological Restoration (DER)'s [Restoration Potential Model Tool](#)? N/A

No

Yes. Project ID #: \_\_\_\_\_

2.7. Please review and complete the tables below to indicate whether environmental or construction permits, licenses, and/or approvals are anticipated or have been filed/secured. Please attach copies of all agency correspondence or obtained permits.

The Herring River Restoration Project will need the following permits & approvals:

<b>Environmental Permits / Licenses / Approvals</b>	<b>Required (Y/N)</b>	<b>Filing Date</b>	<b>Issue/Decision Date</b>
MEPA Review (ENF or EIR)	Y	October 2012	July 17, 2016
Waterways (Chapter 91)	Y	March 29, 2021	pending
Wetlands Protection Act (Order of Conditions, Request for Determination of Applicability, etc.)	Y	Expected Summer 2021	
Army Corps (USACE) Permit (Section 10 or 404)	Y	April 30, 2021	pending
FEMA Conditional Letter of Mapping Revision (CLOMR)	N	n/a	
CZM Federal Consistency Review	Y		Will be completed as part of joint agency review of the Section 404 Pre-construction Notification Form
Chapter 91 Waterways Permit or License	Y	March 29, 2021	pending
Water Quality Certification	Y	March 29, 2021	pending
Endangered Species Consultation (State or Federal)	Y	Coordination with NHESP ongoing	
Water Management Act Permit	TBD		
Dam Safety Chapter 253 Permit	N		
MHC Historic Review (including Underwater Historical Resources)	Y	Consultation with MHC on-	

		going	
Other:			
Cape Cod Commission (DRI)	Y	Dec 12, 2019	June 17, 2020

<b>Municipal or Special District Coordination Considerations</b>			
<b>Construction Permits and Approvals</b>	<b>Required (Y/N)</b>	<b>Filing Date</b>	<b>Issue/Anticipated Issue Date</b>
Planning Board	N		
Conservation Commission	Y	Anticipated Summer 2021	
Zoning Board	N		
Sewer Extension Permit	N		
Utility Relocation	Y		
Local Historical Commission	N		
Public Water Supply Tie-in	N		
Public Wastewater Tie-in	N		
Other:			

## Attachment D: MVP Yearly Progress Report Template

### MUNICIPAL VULNERABILITY PREPAREDNESS PROGRAM FY 21

#### MVP ACTION GRANT

#### RFR ENV 21 MVP 02



## Executive Office of Energy and Environmental Affairs

Municipal Vulnerability Preparedness Program Yearly Progress Report

**July 1, 2019-June 30, 2020 Reporting Period**

Date: May 5, 2021

Municipality: Wellfleet and Truro

Local MVP Contact Name: Hillary Greenberg-Lemos

1. Please list your municipalities' top priority actions, in order of priority, identified through the MVP planning process.
  1. Pursue funding for culvert replacement and salt marsh restoration.
  2. Identify low-lying roads and beach parking lots susceptible to erosion and develop and implement a plan to address road flooding problems and beach access issues.
  3. Expand and improve communication system, electrical and infrastructure network through improved access throughout the communities.
  4. Develop an Outer Cape grassroots education and outreach strategy to address climate resilience. Pursue bylaw and regulatory changes to address resilience.
  5. Development plan for nutrient reduction.
2. Has your Core Team reconvened since your Listening Session? If so, describe the process and any revisions or updates your team made to the original MVP Report. Please list your MVP Core Team members and note any new members.

Members of our core team continue to meet regularly. Justin Post, the Wellfleet Building Inspector has left the employ of the Town of Wellfleet and we have welcomed Paul Fowler to our core team. He has been brought up to speed on our community goals and is an eager participant in our meetings and discussions. He has a keen eye for floodplain management. The Town of Truro also welcomed a new Town Planner Barbara Huggins Carboni, she has read the report and is exciting to begin resiliency work in the community.



Hillary Greenberg- Lemos and Emily Beebe meet weekly to discuss climate adaptation planning and are currently working on a CZM resiliency grant jointly along with Lauren McKean, NPS Planner. Lauren and Hillary are also working together on an MET Grant to design two culverts for increased tidal flow through the Upper Herring River.

To date we have made no revisions or updates to our MVP report.

3. Discuss any other work related to the MVP process or climate change resiliency in the municipality. In what ways has your municipality used the outcomes of your workshop in other planning efforts (e.g., updating existing local plans)?

The Massachusetts Office of Coastal Zone Management has awarded the Towns of Provincetown, Truro, Wellfleet, and Eastham another grant through the Coastal Resilience Grant Program this year. The two-year project continues efforts initiated in 2019 with funding from CZM's Coastal Resilience Grant Program to begin a process with the towns of Provincetown, Truro, Wellfleet, and Eastham to pursue a regional approach to shoreline management for Eastern Cape Cod Bay. In addition to establishing an agreement to continue to pursue uniformly sound management principles and responsible stewardship along this shoreline in the form of a signed Memorandum of Agreement (MOA) among the four towns, the primary objectives of Phase 1 were the design and creation of an Intermunicipal Shoreline Management Geodatabase (ISMG) and the identification of recommendations that would further the development of a science-based shoreline management framework grounded in consistent, uniform management strategies and principles that maximize and sustain the coastal resiliency of Eastern Cape Cod Bay. The recommendations discussed in the Phase 1 report form the basis for this two (2) year project.

In addition to this the Town of Wellfleet Conservation Commission has finalized a proposed climate adaptation by-law and has a working draft of new wetland regulations funded from a DLTA grant from the Cape Cod Commission. These work products will be jointly used by the outer cape team to further our regional approach.

Nutrient management has taken center stage in our communities as we work jointly on a water shed permit. Wellfleet has been pursuing this permit for the past two years meeting regularly with MA DEP and EPA to come to consensus on techniques for nutrient reduction. We have several projects on the Town meeting warrant this year for funding including: a salt marsh restoration and culvert replacement at Hawes Pond (a collaborative with MA DEP and MA DOT), a salt marsh restoration and culvert replacement at Mayo Creek, an Innovative/Alternative septic replacement regulation and

upgrade plan, an affordable housing project at 95 Lawrence Road with enhanced wastewater treatment for municipal buildings and the housing complex, and a plan to design, permit, and install a permeable reactive barrier down town. Truro has been working on a set of revised wastewater regulations that will also impact nutrient management in a positive way. A public hearing was held and further comment will be collected in the coming weeks.

Both towns also continue to further salt marsh restoration projects including Herring River, Eagle Neck Creek, and East Harbor. These projects have been moving along through the permitting phases and some will hopefully be shovel ready this fall. Wastewater Committees, Restoration Committees, and Environmental and Energy Committees in each town have been proactive in planning and moving these projects along.

4. Please list any grants that your municipality has applied for, or received, to implement actions from your MVP report. Please note grant awards or applications that advanced priority actions.

Cape Cod Commission DLTAs funding for Conservation Commission regulations for climate change adaptation

CZM FY21 Coastal Resilience Grant Program to develop an inter-municipal shoreline management plan among the four towns along the shoreline of Eastern Cape Cod Bay.

MVP FY21 Regional Low Lying Road Assessment and Feasibility (Not Funded)

5. Please list any other steps that your municipality has taken towards implementing your priority actions.

We continue to meet locally and with regional partners to further implementation of priority projects and goals.

6. Please list any potential next steps to advance priority actions during FY2021 (July 1, 2020 to June 30, 2021)?

We intend to continue with the projects mentioned above as well as apply for again for an MVP Action Grant with the Cape Cod Commission's assistance to begin to identify and address low lying roadways.

7. Please note any difficulties or challenges the community has identified through the MVP planning process or while seeking to implement priority actions and any steps the community has identified to address these challenges.

Challenges still include finding enough time to work on all of the identified priorities while accomplishing the other required work of our very small departments and towns, especially during a public health pandemic.

8. Please identify any data needs or information gaps that the state could help fill.

It would be great to see how other communities have successfully gotten residents and visitors onboard with climate change adaptation planning. Any information on grassroots efforts or educational opportunities provided in the Commonwealth would be incredibly useful.

## Attachment D: MVP Yearly Progress Report Template

### MUNICIPAL VULNERABILITY PREPAREDNESS PROGRAM FY 21

#### MVP ACTION GRANT

#### RFR ENV 21 MVP 02



## Executive Office of Energy and Environmental Affairs

Municipal Vulnerability Preparedness Program Yearly Progress Report

**July 1, 2019-June 30, 2020 Reporting Period**

Date: May 14, 2020

Municipality: Wellfleet and Truro

Local MVP Contact Name: Hillary Greenberg-Lemos

1. Please list your municipalities' top priority actions, in order of priority, identified through the MVP planning process.
  1. Pursue funding for culvert replacement and salt marsh restoration.
  2. Identify low-lying roads and beach parking lots susceptible to erosion and develop and implement a plan to address road flooding problems and beach access issues.
  3. Expand and improve communication system, electrical and infrastructure network through improved access throughout the communities.
  4. Develop an Outer Cape grassroots education and outreach strategy to address climate resilience. Pursue bylaw and regulatory changes to address resilience.
  5. Development plan for nutrient reduction.
2. Has your Core Team reconvened since your Listening Session? If so, describe the process and any revisions or updates your team made to the original MVP Report. Please list your MVP Core Team members and note any new members.

Members of our core team continue to meet regularly.

Hillary Greenberg- Lemos and Emily Beebe meet weekly to discuss climate adaptation planning and are currently working on a CZM resiliency grant jointly.

Steve Parker has left his job as planner for the Town of Truro and we welcomed Jeffrey Ribeiro to our team. All other members remain the same.

We remain in close contact with Lauren McKean, NPS planner to discuss a number of ongoing issues and potential projects on shared resources and lands.

To date we have made no revisions or updates to our MVP report.

3. Discuss any other work related to the MVP process or climate change resiliency in the municipality. In what ways has your municipality used the outcomes of your workshop in other planning efforts (e.g., updating existing local plans)?

The Massachusetts Office of Coastal Zone Management has awarded the Towns of Provincetown, Truro, Wellfleet, and Eastham a grant through the Coastal Resilience Grant Program to develop an inter-municipal shoreline management plan among the four towns along the shoreline of Eastern Cape Cod Bay. The goal of this project is the development of a comprehensive framework for managing approximately 35 miles of shoreline in an effective, mutually beneficial manner in order to increase coastal resiliency throughout the four towns of Eastham, Wellfleet, Truro, and Provincetown. These four communities will work together to assess the characteristics of the Cape Cod Bay shoreline extending from Rock Harbor in Eastham, along the shores of Wellfleet and Truro, to Provincetown Harbor, irrespective of town boundaries, jurisdictions, and regulations. This approach will require the establishment of base line conditions that include: 1) a complete and up-to-date database of human uses and alterations (e.g. coastal engineering structures, dredging, replenishment, etc.), natural resources, and a characterization of shoreline resiliency (e.g., rates of shoreline change, inundation vulnerability, sediment transport pathways and obstructions such as groins, harbors, jetties, etc.); 2) identification of the existing regulatory structure in each town including a comparison of local by-laws and traditional management approaches; 3) assessment of the strengths and weakness of the individual towns' approaches to shoreline management, including consistencies and inconsistencies; and 4) the identification of the challenges to implementing a natural, system-based management approach within the context of a traditional inter-municipal management framework.

At the conclusion of this analysis, town boundaries will be overlaid onto the baseline conditions and recommendations for a comprehensive shoreline management framework will be finalized. A Memorandum of Agreement (MOA) will be prepared and endorsed by each town, stipulating each town's agreement to refine and implement the principles of this framework in an Eastern Cape Cod Bay inter-municipal shoreline management plan in a future phase of this project.

In addition to this the Town of Wellfleet Conservation Commission has finalized a proposed climate adaptation by-law and is currently working with another grant from the Cape Cod Commission to develop corresponding regulations. These work products will be jointly used by the outer cape team to further our regional approach.

Both towns also continue to further salt marsh restoration projects and nutrient reduction projects. Wastewater Committees, Restoration Committees, and Energy Committees in each town have been proactive in planning and moving these projects along.

4. Please list any grants that your municipality has applied for, or received, to implement actions from your MVP report. Please note grant awards or applications that advanced priority actions.

Cape Cod Commission DLTA funding for Conservation Commission by-laws and regulations for climate change adaptation

CZM FY20 Coastal Resilience Grant Program to develop an inter-municipal shoreline management plan among the four towns along the shoreline of Eastern Cape Cod Bay.

5. Please list any other steps that your municipality has taken towards implementing your priority actions.

Both Towns have morphed their Energy Committees into Energy and Climate Action Committees and have begun discussing regional opportunities.

6. Please list any potential next steps to advance priority actions during FY2021 (July 1, 2020 to June 30, 2021)?

We intend to continue with the projects mentioned above as well as apply for a MVP Action Grant with the Cape Cod Commission's assistance to begin to identify and address low lying roadways. Another application is currently being drafted to be submitted to CZM to further our regional shoreline management plans to address regional adaptation to sea level rise and climate change.

7. Please note any difficulties or challenges the community has identified through the MVP planning process or while seeking to implement priority actions and any steps the community has identified to address these challenges.

Challenges include finding enough time to work on all of the identified priorities while accomplishing the other required work of our very small departments and towns. In addition, communication among town entities can also pose challenges.

8. Please identify any data needs or information gaps that the state could help fill.

It would be great to see how other communities have successfully gotten residents and visitors onboard with climate change adaptation planning. Any information on grassroots efforts or educational opportunities provided in the Commonwealth would be incredibly useful.



# TOWN OF WELLFLEET

300 MAIN STREET WELLFLEET MASSACHUSETTS 02667

Tel (508) 349-0300 Fax (508) 349-0305

[www.wellfleetma.org](http://www.wellfleetma.org)

Ms. Kara Runsten  
Municipal Vulnerability Preparedness Manager  
Executive Office of Energy and Environmental Affairs  
100 Cambridge Street, Suite 900  
Boston, MA 02114

May 7, 2021

Re: MVP Action Grant Proposal - Herring River Restoration Project Final Construction Plans and Bid Specifications

Dear Ms. Runsten:

Thank you for your consideration of the Town of Wellfleet's above referenced proposal. The proposal requests \$589,960 in MVP funds to complete final construction plans and bid specifications for six infrastructure elements of the Herring River Restoration Project. The Project is a community resilience priority identified in the Wellfleet/Truro MVP Action Plan (2019).

This letter serves to confirm the required match commitment of 26%, or \$203,224. The match will be provided in a combination of cash grant contributions and in-kind technical support as follows:

1. A total of \$171,000 in grants received by Friends of Herring River, Inc. (FHR) will be contributed as cash match to this project. The grant funds come from the NOAA Restoration Center and the National Fisheries and Wildlife Foundation. A letter of match commitment from FHR is enclosed.
2. A total of \$12,749 in in-kind technical support from FHR will be contributed as in-kind match support. Further detail on this in-kind support is provided on the enclosed letter of match commitment from FHR.
3. A total of \$19,474 in technical support from Town of Wellfleet personnel will be contributed as in-kind match support. This includes contributions from the following departments: Conservation/Health, Public Works, Harbormaster, and Administration.

The above referenced match does not involve state funding and is not used as match for another government program. All match will be contributed within the grant contract period and reported as required.

Thank you for consideration of this funding request.

Sincerely

Rebecca Slick  
Wellfleet Assistant Town Administrator



# HERRING RIVER RESTORATION PROJECT

CHEQUESSETT NECK ROAD · WELLFLEET · MASSACHUSETTS

## CHEQUESSETT NECK ROAD BRIDGE AND WATER ACCESS FACILITY CONSTRUCTION

PERMITTING DRAWING SET

JANUARY 2021

PREPARED FOR:

PREPARED BY:



**FRIENDS OF HERRING RIVER**

P.O. BOX 565  
SOUTH WELLFLEET, MA 02663



**FUSS & O'NEILL**

717 LADY ST, SUITE E  
COLUMBIA, SOUTH CAROLINA 29201  
803.376.6034  
www.fando.com



**TOWN OF WELLFLEET**

300 MAIN STREET  
WELLFLEET, MA 02667

**SHEET INDEX**

No.	SHEET LABEL	SHEET TITLE
1	GI-001	COVER SHEET
2	CN-001	GENERAL NOTES & LEGEND
3	CN-002	INDEX SHEET & OFF-SITE STAGING PLAN
4	CN-003	EXISTING CONDITIONS INDEX PLAN
5-6	CS-100 - CS-101	EXISTING CONDITIONS & BORING LOCATION PLANS
7-8	CS-102 - CS-103	EXISTING WETLAND RESOURCES PLANS
9-10	CS-104 - CS-105	DEMOLITION AND EROSION CONTROL PLANS
11-12	CS-106 - CS-107	CONSTRUCTION PLANS
13	CS-108	CONSTRUCTION PROFILE
14	CS-109	TYPICAL ROADWAY SECTIONS
15-18	CS-110 - CS-113	GRADING PLANS
19-20	CS-114 - CS-115	UTILITY PLANS
21-22	CS-116 - CS-117	SITE RESTORATION PLANS
23-24	CS-118 - CS-119	WETLAND IMPACT PLANS
25	CS-120	CONSTRUCTION SEQUENCE & WATER CONTROL PLAN
26	CS-121	PAVEMENT MARKING AND SIGNING PLAN
27-33	CT-401 - CT-407	TEMPORARY TRAFFIC CONTROL PLANS
34-40	CD-501 - CD-507	CONSTRUCTION DETAILS
41	CD-508	WHEELCHAIR RAMP TRANSITION DETAILS
42	CD-509	SIDEWALK TRANSITION DETAILS
43-44	EA-001 - EA-002	ELECTRICAL SITE DETAILS
45	EA-003	ELECTRICAL BRIDGE ELEVATION
46-53	S-001 - S-008	BRIDGE STRUCTURE PLANS, SECTIONS, AND NOTES

**PROJECT TEAM:**

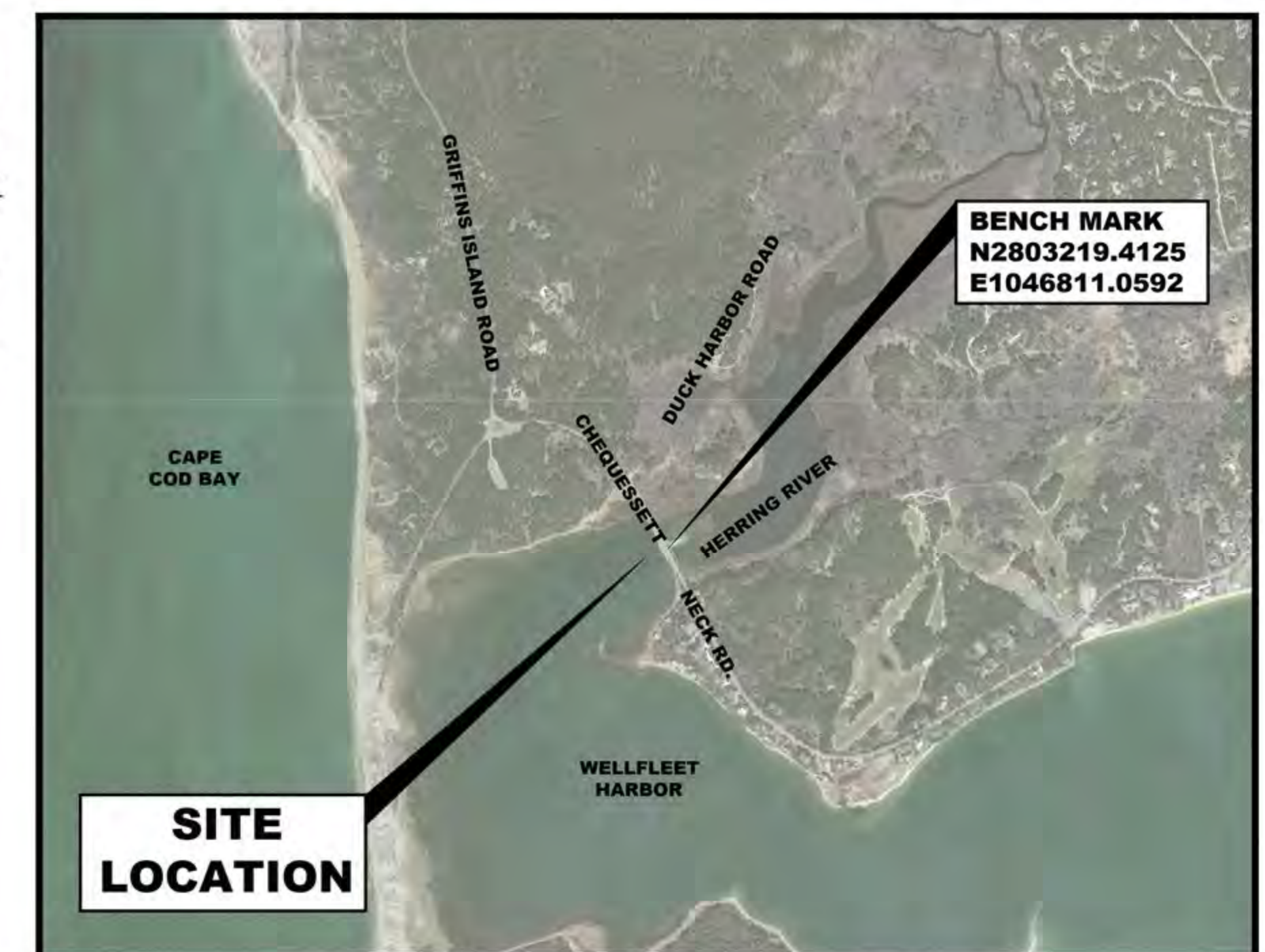
**DESIGN**  
FUSS & O'NEILL, INC.  
317 IRON HORSE WAY, SUITE 204  
PROVIDENCE, RI 02908  
P: 401-861-3070

**COASTAL MODELING**  
WOODS HOLE GROUP, INC.  
81 TECHNOLOGY PARK DRIVE  
EAST FALMOUTH, MA 02536  
P: 508-540-8080

**SURVEY**  
BAXTER NYE ENGINEERING  
& SURVEYING  
78 NORTH STREET, 3RD FLOOR  
HYANNIS, MA 02601  
P: 508-771-7502

**BRIDGE OWNER:**

TOWN OF WELLFLEET  
300 MAIN STREET  
WELLFLEET, MA 02667



**SITE LOCATION**

LOCATION MAP  
SCALE: 1" = 1000'

WHERE NOTED (INCLUDING ROADWAY/HIGHWAY CONSTRUCTION AND RELATED ITEMS), WORK SHALL BE IN CONFORMANCE WITH THE MASSACHUSETTS HIGHWAY DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES DATED 1988, THE ENGLISH SUPPLEMENTAL SPECIFICATIONS DATED JUNE 15, 2012 AND INTERIM SUPPLEMENTAL SPECIFICATIONS DATED DECEMBER 12, 2014; THE STANDARD SPECIAL PROVISIONS CONTAINED IN THE CONTRACT, THE 2014 CONSTRUCTION STANDARD DETAILS AND THE CONSTRUCTION AND TRAFFIC STANDARD DETAILS DATED APRIL 2003; THE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES WITH THE MASSACHUSETTS AMENDMENTS; THE 1990 STANDARD DRAWINGS FOR SIGNS AND SUPPORTS; THE 1968 STANDARD DRAWINGS FOR TRAFFIC SIGNALS AND HIGHWAY LIGHTING, THE LATEST EDITION OF AMERICAN STANDARD FOR NURSERY STOCK, AND THE SPECIAL PROVISIONS.

TYPE OF PROJECT:	NEW BRIDGE	
BRIDGE DESIGN LOADING:	HL93	
SURVEY NOTE BOOKS:	SURVEY BY BAXTER NYE, INC.	
SURVEY REFERENCE:	NAVD OF 1988	
TRAFFIC DATA <sup>1</sup>		
	ROADWAY OVER	ROADWAY UNDER
DESIGN YEAR	2020	
AVERAGE DAILY TRAFFIC - PRESENT	1078	
AVERAGE DAILY TRAFFIC - DESIGN YEAR	1180	
DESIGN HOURLY VOLUME	115	
DIRECTIONAL DISTRIBUTION	0.62	
TRUCK PERCENTAGE - AVERAGE DAY <sup>2</sup>	3.9%	
TRUCK PERCENTAGE - PEAK HOUR <sup>2</sup>	3.9%	
DESIGN SPEED - MPH	35	
DIRECTIONAL DESIGN HOURLY VOLUME	76	



THIS PROJECT IS FUNDED IN PART  
BY THE MASSACHUSETTS  
ENVIRONMENTAL TRUST

**NOT FOR CONSTRUCTION**

PROJ. No.: 20120636.A17  
DATE: JANUARY 2021

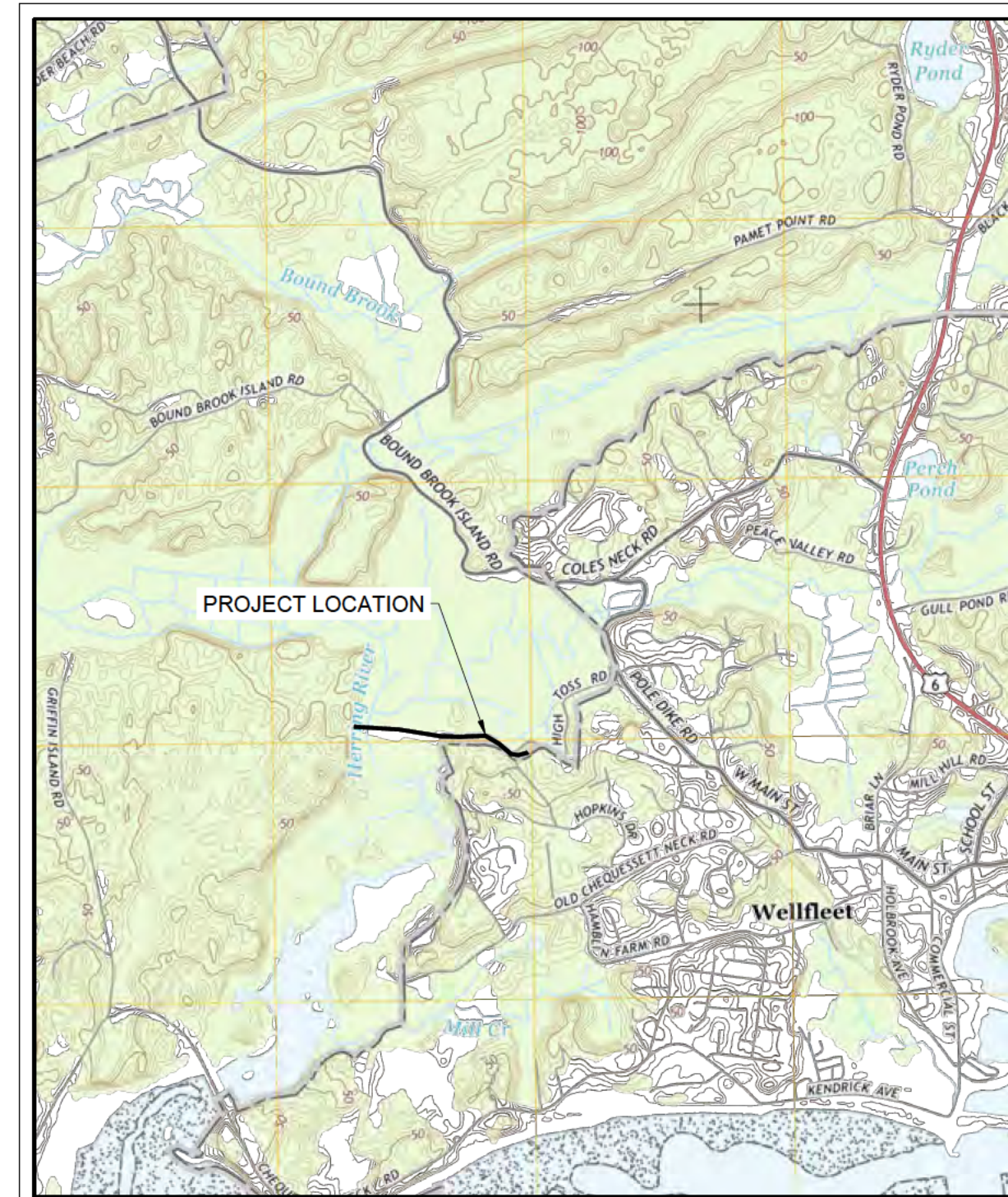
**GI-001**

1 OF 53

# HERRING RIVER RESTORATION PROJECT WELLFLEET AND TRURO, MASSACHUSETTS

## HIGH TOSS ROAD PERMIT-LEVEL DESIGN PLANS

MARCH 12, 2021



PROJECT LOCATION MAP

SCALE: 1"=2000'±  
SOURCE: USGS



### PREPARED FOR:



Friends of Herring River  
Wellfleet and Truro, Massachusetts

P.O. Box 565  
South Wellfleet, Massachusetts 02663  
[www.herringriver.org](http://www.herringriver.org)

### PREPARED BY:



166 Valley Street, Building 5  
Providence, Rhode Island 02909  
p 401.521.5980  
[www.wsp.com](http://www.wsp.com)



Sheet List Table

Sheet Number	Sheet Title	Station Range
1	Cover	
2	Notes-C1	
3	Key Plan-C2	
4	Existing Conditions-C3	0+00 to 15+00
5	Existing Conditions-C4	15+00 to 21+22
6	Proposed Conditions-C5	0+00 to 7+50
7	Proposed Conditions-C6	7+50 to 15+00
8	Proposed Conditions- C7	15+00 to 21+69
9	Cross Sections- C8	
10	Hopkins Drive Proposed Conditions - C-9	100+00 to 102+09
11	Details- D1	
12	Details- D2	
13	Hopkins Drive Details - D-3	

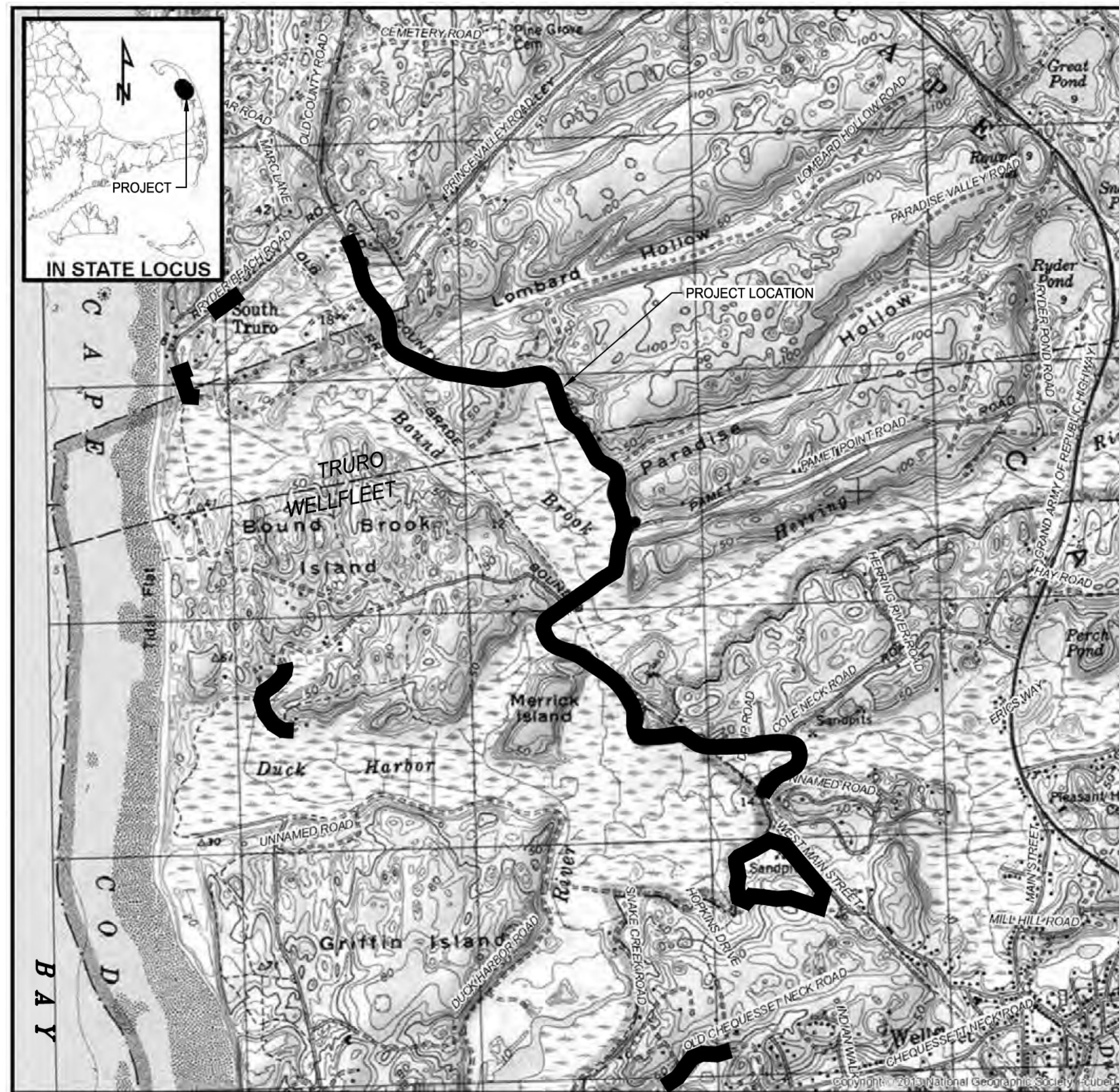
FOR PERMITTING PURPOSES ONLY

# HERRING RIVER RESTORATION PROJECT ENGINEERING DESIGN TO ELEVATE LOW-LYING ROADWAYS AND REPLACE ASSOCIATED CULVERTS

TRURO AND WELFLEET, MASSACHUSETTS

PERMIT PLANS - NOT FOR CONSTRUCTION

MARCH 2021



PROJECT LOCATION MAP

		DRAWING INDEX			
01	G01	TITLE SHEET	47	C41	PROPOSED CONDITIONS PLAN AND PROFILE STA 132+50 - STA 141+25
02	G02	GENERAL NOTES	48	C42	PROPOSED CONDITIONS PLAN AND PROFILE BOUND BROOK ISLAND RD STA 0+00 - STA 8+50
03	G03	PROJECT LOCATION AND PLAN SHEETS MAP	49	C43	PROPOSED CONDITIONS PLAN AND PROFILE BOUND BROOK ISLAND RD STA 8+50 - STA 16+43
04	T01	DETOUR PLAN 1	50	C44	PROPOSED CONDITIONS PLAN AND PROFILE BOUND BROOK ISLAND RD-RESIDENTIAL DRIVEWAY STA 0+00 - STA 9+76
05	T02	DETOUR PLAN 2	51	C45	CROSS SECTIONS STA 2+00 TO 9+50
06	T03	MPOI DETAILS	52	C46	CROSS SECTIONS STA 10+00 TO 18+00
07	C01	EXISTING CONDITIONS PLAN AND PROFILE STA 0+00 - STA 7+65	53	C47	CROSS SECTIONS STA 18+50 TO 25+50
08	C02	EXISTING CONDITIONS PLAN AND PROFILE STA 7+65 - STA 19+00	54	C48	CROSS SECTIONS STA 26+00 TO 33+00
09	C03	EXISTING CONDITIONS PLAN AND PROFILE STA 19+00 - STA 29+84	55	C49	CROSS SECTIONS STA 33+50 TO 40+50
10	C04	EXISTING CONDITIONS PLAN AND PROFILE STA 29+84 - STA 40+50	56	C50	CROSS SECTIONS STA 41+00 TO 48+00
11	C05	EXISTING CONDITIONS PLAN AND PROFILE STA 40+50 - STA 50+53	57	C51	CROSS SECTIONS STA 48+50 TO 55+50
12	C06	EXISTING CONDITIONS PLAN AND PROFILE STA 50+53 - STA 58+50	58	C52	CROSS SECTIONS STA 56+00 TO 64+50
13	C07	EXISTING CONDITIONS PLAN AND PROFILE STA 58+50 - STA 68+00	59	C53	CROSS SECTIONS STA 65+00 TO 72+00
14	C08	EXISTING CONDITIONS PLAN AND PROFILE STA 68+00 - STA 77+75	60	C54	CROSS SECTIONS STA 76+75 TO 78+00
15	C09	EXISTING CONDITIONS PLAN AND PROFILE STA 77+75 - STA 88+68	61	C55	CROSS SECTIONS STA 82+00 TO 85+00
16	C10	EXISTING CONDITIONS PLAN AND PROFILE STA 88+68 - STA 100+61	62	C56	CROSS SECTIONS STA 96+00 TO 97+50
17	C11	EXISTING CONDITIONS PLAN AND PROFILE STA 100+61 - STA 110+85	63	C57	CROSS SECTIONS STA 120+50 TO 122+50
18	C12	EXISTING CONDITIONS PLAN AND PROFILE STA 110+85 - STA 122+17	64	C58	CROSS SECTIONS STA 133+25 TO 135+00
19	C13	EXISTING CONDITIONS PLAN AND PROFILE STA 122+17 - STA 132+50	65	C59	CROSS SECTIONS BOUND BROOK ISLAND RD STA 0+00 TO 16+00
20	C14	EXISTING CONDITIONS PLAN AND PROFILE STA 132+50 - STA 141+00	66	C60	CROSS SECTIONS BOUND BROOK ISLAND RD-RESIDENTIAL DRIVEWAY STA 1+00 TO 9+00
21	C15	EXISTING CONDITIONS PLAN AND PROFILE MILL CREEK LANE STA 0+00 - STA 7+75	67	C61	RESOURCE IMPACTS PLAN STA 0+00 - STA 7+65
22	C16	EXISTING CONDITIONS PLAN AND PROFILE OLD CHEQUESSETT NECK RD-WEST 0+00 - STA 5+00	68	C62	RESOURCE IMPACTS PLAN STA 7+65 - STA 19+00
23	C17	EXISTING CONDITIONS PLAN AND PROFILE OLD CHEQUESSETT NECK RD-WEST 5+00 - STA 12+00	69	C63	RESOURCE IMPACTS PLAN STA 19+00 - STA 29+84
24	C18	EXISTING CONDITIONS PLAN AND PROFILE OLD CHEQUESSETT NECK RD-EAST 0+00 - STA 4+00	70	C64	RESOURCE IMPACTS PLAN STA 29+84 - STA 40+50
25	C19	EXISTING CONDITIONS PLAN AND PROFILE BOUND BROOK ISLAND RD 0+00 - STA 8+50	71	C65	RESOURCE IMPACTS PLAN STA 40+50 - STA 50+53
26	C20	EXISTING CONDITIONS PLAN AND PROFILE BOUND BROOK ISLAND RD 8+50 - STA 16+43	72	C66	RESOURCE IMPACTS PLAN STA 50+53 - STA 58+50
27	C21	EXISTING CONDITIONS PLAN AND PROFILE BOUND BROOK ISLAND RD-RESIDENTIAL DRIVEWAY STA 0+00 - STA 9+76	73	C67	RESOURCE IMPACTS PLAN STA 58+50 - STA 68+00
28	C22	EXISTING CONDITIONS PLAN AND PROFILE RYDER HOLLOW ROAD STA 0+00 - STA 6+00	74	C68	RESOURCE IMPACTS PLAN STA 68+00 - STA 77+75
29	C23	EXISTING CONDITIONS PLAN AND PROFILE RYDER HOLLOW ROAD STA 6+00 - STA 10+16	75	C69	RESOURCE IMPACTS PLAN STA 77+75 - STA 88+68
30	C24	EXISTING CONDITIONS PLAN AND PROFILE RYDER BEACH ROAD STA 0+00 - STA 5+74	76	C70	RESOURCE IMPACTS PLAN STA 88+68 - STA 100+61
31	C25	EXISTING CONDITIONS PLAN AND PROFILE PEACE VALLEY ROAD STA 0+00 - STA 4+00	77	C71	RESOURCE IMPACTS PLAN STA 100+61 - STA 110+85
32	C26	EXISTING CONDITIONS PLAN DPW MATERIAL YARD SHEET 1 OF 2	78	C72	RESOURCE IMPACTS PLAN STA 110+85 - STA 122+17
33	C27	EXISTING CONDITIONS PLAN DPW MATERIAL YARD SHEET 2 OF 2	79	C73	RESOURCE IMPACTS PLAN STA 122+17 - STA 132+50
34	C28	PROPOSED CONDITIONS PLAN AND PROFILE STA 0+00 - STA 7+65	80	C74	RESOURCE IMPACTS PLAN STA 132+50 - STA 141+25
35	C29	PROPOSED CONDITIONS PLAN AND PROFILE STA 7+65 - STA 19+00	81	C75	RESOURCE IMPACTS PLAN BOUND BROOK ISLAND RD STA 0+00 - STA 8+50
36	C30	PROPOSED CONDITIONS PLAN AND PROFILE STA 19+00 - STA 29+84	82	C76	RESOURCE IMPACTS PLAN BOUND BROOK ISLAND RD STA 8+50 - STA 16+43
37	C31	PROPOSED CONDITIONS PLAN AND PROFILE STA 29+84 - STA 40+50	83	C77	RESOURCE IMPACTS PLAN BOUND BROOK ISLAND RD-RESIDENTIAL DRIVEWAY STA 0+00 - STA 9+76
38	C32	PROPOSED CONDITIONS PLAN AND PROFILE STA 40+50 - STA 50+53	84	C78	CIVIL DETAILS 01
39	C33	PROPOSED CONDITIONS PLAN AND PROFILE STA 50+53 - STA 58+50	85	C79	CIVIL DETAILS 02
40	C34	PROPOSED CONDITIONS PLAN AND PROFILE STA 58+50 - STA 68+00	86	C80	CIVIL DETAILS 03
41	C35	PROPOSED CONDITIONS PLAN AND PROFILE STA 68+00 - STA 77+75	87	C81	CIVIL DETAILS 04
42	C36	PROPOSED CONDITIONS PLAN AND PROFILE STA 77+75 - STA 88+68	88	C82	CIVIL DETAILS 05
43	C37	PROPOSED CONDITIONS PLAN AND PROFILE STA 88+68 - STA 100+61	89	C83	CIVIL DETAILS 06
44	C38	PROPOSED CONDITIONS PLAN AND PROFILE STA 100+61 - STA 110+85	90	C84	CIVIL DETAILS 07
45	C39	PROPOSED CONDITIONS PLAN AND PROFILE STA 110+85 - STA 122+17	91	C85	PLANTING PLAN NOTES AND DETAILS
46	C40	PROPOSED CONDITIONS PLAN AND PROFILE STA 122+17 - STA 132+50			

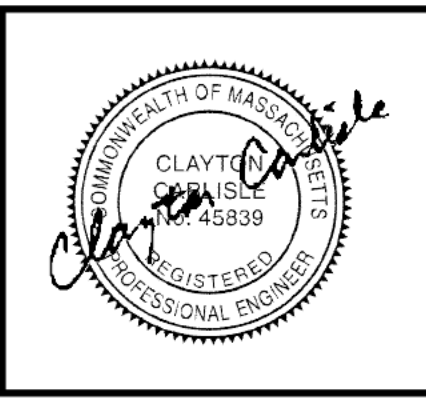
3/19/2021 7:44:32 PM - GORETOY, ANDREY - C:\bms\2\business\0109945\01\_HR\_LLROD\_SHEET\_2016-06-06-23.dwg

NOT FOR CONSTRUCTION

MARK	REVISION DESCRIPTION	BY	APP.	DATE

**Louis Berger**  
166 Valley Street, Building 5  
Providence | RI | 02909  
phone 401.521.5980 | louisberger.com

**Friends of Herring River**  
Wellfleet and Truro, Massachusetts  
P. O. Box 565  
South Wellfleet, Massachusetts 02663  
www.friendsofherringriver.org



DRAWN BY AG  
DESIGN BY MK  
CHECK BY CC  
PROJ MGR CC

HERRING RIVER RESTORATION PROJECT  
ENGINEERING DESIGN TO ELEVATE LOW-LYING ROADWAYS AND REPLACE ASSOCIATED CULVERTS  
TRURO AND WELFLEET, MASSACHUSETTS  
**TITLE SHEET**

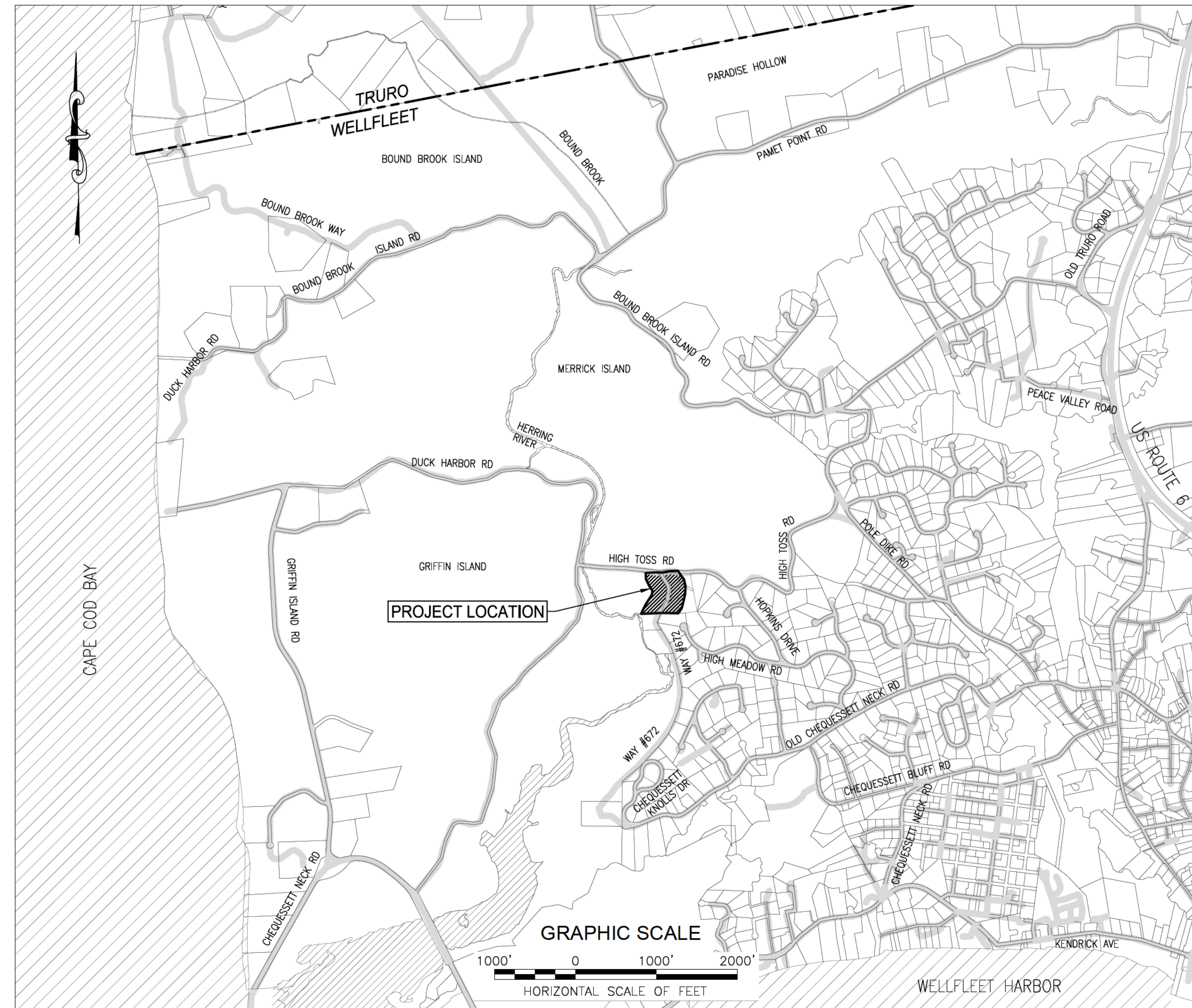
DRAWING NO. G01  
PROJECT NO. 2004341  
FED AID NO.  
DATE: MARCH 2021  
SHEET NO. 1 OF 91

# HERRING RIVER RESTORATION PROJECT

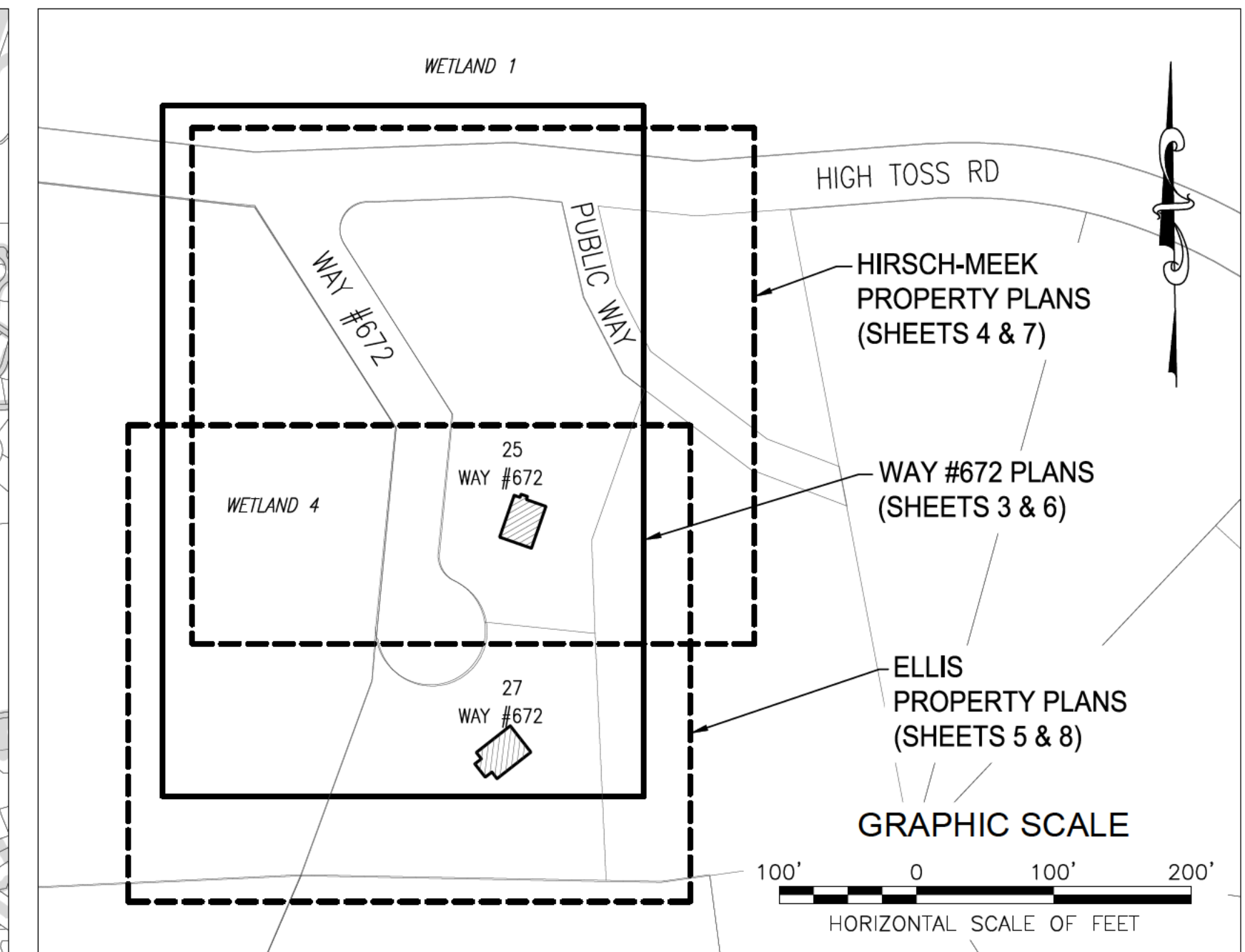
## PERMIT LEVEL DESIGN FOR LOW-LYING PROPERTY IMPACT PREVENTION

### WAY #672, HIRSCH-MEEK PROPERTY (25 WAY #672), & ELLIS PROPERTY (27 WAY #672)

WELLFLEET, MASSACHUSETTS  
 PERMIT PLANS - NOT FOR CONSTRUCTION  
 MARCH 2021



PROJECT LOCATION MAP



KEY MAP

NOTE:  
 WAY #672 IS ALSO KNOWN AS RAINBOW LANE  
 OR SNAKE CREEK ROAD

DRAWING INDEX		
01	G01	TITLE SHEET
02	G02	GENERAL NOTES
03	C01	EXISTING CONDITIONS PLAN WAY #672
04	C02	EXISTING CONDITIONS PLAN HIRSCH-MEEK PROPERTY
05	C03	EXISTING CONDITIONS PLAN ELLIS PROPERTY
06	C04	PROPOSED CONDITIONS PLAN WAY #672
07	C05	PROPOSED CONDITIONS PLAN HIRSCH-MEEK PROPERTY
08	C06	PROPOSED CONDITIONS PLAN ELLIS PROPERTY
09	C07	CIVIL DETAILS 1
10	C08	CIVIL DETAILS 2
11	C09	RESOURCE IMPACTS

**NOT FOR CONSTRUCTION**

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MARK	REVISION DESCRIPTION	BY	APP.	DATE

166 Valley Street, Building 5  
 Providence | RI | 02909  
 phone 401.521.5980 | louisberger.com

P.O. Box 565  
 Wellfleet, MA 02663  
 www.herringriver.org

DRAWN BY AG  
 DESIGN BY AG  
 CHECK BY CC  
 PROJ MGR CC

HERRING RIVER RESTORATION PROJECT  
 PERMIT LEVEL DESIGN FOR LOW-LYING PROPERTY IMPACT PREVENTION  
 WAY #672, HIRSCH-MEEK PROPERTY (25 WAY #672), & ELLIS PROPERTY (27 WAY #672), WELLFLEET, MASSACHUSETTS

**TITLE SHEET**

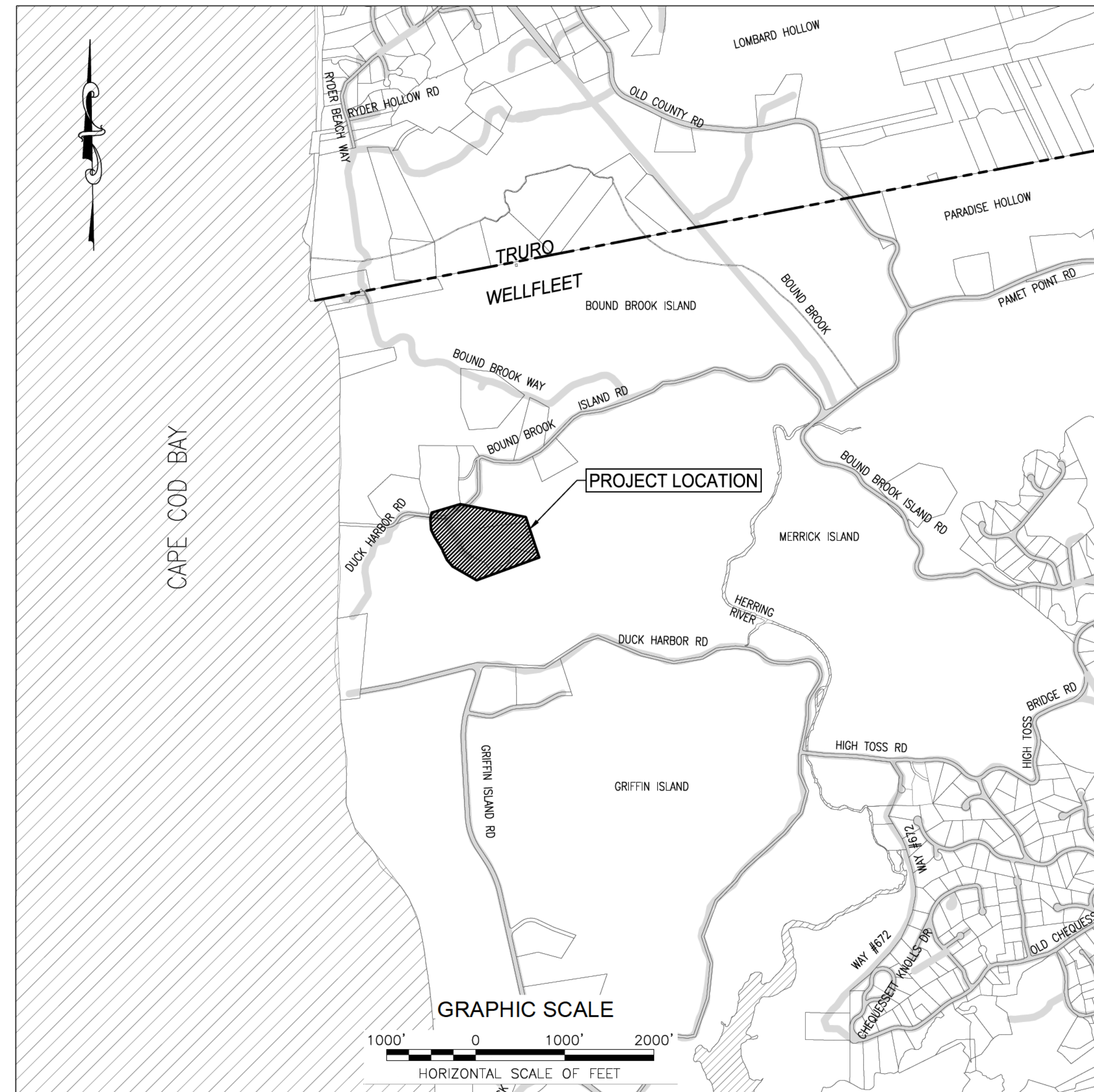
DRAWING NO.	G01
PROJECT NO.	2002800
FED AID NO.	XXXX
DATE:	MARCH 2021
SHEET NO.	1 OF 11

# HERRING RIVER RESTORATION PROJECT

## PERMIT PLANS FOR LOW-LYING PROPERTY IMPACT PREVENTION

# MILLER-FREDERIKSEN PROPERTY (695 BOUND BROOK ISLAND ROAD)

WELLFLEET, MASSACHUSETTS  
 PERMIT PLANS - NOT FOR CONSTRUCTION  
 MARCH 12, 2021



PROJECT LOCATION MAP

DRAWING INDEX		
1	G01	TITLE SHEET
2	G02	GENERAL NOTES
3	C01	EXISTING CONDITIONS
4	C02	PROPOSED CONDITIONS OVERVIEW
5	C03	PROPOSED DRIVEWAY
6	C04	FLOODWALL PATIO
7	C05	RESOURCE IMPACTS
8	C06	CIVIL DETAILS 1
9	C07	CIVIL DETAILS 2

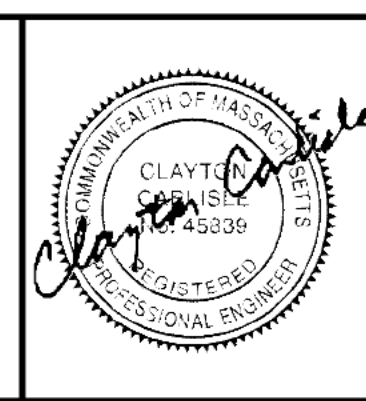
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MARK	REVISION DESCRIPTION	BY	APP.	DATE
1	REVISED GRADING AND RESOURCE IMPACTS TABLES	MT		DEC 2019

**Louis Berger**  
 166 Valley Street, Building 5  
 Providence | RI | 02909  
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**Friends of Herring River**  
 Wellfleet and Truro, Massachusetts  
 P.O. Box 496  
 Wellfleet, Massachusetts 02667  
 www.friendsofherringriver.org



DRAWN BY	AG
DESIGN BY	AG
CHECK BY	CC
PROJ MGR	CC

HERRING RIVER RESTORATION PROJECT  
 PERMIT PLANS FOR LOW-LYING PROPERTY IMPACT PREVENTION  
 MILLER-FREDERIKSEN PROPERTY (695 BOUND BROOK ISLAND ROAD), WELLFLEET, MASSACHUSETTS

**TITLE SHEET**

DRAWING NO.	G01
PROJECT NO.	XXXXXX
FED AID NO.	XXXX
DATE:	MARCH 2021
SHEET NO.	1 OF 9

# CHEQUESSETT YACHT AND COUNTRY CLUB RECONFIGURATION PERMIT PLANS

## HERRING RIVER RESTORATION PROJECT WELLFLEET AND TRURO, MASSACHUSETTS

680 CHEQUESSETT NECK RD  
WELLFLEET, MA 02667  
AP 19 LOTS 81, 81-2, 173, 11-1, AND 12-1

**MARCH 24, 2021**

PREPARED FOR:



Friends of Herring River  
Wellfleet and Truro,  
Massachusetts

P.O. Box 565  
S. Wellfleet, Massachusetts 02663  
www.herringriver.org

PREPARED BY:

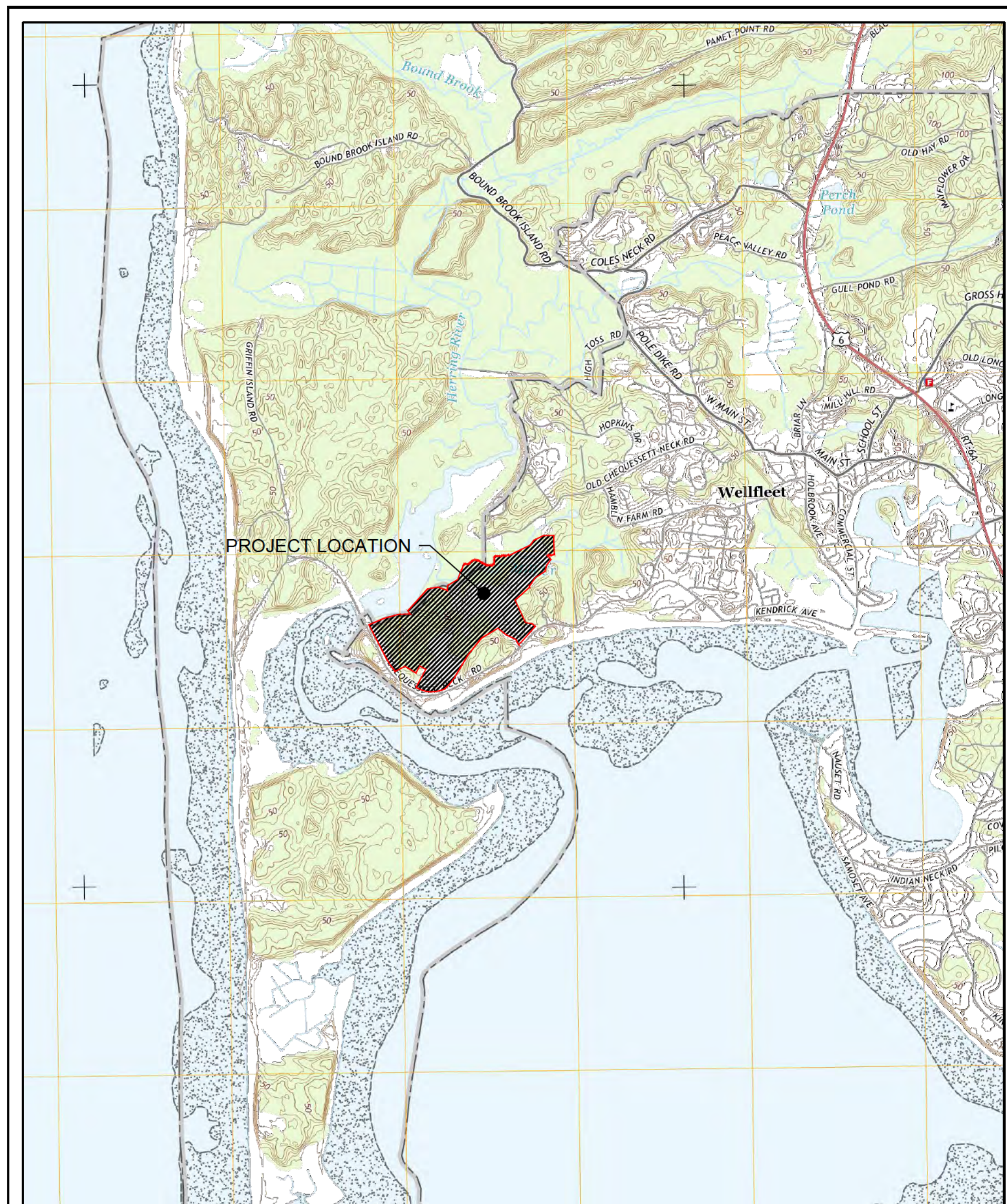


environmental consulting  
& engineering services

404 Wyman Street, Suite 375  
Waltham, Massachusetts 02451  
p 781.419.7696  
www.essgroup.com



Howard Maurer Golf Course Design, LLC  
Newbury, New Hampshire  
p 603-763-0583  
how.maurer@gmail.com



PROJECT LOCATION MAP



SCALE: 1"=2000'  
SOURCE: USGS

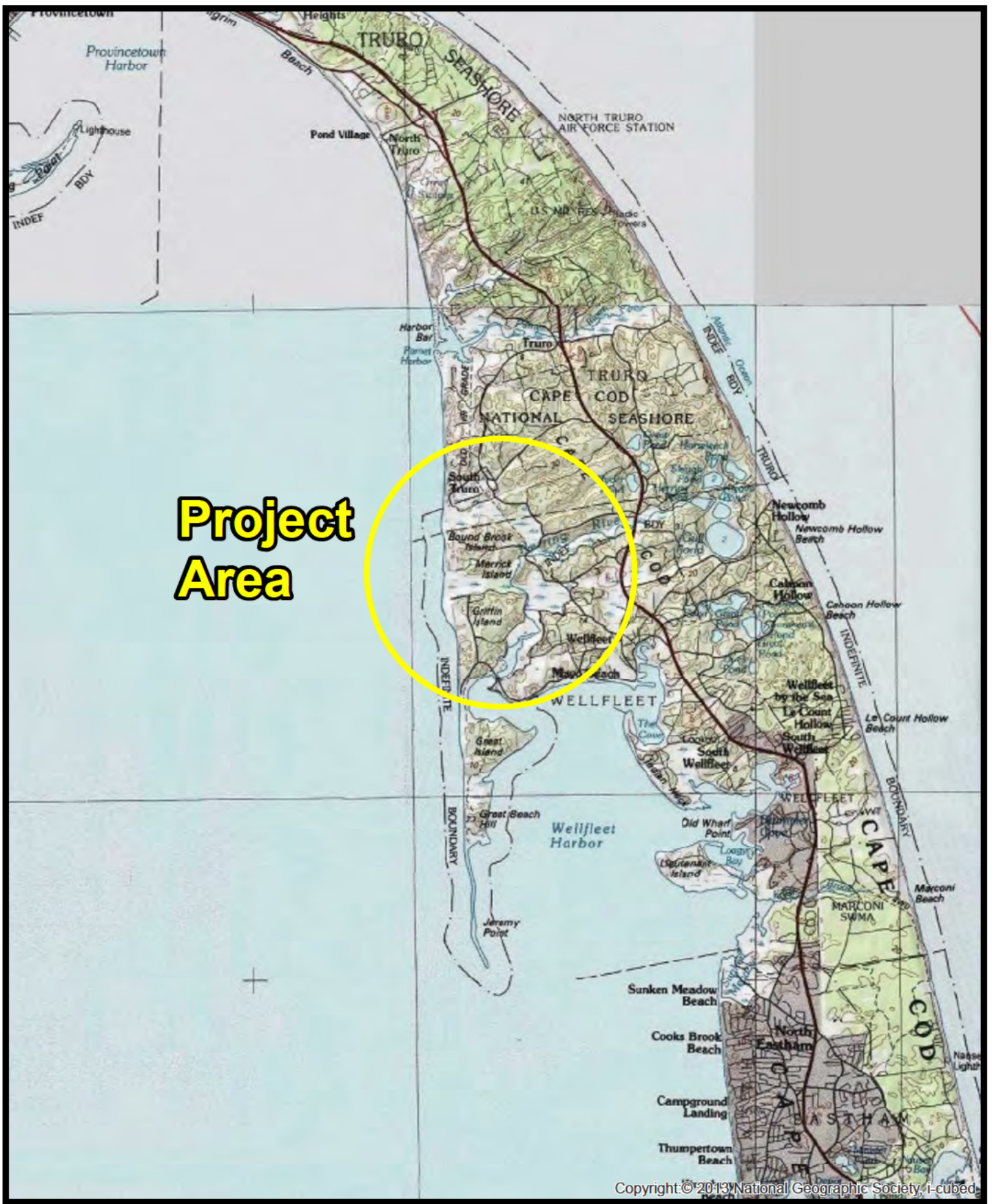
### Sheet List Table

Sheet Number	Sheet Title
1	COVER
2	NOTES
3	INDEX PLAN
4	EXISTING CONDITIONS
5	EXISTING CONDITIONS
6	EXISTING CONDITIONS
7	EXISTING CONDITIONS
8	EXISTING CONDITIONS
9	GRADING & EROSION CONTROL
10	GRADING & EROSION CONTROL
11	GRADING & EROSION CONTROL
12	GRADING & EROSION CONTROL
13	GRADING & EROSION CONTROL
14	REVEGETATION PLAN & WETLAND IMPACT
15	REVEGETATION PLAN & WETLAND IMPACT
16	REVEGETATION PLAN & WETLAND IMPACT
17	REVEGETATION PLAN & WETLAND IMPACT
18	REVEGETATION PLAN & WETLAND IMPACT
19	PROPOSED HAUL ROAD
20	MILL CREEK DRAINAGE IMPROVEMENTS
21	MILL CREEK DRAINAGE IMPROVEMENTS
22	IRRIGATION POND SECTION
23	WETLAND ENCROACHMENT SECTION A-A'
24	WETLAND ENCROACHMENT SECTION B-B'
25	DETAILS
26	DETAILS

### ATTACHMENTS




"IRRIGATION PLAN", IRRIGATION CONSULTING LLC, DATED 09/13/2019 (8 SHEETS)

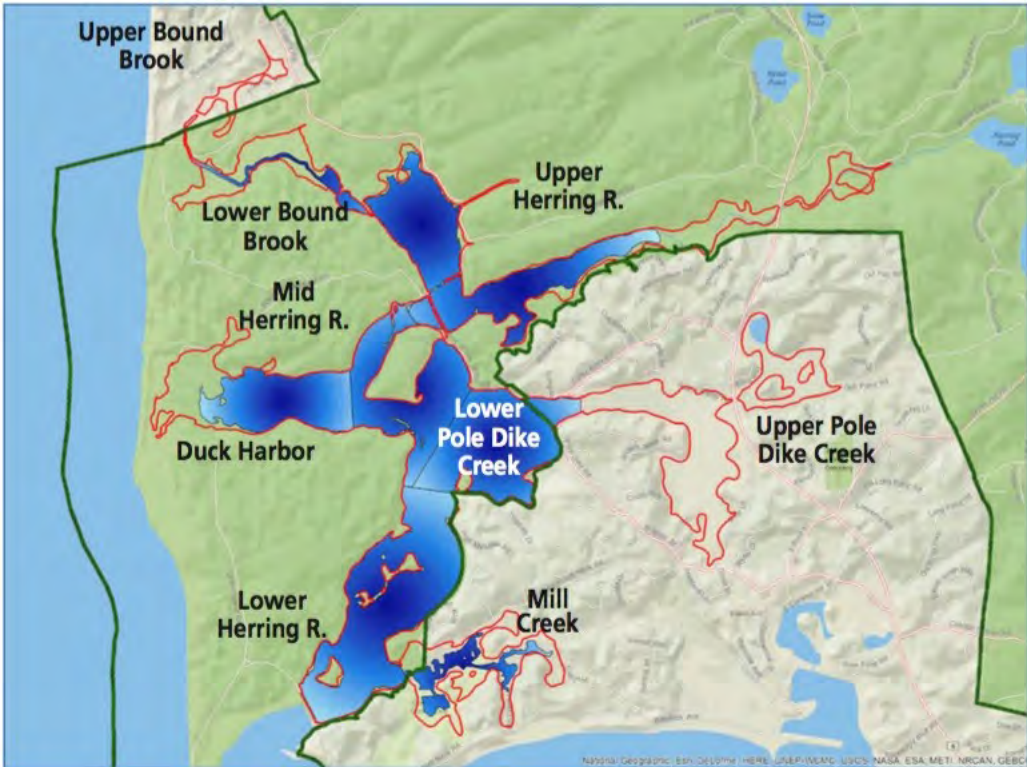
"CONCEPT TIMBER CART BRIDGE", YORK BRIDGE CONCEPTS, DATED 09/12/2019 (3 SHEETS)



**Project Area**

Copyright © 2013 National Geographic Society, i-cubed

 <p><b>Louis Berger</b></p>	<i>Herring River Restoration Project</i>		
	<b>Locus Map</b>		
 <p><b>Friends of Herring River</b> Wellfleet and Truro, Massachusetts</p>	Source: ESRI	1 inch = 12,000 feet	 April 2017



- Maximum extent of Phase 1 restoration (mean high water spring tides)
- Project Area/Extent of Full Restoration pending future permits and landowner agreements
- CCNS Boundary



# Herring River Restoration Project Overview



**Natural  
Herring River  
Channel Width**

**Chequessett Neck Road Dike  
18-foot-wide Opening**



# HISTORIC MARSH VS. PRESENT DAY



# On-Going Effects of Tidal Restriction

1



Loss of  
Estuarine  
Productivity

Fecal Coliform  
Bacteria Pollution =  
closed shellfish areas



RECENT DATA = COLLECTED AND ANALYZED THROUGH 2017  
CONFIRM AND FURTHER SUBSTANTIATE THE DEGRADED  
CONDITION OF THE HERRING RIVER FLOODPLAIN

Degraded  
Habitat for  
River  
Herring;  
Acidification



Poor Water  
Quality /  
Low  
Dissolved  
Oxygen =  
Fish Kills

# HERRING RIVER TODAY

- CNR dike designated point source for bacterial contamination – shellfish closures
- Classified as “impaired waters” under CWA standards (low pH, metals, path.)



- Marsh subsidence & acid sulfate soils – fish kills
- Loss of salt marsh – replaced by invasive species, loss of resiliency

Phragmites and other invasive species colonized the marshes within the Herring River estuary, replacing native vegetation. An approximately 40-acre stand of Phragmites that currently releases methane will die off when tidal exchange is restored. An Invasive Species Control Plan will be prepared for submittal with the Wetlands Protection Act applications.



Date & Time: Sat Apr 29 13:26:47 EDT 2017

Position: 19 N 411469 4644434

Altitude: 3m

Datum: NORTH AMERICAN 1983, CONUS

Azimuth/Bearing: 001° N01E 0018mils (True)

Zoom: 1X

HRVS-2017-DH-01

**Invasive upland species colonized the former salt marsh. NPS will clear, burn or otherwise manage vegetation within the Seashore boundary prior to each incremental increase in tidal exchange, to ensure that conditions favor establishment of salt marsh vegetation when restored tidal flow reaches any given area.**



Existing causeway across the marsh plain, including culvert at Herring River crossing, will be removed to eliminate a hydrologic restriction to restored tidal exchange.





# Blue Carbon in the Herring River: Can We Reduce Greenhouse Gas Emissions through Wetland Restoration?

Kevin D. Kroeger

USGS Woods Hole Coastal & Marine Science Center



# Carbon burial rates and linkages to tidal hydrology and elevation in tidally restricted and unrestricted wetlands

Meagan Eagle Gonneea (USGS), Kevin D. Kroeger (USGS), Jim Tang (MBL), Faming Wang (MBL),  
Amanda C. Spivak (UGA) USGS: Woods Hole Coastal & Marine Science Center, U.S. Geological Survey, Woods Hole,  
MA | MBL: Marine Biological Laboratory, Woods Hole, MA | UGA: University of Georgia, Athens, GA

Herring River land cover classes



Cores (duplicate) were collected across natural, restricted and restored marshes, age dated with 210-lead and soil carbon density measured. Elevation was determined to 2 cm.

# Project Benefits: **RESTORED ECOSYSTEM SERVICES**

- ✓ Shellfishing: Elimination of Bacterial Contamination of Recreational and Commercial Habitats
- ✓ Other Recreation: Boating, Hiking, Fishing
- ✓ Managing Sea Level Rise: Estuarine Habitats More Resilient to Coastal Flooding; Improved Drainage
- ✓ Natural Mosquito Control: Tidal Flushing of Breeding Areas, Larvae-eating Fish
- ✓ Reduce Methane Emissions: Equal to Taking Hundreds of Cars off the Road Each Year (preliminary data)
- ✓ Local Economy: \$1 Spent on Coastal Restoration = \$13 to Local Businesses (Center for Amer. Progress/OXFAM 2014)





**United States Department of the Interior**

**NATIONAL PARK SERVICE  
Cape Cod National Seashore  
99 Marconi Site Road  
Wellfleet, MA 02667  
508.771.2144  
508.349.9052 Fax**

**IN REPLY REFER TO:  
N2219**

April 21, 2021

Maria Broadbent, Town Administrator  
Town of Wellfleet  
300 Main Street  
Wellfleet, MA 02667

Re: Reconstruction of Chequessett Neck Road Dike to Support Herring River Restoration Project

Dear Ms. Broadbent:

Since Cape Cod National Seashore was established in 1961, the National Park Service (NPS) has enjoyed a cordial and productive working relationship with the Town of Wellfleet (the Town). Nowhere is this better exemplified than in our on-going cooperation on the restoration of the Herring River. As co-sponsors of the project, we are working together under the formalized provisions of multiple Memoranda of Understanding (MOU), first agreed upon in 2005, and through NPS and Town engagement with the Herring River Technical Team and Herring River Executive Council.

With the strong support of the Town, the project has reached several important recent milestones. Approvals have been secured from the Massachusetts Environmental Policy Office, the Cape Cod Commission, and the NPS through the National Environmental Policy Act. Project permits are under review by state and federal regulatory agencies and the expectation is that the Town's Conservation Commission will begin its project review later this year. With the critical support of Friends of Herring River, options for funding the project are being diligently explored.

NPS and cooperating scientists began studying the Herring River in the 1970s, as the Town was planning to reconstruct the original 1909 Chequessett Neck Road Dike, which had fallen into disrepair. This research continued through the 1980s, 1990s, and into the 21<sup>st</sup> century and has provided a solid basis for both the NPS and the Town to pursue tidal restoration of the river in order to alleviate the well-documented poor ecological status of the river. These conditions include, impaired water quality, loss of productive salt marsh habitat, loss of previously healthy and active shell fish habitat, discharge of fecal coliform bacteria to Wellfleet Harbor, and degradation of the formerly abundant anadromous fish resources (Herring) that gave the river its name.

On behalf of the citizens of the United States, NPS is the primary steward of approximately 80% of the Herring River watershed. The NPS is dependent on the support and active involvement of the Town so the Dike can be rebuilt to accommodate restored tidal exchange. Doing so will result in enormous benefits to NPS managed lands within the project boundary, town interests, and recreational benefits to an area of more than 800 acres.

Most notably, the Town's actions to reconstruct the dike and restore tidal flow will enable the delisting of the river from the U.S. Clean Water Act 303d list, which designates it as impaired. The presence of formally designated impaired aquatic resources within a unit of the NPS system is not tolerable and therefore we are thrilled and fully support the Town's efforts to plan, design, permit, and manage the reconstruction of the Dike and all of the other project elements under the Town's purview. Assuredly, NPS will continue to work on the elements under our responsibility and eagerly continue our collaborations under the formal MOUs and management entities previously mentioned and under any less formal mechanism as appropriate.

In addition to improvement to water quality of the river and adjacent Wellfleet Harbor the project will also reestablish hundreds of acres of recreational shell fish habitat, restore highly productive salt marsh habitats, and eliminate on-going methane discharge from degraded wetlands dominated by non-native common reed. These restored ecological functions will improve the quality of and access to many of the recreational amenities that make Cape Cod National Seashore such an attractive location for regional residents and visitors. The reconstructed Chequessett Neck Road Dike will enable kayaking and canoeing in the river, access to shellfish resources, and improved fin fishing. Restoration of the Herring River to its original condition as a tidal estuary will also reestablish the vital ecological and human connections between the river, Wellfleet Harbor, and Cape Cod Bay that supported Native Americans for centuries and early European colonists of Massachusetts.

We look forward to continuing our collaboration with the Town as the Herring River Project enters the important and exciting new phases on the horizon.

Sincerely,

A handwritten signature in blue ink, appearing to read "Brian Carlstrom".

Brian Carlstrom, Superintendent  
Cape Cod National Seashore



THE GENERAL COURT OF MASSACHUSETTS  
STATE HOUSE, BOSTON 02133-1053

Superintendent Brian Carlstrom  
Cape Cod National Seashore  
99 Marconi Site Road  
Wellfleet, MA 02667

Wellfleet Select Board  
300 Main Street  
Wellfleet, MA 02667

September 16, 2019

**Re: Support of the Herring River Restoration Project**

Dear Superintendent and Select Board Members,

Over the past decade, the Herring River restoration has grown from a visionary idea, to a carefully planned and rigorously designed project. It embodies the goals of resiliency, stewardship, and partnership that are vital to our region's – and the Commonwealth's future.

We are pleased to reaffirm our strong support for this regionally significant project as it embarks on a new phase of permitting and fundraising necessary for implementation.

The return of tidal flow to Herring River would restore approximately 1,000 acres of tidal marsh and numerous ecosystem services these resources provide. Healthy salt marshes and other forms of estuarine wetlands provide critical habitat for a wide variety of birds and wildlife; and serve as nurseries for fish and shellfish. Estuarine habitats are more resilient to coastal flooding; and they help to filter nutrients and other pollutants from run-off and rainfall before they enter the estuary.

Healthy tidal marshes also play a key role in combating climate change. Preliminary estimates based on current science indicate that restoration of salt marsh in the Herring River would result in a substantial reduction in the net volume of greenhouse gases released into the atmosphere.

A collaboration of local state and federal partners has been central to the project's success. This partnership has enabled the project to benefit from vast technical knowledge and experience while ensuring that decisions about project design and implementation remain local and responsive to community needs.

As residents of the Outer Cape, we have a deep appreciation of the link between the health of our coastal environment to the economic opportunities and quality of life in our communities.

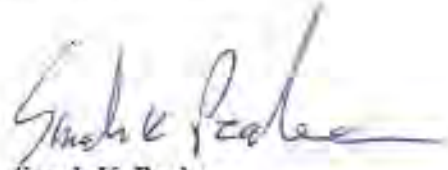
The Herring River Restoration stands out as one of the most significant projects of its time in the Northeast. It exemplifies the exciting potential of the emerging Blue Economy on Cape Cod, by utilizing modeling and management techniques that are at the leading edge of coastal restoration science. The example set by and the lessons learned from the successful Herring River coastal restoration project will benefit other estuaries on Cape Cod and beyond.

For all of these reasons we believe that the Herring River Restoration is a rare and significant opportunity to restore a native ecosystem and the many environmental and economic benefits it provides to our communities, the region and the Commonwealth.

Sincerely,



**Julian Cyr**  
State Senator  
Cape and Islands District



**Sarah K. Peake**  
State Representative  
4<sup>th</sup> Barnstable District

Cc:  
Congressman William Keating  
Senator Elizabeth Warren  
Senator Edward Markey  
Friends of Herring River



# TOWN OF WELLFLEET

300 MAIN STREET WELLFLEET MASSACHUSETTS 02667

Tel (508) 349-0300 Fax (508) 349-0305

[www.wellfleet-ma.gov](http://www.wellfleet-ma.gov)

To: The Wellfleet Selectboard  
Brian Carlstrom, Superintendent, Cape Cod National Seashore

October 10, 2019

Cc: Congressman William Keating  
Senator Julian Cyr  
Senator Elizabeth Warren  
Senator Edward Markey  
Representative Sarah Peake  
Friends of Herring River

From: The Wellfleet Shellfish Advisory Board


Dear Superintendent Carlstrom, and members of the Wellfleet Selectboard:

The Wellfleet shellfish Advisory Board at its October 9, 2019 meeting voted unanimously to convey our continued support for the Herring River restoration project as originally conveyed in a letter dated June 19, 2017. Since that time, the makeup of our board has undergone some changes, and we felt it was time to restate our strong support for the project. All in all, there have been over 100 meetings regarding this project including public meetings, and one-on-one individual meetings with private landowners, as well as in other public venues in Wellfleet and Truro. We still believe that restoring controlled tidal flow in line with current science, and closer to a flow rate that existed before installation of the Chequessett Neck Road tide gate will benefit those in the shellfishing community, the residents of Wellfleet, and those species of anadromous fish that use the Herring River estuary to spawn each year. Ever since the original structure was installed over 100 years ago, shellfishing has suffered in the area adjacent to the tide gate due to high levels of fecal coliform present resulting from restricted tidal flushing. Improving the amount of water flowing upstream and downstream of the new dike will surely be of great service towards improving water quality to provide for the needs of the shellfish, anadromous fish and wildlife native to the area.

In an era when going GREEN has become all the rage, and climate change is an increasingly apparent threat, it is of particular concern to our board - for the obvious reasons associated with changes in sea level, ocean temperature and acidification, to do anything that would help slow the effects of a changing climate to maintain our robust shellfishing resource. One of the ancillary benefits of salt marsh restoration is in reducing methane emissions (a major contributor in climate change) as outlined in a University of Chicago [Marine Biological Laboratory](#) report. In it is a detailed [scientific report](#) which considers "The benefits of Restoring tides to reduce methane emissions in impounded wetlands: A new and potent Blue Carbon climate change intervention". That report could have been written with the Herring River in mind. The Herring River estuary could indeed become a shining example of a successful salt marsh restoration by reversing the negative consequences of blocking tidal flow all those years ago.

Please move forward as previously requested in obtaining the necessary permits for the timely construction of a new dike at Chequessett Neck Road. Our board looks forward to seeing a new and improved structure completed within the next 5 years.

Sincerely,



John Duane - on behalf of:

The Wellfleet Shellfish Advisory Board

Dave Seitler - Chair, Chip Benton, Zack Dixon, John Duane  
Jacob Puffer, Tom Siggia, Rebecca Taylor



To Whom it may concern,

3/6/2020

I am writing this in support of the Herring River Dike Project. As someone in the shellfish growing business I think it would be a boost to the future of Wellfleet Harbor and the shellfish industry.

I was both assistant and shellfish constable from 1977-1982. When I started the job it was just after the dike breach that had occurred. There had been a set of oysters and softshell clams behind the dike. This was apparently due to the fresh flow of salt water behind the dike. After the repair I don't think that happened again.

What has naturally occurred from the presence of the dike itself seems to be a negative to the shellfisheries. Toxins have been building up that seemingly would be mitigated by the fresh flow of saltwater to the estuary. Some in the shellfish community, however, think these toxins would seep into the healthy side of the dike to the detriment of the shellfish.

I think with the proper safeguards in place to mitigate these concerns the outcome would be a plus for the shellfishery. Indeed, not doing the project could be a detriment to the health of the harbor.

Respectfully submitted,

Robert Wallace

Town of Wellfleet Selectboard  
Brian Carlstrom, Superintendent, Cape Cod National Seashore

The Wellfleet Open Space Committee is a town committee dedicated to land protection for the benefit of conservation, recreation, and natural resource protection. At our meeting on October 8, 2019 the Committee voted to send this letter of support for the Herring River Restoration Project. The timing of this is to ensure ongoing support for the project as it moves forward with permit applications and fundraising.

The Herring River Restoration Project is an unmatched opportunity to restore 1,000 acres of estuarine marsh, and the many ecosystem services that marshes provide to the environment and greater community. These services include enhancements to habitat for a wide range of animals, birds and aquatic life. A healthy marsh also helps to mitigate flooding from storms, and filter pollutants from run-off before they reach estuarine waters. We are also impressed with the potential for a healthy Herring River marsh system to absorb carbon and reduce existing methane emissions, which in combination will help to combat the effects of climate change.

As a committee dedicated to preserving the natural environment for the benefit of the Wellfleet community, we see tremendous benefit in the enhanced recreational opportunities afforded by restoring six miles of river way for canoeing, kayaking and fishing. Improvements to water quality from restoration of tidal flushing will reduce fecal coliform concentrations in the river, which are now contaminating shellfish beds downstream of the Chequessett Neck Road Dike. Improved water quality resulting from the restoration is expected to lead to the re-opening of shellfish beds downstream of Herring River which have been closed for decades, and could help to revitalize local river herring populations.

Restoring Herring River will bring significant benefits to our community and environment, and will serve as a model for coastal restoration elsewhere on Cape Cod, and beyond. The Wellfleet Open Space Committee strongly supports the Herring River Restoration Project.

Sincerely,  
Bruce Hurter, Chairman Wellfleet Open Space Committee

cc: Senator Elizabeth Warren  
Senator Edward Markey  
Congressman William Keating  
Senator Julian Cyr  
Representative Sarah Peake  
Friends of Herring River

# **NATURAL RESOURCES ADVISORY BOARD**

## **Wellfleet, Massachusetts**

300 Main Street  
Wellfleet, MA, 02667

Wellfleet Board of Selectmen  
Wellfleet Town Hall  
300 Main Street  
Wellfleet, MA, 02667

October 14 2019

Brian Carlstrom, Superintendent  
Cape Cod National Seashore  
99 Marconi Site Road  
Wellfleet, MA, 02667

Representing the Wellfleet Natural Resources Advisory Board (NRAB), I am writing to express our continued strong support for the Herring River Restoration Project.

NRAB has long been an advocate for restoration of the Herring River estuary. Salt marsh protection was a priority in both Harbor Management Plans (HMP) submitted to the Board of Selectmen/Wellfleet in 1995 and 2006. Both reports are on the Town website, under NRAB. The recommendation to restore the Herring River was a top priority in the 2006 HMP.

The Herring River today is in poor health due to more than a century of tidal restriction caused by the construction of the Chequessett Neck Road dike. Tidal restriction has caused poor water quality, loss of salt marsh, degradation of habitat, and contamination of shellfish beds downstream of the dike in Wellfleet Harbor. These conditions will continue as long as the existing Chequessett Neck Road dike remains in place.

The Towns of Wellfleet and Truro with the Cape Cod National Seashore had the foresight to develop a restoration plan to reverse these degraded conditions.

The Herring River Restoration Project will result in significant improvements in water quality, fisheries and wildlife habitat, and the overwhelming benefits these resources provide to the community and the region.

- Roughly 1,000 acres of salt marsh and other estuarine wetlands—and the habitat and food sources they provide—will be restored;
- Expanded habitat for many species of birds, mammals and reptiles—including rare species—that thrive in salt/brackish marsh;
- 11+ river miles for fish passage will be restored, along with access to 160 pond acres

- for spawning.
- Water quality will improve in Herring River and Wellfleet Harbor, to the benefit of residents, shellfishermen, and visitors;
  - Restored salt marsh will enhance the ability to adapt to sea level rise;
  - Recreational access to 6 miles of waterways will be restored;
  - Restoration of healthy salt marsh will capture carbon and reduce methane, resulting in a substantial reduction of the net volume of greenhouse gases released to the atmosphere.
  - The existing Chequessett Neck Road dike, which is no longer functioning to control tidal flow, will be replaced with a state-of-the-art tide control structure, which can be used to limit any storm surge in the estuary.

The Herring River Restoration Project is the result of scientific study and extensive community discussions. Changes in tide levels will be made incrementally, while carefully modeling and monitoring of system responses will allow the project to adjust the rate of change and take other management actions to achieve the benefits of restoration while avoiding or minimizing unintended outcomes.

In particular, as Wellfleet is a shellfishing town the project managers have made an especial effort to keep the shellfish community informed on the project and the planned restoration process.

The Herring River Restoration Project will restore the health of a unique and environmentally significant resource for the benefit of the community today and for years to come.

Sincerely,

*John Riehl*

John Riehl,  
Chair, Natural Resources Advisory Board

Cc:

Senators Elizabeth Warren and Edward Markey  
Congressman William Keating  
Senator Julian Cyr  
Representative Sarah Peake  
Friends of Herring River



September 4, 2019

Town of Wellfleet Selectboard  
Superintendent, Cape Cod National Seashore  
- by electronic delivery-

Dear Selectboard Members and Superintendent:

The Board of Trustees of the Wellfleet Conservation Trust (WCT) wishes to demonstrate our support for the progress made by the **Herring River Restoration Project** and to support the plans to continue to evaluate and proceed as the project goes into the permitting and funding phases.

This Board has been continuously aware of the progress of the HR Restoration Project for more than 10 years. In fact, WCT funded the first widely distributed information sheet during the early evaluation period, before the Friends of Herring River was formed and funded. Also, we own several parcels of land within the anticipated flood zone of the project.

We have been impressed with the efforts for transparency, for public awareness, and, especially for the degree of scientific research that has gone into the development of restoration plans. Also, we are impressed by the opportunities to improve the environmental conditions and water quality of the estuary and of the Harbor. We have great confidence in the leadership structure that has evolved. We believe that the leadership team will continue its practice of understanding all aspects of the project and will do what is best for the citizens of the Towns of Wellfleet and the interests of the Cape Cod National Seashore, taking into consideration all those who are impacted by the project.

We urge continuing efforts to progress this project through the permitting and funding stages.

Sincerely,

*R. Dennis O'Connell*

R. Dennis O'Connell, President

cc: Senator Edward Markey,  
Senator Elizabeth Warren,  
Congressman William Keating,  
Senator Julian Cyr,  
Representative Sarah Peake, and  
The Friends of Herring River



October 1, 2019

Andrew Gottlieb  
Executive Director

Town of Wellfleet Board of Selectmen  
Brian Carlstrom, Superintendent, Cape Cod National Seashore

BOARD OF DIRECTORS

**RE: Herring River Restoration Letter of Support**

Margo Fenn  
President

The Association to Preserve Cape Cod (APCC) writes to express our strong support for the Herring River Restoration Project in Wellfleet.

Charles Sumner  
Vice President

Bob Ciolek  
Treasurer

Founded in 1968, APCC is the Cape Cod region's leading nonprofit environmental advocacy and education organization. Representing thousands of members across Cape Cod, APCC's mission is to promote policies and programs that foster the preservation of the Cape's natural resources. APCC focuses its efforts on the protection of groundwater, surface water, and wetland resources, preservation of open space, the promotion of responsible, planned growth and the achievement of an environmental ethic.

Maureen O'Shea  
Clerk

Michael Corrigan

DeeDee Holt

Thomas Huettner

Pat Hughes

Cheryl Lubin

One of APCC's major program areas involves promoting and assisting in salt marsh restoration efforts on Cape Cod, and with good reason. Cape Cod has experienced a critical loss of salt marsh habitat. More than 7,000 acres—or 38 percent—of our salt marshes on Cape Cod have been lost or destroyed due to damming, dredging, filling, ditching and other human development activities.

Elysse Magnotto-Cleary

Blue Magruder

The loss of salt marshes also means the loss of the many valuable ecosystem functions they provide. For example:

Eliza McClennen

Stephen Mealy

- It is estimated that 75 percent of our commercially important fish and shellfish species depend on salt marsh habitat at some point in their life cycles for nurseries and as a source of food.
- Salt marshes attenuate storm flooding and provide a buffer against storm surges.
- Salt marshes filter pollutants from runoff and groundwater before they enter our estuaries.

Kris Ramsay

Robert Summersgill

Taryn Wilson

In addition, we are beginning to understand the significant role salt marshes play in mitigating the effects of climate change. Research shows that salt marshes are able to store more carbon per acre than tropical rain forests.

The Herring River Restoration Project has the potential to restore nearly 1,000 acres of salt marsh, reclaiming a substantial percentage of salt marsh habitat previously lost on



Cape Cod. It is a high priority restoration project for the Cape Cod National Seashore, the town of Wellfleet and many partner agencies and organizations. It has also been a priority project for APCC for many decades; APCC was one of the first voices calling for restoration of the Herring River in the 1970s.

The restoration project will significantly improve habitat for a wide variety of wildlife species that thrive in salt and brackish marsh environments. Salt marshes are among the most productive ecosystems on the planet and provide food, shelter, nesting sites and migratory habitat for many species of birds, mammals and reptiles. Restoring tides to the Herring River will enhance the quality and quantity of these resources and improve their resiliency in the face of increased threats by sea level rise and land-based pollution and encroachment.

By restoring twice-daily flushing with clean, high-salinity Cape Cod Bay water, the project will improve water quality, especially near the Herring River mouth, resulting in the likely re-opening and expansion of more than 100 acres of harvestable oyster beds.

The restoration will also restore several miles of river for fish passage as well as access to 160 pond acres for spawning. By providing improved fish passage, improved water quality and expanded habitat, the project will benefit all species of anadromous and catadromous fish, including river herring (alewife and blueback herring), hickory shad, white perch and American eel.

Technical direction for the project has come from a partnership of local, state and federal agencies in consultation with leading estuarine scientists from public, private and university sectors to ensure that the work is founded on a current and peer-reviewed knowledge base. Thanks to an ongoing commitment to public outreach and education on the part of project partners, the project has gained strong local and regional support, and is poised for successful permitting, funding and implementation.

For all the reasons cited above, APCC pledges its continued support of this critically important project to ensure that the full potential of the Herring River restoration is achieved.

Sincerely,



Andrew Gottlieb  
Executive Director

cc: Congressman William Keating  
Senator Julian Cyr  
Representative Sarah Peake  
Friends of Herring River





Six Beacon Street, Suite 1025, Boston, MA 02108  
617-523-8448 [jclarke@massaudubon.org](mailto:jclarke@massaudubon.org)

October 7, 2019

Brian Carlstrom  
Superintendent  
Cape Cod National Seashore  
99 Marconi Site Road  
Wellfleet, MA 02667

Wellfleet Selectboard  
300 Main Street  
Wellfleet, MA 02667

**Re: Herring River Restoration project**

Dear Mr. Carlstrom and Wellfleet Selectboard,

On behalf of Mass Audubon, I submit the following letter of support for the Herring River Restoration project. Mass Audubon has a long-held interest in the restoration of the Herring River and has commented numerous times during the project review process. We continue to be strongly supportive of this project because of the important local benefits it will generate, and because it serves as a model for restoring other estuaries along Massachusetts' and America's coast.

The project will return tidal flow to the 1,000-acre Herring River estuary by replacing the Chequessett Neck Road dike with a new bridge with tide gates. This will reverse the loss of hundreds of acres of salt marsh habitat that has occurred over the past 100 years. Salt marshes provide food, shelter, nesting sites, and migratory habitat for many species of birds, including wintering Black Ducks, state-listed Clapper Rail, and Least Bittern. They restore foraging habitat and open new nesting areas for the state-listed diamondback terrapin at the north edge of its range. The project will also restore nursery habitat for the greatly reduced populations of horseshoe crabs in the Wellfleet harbor system and that spawn on nearby Great Island

Restoring tides to the Herring River will enhance the quality and quantity of these resources and improve their resiliency in the face of sea level rise and projected increased storm activity along the coast.

This project will restore natural tidal flow to the Herring River, reversing the damage that has occurred since 1909 when the installation of the dike blocked tides that had carried oxygen-rich ocean waters into the Herring River system.

By restoring twice-daily flushing with clean, high-salinity Cape Cod Bay water, the Project will improve water quality and increase the flow of nutrients into Wellfleet Harbor, fueling shellfish growth and an increase in harvestable oyster beds. The restoration will allow for fish passage and improvements to habitat for species including Osprey and Common and Roseate Terns, and increase forage fish plankton which will improve striped bass and bluefish feeding opportunities. By restoring healthy coastal wetlands, the project will also enhance climate change resiliency against impacts like sea level rise by acting as a natural floodplain.

Restoration of tidal flow will improve water quality and benefit shellfish habitat. A century of tidal restriction has resulted in high concentrations of fecal coliform bacteria in the River, which has led to shellfish closures in Wellfleet Harbor downstream of the Chequessett Neck Road dike. Restoration will reduce bacterial concentrations by flushing cleaner ocean water into Herring River twice daily and by increasing salinity levels in the River that reduce survival time of bacteria. The reduction in fecal coliform concentrations is expected to lead to the reopening of once-productive shellfish beds in Wellfleet Harbor.

Sincerely,



John J. Clarke  
Director of Public Policy & Government Relations

cc: Senator Elizabeth Warren  
Senator Edward Markey  
Congressman William Keating  
Senator Julian Cyr  
Representative Sarah Peake  
Friends of Herring River



# Center for Coastal Studies Provincetown

ADMINISTRATIVE OFFICES AND HIEBERT MARINE LABORATORY

5 Holway Avenue, Provincetown, MA 02657

tel (508) 487-3622/3623 fax (508) 487-4695

November 7, 2019

Board of Selectmen, Wellfleet  
Superintendent Brian Carlstrom Cape Cod  
National Seashore

Dear Mr. Murphy and Mr. Carlstrom:

The Center for Coastal Studies is dedicated to promoting stewardship of coastal and marine ecosystems in the Gulf of Maine, and to encouraging responsible use and conservation of these ecosystems. We carry out our work through scientific research, education, and collaboration with other institutions and individuals.

The Center's Seafloor Mapping Program worked closely with many partners both public and private (Cape Cod National Seashore, The Town of Wellfleet, Friends of Herring River and SPAT, Inc.), in funded and pro bono efforts, to better understand the current conditions of Herring River and the surrounding Harbor to improve estimates and/or projections of the potential impacts of tidal restoration on the entire system.

The Herring River Restoration Project is a model for restoring other estuaries in Massachusetts and America's coast. Reconnecting the Herring River to the Gulf of Maine will let it once again support the natural coastal food web that numerous fish, birds and other wildlife depend on for their survival. Restoring the estuary is an important step to help increase finfish and shellfish populations, revive the region's commercial and recreational fisheries and increase access for boaters.

The Project will use state-of-the art adaptive management techniques to introduce changes to the natural system carefully, while on-going modeling and monitoring of system responses takes place. This will provide opportunities to adjust the rate of change to achieve maximum restoration benefits while avoiding or minimizing any unintended changes.

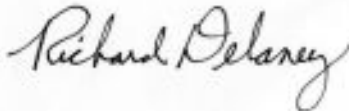
We are also encouraged by the Project's potential to expand the benefits of Blue Carbon on Cape Cod. The Center for Coastal Studies is a founding member of the Cape Cod Climate Change Collaborative, an organization formed to unite the varied expertise and experience of Cape Cod organizations to address the impacts of climate change. Tidal restoration of

Herring River will reduce methane emissions from the system as saltwater wetlands are re-established in place of freshwater wetlands.

Avoidance of methane emissions is particularly significant since it is known to be approximately 20 times more potent as a heat trapping gas in the atmosphere than carbon dioxide.

As scientists focused on the health of ocean resources, we often see degradation of marine resource go unaddressed, with devastating long-term consequences. The Herring River Restoration is a rare and important opportunity to reclaim the extensive ecosystem services provided by a healthy 1,000-acre estuary. It will be a living laboratory for future monitoring and research on estuarine restoration. We strongly support the project and offer our assistance to help in facilitating its implementation.

Sincerely

A handwritten signature in cursive script that reads "Richard Delaney". The signature is written in black ink on a light-colored background.

Richard F. Delaney, President and CEO  
Center for Coastal Studies

cc:

Senator Elizabeth Warren  
Senator Edward Markey  
Congressman William Keating  
Senator Julian Cyr  
Representative Sara Peake  
Friends of Herring River



The Nature Conservancy in  
Massachusetts  
99 Bedford Street, Suite 500  
Boston, MA 02111

Phone: (617) 532-8360  
Cell: (617) 678-6135  
abowden@tnc.org  
nature.org/massachusetts

Wellfleet Board of Selectmen  
Brian Carlstrom, Superintendent, Cape Cod National Seashore

October 11, 2019

Dear Selectmen of Wellfleet, and Superintendent Carlstrom,

I am writing to express The Nature Conservancy's strong support for the Herring River Restoration Project.

The Nature Conservancy is a global non-profit conservation organization whose mission is to "conserve the lands and waters on which all life depends." In Massachusetts, the Conservancy has protected some 23,000 acres of crucial natural resources, and TNC leads many science-based projects to keep nature healthy throughout the state. TNC proudly represents the ideals of 28,000 members in Massachusetts and more than one million members globally. We work using the best available science and in collaboration with individuals, local communities, businesses, public agencies, and other nonprofit groups.

Herring River today is in poor health due to more than a century of tidal restriction caused by the construction of the Chequessett Neck Road dike. Tidal restriction has resulted in poor water quality, loss of salt marsh, degradation of habitat, and contamination of shellfish beds downstream of the dike in Wellfleet Harbor. These conditions will continue as long as the existing Chequessett Neck Road dike remains in place.

Fortunately, the Town of Wellfleet and the Cape Cod National Seashore had the foresight to develop a restoration plan to reverse these degraded conditions. The Herring River Restoration Project will result in significant improvements in water quality, fisheries and wildlife habitat, and the overwhelming benefits these resources provide to the community and the region. These benefits for nature and people include:

- Roughly 1,000 acres of salt marsh and other estuarine wetlands—and the habitat and food sources they provide—will be restored;
- Expanded habitat for many species of birds, mammals and reptiles—including rare species—that thrive in salt/brackish marsh;
- 11+ river miles for fish passage will be restored, along with access to 160 acres of ponds for spawning;
- Water quality will improve in the Herring River and in Wellfleet Harbor, to the benefit of residents, shellfishermen, and visitors;
- Restored salt marsh will enhance coastal storm resiliency and the ability to adapt to sea level rise;
- Recreational access to 6 miles of waterways will be restored; and,

- Restoration of healthy salt marsh will capture carbon and reduce methane, resulting in a substantial reduction of the net volume of greenhouse gases released to the atmosphere.

The Herring River Restoration Project is the result of scientific study and extensive community discussions. Changes in tide levels will be made incrementally, while careful modeling and monitoring of system responses will allow the project's executors to adjust the rate of change and take other management actions to achieve the benefits of restoration while avoiding or minimizing unintended outcomes.

The Herring River Restoration Project will restore the health of a unique and environmentally significant resource for the benefit of the community today and for years to come.

Sincerely,



Wayne Klockner  
State Director  
Massachusetts Program  
The Nature Conservancy

Cc:

Senator Elizabeth Warren  
Senator Edward Markey  
Congressman William Keating  
Senator Julian Cyr  
Representative Sarah Peake  
Friends of Herring River

Wellfleet Selectboard  
Superintendent, Cape Cod National Seashore

September 9, 2019

As officers of the Great Pastures Property Owners Association we wish to express support for the Herring River Restoration Project.

Our organization is made up of several (50+) homeowners located in what is referred to in Wellfleet as Great Pastures. Some of our member's property abut the restoration estuary and all live in close proximity to it.

The Herring River today is in poor health due to more than a century of tidal restriction caused by the construction of the Chequessett Neck Road dike. Tidal restriction has caused poor water quality, loss of salt marsh, degradation of habitat, and contamination of shellfish beds up and downstream of the dike in Wellfleet Harbor. These conditions will continue and get worse as long as the existing Chequessett Neck Road dike remains in place.

Fortunately, the Town of Wellfleet and the Cape Cod National Seashore had the foresight to develop a restoration plan to reverse these degraded conditions.

The Herring River Restoration Project will result in significant improvements in water quality, fisheries and wildlife habitat, and the overwhelming benefits these resources provide to the community including commercial entities and the region as a whole, some, but not all include:

- Restored salt marsh will enhance coastal storm resiliency and the ability to adapt to sea level rise;
- Expanded habitat for many species of birds, mammals and reptiles including rare species—that thrive in salt/brackish marsh;
- Water quality will improve in Herring River and Wellfleet Harbor, to the benefit of residents, shell fishermen, and visitors;
- 11+ river miles for fish passage will be restored, along with access to 160 pond acres for spawning;
- Roughly 1,000 acres of salt marsh and other estuarine wetlands—and the habitat and food sources they provide—will be restored;
- Restoration of healthy salt marsh will capture carbon and reduce methane, resulting in a substantial reduction of the net volume of greenhouse gases released to the atmosphere;
- Recreational access to 6 miles of waterways will be restored;
- The existing Chequessett Neck Road dike, which is no longer functioning to control tidal flow, will be replaced with a state-of-the-art tide control structure.


The Herring River Restoration Project is the result of years of scientific study and extensive community discussions. As part of this process changes in tide levels will be made incrementally, while carefully modeling and monitoring of system responses will allow the project to adjust the rate of change. This approach allows management actions to achieve the benefits of restoration while avoiding or minimizing unintended outcomes. The results of this action ensures that no property owners or others will be adversely effected.

The Herring River Restoration Project will restore the health of a unique and environmentally significant resource for the benefit of the community today and for years to come.

Sincerely,



Frank Szedlak 85 Highmeadow Road Wellfleet, Ma. 02667  
President, Great Pastures Home Owners' Association



S. David Koonce Jr. 30 Highmeadow Road Wellfleet, Ma. 02667  
Treasurer, Great Pastures Home Owners' Association

Cc: Senator Elizabeth Warren  
Senator Edward Markey  
Congressman William Keating  
Senator Julian Cyr  
Representative Sarah Peake  
Friends of Herring River



October 2, 2019

Wellfleet Selectboard; Superintendent, Cape Cod National Seashore

Subject: Letter of Support for the Herring River Restoration Project

Greetings,

I am writing to express my support for the Herring River Restoration Project. I am a resident of Wellfleet who owns real property at 112 West Main Street that is located in the southern most part of the Upper Pole Dike Basin, and within the historic Herring River flood plain.

In late 2012 I received a letter from the Town of Wellfleet notifying me that my property would experience increased water levels and increased regulation as a result of a proposed restoration of the Herring River. From that time until the present time, I have attended most, if not all, of the public hearings and informational meetings that have been held in Wellfleet concerning the restoration and its expected effects.

While I had long been a supporter of salt marsh restoration generally, I nevertheless had concerns about the impact of this particular project on my own property. My concerns, however, faded as I began to gain a sense of the high level of professional attention and expertise upon which the Herring River Project plans rested. As I followed the public hearings I came to understand that a very slow re-introduction of salt water would be carefully monitored throughout the restoration process, thereby enabling a quick response to any deviation from what earlier modeling had predicted. This adaptive approach, together with the mitigation actions that will be taken to protect private structures, eased my initial concerns about unexpected impacts to my own property.

As I am sure you know, it has been a long and complex journey for the proposed restoration. Following the publication of the Herring River Technical Committee's final report in 2007 (their, "Conceptual Restoration Plan") the Herring River project has slowly, but steadily, progressed to the point where the restoration is now poised to become a project in fact once the permitting process is finished and funding is in hand. When it is completed the Herring River Restoration project will be the largest restoration of a salt marsh in the Northeast region.

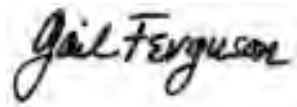
People who had been paying attention to local environmental matters have known for some time that Wellfleet erred when the town decided to restrict tidal flow into the Herring River in the early 1900's. Eventually the consequences of this tidal restriction became obvious to others, like myself, who live in, or close to, the historic flood plain.

During the approximately 30 years that I have owned my home on West Main Street I have observed a dead and dying landscape along the side of Pole Dike road (a continuation of West Main Street) in an area that was once a beautiful expanse of salt hay and a healthy spawning ground for several species of marine life. Now when I pass by this area I think of the day when oxygen rich tides are re-introduced, and the journey back to a healthy marsh has begun.

(And, as I have learned more about our changing climate I have come to understand that a healthy salt marsh will provide better protection from the higher tides and stronger storms that we now know we should expect.)

I once described the Herring River Restoration Project as our gift to future generations. More recently I have begun to think of it as an act of stepping up to the plate and doing the right thing. When it is completed I believe that it will be a model, as well as an inspiration, for other coastal communities.

Sincerely,

A handwritten signature in black ink that reads "Gail Ferguson". The signature is written in a cursive, flowing style.

Gail Ferguson  
130 West Main Street  
Wellfleet, MA 02667  
[gfergusonwellfleet@comcast.net](mailto:gfergusonwellfleet@comcast.net)

CC: Sen. Elizabeth Warren  
Sen. Edward Markey  
Congressman William Keating  
Senator Julian Cyr  
Representative Sarah Peake  
Friends of Herring River

To: Wellfleet Select Board

From: The Cumblers

Concerning: The Herring River Restoration

As an environmentalist-a professor of environmental studies- and an abutter to the Herring River project, I have carefully looked at the science around the studies of the Herring River as it is now and am greatly concerned. The Herring River is in an advanced state of decline, acidification is increasing, the marsh is sinking, and the drainage from a degraded marsh is compromising shellfish beds. The restoration of the Herring River will dramatically reduce these negative impacts on the eco-system.

The restoration will also increase the herring run and limit the stress on the herring of dealing with highly acidic and polluted water as well as opening up more space for the herring to run thus reducing predation particularly in narrow culverts. The flushing of the Herring River will definitely support greater diversity of marine life, expand the nursery for juvenile fish and perhaps even become a spawning area for striped bass. Sand eels, a significant food source for striped bass and blue fish, will most likely recolonize the mouth of the river.

With restoration, the Herring River will become a significant destination for fishers from around the region. It will also provide an important destination for canoeists and kayakers. With the increasing concern over sharks at our beaches, a restored Herring River will provide an important alternative tourist attraction to town beaches.

We are full-time residents of Wellfleet who strongly support the restoration of the Herring River. We are also abutters on Mill Creek, which will, soon we hope, eventually be part of the restoration. We strongly urge the town to take whatever steps necessary to move this project forward. We have watched the Herring River degrade over the 30 years we have owned abutting property. As a recreational fisherman I have long advocated the opening up of the Herring River if for no other reason than to dramatically increase fishing potential in town.

This project is long overdue. As conservationists argued at the time (and the courts agreed), the dyke should never have been rebuilt 50 years ago. It is well past time we rectified that mistake. Please continue your support for the restoration project. Future generation of Wellfleetians will thank you.

The Cumblers

380 Old Chequessett Neck Rd

Wellfleet, MA 02667

Jeffrey Stefani  
The Colony of Wellfleet  
640 Chequessett Neck Road, Wellfleet, MA 02667  
wellfleetcolony@gmail.com

February 22, 2020

TO:  
Ms. Kristy Senatori  
Executive Director,  
Cape Cod Commission

RE: Comments for the public hearing on the Herring River Restoration Project DRI

Dear Executive Director,

As a Wellfleet business owner and abutter to the area impacted by Phase One of the Herring River Restoration Project, I enthusiastically support this project. Since 1963, my family has owned and operated a colony of mid-century modern rental cottages designed by architects Saltonstall and Morton, who knew and were influenced by Bauhaus founder Walter Gropius. These cottages are sited on ridges along Chequessett Neck Road, and feature sweeping vistas of Wellfleet Harbor, the Chequessett golf course, the Herring River, and Cape Cod Bay. My family and our seasonal tenants have marveled, albeit with decreasing frequency, at the extraordinary breadth of wildlife they see on our property.

I believe the degradation of the Herring River estuary over the nearly six decades that I have lived in Wellfleet reflects poorly on the attraction of Cape Cod as a pristine ecosystem. Immediate action by the Commission to reverse a century of tidal restriction on the Herring River will achieve positive and tangible near-term economic and ecological benefits, notably by remediating the violation of several Clean Water Act standards resulting from bacterial contamination at the Chequessett Neck Road dike. Increased tidal flow would not only enhance the water view from our rental cottages, but more importantly, the restored wildlife habitat will revive an ecosystem that is a jewel of Cape Cod and the backbone of our regional economy.

Restoring the health of the Herring River estuary is a critical element of a good regional governance strategy that will help ensure the continued vitality and viability of the entire peninsula for future generations of tourists and residents alike. Therefore, I urge you and the Cape Cod Commission to act now to advance this DRI project.

Sincerely,

*Jeffrey Stefani*

## Herring River Restoration Project Chronology

### 2005

#### August 2005

Cape Cod National Seashore (CCNS) and Town of Wellfleet Board of Selectmen entered into an MOU (MOU I) to review and summarize the scientific and technical information on the Herring River systems and study whether restoration of Herring River is feasible.

Pursuant to MOU I, the Wellfleet Board of Selectmen appointed the Herring River Technical Committee (HRTC) to carry out the feasibility study. HRTC included representatives of CCNS, MA Coastal Zone Management's (CZM) Wetlands Restoration Program, the Wellfleet Conservation/Health Agent, Wellfleet Open Space Committee, Wellfleet Shellfish Advisory Committee, Wellfleet Shellfish Constable, Wellfleet Herring Warden, Wellfleet Natural Resources Advisory Committee, the Chequessett Yacht and Country Club, the Truro Board of Selectmen, the US Fish & Wildlife Service (USFWS), the Natural Resources Conservation Service (NRCS), the Cape Cod Cooperative Extension Service, the National Oceanic and Atmospheric Administration's (NOAA) Restoration Center, the Barnstable County Health and Human Services Department, and the Chair of the Herring River Stakeholders Group.

A Herring River Stakeholders Group was appointed and charged with conveying public input about the restoration to the HRTC. The Group met separately and consisted of representatives of the towns, CCNS, potentially affected landowners, the shellfish/fishing community, the Cape Cod Mosquito Control Project, the MA Division of Marine Fisheries, the National Oceanic and Atmospheric Administration (NOAA) Restoration Center, and the Natural Resources Conservation Service (NRCS).

#### October 2005

The first HRTC and Stakeholders Group meetings were held on October 12, 2005. The HRTC held five additional meetings in 2005, including a joint meeting with the Stakeholders Group. The Stakeholders Group met three more times in 2005.

### 2006

#### January 2006

A Full Report of the HRTC was submitted to the Wellfleet Selectmen, finding that tidal restoration of the Herring River salt marsh is feasible and would provide substantial public benefits.

The HRTC met thirteen times throughout 2006 to continue work in developing the plan, including meetings with consultants, local stakeholders, property owners and local boards.

#### August 2006

A public informational meeting was held with landowners in or near the 100-year flood plain on August 21, 2006.

Members of the HRTC provided updates to the Wellfleet Non-resident Taxpayers Association and Wellfleet Conservation Trust.

**September 2006**

Members of HRTC provided an update to the Wellfleet Conservation Commission.

**October 2006**

Representatives of The Nature Conservancy were given a tour of the site by HRTC, MA Coastal Zone Management, NOAA, and local officials.

Senator Kennedy and Congressman Delahunt addressed restoration partners at the Herring River Dike on their efforts to obtain funding.

**2007**

HRTC met eight times in 2007 to continue technical work, including meetings with staff from NOAA, Cape Cod National Seashore, USFWS, Mass Natural Heritage and Endangered Species Program, local Departments of Public Works and project consultants.

**March 5, 2007**

Members of HRTC provided an update to the Cape Cod National Seashore Advisory Commission.

**July 2007**

The National Park Service committed funding to prepare the draft and final Environmental Impact Statement/Report (EIS/EIR).

Woods Hole Group was selected to undertake two-dimensional modeling with a grant from NOAA to the Town of Wellfleet.

**August 13, 2007**

HRTC met with Mill Creek abutters to discuss sensitivity of water supply wells.

**October 2007**

The HRTC completed the Herring River Conceptual Restoration Plan (CRP), which describes several possible ways to restore the estuary.

**November 2007**

MOU II was signed by CCNS, Truro and Wellfleet to accept the CRP and move forward with a detailed restoration plan. HRTC, having fulfilled its charge, was dissolved and the Herring River Restoration Committee (HRRC) was formed to develop the detailed restoration plan and oversee the environmental review process under the National and Massachusetts Environmental Policy Acts (NEPA and MEPA). Members include representatives of the Towns of Wellfleet and Truro, CCNS, USFWS, the MA Division of Ecological Restoration (MA DER), NOAA's Restoration Center and NRCS.

From 2008-2016 HRRC conducted monthly 1-2 daylong meetings to review technical studies and develop project plans for the environmental assessments.

## 2008

### **2008 – 2016**

Representatives of the Project participated in and placed informational displays at Annual *State of Wellfleet Harbor* conferences.

### **June 2008**

The MA Secretary of Environmental Affairs approved a Special Review Procedure to allow a coordinated environmental review process between federal and state agencies.

### **July 2008**

On behalf of project partners, HRRC submitted an Environmental Notification Form (ENF) to the MA Secretary of Energy and Environmental Affairs pursuant to the MA Environmental Policy Act, to determine whether the Project requires preparation of an Environmental Impact Report and, if so, specify the scope. A public comment session was opened until October 2008.

### **August and September 2008**

Two public scoping sessions were held to explain the planning process and solicit public comments on the Project. Additional written comments (43 letters containing 288 separate comments) were submitted following the scoping sessions.

### **November 2008**

MA Secretary of Environmental Affairs issued a Certificate on the ENF outlining the required scope for the Draft Environmental Impact Report, requiring evaluation of four different restoration alternatives, including no action.

### **November 2008**

Friends of Herring River (FHR) was formed as a 501 (c)(3) non-profit organization dedicated to restoring the ecological integrity of the Herring River watershed.

### **2008-2012**

Project partners contracted with the Woods Hole Group to develop a detailed hydrodynamic model of the Herring River estuary. The Final Woods Hole Group Modeling Report was delivered to HRRC in 2012 and its findings incorporated into the Draft EIS/EIR.

## 2009 - 2013

### **August 18, 2009**

The FHR Annual Meeting at Wellfleet Council on Aging facility featured a presentation by members of the HRRC on the progress of the joint state/federal Environmental Review Process. Each member explained their agency's role and presented information on the National Environmental Policy Act (NEPA) and the Massachusetts Environmental Policy Act (MEPA) processes. A demonstration was provided on the hydrodynamic model showing sample tidal effects in the estuary.

### **August 18, 2010**

The FHR Annual Meeting at Wellfleet Council on Aging facility featured a presentation by a HRRC member on alternatives to return a tidal flow to the river.

**August 16, 2011**

The FHR Annual Meeting at Wellfleet Council on Aging facility featured a presentation detailing the benefits of the Herring River restoration to the community, water quality, and health of Wellfleet Harbor and Cape Cod Bay. A panel of HRRC members participated in a question and answer session.

**August 21, 2012**

The FHR Annual Meeting at Wellfleet Council on Aging facility featured a presentation of the historical, environmental, and cultural impact of the Herring River on Bound Brook Island and the vibrant community that once existed there.

**October 2012**

The Draft EIS/EIR was released; a 60-day public comment period commenced. HRRC sent a letter to all private landowners who abut the Herring River estuary prior to the hearing, describing the Project and potential impacts to private properties, and inviting landowners to contact the HRRC for further information.

**November 2012**

MEPA and the Cape Cod Commission held a public hearing in Wellfleet on the DEIS/EIR. Over 100 people attended and 43 pieces of correspondence with 161 separate comments were received following the hearing.

**2013**

NOAA awarded a three-year grant of \$3 million to FHR to prepare design/engineering plans and conduct scientific analyses for the Herring River Restoration Project.

**2012-2016**

HRRC and FHR contracted with Woods Hole Group for additional hydrodynamic and sediment modeling, and contracted with the Louis Berger Group to develop survey plans and engineering designs for structurally affected private properties.

HRRC and FHR contacted, and in many instances met directly with, over 100 property owners to discuss their questions and concerns about the project and to seek permission for survey work on specific properties. This work is on-going.

**August 2013**

The FHR Annual Meeting at Wellfleet Council of Aging included a presentation on project plans and a presentation by Bill Burke, the Cape Cod National Seashore Historian about the history of the Herring River Estuary and nearby uplands based on a recently compiled park service archeological report.

**2014**

**2014-2017**



The Consensus Building Institute facilitated discussions between HRRC and Chequessett Yacht and Country Club (CYCC) to enable restoration of the Herring River ecosystem, including Mill Creek, while providing necessary flood protection for CYCC's golf facilities. The Project funded surveys, engineering, land planning and appraisals needed to develop a golf course protection plan for CYCC.

**August 2014**

The FHR Annual Meeting at Wellfleet Council of Aging featured a presentation on the Conceptual Design for Chequessett Neck Road Dike.

**October 2014**

MA Executive Office of Energy and Environmental Affairs awarded the first of a series of grants to FHR for Project design and engineering and environmental assessments.

**October 2014 and November 2015**

The U.S. Geological Survey (USGS) Adaptive Management Team held two stakeholders meetings to explain the adaptive management process for the Restoration Project and engage stakeholders in developing the adaptive management plan.

**2015**

**February 4, 12 and 25, 2015**

Public forums on roadway alternation for the Herring River Restoration Project were held in Wellfleet (Low roads and High Toss Road).

**June 2 and 24, 2015**

Public forums on Low-lying roadway alterations for the Herring River Restoration Project were held in Wellfleet (Low roads and High Toss Road).

**August 18, 2015**

The FHR Annual Meeting at Wellfleet Council on Aging facility featured a presentation by the Association to Preserve Cape Cod; a look at river herring experience in the estuary by the Wellfleet Herring warden; a report on changes to Chequessett Neck Road Bridge Plans, including kayak portage access provisions in response to public comments solicited during public meetings; and planned funding.

**October 22, 29 and November 5, 2015**

*The Herring River – a journey through history from our past to the present* seminar series was presented at the Wellfleet Public Library.

**2016**

**February 11, 2016**

A public meeting on High Toss Road marsh crossing was held in Wellfleet.

**March 2016**

The Wellfleet Board of Selectmen received additional comments on High Toss Road marsh crossing.

**April 14, 2016**

FHR held a public informational meeting in Wellfleet prior to the Annual Town Meeting. The plan for removing High Toss Road was overwhelmingly approved by a vote of the Town Meeting.

**June 2016**

The Final EIS/EIR was published in the Federal Register and the Massachusetts Environmental Monitor.

The Cape Cod Commission held a Joint Review hearing with the Massachusetts Environmental Policy Act Unit to review the Final EIS/EIR. More than 100 people attended the hearing and 12 comment letters were submitted following the hearing.

**July 2016**

The MA Secretary of Energy and Environmental Affairs issued a Certificate on the Final Environmental Report (FEIR) finding that it adequately and properly complies with MEPA, and establishing a new Regulatory Oversight Group (ROG) for the Project.

**July – August 2016**

FHR hosted a summer program series at Wellfleet Public Library to explore facets of the restoration project including: Herring River Tidal Restoration Effects: Current and planned monitoring projects; Salt Meets Fresh: Tidal seawater, fresh groundwater, and the Herring River restoration; Tidal Water: A History of Wellfleet's Herring River; horseshoe crab research; and marsh birds of Herring River.

**August 2016**

Cape Cod Commission opened a public hearing (procedural only) on the Herring River Restoration Project as a Development of Regional Impact. This public hearing was continued.

**August 16, 2016**

The FHR Annual Meeting at Wellfleet Council on Aging facility featured a project update, announcement of the publication of a book on the history of Herring River, a summary of current conditions and rationale for restoration including social, economic and ecological benefits.

**September 2016**

The Record of Decision on the Final EIS/EIR was signed by the National Park Service Northeast Regional Director.

**September 2016**

MOU III was executed by Wellfleet and Truro Boards of Selectmen and the NPS Northeast Regional Director, setting forth the management structure for the next phase of the Restoration Project. MOU III called for the creation of the Herring River Executive Council (HREC) to provide Project policy direction and coordinate Project implementation.

## 2017

The HREC met four times in 2017 (January 9, March 9, June 7 and September 25). During this time the HREC appointed the Herring River Stakeholder Group. (HRSG) to provide advisory input on key implementation issues. The HRSG consists of nineteen members representing broad interests in the community: shellfish/fisheries, conservation/environmental protection, flood plain property owners, businesses, navigation, recreation, mosquito control, and the Cape Cod National Seashore Advisory Commission.

The HRRC continued monthly meetings to advance project design and permitting activities.

The ROG will meet in January to review permitting issues.

### **February 2017**

A briefing for Senator Cyr and Representative Peake was held at the Friends of Herring River office.

### **March 2017**

The Friends of Herring River and Wellfleet Shellfish Advisory Board hosted a forum on the science behind the benefits of tidal restoration for shellfish resources.

The Herring River Restoration Committee (HRRC) made a recommendation to the Herring River Executive Council (HREC) that the permit applications seeking authorization to implement the Restoration Project not include the use of any herbicides in the Herring River Restoration Project area. These permit applications will specify other non-chemical methods of *Phragmites* control. The HREC unanimously supported this recommendation.

The newly designed Friends of Herring River website was launched, including up to date information about meetings held by the HRRC, HREC and HRSG, and also new reports and public informational materials.

### **April 2017**

Wellfleet Town Meeting rejected one petitioned warrant article which sought to stop permit applications for improving Herring River, and indefinitely postponed another article with a similar purpose.

Truro Town Meeting rejected a petitioned warrant article which sought to stop permit applications for improving Herring River.

A public presentation on the Herring River Restoration Project was held in the Truro Town Hall.

A new project brochure was mailed to all households in Truro and Wellfleet.

### **May 2017**

The HRRC and Chequessett Yacht & Country Club (CYCC) executed a memorandum of understanding (MOU) to advance the Herring River Restoration Project. The MOU spells out the flood protection measures the project will provide to CYCC before tidal flow is partially restored in the Mill Creek sub-basin.

### **June – August**

The Friends of Herring River sponsored monthly summer field trips to explain the effects of tidal restoration and restriction.

In August, the Friends of Herring River Annual Meeting featured a presentation on “Blue Carbon” the carbon storage benefits of salt marsh restoration.

### **November - December**

Friends of Herring River published a newsletter explaining Phase 1 of the project, which was mailed to all households and businesses in Truro and Wellfleet. Individual letters were sent with the newsletter to all 300+ property owners in the Herring River flood plain.

## **2018**

The HRRC continued monthly meetings to advance project design and permitting activities.

### **March 2018**

The Friends of Herring River co-sponsored a forum on monitoring to protect shellfish resources with the Wellfleet Shellfish Advisory Board.

The Friends of Herring River co-sponsored a forum on Blue Carbon, the carbon storage benefits of salt marsh restoration with Climate Mobilization Outer Cape Mobilization.

A new video entitled *Herring River Estuary: Restoring and Ecological Treasure* was released and premiered at the Cape Cod Natural History Conference.

### **May 2018**

The Friends of Herring River co-sponsored a forum on wildlife in Herring River and habitat changes resulting from restoration with the Wellfleet Conservation Trust, Wellfleet Natural Resources Advisory Board, Wellfleet Bay Wildlife Sanctuary.

The HREC met on May 16 to launch the HRSG.

The HRSG held its first meeting on June 21<sup>st</sup>. The HRSG met again on July 25<sup>th</sup>, and October 11<sup>th</sup>.

### **July – August 2018**

The Friends of Herring River sponsored monthly summer field trips to explain the effects of tidal restoration and restriction.

**September 2018**

Friends of Herring River celebrates 10<sup>th</sup> anniversary annual meeting. Guest speakers include Senator Julian Cyr, Superintendent Brian Carlstrom, and Massachusetts Division of Ecological Restoration Assistant Director Hunt Durey.

**December 2018**

Truro Board of Selectmen vote to remove Truro as project partner.

**2019**

**January 2019**

Town of Wellfleet files an application with the Cape Cod Commission for a Limited Scope Decision.

**March 2019**

March 7, 2019, public hearing on Limited Scope application before the Cape Cod Commission Regulatory Subcommittee. Following the public hearing the subcommittee voted unanimously to ratify the proposed Limited Scope Decision. The decision was issued March 7, 2019.

**June 2019**

Herring River Stakeholder Group meets.

A fourth Memorandum of Understanding (MOU IV) is signed by the Town of Wellfleet and Cape Cod National Seashore. MOU IV becomes the new governing document for project implementation.

**July-August 2019**

A newsletter containing updated project information is mailed to all households and homeowners in Wellfleet and Truro.

Friends of Herring River Board members meet with various neighborhood associations and civic groups to update them about the project.

**December 2019**

Town of Wellfleet submits Development of Regional Impact application to the Cape Cod Commission.

## 2020

### **January – December 2020**

Herring River Executive Council Meetings: January 16, 2020; April 16, 2020; July 16, 2020; August 13, 2020; August 26, 2020; September 17, 2020; December 17, 2020;

### **March – June 2020**

Cape Cod Commission Hearing on Development of Regional Impact Application

Cape Cod Commission Decision to approve Development of Regional Impact Application

Herring River Stakeholder Group meetings (March, May, June)

### **May 2020**

Celebrate Herring River Virtual Public Activities

### **July 2020**

Community Survey for Herring River Adaptive Management Plan

## 2021

### **March 2021**

Town of Wellfleet submits application to MassDEP for Waterways Licensing pursuant to M.G.L. Chapter 91.

Town of Wellfleet and Cape Cod National Seashore submit application to MassDEP for Section 401 Water Quality Certification.

Town of Wellfleet submits an Advanced Approval Waterway Bridge Permit Waiver Request to U.S. Coast Guard.

### **April 2021**

Herring River Executive Council Meetings

Public notice and twenty-one day public comment period for Section 401 Water Quality Certification application.

Town of Wellfleet and Cape Cod National Seashore submit Pre-construction Notification Form to U.S. Army Corps of Engineers for Section 404 General Permit.

**List of Federal, State, and Local Permit Approvals for the Herring River Restoration Project**

Agency/Regulatory Authority	Permit/Approval	Status
<b><i>Federal</i></b>		
U.S. Department of the Interior – National Park Service	NEPA Review	Complete (Record of Decision published June 21, 2016)
U.S. Environmental Protection Agency	U.S. Clean Waters Act - NPDES Construction General Permit	To be filed
U.S. Army Corps of Engineers	General Permit pursuant to Section 404 of Clean Water Act and Section 10 of Rivers and Harbors Act	To be filed
U.S. Department of the Interior - National Park Service	Review under Section 106 of the National Historic Preservation Act	Complete
U.S. Fish and Wildlife Service	Review under Section 7 of the Federal Endangered Species Act	To be completed
NOAA Fisheries	Essential Fish Habitat Review -Magnuson-Stevens Fishery Conservation and Management Act	Complete – conservation recommendations issued and initial response provided
Federal Consistency Review	Review under Coastal Zone Management Act of 1972	To be filed
U.S. Coast Guard	Bridge Permit	Request for Determination of Non-applicability filed
<b><i>State</i></b>		
Executive Office of Energy and Environmental Affairs	Massachusetts Environmental Policy Act (MEPA) (MGL C. 30, s 61-62H) Review	Complete (MEPA Certificate issued July 15, 2016)
Massachusetts Department of Environmental Protection - Wetlands and Waterways	Combined Permit for both Section 401 Water Quality Certification and Chapter 91 Waterways Licensing (314 CMR 9.09 (4))	Filed
Massachusetts Department of Environmental Protection - Wetlands and Waterways	Massachusetts Wetlands Protection Act (MGL C 131, s 40 and 40A) – Orders of Conditions from Wellfleet and Truro Conservation Commissions	To be filed
Massachusetts Historical Commission	State Historic Register Review	PNF has been filed. Programmatic Agreement in place.

Massachusetts Department of Transportation	Bridge Permit for Chequessett Neck Road Bridge	To be filed
Massachusetts Natural Heritage and Endangered Species Program	Habitat Management and Monitoring Plan	MEPA Certificate notes NHESP comments that it appears that the Project qualifies for MESA Habitat Management Exemption. A Draft Habitat Management and Monitoring Plan will be submitted and reviewed by NHESP pursuant to 321 CMR 10.14(15)
<b>Regional</b>		
Cape Cod Commission	Development of Regional Impact Review: Scoping Determination and Project of Community Benefit Review	Approval decision issued June 11, 2020
<b>Local - Wellfleet</b>		
Wellfleet Conservation Commission	Order of Conditions – Ecological Restoration Limited Project, Massachusetts Wetlands Protection Act and Local Bylaws	To be filed
<b>Local - Truro</b>		
Truro Conservation Commission	Order of Conditions – Ecological Restoration Limited Project, Massachusetts Wetlands Protection Act and Local Bylaws	To be filed



U.S. National Park Service and Town of Wellfleet  
Herring River Restoration Project, Phase 1  
401 Water Quality Certification

Google drive: [401 WQC Application Pkg](#)

([https://drive.google.com/drive/folders/1rLiEay5X1I8SOLVzvRYs-Rpi\\_k8sEIJ?usp=sharing](https://drive.google.com/drive/folders/1rLiEay5X1I8SOLVzvRYs-Rpi_k8sEIJ?usp=sharing))

Dropbox: [401 WQC Application Pkg](#)

(<https://www.dropbox.com/sh/2c8ggs58pezu4e9/AAAlorZqA56BFDIfjfdtB8GAa?dl=0>)

## **401 WQC Narrative**

### **Appendix A Landowner Consent**

### **Appendix B Project Design Plans**

### **Appendix C List of Permits Needed**

### **Appendix D Herring River Adaptive Management Plan**

### **Appendix E Agency Correspondence**

- E1 MA Division of Marine Fisheries
- E2 MA Division of Fisheries and Wildlife
- E3 NOAA National Marine Fisheries Service

### **Appendix F Operations & Maintenance Plans**

- F1 Chequessett Neck Road Bridge and Water Access Facility Construction
- F2 Mill Creek Water Control Structure
- F3 High Toss Road / Hopkins Drive
- F4 Elevation of Low-lying Roads and Replacement of Associated Culverts  
*including Pole Dike Creek Water Control Structure*

### **Appendix G Stormwater Management Reports**

- G1 Chequessett Neck Road Bridge and Water Access Facility Construction
- G2 Mill Creek Water Control Structure
- G3 High Toss Road / Hopkins Drive

### **Appendix H Sediment Management Plan**

### **Appendix I MA Environmental Policy Act Certificate**

### **Appendix J Alternatives Assessments for Class 1 Actions**



**David E. Pierce, Ph.D.**  
*Director*

# Commonwealth of Massachusetts

## Division of Marine Fisheries

251 Causeway Street, Suite 400

Boston, Massachusetts 02114

(617)626-1520

fax (617)626-1509



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*Governor*

**Karyn E. Polito**  
*Lieutenant Governor*

**Matthew A. Beaton**  
*Secretary*

**Ronald Amidon**  
*Commissioner*

**Mary-Lee King**  
*Deputy Commissioner*

May 25, 2018

Craig Wood  
Principal Scientist  
ESS Group  
10 Hemingway Drive, 2<sup>nd</sup> Floor  
East Providence, RI 02915

Dear Mr. Wood:

The Division of Marine Fisheries (MA DMF) has reviewed the request for a written determination for the Town of Wellfleet and Town of Truro's Herring River Restoration Project. The goal is to re-establish tidal flow through the reconstruction of the existing dike and tidal control structures at Chequessett Neck Road, vegetation management, habitat management and other tidal control structures within the project area. For Ecological Restoration Projects, MA DEP requires a written determination from MA DMF if a project is located in a coastal waterbody with a time-of-year (TOY) or a fish passageway.

MA DMF written determination is as follows:

1. The project will occur within a coastal waterbody with a restricted TOY in accordance with the recommendations of Appendix B of the DMF Technical Report 47 "Marine Fisheries TOY Restrictions for Coastal Alteration Projects" dated April 2011 [1].
2. The proposed project does require TOY restrictions. The TOY restrictions are

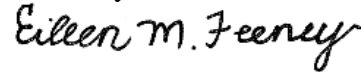
<b>TOY Restrictions for the Herring River [1].</b>	
<b>Species</b>	<b>TOY Period</b>
Alewife	April 1 to June 15; Sept. 1 to Nov. 15
Blueback Herring	April 1 to June 30; Sept. 1 to Nov. 15
American eel	March 15 to June 30; Sept. 15 to Oct. 31
White perch	April 1 to June 15
Winter flounder	Feb. 1 to June 30
Shellfish	May 1 to Nov. 15
Combined Resources	Feb. 1 to Nov. 15

These TOY restrictions are designed to protect marine resources during vulnerable periods, but all construction activities will not necessarily pose threats during these periods. Herring River Restoration Committee should coordinate with MA DMF on specific TOY restriction recommendations for individual construction activities.

3. The proposed project will affect a diadromous fish run in accordance with the MA DMF Technical Reports TR 15 through TR 18 [2].
4. The design specifications and operational plan for the project are compatible with the passage requirements of a fish run as long as tidal flow is maintained throughout the work period to allow fish passage and preserve shellfish and salt marsh habitat.

Questions regarding this review may be directed to Eileen Feeney in our New Bedford office at (508) 742-9721.

Sincerely,



Eileen M. Feeney  
Fisheries Habitat Specialist

cc: Wellfleet Conservation Commission  
Truro Conservation Commission  
Nancy Civetta, Wellfleet Shellfish Constable  
Anthony Jackett, Truro Conservation Commission  
Brad Chase, DMF  
Christian Petitpas, DMF  
Tom Shields, DMF  
Pooja Potti, DMF

EF

#### References

1. Evans NT, Ford KH, Chase BC, Sheppard J (2011) Recommended Time of Year Restrictions (TOYs) for Coastal Alteration Projects to Protect Marine Fisheries Resources in Massachusetts. Massachusetts Division of Marine Fisheries Technical Report, TR-47.
2. Division of Marine Fisheries Technical Report #15 - #18, dated May 2004 & January 2005

## Jason Ringler

---

**Subject:** FW: Herring River Restoration Project Wellfleet and Truro MA  
**Attachments:** Fisheries Section BMPs.pdf

---

**From:** Slater, Caleb (FWE ) <[caleb.slater@state.ma.us](mailto:caleb.slater@state.ma.us)>  
**Sent:** Tuesday, April 17, 2018 8:25 AM  
**To:** Craig Wood <[cwood@essgroup.com](mailto:cwood@essgroup.com)>  
**Subject:** RE: Herring River Restoration Project Wellfleet and Truro MA

Craig,

This is a fantastic project. MassWildlife will aid in any way possible. We waive any time of year restrictions and ask that you follow the local order of conditions. In addition, to the greatest extent possible, please follow the BMPs outlined in the attached document.

Caleb

**Caleb Slater, PhD**  
Anadromous Fish Project Leader  
Massachusetts Division of Fisheries and Wildlife  
1 Rabbit Hill Road, Westborough, MA 01581  
p: (508) 389-6331 | e: [Caleb.Slater@state.ma.us](mailto:Caleb.Slater@state.ma.us)  
[mass.gov/masswildlife](http://mass.gov/masswildlife) | [facebook.com/masswildlife](https://facebook.com/masswildlife)

---

**From:** Craig Wood [<mailto:cwood@essgroup.com>]  
**Sent:** Monday, April 16, 2018 4:28 PM  
**To:** Slater, Caleb (FWE)  
**Cc:** Jason Ringler  
**Subject:** Herring River Restoration Project Wellfleet and Truro MA

Caleb: Please find the attached request for a written determination for the above referenced project. Please let me know if you have any questions. Regards, Craig

**Craig A. Wood, PWS | Principal Ecologist**  
**ESS Group, Inc.**  
10 Hemingway Drive, 2nd Floor, East Providence, RI 02915 | p 401.330.1208 c 401.447.3358

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## DIVISION OF FISHERIES & WILDLIFE

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Jack Buckley, *Director*

### Fisheries Section, Environmental Review Best Management Practices

Best management practices for erosion and sedimentation control must be adhered to for all phases of construction to minimize potential impacts to the fisheries resources. Traditional hay and/or straw bales should be avoided in favor of fiber rolls. To the greatest extent practicable, all in stream work should be conducted during low flow periods throughout the year. Times of year when stream flow is high due to extended rain and/or snow melt events should be avoided. If at any time during construction fish may become isolated, the Division should be notified to determine if salvage operations are desired and/or feasible. If dewatering is required at any point during construction, heated or sediment laden water should not be allowed to enter the brook directly. If the projects results in the replacement of existing culverts, the culvert replacement should meet the replacement recommendations found in the “Massachusetts River and Stream Crossing Standards: Technical Guidelines, August 6, 2004” (the Standards) including, a minimum height of 6 feet, openness ratio of 0.5–0.75, natural bottom substrates through the crossing structure, and spanning 1.2 times the bank-full width to the greatest extent practical. If the project results in the placement of new culverts, the new crossing structure should, at minimum, meet the general standards for new crossing and strive for the optimum standards whenever possible including, a minimum height of 6 feet, openness ratio of 0.5–0.75, natural bottom substrates through the crossing structure, and spanning 1.2 times the bank-full width to the greatest extent practical. The Standards can be found at [http://www.umass.edu/nrec/pdf\\_files/guidelines\\_river\\_stream\\_crossings.pdf](http://www.umass.edu/nrec/pdf_files/guidelines_river_stream_crossings.pdf). Also, if the project will alter the streambed, we request that the existing grade be maintained. Within the riverfront areas, short and long-term stream bank stabilization should incorporate bioengineering with natural materials such as vegetated geogrids, fiber rolls, live stakes and tree revetments in lieu of the use of hard structures such as rip rap, gabion baskets or retaining walls. Geotextile fabric should not be considered for moving water as experience has shown it becomes exposed and can dislodge over time.

Per DEP’s stormwater management standards for *critical areas* such as coldwater fisheries resources, BMPs are required that assure no untreated or warmwater runoff from impervious surfaces directly enters these resources. Recent studies have shown that stormwater BMPs that allow standing, surface water function as “heat sinks” in summer and lose heat in winter. As such, retention and detention ponds, vegetated swales and hydrodynamic separators also have little value as stormwater BMPs in the vicinity of coldwater resources. Stormwater systems that have been found to be most protective of these resources are subsurface, infiltration, gravel wetland and bioretention. Ideally, a chain of coldwater BMPs (e.g., bioretention to gravel wetland to an infiltration system) with deep infiltration and filtration capabilities will cool the stormwater to ground temperature in both summer and winter thereby providing the most effective long-term protection of the coldwater resources.

MASSWILDLIFE



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL MARINE FISHERIES SERVICE  
GREATER ATLANTIC REGIONAL FISHERIES OFFICE  
55 Great Republic Drive  
Gloucester, MA 01930-2276

December 10, 2020

Brian Carlstrom  
Superintendent  
Cape Cod National Seashore  
99 Marconi Site Road  
Wellfleet, MA 02667

**Re: Herring River Restoration Project**

Dear Mr. Carlstrom:

We have reviewed the Draft Environmental Impact Statement/ Environmental Impact Report (DEIS/EIR), dated October 2012, Final Environmental Impact Statement/ Environmental Impact Report (FEIS/ EIR), dated May 2016, EFH Assessment, dated October 21, 2020 and engineering plans, dated June 2018 for the Herring River Restoration Project in Wellfleet and Truro, Massachusetts. The Herring River Restoration Committee (HRRC) and the National Park Service (NPS) seek to restore coastal habitats by increasing tidal flow in much of the 1,100 acre Herring River estuary. Tidal flow has been restricted in the Herring River since 1909 with the construction of a dike at Chequessett Neck Road, near the mouth of the river. Other portions of the river have been channelized, eliminating natural river meanders. Anthropogenic impacts and reduced tidal exchange has altered the natural estuarine system and decreased habitat and water quality.

The FEIS/EIR describes several proposed alternatives to restore the Herring River system, including the No-Build Alternative, as well as three other build alternatives. All three build alternatives would include the replacement of the inadequate tide control structure at the dike with two-way adjustable tide gates, but will have different upstream components, depending on the varying levels of tidal flow achieved at the dike. The restoration would be guided by the Adaptive Management Plan, and would occur incrementally as the adjustable tide gates are gradually opened through a phased approach. The extent to which the gates are opened takes into consideration the private properties which have been constructed in low-lying areas of the Herring River floodplain. Total estuarine habitat is currently limited to 70 acres within the lower Herring River and the proposed restoration alternatives would increase estuarine habitats to a total of 790 to 885 acres. We have participated in the interagency Herring River Technical Working Group and previously provided informal comments on the development of the essential fish habitat (EFH) assessment for the proposed restoration project.



The Magnuson-Stevens Fishery Conservation and Management Act (MSA) and the Fish and Wildlife Coordination Act (FWCA) require federal agencies to consult with one another on projects such as this. Insofar as a project involves EFH, as this project does, this process is guided by the requirements of our EFH regulation at 50 CFR 600.905, which mandates the preparation of EFH assessments and generally outlines each agency's obligations in this consultation procedure. We offer the following comments and recommendations on this project pursuant to the above referenced regulatory process.

### **General Comments**

Herring River downstream of the Chequessett Neck Road dike and the surrounding waters of Wellfleet Harbor are productive habitats that support numerous important living estuarine resources including federally managed finfish and shellfish, including winter flounder, Atlantic mackerel, bluefish, scup, skate and pollock which rely on intertidal and sub-tidal benthic habitats for early life stages and for foraging. In addition, a number of our trust resources utilize the habitats in these areas, including anadromous fish such as alewife, blueback herring and white perch, and shellfish such as northern quahog, eastern oyster and soft-shell clam. This area has been designated as a Habitat Area of Particular Concern (HAPC) for juvenile Atlantic cod, due to the presence of structurally complex gravel, cobble, and boulder habitat, which supports a wide array of emergent epifauna that juvenile cod rely on for food and shelter from predation. This area has also been designated as summer flounder HAPC, which includes all native species of macroalgae, seagrasses, and freshwater and tidal macrophytes in any size bed, as well as loose aggregations, within adult and juvenile summer flounder EFH habitats.

Restored tidal flow within this area will result in benefits to the aquatic ecosystem, in particular, increases in the area of saltmarsh within Herring River. In addition, increased passage and salinity within Herring River will result in increased use of the area by a variety of federally managed species. Furthermore, increased tidal flushing will help rectify the water quality issues that have resulted in fish kills. Each of the build alternatives will allow for the restoration of salt marsh habitat upstream of the Chequessett Neck Road dike, providing feeding, spawning, and nursery habitats for fish such as winter flounder and scup, and river herring will benefit from improved water quality and enhanced upstream access to headwater spawning ponds.

However, EFH may be adversely impacted by the installation and removal of cofferdams, and by potential measures identified in the Adaptive Management Plan, such as enlargement or removal of several upstream culverts, dredging of sediments to restore natural bottom habitat, and removing soil berms. We are concerned that the associated noise, obstruction, and turbidity and sedimentation impacts could impact EFH and other trust resources during sensitive life stages.

In-water construction including fill and excavation may result in mortality of benthic species through direct removal or through burial by excavated material. Crustaceans, as well as egg and larval stages of fish may be most susceptible to such impacts. Excavation and other unconfined work such as the installation and removal of cofferdams also have the potential to increase levels of suspended sediment in the surrounding waters, which has been shown to restrict or inhibit habitat use and function, including fish reproduction (Newcombe and MacDonald 1991). High turbidity can impact fish species through greater expenditure of energy, gill tissue damage and mortality (Newcombe and Jensen 1996, Johnson et al. 2008). Furthermore, sub-lethal effects to estuarine fish can include decreased feeding, impacts from lowered oxygen levels, as well as impacts on gills and associated



respiratory impacts (Wilber and Clarke 2001). Particularly, egg and larval life stages may be more sensitive to turbidity impacts (Newcombe and Jensen 1996).

Winter flounder eggs and larvae, once present on the substrate, could be directly impacted by elevated suspended sediment deposition (Berry et al. 2004; Johnson et al. 2008). Winter flounder spawning occurs in estuaries and rivers over fine sand, mud, and silty-clay bottom (Collette and Klein-MacPhee 2002). Eggs are demersal, adhesive and stick together in clusters (Pereira et al. 1999). Restricting the time of year that sediment producing work such as dredging takes place may minimize some of these impacts, particularly for early life stages.

Anadromous fish such as river herring may also be adversely affected by noise, turbidity and physical obstructions which can disrupt passage, particularly during spring and fall migrations. Suspended sediments can clog and harm the gills of fish, degrade or eliminate spawning and rearing habitats and impede feeding which negatively affects the growth and survival of anadromous species (US EPA 2003; Johnson et al. 2008). Elevated suspended sediments have also been shown to disrupt the schooling behavior of migratory fish (Wildish and Power 1985; Chiasson 1993) and should be avoided during periods of seasonal spawning runs.

Adverse impacts to shellfish resources may result from elevated levels of suspended sediment that can interfere with spawning success, feeding and growth (Wilber and Clark 2001). Anthropogenic disturbances have been recognized as a contributor to the reduction in oyster stocks (reviewed in Coen et al. 1999). Shellfish provide an important ecological role through water column filtration, sediment stabilization as well as supplying habitat for estuarine species (Zimmerman et al. 1989, Newell 2004). Shellfish are also known to provide a food source for federally managed species, including winter flounder and scup (Steimle et al. 2000), two species with EFH designation in the project area.

### **Essential Fish Habitat Conservation Recommendations**

Herring River and Wellfleet Harbor are designated as EFH under the MSA for a variety of species including winter flounder, windowpane flounder, white hake, pollock, bluefish, Atlantic butterfish, Atlantic mackerel, scup, spiny dogfish, Atlantic cod and summer flounder. As described above, the proposed project would adversely affect EFH by increasing suspended sediments and potential fill and excavation within intertidal and subtidal habitats.

We recommend pursuant to Section 305(b)(4)(A) of the MSA that you adopt the following EFH conservation recommendations:

- 1) Cofferdams should be used to isolate in-water work; however, the installation and removal of cofferdams should be conducted using best management practices (BMPs), such as silt curtains.
- 2) No in-water work, including the installation or removal of cofferdams, should be conducted from February 1 through June 30 of any year, to minimize impacts to winter flounder habitat and anadromous fish migrating toward their spawning grounds. Once cofferdams are installed, work may occur behind them at any time of year, provided adequate passage is maintained.





- 3) Tidal flow should be maintained throughout the work period to allow fish passage and preserve shellfish and salt marsh habitat.

Please note that Section 305(b)(4)(B) of the MSA requires you to provide us with a detailed written response to the above EFH conservation recommendations, including a description of measures you adopt for avoiding, mitigating or offsetting the impact of the project on EFH. In the case of a response that is inconsistent with our recommendations, Section 305(b)(4)(B) of the MSA also indicates that you must explain your reasons for not following the recommendations. Included in such reasoning would be the scientific justification for any disagreements with us over the anticipated effects of the proposed action and the measures needed to avoid, minimize, mitigate or offset such effects pursuant to 50 CFR 600.920(k).

Please also note that a distinct and further EFH consultation must be reinitiated pursuant to 50 CFR 600.920(1) if new information becomes available or the project is revised in such a manner that affects the basis for the above EFH conservation recommendations.

### **Fish and Wildlife Coordination Act**

As mentioned above, Herring River and Wellfleet Harbor serve as habitat for anadromous fish and shellfish. These resources serve as prey for a number of federally managed species and are considered a component of EFH pursuant to the MSA. In addition, anadromous fish and shellfish are considered trust resources, which are covered under the FWCA. Our concerns regarding impacts to trust resources would be resolved through the implementation of the above conservation recommendations.

### **Conclusions**

In summary, we recommend that these conservation recommendations be considered to avoid or minimize impacts to EFH and our trust resources. Specifically, cofferdams should be used to isolate in-water work and BMPs should be used during cofferdam installation and removal. In addition, no in-water work, including the installation or removal of cofferdams, should be conducted from February 1 through June 30 of any year to protect winter flounder habitat and anadromous fish passage. Once cofferdams are installed, work may occur behind them at any time, provided adequate passage is maintained. We look forward to your response to our EFH conservation recommendations as well as our other recommendations on this project. Should you have any questions on these comments, please contact Kaitlyn Shaw at 978-282-8457 or [Kaitlyn.Shaw@noaa.gov](mailto:Kaitlyn.Shaw@noaa.gov).

Sincerely,



Louis A. Chiarella  
Assistant Regional Administrator  
for Habitat Conservation



cc: Maria Broadbent, Town of Wellfleet, Town Administrator  
Steve Block, NOAA RC  
Eileen Feeney, MA DMF  
Tori Kim, EEA MEPA  
Bob Boeri, MA CZM  
Ed Reiner, US EPA  
Alan Anacheka-Nasemann, US ACOE

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**United States Department of the Interior**

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508.771.2144  
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**IN REPLY REFER TO:**  
N2219

January 13, 2021

Louis A. Chiarella  
Assistant Regional Administrator for Habitat Conservation  
U.S. Department of Commerce  
National Oceanic and Atmospheric Administration  
National Marine Fisheries Service Greater Atlantic Regional Fisheries Office  
55 Great Republic Drive  
Gloucester, MA 01930-2276

Re: Essential Fish Habitat Review for Herring River Restoration Project, Wellfleet and Truro, Massachusetts

Dear Mr. Chiarella:

Thank you for your letter of December 10, 2020 outlining the Essential Fish Habitat (EFH) Conservation Recommendations for the Herring River Restoration Project.

We are in the process of reviewing the recommendations and preparing a detailed response as to how the project will comply. The response will be prepared and submitted jointly by the Cape Cod National Seashore and the Town of Wellfleet, which are permit co-applicants for the restoration project. The Town of Wellfleet is owner of key water control infrastructure, including the proposed Chequessett Neck Road Bridge and Water Control Structure, and will be responsible for adherence to some of the EFH recommendations.

Please accept this letter as an interim response in anticipation of a detailed reply to the recommended EFH Conservation Recommendations.

Sincerely,

Brian Carlstrom, Superintendent  
Cape Cod National Seashore

cc:  
Maria Broadbent, Town of Wellfleet, Town Administrator  
Steve Block, NOAA RC  
Eileen Feeny, MA DMF  
Tori Kim, EEA MEPA  
Bob Boeri, MA CZM  
Ed Reiner, US EPA  
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Kaitlyn Shaw, NOAA



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July 15, 2016

CERTIFICATE OF THE SECRETARY OF ENERGY AND ENVIRONMENTAL AFFAIRS  
ON THE  
FINAL ENVIRONMENTAL IMPACT REPORT

PROJECT NAME : Herring River Restoration Project  
PROJECT MUNICIPALITY : Wellfleet and Truro  
PROJECT WATERSHED : Cape Cod  
EEA NUMBER : 14272  
PROJECT PROPONENT : Towns of Wellfleet and Truro  
DATE NOTICED IN MONITOR : June 8, 2016

As Secretary of Energy and Environmental Affairs, I hereby determine that the Final Environmental Impact Report (FEIR)<sup>1</sup> submitted on this project **adequately and properly** complies with the Massachusetts Environmental Policy Act (G. L. c. 30, ss. 61-62I) and with its implementing regulations (301 CMR 11.00). The project is undergoing a coordinated review process under the National Environmental Policy Act (NEPA) and the Cape Cod Commission Act as a Development of Regional Impact (DRI).

This project represents the single largest salt marsh restoration project in New England to date. It will restore native tidal wetland habitat to upwards of 950 acres of the Herring River floodplain in and adjacent to the Cape Cod National Seashore (the Seashore) by re-establishing tidal flow. Tidal flow will be increased incrementally, over time, using an adaptive management approach that will balance ecological goals with flood control measures to allow the highest tide range practicable while protecting

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<sup>1</sup> In accordance with the project's Special Review Procedure, the FEIR is a joint document filed to meet the requirements of both MEPA and the National Environmental Policy Act (NEPA). For the purposes of this Certificate, the joint final Environmental Impact Statement (EIS) and EIR will be referred to as the FEIR.

vulnerable properties, including roads and homes. Tidal flow will be facilitated through changes to the existing dike and tidal control structure at Chequessett Neck Road, construction or alteration of other tidal control structures within the project area (e.g., Mill Creek, Upper Pole Dike Creek), vegetation management, and habitat management. Implementation of the project will be informed by extensive modeling, monitoring and analysis so that unexpected and/or undesirable responses can be detected and appropriate response actions taken. The project will result in significant improvements in water quality, rare species habitat, fisheries, and recreational opportunities throughout the Herring River floodplain while improving its resiliency and ability to adapt to the effects of climate change.

The FEIR provides a clear description of the project, project goals, and potential environmental impacts associated with this ambitious undertaking. It identifies measures to avoid environmental impacts, where possible, and where impacts are unavoidable, to minimize and mitigate impacts. The heart of the MEPA review process is the development and analysis of alternatives that can meet project goals while minimizing environmental impacts. Review of this project has included an iterative development of project alternatives and variations of alternatives developed in consultation with resource agencies, property owners and local officials. The FEIR adequately addressed the Scope including development of a framework for project implementation consisting of a management structure, draft Adaptive Management Plan (AMP), and a permitting strategy. As required, the FEIR included additional information regarding salt marsh transition and invasive species management; impacts associated with the Chequessett Yacht and Country Club (CYCC) mitigation; and construction period impacts.

I acknowledge and appreciate the investment of time and resources contributed by The Towns of Wellfleet and Truro, the Herring River Restoration Committee (HRRC), and the Technical Working Group (TWG), as well as the leadership provided by the Division of Ecological Restoration (DER) and the National Park Service (NPS).

Comments from State Agencies and the Cape Cod Commission (CCC) identify support for the project and its ecological benefits. I also acknowledge comments from residents who express concern with project impacts and are seeking assurance that their interests will be adequately considered and protected. These concerns are understandable given the scope and scale of the project. For the purpose of MEPA review, the FEIR has adequately addressed potential environmental impacts including impacts to private property, identified mitigation for immediate impacts, and identified potential mitigation for future phases. Several project components require additional review and consideration, most notably, the process between the Towns, the Seashore and low-lying property owners that may incur varying degrees of impact. Permitting processes must include more detailed information regarding potential impacts and mitigation commensurate with the proposed actions.

### Project Area

The project area examined in the FEIR consists of the approximately 1,100-acre Herring River estuary<sup>2</sup> in the Towns of Wellfleet and Truro. It is located in the Wellfleet Harbor Area of Critical Environmental Concern (ACEC). The Herring River (along with its floodplain, tributary streams, and associated estuarine habitats within Wellfleet Harbor) was the largest tidal river and estuary complex on the Outer Cape prior to its historic alteration. Approximately 80 percent of the River's floodplain is

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<sup>2</sup> Approximately defined by the landward limit of the floodplain of the river and its tributaries.

located within Seashore boundaries, with the river itself extending from Wellfleet Harbor northeast for nearly four miles to Herring Pond in North Wellfleet. Bound Brook, a major tributary, extends northwest to Ryder Beach in South Truro. The Herring River basin is separated from Wellfleet Harbor by the Chequessett Neck Road Dike. The dike has three six-foot wide box culverts, each with an attached flow control structure. One culvert has an adjustable sluice gate that is currently set open at 24 inches and allows limited bi-directional tidal flow. The remaining two culverts have tidal flap gates designed to permit flow only during outgoing (ebb) tides. The project area includes the Herring River's Upper, Lower and Middle basins as well as a series of additional sub-basins which are physically, chemically, and biologically distinct from the Herring River itself. These stream sub-basins include: Duck Harbor, Mill Creek, Lower and Upper Bound Brook, and Lower and Upper Pole Dike Creek. Below is a brief description of each distinct sub-component of the project area:

**Lower Herring River** – 166 acres located immediately upstream of the Chequessett Neck Road Dike and extends northerly to the High Toss Road crossing;

**Middle Herring River** – 74 acres extending from the High Toss Road crossing north to Bound Brook Island Road;

**Upper Herring River** – 156 acres extending northeast from Bound Brook Island Road and east of Route 6 to Herring Pond;

**Mill Creek** – 80 acres in area extending easterly from its confluence with the Herring River (located about 1,600 feet east of the Chequessett Neck Road Dike) between the CYCC and Old Chequessett Neck Road;

**Lower Pole Dike Creek** – 114 acres extending northeast from High Toss Road to Pole Dike Road;

**Upper Pole Dike Creek** – 174 areas of freshwater marsh extending east of Pole Dike Road and including wetland and floodplain north of Wellfleet Center and east of Route 6;

**Duck Harbor** – 131 acres extending from the Herring River main stem to the Duck Harbor barrier beach;

**Lower Bound Brook** – 86 acres extending north and west of the Herring River north of Old County Road; and

**Upper Bound Brook** – 148 acres located northwest of Lower Bound Brook and extending into the Ryder Hollow area of Truro.

According to the FEIR, in 1909 the Town of Wellfleet diked the mouth of the Herring River in an effort to drain the breeding area for salt marsh mosquitoes (the Chequessett Neck Road Dike). Subsequently, the Town dug drainage ditches in the marsh upstream of the dike structure. By the mid-1930s, the Herring River main stem, now flowing with freshwater, was channelized and straightened, cutting off many creek meanders between High Toss Road and Route 6, substantially reducing the length of the river. Subsequent to the diking of the Herring River, development occurred within the historic reaches of the estuary, in some cases at low elevations within the floodplain. Notable construction within the floodplain includes a portion of the CYCC 9-hole golf course and private residences within the Mill Creek and Upper Pole Dike Creek sub-basins. Over the decades the Chequessett Neck Road Dike has deteriorated, been repaired, and efforts have been made to modify control structures to increase tidal flow to the Herring River. Despite these efforts, estuary conditions continued to degrade after the tide gates were repaired. Concerns about tidal flooding of private properties and increased mosquito production prevented the Town of Wellfleet from opening the existing tide gate further than 24 inches, where it has remained since 1984.

Adverse ecological impacts resulting from this tidal restriction and salt marsh drainage include: tidal restrictions; loss of salt marsh vegetation and increases in non-native, invasive species; loss of estuarine habitat and degradation of water quality; alteration of natural sediment processes; salt marsh subsidence; nuisance mosquito production; and impediments to river herring migration.

A comprehensive set of project objectives to address these impacts were created by the NPS and HRRC. They include three overarching goals: maximize the extent of ecological restoration; improve the overall function of estuarine habitat; and minimize adverse impacts to surrounding land uses. The objectives guide the project's design. Alternatives and associated impacts were evaluated based on consistency with and ability to advance project goals.

### Procedural Review and Background

The Towns committed as part of a Special Review Procedure (SRP) to file one set of environmental review documents that fulfill the requirements of NEPA, MEPA and the CCC. A Certificate Establishing a Special Review Procedure (SRP) was issued on June 20, 2008 to provide for coordination of MEPA review with other environmental and developmental review and permitting processes. The FEIR was published in the June 8, 2016 issue of the Environmental Monitor, with a comment period that concluded on July 8, 2016. A joint CCC/MEPA hearing was held on June 30, 2016 in conformance with joint review requirements between the CCC and MEPA.

The project has a lengthy history of coordination between local, State and federal officials and agencies necessary given the complex nature and scope of the project. Subsequent to an August 2005 Memorandum of Understanding (MOU I) between the Town of Wellfleet and the NPS, the Herring River Technical Committee (HRTC) was established to review scientific and technical data and consider community concerns regarding the feasibility of restoring the wetland system. In January 2006 the HRTC produced a "Full Report of the Herring River Technical Committee" which recommended the tidal restoration of the Herring River estuary. The HRTC worked to develop a Conceptual Restoration Plan (CRP) for the Herring River estuary which described possible ways to restore the Herring River. A second MOU (MOU II) was created on November 13, 2007 between the Seashore and the Towns of Wellfleet and Truro accepting the CRP, agreeing to move forward with a detailed restoration plan, and establishing a new committee, the HRRC. In addition, the TWG comprised of members of various State, federal and local environmental and permitting agencies, as well as members of the HRRC, was established to identify and address environmental management and permitting issues associated with the project. The TWG met throughout the preparation of the FEIR and assisted in the development of study methodologies and protocols to ensure that these data meet the requirements anticipated as part of the permitting and approval processes.

A third MOU (MOU III) between the Seashore and the Towns of Wellfleet and Truro has been drafted to facilitate project implementation. It proposes an intergovernmental team to provide policy oversight, assume decision-making authority, and, through a contractual arrangement, direct the activities of an independent organization that will undertake project permitting, construction and implementation, including the adaptive management process. The MOU III will establish a Herring River Executive Council (HREC) comprised of: two members of the Town of Wellfleet Board of



Selectmen and the Town Administrator; two members of the Town of Truro Board of Selectmen and the Town Administrator; and the Superintendent of the Seashore or his/her designee.

Through contracts for services and/or Cooperative Agreements, MOU III will enable the Towns and/or the Seashore, to engage the services of an independent organization to undertake some or all of the responsibilities assigned to the HREC including: provide and manage staff; compete for, receive and administer project funding; prepare and submit permit applications and applicable environmental compliance obligations; prepare and advertise bid solicitation packages, manage and oversee competitive bidding processes, select and manage contractors, oversee construction activities, pay invoices, and comply with funder and contractor stipulations; facilitate agreements with affected property owners; conduct public outreach and education activities; operate and maintain infrastructure in cooperation with the Towns and Seashore; and implement the AMP.

The HRRC will serve as an advisor to the HREC and include representation from the towns of Wellfleet and Truro, the Seashore, the Division of Ecological Restoration (DER), the U.S. Fish and Wildlife Service (USFWS), the Natural Resources Conservation Service (NRCS), and the National Oceanic and Atmospheric Administration (NOAA). Additional project support and acquisition of grant funding will also continue to be provided by the Friends of Herring River (FHR), an independent non-profit organization that promotes education, research and public awareness of the Herring River estuary. The HRRC will also analyze, compile, and summarize monitoring data, modeling output, field observations, and other information for the HREC.

#### Jurisdiction and Permitting

This project is subject to MEPA review and required the preparation of a mandatory EIR because it requires State Agency Actions and exceeds several EIR thresholds, including: alteration of one or more acres of salt marsh or bordering vegetated wetlands (301 CMR 11.03(3)(a)(a)) and alteration of ten or more acres of any other wetlands (301 CMR 11.03(3)(a)(b)). In addition, it may result in alteration requiring a variance in accordance with the Wetlands Protection Act (301 CMR 11.03(3)(a)(2)).

The project will require approval of a Combined Permit by the Massachusetts Department of Environmental Protection (MassDEP), as allowed by 314 CMR 9.09(4) to cover both Section 401 Water Quality Certification (WQC) and Chapter 91 Waterways licensing. The Proponent intends to prepare and implement a Habitat Management and Monitoring Plan in compliance with the Massachusetts Endangered Species Act (MESA) (M.G.L. c.131A and 321 CMR 10.00) and applicable habitat management exemption provisions at 321 CMR 10.14(15). Federal Consistency Review will be required in accordance with the Coastal Zone Management Act of 1972.

The project will be subject to DRI Review by the CCC. The Proponent will seek a hardship exemption as a Project of Community Benefit. The project will require an Individual Permit from the United States Army Corps of Engineers (USACE) in accordance with Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. Review and approval in compliance with the National Historic Preservation Act (NHPA) and the Massachusetts Historical Commission (MHC) pursuant to Section 106 requirements and M.G.L. c.9, ss. 26-27C will also be required. The NPS and MHC have executed a Programmatic Agreement (PA) to address Section 106 compliance. The project will require

coverage under the National Pollutant Discharge Elimination System (NPDES) Construction General Permit administered by the United States Environmental Protection Agency (EPA).

The project is proposed as an Ecological Restoration Limited Project in accordance with the Massachusetts Wetlands Protection Act (WPA) (310 CMR 10.24(8)(a)). The Proponent will require Orders of Conditions from the Wellfleet and Truro Conservation Commissions in accordance with the WPA regulations or in the case of an appeal, a Superseding Order of Conditions from MassDEP.

The FEIR outlined a coordinated and comprehensive permitting strategy and framework to facilitate efficient review, accommodate the long-term and dynamic implementation process, and to provide adequate environmental protection and public input.

The project will receive Financial Assistance, in part, from State Agencies. Therefore, MEPA jurisdiction for this project is broad and extends to all aspects of the project that are likely, directly or indirectly, to cause Damage to the Environment as defined in the MEPA regulations.

### Review of the FEIR

The MEPA review process has included extensive analysis of alternatives and sub-alternatives supported by hydrodynamic modeling, detailed resource assessment, identification of changes in floodplains and tidal regimes and impacts on private property. The FEIR incorporated the results of additional data collection and analyses and roadway, culvert and bridge design assessment to further refine the discussion of potential project-related impacts and benefits. The project has not changed significantly since the issuance of the Certificate on the FEIR with the exception of including the installation of tide control at Pole Dike Creek in the Preferred Alternative.

### Proposed Regulatory Strategy

The proposed regulatory strategy presented in the FEIR will be applied to review and approvals required in accordance with the WPA, c .91 Waterways Regulations, and Section 401/404 of the State and Federal Clean Water Acts. Subsequent to MEPA and NEPA approvals, but prior to initiation of restoration activities, the Proponents will apply for a comprehensive set of permits and approvals from all federal, State, regional and local regulatory authorities. Project elements will be grouped into two classes based upon project implementation phases.

Class 1 components include those actions that are required to implement the initial phase of the project, including but not limited to:

- Reconstruction of the Chequessett Neck Road Dike;
- Construction of the dike at Mill Creek;
- Installation of a new tide gate at Pole Dike Creek Road and
- Hydraulic improvements and public access modifications at High Toss Road;

In areas that lie below targeted water elevations in the project's initial implementation phase, Class 1 elements will also include:

- Mitigation measures designed to prevent flooding impacts to private structures;
- Elevation of low-lying portions of public roads;
- Channel and marsh surface modifications; and
- Vegetation management.

Detailed plans, data and narratives will be provided in the permit applications for Class 1 activities (an “umbrella” permit). All permits will include the condition that tide gates and water levels be managed to prevent impacts in the Mill Creek and Upper Pole Dike Creek sub-basins, and other potentially affected locations, until Class 1 impact mitigation has been implemented. Any permit application that includes work on private property will require the signature of landowners.

Class 2 will cover project elements proposed in subsequent phases, including, but not limited to:

- Additional private property impact mitigation measures;
- Additional channel and marsh surface modifications;
- Modifications to minor roads and replacement of small culverts in upstream areas; and
- Vegetation management activities beyond the Lower Herring River.

The scope and potential impact of Class 2 mitigation measures cannot be accurately estimated prior to implementation of Class 1 elements and will be determined by agreements with landowners, monitoring results, and adaptive management decisions based upon the incremental increases in tidal exchange within the estuary. Class 2 projects will be identified and generally described in initial permit applications, with further detail provided if and/or when they are proposed for implementation. Any work proposed on private property will require the signature of landowners on any permit application or request for permit amendment.

To support this regulatory strategy I hereby establish a successor group to the TWG, the Regulatory Oversight Group (ROG). It will include, at a minimum, representative(s) from the following agencies:

- Federal: NPS, USFWS, NOAA, NRCS, EPA, USACE;
- State: MEPA, DER, DMF, NHESP, MassDEP, CZM, State Historic Preservation Officer (SHPO);
- Regional: CCC;
- Local: Town of Wellfleet, Town of Truro: and
- Tribal: Mashpee Wampanoag Tribe

The ROG will assist in the preparation and review of the final AMP. It will review the incremental tidal restoration process and advise Proponents, as necessary, on approval requirements for any major proposed design changes to Phase 1 elements. It will review and advise on requirements for more detailed design plans, methodologies, and specific restoration management actions associated with Class 2 elements. Individual Agency representatives will determine respective jurisdictional authority for Class 1 changes and/or Class 2 refinements to evaluate whether these project components may proceed under the original comprehensive permit authorization or if an amendment or new permit is

required. If formal review is required, the Proponents will submit an application for approval in compliance with the applicable regulations and procedures.

A representative of the MEPA Office will participate to provide guidance regarding the extent to which significant project changes or unforeseen secondary actions may warrant the filing of a Notice of Project Change (NPC). MEPA review, while supported by detailed assessment and analysis, has been based on conceptual planning that will be further developed and detailed through subsequent review and permitting and implemented through the AMP. The Preferred Alternative reflects the maximum level of anticipated environmental impacts. This Certificate acknowledges that certain project elements and associated environmental impacts may vary from what has been presented in the DEIR and FEIR. Determinations regarding the need for a NPC would be based on the type and scope of these project modifications and their potential to significantly increase or alter the nature of environmental impacts within the project area.

The ROG and the HRRC should meet at least annually to review monitoring results and consider changes and/or refinements to the project design and management activities based upon data collection, analysis and predicted outcomes. These meetings should be open to the public and noticed at least 14-days in advance through the Environmental Monitor and the official websites for the Towns of Wellfleet and Truro and the Seashore. Materials to be reviewed at these meetings should be made available to the public at least 14 days prior to the meeting via the aforementioned websites as well as hard copies at the Town libraries and the Seashore headquarters and/or Visitor's Center. The ROG and HRRC should establish a protocol to facilitate the submission of written public comments for consideration by group members. Group deliberations and decisions regarding proposed changes should be documented in official meeting minutes and published in the Environmental Monitor and the official websites for the Towns of Wellfleet and Truro and the Seashore.

When MOU III is formally executed, a new stakeholder group will be established by the HREC to represent community interests and concerns during project implementation. This group will work with the HRRC, HREC and ROG. It should represent the broad interests of the community including, but not limited to, potentially affected landowners and business owners, recreational users of the Herring River flood plain, shellfishermen, and conservation and environmental advocates. Additional opportunities for public input and comment will be provided during permitting processes including the CCC Development of Regional Impact (DRI) review process. The CCC comment requests additional project information be provided for the DRI review, including the potential impact on the Town of Wellfleet landfill, project budgeting and funding, private property impacts and proposed flood proofing measures.

### Adaptive Management Plan

Adaptive management is an approach for simultaneously managing and learning about the dynamics of resources under management to aid in the decision-making process when uncertainties exist. The FEIR included a draft AMP that will be finalized prior to permitting. It is designed to minimize risk to property and the environment given the complexity of the project and uncertainties regarding the response of the Herring River system over time. Despite extensive modeling efforts and data gathering, it is uncertain how specific ecological processes will respond over the short-term and long-term. Upon completion, the Final AMP should be published in the Environmental Monitor for informational purposes.

The FEIR included a discussion of the adaptive management planning process including the set-up phase and iterative phase. The set-up phase includes identification of the project, objectives and other key components (definition of the problem and objectives, identification of measurable parameters, identification of alternatives and potential outcomes, and monitoring). The iterative process includes decision making, implementation, monitoring and analysis of predicted/observed outcomes.

Objectives and performance measures were developed through a series of forums with regulatory agencies, technical advisors, local stakeholders, and comments on the Draft EIS/EIR. The five fundamental project objectives are: restore hydrography; restore ecological function/integrity; minimize adverse impacts; maximize ecosystem services; and minimize cost. The FEIR identified sub-objectives and described associated performance measures, predictions, and monitoring methods for each. For example, to maximize marsh elevation, the AMP will use data from electronic water level data loggers in areas of predicted ponding to evaluate the extent of ponded water at low-tide.

The HRRC reviewed models capable of simulating a broad range of ecosystem functions and services and predicting responses to multiple project objectives that result from tidal restoration and other activities. The draft AMP modeling framework is comprised of individual sedimentation, vegetation change, and water quality models integrated and linked to the Environmental Fluid Dynamics Code (EFDC) hydrodynamic model (Hamrik and Wu 1997).

The primary driver of the project will be management of tide gate adjustments, which could occur up to several times per year, at Chequessett Neck Road Dike, Mill Creek Dike and Pole Dike Creek Road. The adjustments will take into consideration the need to avoid adverse impacts to structures and roads, water quality, and vegetation as a result of changes in tidal flow, as well as the time needed to collect data on potential impacts to rare species and system changes. Decisions will be complicated by the overlapping, integrated nature of anticipated management actions, including secondary activities such as vegetation and sediment management. The iterative phase of the AMP will commence when the HRRC proposes an initial tide gate management plan to the HREC.

Monitoring data will be analyzed to determine whether or not pre-determined threshold values have been met and management decisions will be made accordingly. In making recommendations to the HREC the HRRC will consider the current state of the system (e.g., cumulative changes since project commencement, effects of natural or anthropogenic events unrelated to tidal restoration), predicted outcomes of recommended management actions, and the operational and administrative structure for supporting recommended management actions.

The Final AMP must include quantifiable metrics for all objectives; identify a discrete set of management alternatives available to meet restoration objectives; define a monitoring protocol that identifies what parameters will be monitored, how they will be measured, and frequency of monitoring; and identify thresholds for decision-making or action.

### Alternatives Analysis

Alternative A is the No Action Alternative which maintains the 18-foot-wide Chequessett Neck Road Dike with two flap gates and one adjustable tide gate. It does not include tidal restoration. The

action alternatives represent “bookends” of the minimum and maximum tidal exchange restoration necessary to meet project objectives. Alternative B provides the lowest high tide water surface elevations needed to achieve the project objectives, and Alternative D achieves the highest practicable high tide water surface elevations possible, given the constraints of current land uses in the floodplain. Alternatives B, C, and D include a new box beam bridge/dike structure with a total opening width of 165 feet spanned by a series of adjustable and removable tide gates at the location of the Chequessett Neck Road Dike. Each alternative describes the possible endpoints of incremental tidal restoration. Guided by the AMP, the final degree of tidal exchange may fall somewhere between Alternative B and D.

**Alternative B – New Tidal Control Structure at Chequessett Neck – No Dike at Mill Creek:** The Mill Creek sub-basin will be left open to the Herring River, thereby subjecting the sub-basin to a limited tidal regime controlled at the Chequessett Neck Road Dike. Tide gates will be opened incrementally to a maximum of three feet with an objective of obtaining a mean high spring tide of 4.8 feet and a maximum coastal storm driven tide of 6.0 feet in the Lower Herring River. These tidal elevations represent the maximum restoration possible without the need to install a secondary tidal control structure at Mill Creek to protect private properties. Tides in upstream basins will be lower because of natural tide attenuation. Proposed flood proofing actions will be designed to accommodate 100-year storm driven tidal flooding up to 5.9 feet within the Mill Creek sub-basin and 5.3 feet in the Upper Pole Dike Creek sub-basin. The maximum mean high water spring tide elevation in Mill Creek will be limited to 4.7 feet. Final maximum high tide elevations will not exceed the aforementioned elevations within Mill Creek. Several areas of the CYCC golf course will be affected by the tidal inundation levels proposed under this alternative and will require mitigation. Options to address these impacts are discussed later in this Certificate.

**Alternative C – New Tidal Control Structure at Chequessett Neck – Dike at Mill Creek that Excludes Tidal Flow:** Tide gates at the Chequessett Neck Road Dike will be fully opened (incrementally) to allow mean high water spring tides up to 5.6 feet and coastal storm driven tides up to 7.5 feet in the Lower Herring River. This alternative provides the highest practicable high tide water surface elevations possible given the constraints of current land uses in the floodplain. Mitigation actions proposed throughout the remainder of the estuary will be designed to accommodate flooding up to the anticipated maximum tidal elevations. Tides in upstream basins will be lower because of natural tide attenuation. This alternative includes construction of a tidal exclusion dike at the mouth of Mill Creek to avoid flooding impacts and associated mitigation to low-lying properties within the sub-basin. This will eliminate tidal influence to the sub-basin and be designed to the minimum recommended crest height of two feet above the projected 100-year storm surge elevation (i.e., 9.5 feet). A one-way, flapper-style tide gate, possibly along with a mechanical pump, will be installed in the dike to allow freshwater to drain from the Mill Creek sub-basin toward the Herring River. Mechanical pumping may be necessary at times to facilitate freshwater drainage. Construction of this dike will require approximately 2,900 cubic yards (cy) of fill and will permanently impact 12,500 sf of wetland. Temporary impacts to 2.4 acres of vegetated wetlands are associated with construction dewatering.

**Alternative D – New Tidal Control Structure at Chequessett Neck Dike – Dike at Mill Creek that Partially Restores Tidal Flow:** Tide gates at the Chequessett Neck Road Dike will be fully opened (incrementally) to allow mean high water spring tides up to 5.6 feet and coastal storm driven tides up to 7.5 feet in the Lower Herring River. Tides in upstream basins will be lower because of natural

tide attenuation. With the exception of Mill Creek, mitigation actions proposed throughout the remainder of the estuary will be designed to accommodate flooding up to the anticipated maximum tidal elevations. This alternative includes a dike at the mouth of Mill Creek with an adjustable, two-way tide gate partially restore tidal flow to the sub-basin. Mean spring high tides will be limited to 4.7 feet and coastal storm driven events to a maximum of 5.9 feet in Mill Creek. The impacts of the dike’s construction will be similar to Alternative C, while flood proofing described in Alternative B will be required for Mill Creek (e.g., CYCC mitigation and low-lying private properties).

*Chequessett Yacht and Country Club Sub-Options*

As noted previously, Alternatives B and D include options for mitigating potential flood impacts to the CYCC golf course. Option 1 includes relocating portions of the facility to upland locations owned by the CYCC which would include clearing, grading, and planting of new golf holes and a practice area. Option 2 includes elevating affected portions of the facility through fill, regrading, and replanting. Portions of five low-lying golf holes would be reconstructed to a minimum elevation of 6.7 feet, which is two feet above the mean spring tide in Mill Creek. Additional details regarding impacts and mitigation are discussed later in this Certificate.

*Comparison of Alternatives*

The comparative habitat restoration potential for each alternative is summarized below:

<b>Alternative</b>	<b>Total Acres of Habitat Restored</b>
Alternative A	0
Alternative B w/ Option 1	898.7
Alternative B w/ Option 2	881.1
Alternative C	912.7
Alternative D w/ Option 1	964.3
Alternative D w/ Option 2	956.0

The FEIR included a comparative discussion of how the alternatives meet (or do not meet) stated project objectives. Alternative D with Option 2 was selected as the Preferred Alternative because it will provide the best value with the highest benefit to cost ratio. It is anticipated that some impacts in the Preferred Alternative such as improvements to water quality and sub-tidal habitat, will begin relatively soon after tidal exchange is restored. Other changes, in particular those involving vegetation/wetland habitat change and marsh surface accretion, will continue for decades, until the system reaches a state of self-sustainable equilibrium.

*Chequessett Neck Road Dike*

The Herring River Hydrodynamic Modeling Report prepared in 2012 evaluated a range of potential opening widths at Chequessett Neck Road and determined that a 165-foot opening was the largest width required to optimize restoration. Based upon this determination, the Proponent evaluated several types of bridge structures consistent with the MassDOT Bridge Design Manual and selected three options for additional analysis: a four-sided pre-cast concrete box culvert; a three-sided pre-cast concrete box culvert; and adjacent pre-stressed concrete box beams (Preferred Bridge Alternative).

Each alternative met project functional requirements, but the Preferred Bridge Alternative was selected as it was comparatively superior based upon the relative importance of various criteria including effects on natural resources, low-tide drainage, sediment transport and scour, long-term maintenance, construction costs, and safety and security. The Preferred Bridge Alternative roadway cross-section will consist of 11-foot travel lanes, an 8-foot wide parking lane and adjacent 5-foot wide sidewalk on the western side of the bridge, and a 5-foot wide sidewalk on the eastern side of the bridge. Concrete platforms that meet Americans with Disabilities Act (ADA) accessibility requirements will be provided on both sides of the structure. Construction is expected to temporarily impact approximately 103,200 sf (2.4 acres) of area currently comprised of the dike itself, as well as adjacent inter- and sub-tidal wetland areas. Dike reconstruction and associated dewatering, sub-grade preparation, slope protection and related work will be confined to this footprint. Wetland impacts will likely change upon completion of the final design. Final wetland impacts will be tabulated as part of the local, State and federal permitting processes and appropriately mitigated, as necessary. Based upon the design presented in the FEIR, potential wetland resource area impacts include:

<b>Wetland Resource Type</b>	<b>Temporary Impact Area (sf)</b>	<b>Permanent Impact Area (sf)</b>
Land Under Ocean/Fish Run	7,354	13,452
Tidal Flats	1,280	6,662
Salt Marsh	4,038	9,764
Land Containing Shellfish	11,009	31,484
Bordering Vegetated Wetlands	808	3,906
Coastal Bank	539	12,299
Land Subject to Coastal Storm Flowage	100,742	88,888
Riverfront Area	50,127	53,990

The bridge structure will be comprised of three spans with 5-foot wide piers and will support removable pre-cast concrete panels spanning each of the bays. Panels will be sized to accommodate the configuration of gate frames providing 6-foot wide by 10-foot high openings through the panels. A permanent steel sheeting cutoff wall will be constructed along the length of the concrete bases below the panel, extending continuously below the bridge piers and abutments, and continuing beyond the abutments to meet existing timber cutoff sheeting at the limits of excavation. This sheeting will extend to at least 24 feet below the mudline to achieve sufficient seepage cutoff below the panels under the maximum hydraulic loading. Vertical clearances will range from 9.0 feet from the proposed channel bed (elevation -4.0) to the low chord of the arch openings (elevation 5.0 feet) to 10.0 feet from the proposed channel bed (-4.0 feet) to the high chord at the center of the arch openings (elevation 6.0 feet). Stormwater runoff will be conveyed to deep sump hooded catch basins and planter/filter boxes adjacent to both bridge abutments. To minimize wetland impacts, the width of the existing embankment's base will not be increased except where required by a 2:1 slope (maximum proposed slope grade). As currently proposed, the structure's vertical clearance is approximately 4.5 feet above the mean high water elevation and provides more than 4.0 feet of clearance below the roof of the main bridge deck. The Proponent will continue to evaluate boater and rescue safety elements of the bridge as final design advances including the placement of signage and buoys to warn boaters of the potential hazard.



### *Canoe and Kayak Access*

The Proponent identified an opportunity to expand recreational access by facilitating safe and convenient passage of small boats (generally canoes and kayaks) between the downstream side of the Chequessett Neck Road Dike and upstream areas. Currently, a small parking lot and launch area is located on the downstream side and provides access to Wellfleet Harbor. No formalized access is provided on the upstream side; although some boaters climb the steep rip rap embankments to launch their boats.

The HRRC is considering several options for a designated hand-carry portage. The FEIR identified potential locations for an upstream and downstream boat launch located on the northern, Griffin Island, side of the bridge. Construction of new launch areas will require some wetland disturbance to create new landings, ramps, and stairways along the embankments on both sides of the dike. The existing, informal parking area (2 spaces) on the upstream side at the end of Duck Harbor Road may be expanded to accommodate no more than 8-10 cars. This is within a proposed staging area that would be disturbed by construction. The lot will remain unpaved and informal. An approximately 400-foot trail will be cleared from the parking area to the upstream boat launch which could result in the disturbance of up to 4,000 sf of wetlands. The FEIR estimated approximately 10,000 sf of wetlands disturbance for each canoe/kayak launch; however, no formal design work has been undertaken for the launches/parking area. I strongly encourage the Proponent to avoid, minimize, and mitigate impacts to wetland resource areas, rare species habitat and cultural resources to the maximum extent practicable as project design advances. The specific wetland impacts, and any necessary mitigation, will be considered during the Notice of Intent process with the Wellfleet Conservation Commission and the c.91 licensing process (if applicable) with MassDEP.

### *Mill Creek Dike Alternatives*

Alternatives C and D include construction of a dike at Mill Creek to control tidal flow within the Mill Creek sub-basin. Design requirements include: a 75-year design life with proper maintenance; minimize temporary and long-term environmental impacts; allow for the reconfiguration of the structure to provide a maximum hydraulic opening 5-feet in height by 25-feet in width with an invert elevation of -1.5 NAVD; accommodate potential sea level rise without damage from overtopping; minimize future maintenance costs; and provide adequate freeboard with a top crest elevation of 9.5 NAVD88.

Design requirements for the multiple water control structures (i.e., gates) include provision of: a 75-year design life with proper maintenance; a safe and secure mechanism for adjusting and controlling flow into and out of the Mill Creek; gates requiring minimal maintenance costs; and gates that can be easily operated and require minimal labor.

The FEIR considered four different structural alternatives: an earthen dike, a hybrid wall/earthen dike, a double wall dike, and a single wall dike. The earthen dike and single wall dike were selected for further analysis. The single wall alternative consisted of several sub-alternatives for the wall type (i.e., T-wall, gravity wall, steel sheet pile wall, I-wall). The analysis included an assessment of the dike's ability to manage site geometry and access, seepage, settlement, culvert installation, future modification capability, and construction sequencing.

Gate structure configurations considered included: slide gates with separate flap gates, combination slide-flap gates, and inverted weir stop logs. The FEIR also considered different types of gate operator alternatives such as manual operators (e.g., hand-operated crank or wheel-type) or power operators (e.g., electrically or hydraulically actuated from a power source, in this case a portable electric power generator as no 3-Phase power is available at this location).

The FEIR compared each alternative using similar selection criteria to those used in the selection of the Chequessett Neck Road Dike. The Mill Creek Dike Preferred Alternative consists of a sheet pile wall because it will reduce the construction footprint/wetland impact, lower construction costs, shorten construction duration to limit impacts to CYCC operations, and reduce maintenance requirements. It will include an approximately 630-foot long and 48-foot wide (at the base) earthen berm with a 12-foot wide roadway along its crest. A sheet pile wall will be driven through the berm and extend approximately 20 feet below grade to eliminate seepage. Flow control structures will be mounted directly to the wall, on the River side face. Five openings, approximately 5 feet wide by 6 feet tall, separated by 18-inch concrete columns, will be required. The wall will be constructed in accordance with the USACE *Engineering Manual: Retaining and Flood Walls (EM 1110-2-2502)*. Stone armor will be placed near the flow control structures to provide scour protection. The steel sheet pile wall will be constructed with a “sacrificial thickness” to allow the wall to be subject to corrosive action over its lifetime without resulting in structural failure.

The Mill Creek Dike Preferred Alternative will result in the permanent loss of approximately 29,500 sf of wetlands due to the placement of fill, including approximately 3,600 sf of salt marsh associated with a vehicle access route from the adjacent upland. Access for inspection, maintenance and tide controls will be provided with a gate operator’s cantilevered steel walkway system.

### *Common Project Elements*

Project elements common to all action alternatives include: incremental tidal restoration; monitoring; public access and recreation opportunities; vegetation management; low-lying road crossings and culverts; restoration of tidal channel and marsh surface elevation; removal of tidal restriction at High Toss Road; and, tide control structure at Upper Pole Dike Creek. Incremental tidal restoration is planned to allow monitoring of the system so that unexpected and/or undesirable outcomes can be detected and appropriate response actions taken. Field monitoring will be closely tied to the AMP and designed to measure progress towards project objectives and assumptions built into the conceptual models. In addition to traditional ecological monitoring, these data will be used to support management decision making and assessment. Specific monitoring data subsets are discussed later in this Certificate. Development of public access points or visitor facilities is likely to occur at the discretion of adjacent landowners or stakeholders (e.g., the Towns, Wellfleet Conservation Trust, Friends of Herring River). The Chequessett Neck Road Bridge will be designed to include safe fishing access and canoe and kayak launches are being considered in final design. Other opportunities that will be considered include walking trails and access to recreational shellfishing areas.

Changes due to tidal range, frequency and duration of tidal flooding, soil saturation, and salinity will require vegetation management. It will facilitate re-establishment of tidal marsh, improve fish passage, and reduce mosquito breeding habitat. These activities will occur in stages over a period of several years and are planned to occur before tidal flow is restored to each sub-basin. This will consist

primarily of removal of shrubs and trees before salt water reaches them and invasive vegetation control. These actions will be similar in type and implemented in an identical manner for each alternative; however, the spatial extent and timing of actions may vary.

Low-lying roads within the Herring River flood plain range from infrequently traveled fire roads to moderately busy paved roads. Portions of these roads will be vulnerable to high tide flooding or coastal storm surge from the storm of record (Blizzard of '78) subsequent to the proposed restoration.<sup>3</sup> To prevent this, these roadway segments may be elevated or relocated. Alternatively, consideration will be given to the extent that minimal risks can be accepted. Water surface elevations within any sub-basin will not be increased until mitigation for low-lying roads is in place. The FEIR included the engineering design report prepared by the Louis Berger Group, Inc., entitled *Herring River Restoration Project Engineering Design to Elevate Low-Lying Roadways and Replace Associated Culverts, Truro and Wellfleet, Massachusetts* (June 2015). It described property conditions, including wetland delineation, geotechnical, and site survey data, presented preliminary design plans for culverts and roadways, and proposed traffic management options. It evaluated alternative design features (e.g., side slope ratios, fill, layout, etc.) to limit environmental impacts. The FEIR summarized maximum impacts to these roads for each alternative. These estimates are subject to change upon completion of survey and design work.

Paved Roads

Road Name	Maximum Length Affected (ft)	Impacts of Alternative D	Potential Flood Proof Solution(s)/Comments
Bound Brook Island road/Old Country Road	3,700	Flooded at MHW and above	Elevate. Possibly relocated some sections; also replace two culverts
Pole Dike Creek Road	3,105 (two segments)	Flooded at MHW and above	Elevate, possibly relocate some sections; also replace culvert
Duck Harbor Road/Griffin Island Road	1,284 (two segments)	All flooded by coastal storm driven tidal event	Elevate or accept minimal risk
Old Chequessett Neck Road (Snake Creek Rd)	703	Adjacent Area flooded by coastal storm surge	Elevate or accept minimal risk
Old County Road (Paradise Hollow), Wellfleet	289	Flooded at MHWS and above	Elevate and replace culvert
Old County Road (Lombard Hollow), Truro	197	Flooded at AHW and above	Elevate and replace culvert
Old County Road (Prince Valley), Truro	119	Flooded by coastal storm driven tidal event only	Elevate and replace culvert
Maximum length of affected paved roads	9,397	9,397	

<sup>3</sup> According to the report, the roadway will be overtopped during the 100-year storm as mapped by FEMA as this exceeds the elevations observed during the Blizzard of 1978 (storm of record). The Blizzard of 1978 resulted in an observed 9.7-foot tide (USACE Atlas of Tidal Flood Profiles for the New England Coast, 1988).

Fire Roads

Road Name	Maximum Length Affected (ft)	Impacts of Alternative D	Potential Flood Proof Solution(s)/Comments
Duck Harbor Road, Fire Road West of Herring River	4,574	>75% flooded at MHWS and above	Elevate sections Relocate to adjacent upland Accept minimal risk
High toss Road, from Pole Dike Rd to Snake Creek Rd.	3,299	>75% flooded at MHWS and above	Elevate sections Relocate to adjacent upland Accept minimal risk
High Toss Road, causeway across flood plain	1,017	Flooded at MHW and above	Elevate Remove Culvert to be removed or enlarged
Snake Creek Road (Rainbow Lane)	992	>75% flooded at MHWS and above	Elevate sections Relocate to adjacent upland Accept minimal risk
Mill Creek Lane	395	100 ft flooded at AHW; All flooded at coastal storm driven tidal event	Elevate sections Accept minimal risk
Ryder Beach Road, Truro	176	Affected by coastal storm driven tidal event only	Elevate Accept minimal risk
Ryder Beach Road, Truro	118	Affected by coastal storm driven tidal event only	Elevate Accept minimal risk
DPW Yard Driveway	101	Affected by coastal storm driven tidal event only	Elevate Accept minimal risk
Ryder Beach Road, Truro	55	MHW and above	Replace culvert Elevate
Maximum length of affected sand and fire roads	10,727	10,727	

The project will include actions to elevate certain roadway segments to a minimum grade of 5.5 feet, one to three feet above the existing grade, to prevent overtopping from storm driven tides in the Herring River. Based upon the preliminary design, this elevation may require a minimum fill of 57,400 cy which may increase (or decrease) based upon final roadway design and will be reviewed as part of the local, State and federal permitting processes, as applicable. The elevations identified in the FEIR assumed six inches of freeboard to provide a factor of safety against unknown or climate change driven

increases in flood elevations; the Proponent will continue to evaluate the acceptable amount of “freeboard” in determining minimum roadway elevations.

According to the report, the proposed roadways will retain their horizontal alignments with minor adjustments to vertical alignment as necessary to accommodate increased elevation and culvert crossings. Proposed elevated roadway segments for Old County Road, Bound Brook Island Road and Pole Dike Creek Road consist of two 11-foot travelways and two three-foot unpaved shoulders with a 3:1 side slope treatment. Associated widening of the road base could impact to up to 90,000 sf of wetland resource areas. Permanent and temporary impacts to BVW, BLSF, ILSF, Bank, LUW, and Riverfront Area are anticipated but will depend on final design and surveys. These impacts should be tabulated in the local and State wetlands permitting applications upon completion of project design.

Grading will be minimized to limit fill outside the right-of-way and minimize wetland impacts. However, in some locations it may be necessary to extend fill onto private and municipal properties. The FEIR estimated this total impact at approximately 24,000 sf, but is subject to change based upon final project design and resolution of access agreements. This may include adjustments to isolated public or private driveways to eliminate negative sloping and ponding. The roadway elevation projects must meet the MassDEP stormwater management standards (SMS) to the maximum extent practicable in accordance with the standards for redevelopment projects.

Six culverts will be replaced as part of the low-lying roads projects. These include: Pole Dike Road, a 36-inch steel pipe (Station 6+90); Bound Brook Island Road at Herring River, a 54-inch reinforced concrete pipe (RCP) (Station 57+13); Bound Brook Island Road at Bound Brook, a 24-inch RCP (Station 63+65); Old County Road at Paradise Hollow, a 12-inch RCP (Station 83+59); Old County Road at Lombard Hollow (S), a pipe of unknown diameter and type (approximately Station 121+34.66); and Old County Road at Lombard Hollow (N), a pipe of a pipe of unknown diameter and type (approximately Station 134+56.82).<sup>4</sup>

Based on the results of the 2012 *Herring River Hydrodynamic Modeling Final Comprehensive Report* and MassDOT guidelines, the FEIR presented preliminary design information for each replacement culvert. The Pole Dike Road and Bound Brook Island Road culverts will be replaced with appropriately-sized box culverts. The culverts on Old County Road will be replaced with larger RCP culverts. The Massachusetts Stream Crossing Standards were not used to define the required crossing span because the crossings will be converted from freshwater to tidal systems post-restoration. The span of the culverts will be based solely upon the hydraulic capacity required to convey the storm of record.

The Herring River presently passes under High Toss Road (the second road that crosses the river) approximately one mile upstream from Chequessett Neck Road. It is an infrequently traveled, unpaved earthen berm capable of accommodating pedestrian and emergency vehicle access to Griffin Island. The Herring River passes under the road at the western end though a five-foot diameter concrete culvert. Under all restoration scenarios High Toss Road will be overtopped daily by seawater and ebb tide drainage will be impeded by the causeway.

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<sup>4</sup> The culverts at Old County Road and Lombard Hollow were either not able to be located or fully submerged. The existing culverts are likely 10-inch to 12-inch in size.

The tidal restriction at High Toss Road will be removed completely under all action alternatives. It will be replaced with either a box culvert or an open channel with sufficient hydraulic capacity. An open channel may include a bridge spanning the river if pedestrian and/or vehicle access was continued. Preliminary analysis suggests that a tidal channel approximately 30 feet wide will be needed to adequately convey tidal flows, although further hydrodynamic modeling and analysis is necessary to advance either design.

High Toss Road will be flooded at high tides greater than approximately three feet in all action alternatives. Alternatives to ensure adequate drainage and avoid or minimize potential impacts are under consideration and range from elevating the roadway above predicted high tides to removing it in its entirety and constructing a boardwalk to facilitate non-vehicular public access. According to the FEIR, the NPS and Town of Wellfleet have determined that elevating and reinforcing the embankment to withstand daily tidal flow in a manner that maintains vehicle access is impractical due to environmental impacts (approximately 13,000 sf of wetland impact), cost (construction and long-term maintenance) and infrequent vehicle use. Decommissioning and removal of the roadway may result in additional wetland restoration. Maintaining public access in this location is a concern; it may include pedestrian, bicycle, equestrian, and canoe/kayak access. I encourage the NPS and the Towns to continue to work with stakeholders during final project design and prior to submitting environmental permit applications to address this unresolved concern.

To achieve maximum tidal restoration, actions will be necessary to reverse previous direct and indirect alteration of the system's topography, bathymetry, and drainage capacity. Diking and drainage have caused subsidence of the former salt marsh by up to three feet in some location, while other areas have been channelized or blocked by soil berms. Guided by the AMP, the following supplemental habitat management actions will be implemented to counteract the limitations created by these historic alterations and reduce potential barriers that may limit or delay progress:

- Dredging of accumulated sediment to establish a natural bottom of the Herring River channel at the appropriate depth and maximize ebb tide drainage;
- Creation of small channels and ditches to improve tidal circulation;
- Restoring natural channel sinuosity;
- Removing lateral ditch dredge spoil berms and other anthropogenic material on the marsh surface to facilitate drainage of ponded water;
- Applying a thin layer of dredged material to build up subsided marsh surfaces; and
- Beneficial re-use of dredged material to enhance the sediment supply and promote marsh accretion within the flood plain, as informed through the AMP.

The Upper Pole Dike Creek sub-basin contains approximately 130 private parcels located wholly or partially within the historic floodplain. Hydrodynamic modeling indicates that portions of these low-lying properties will potentially be affected by restored tides. A tide control structure will be constructed to provide an additional layer of control and to maintain a specific tide regime for this sub-basin. Assessments to determine if partial restoration of tidal flow is possible in this sub-basin are ongoing. Although the project goal includes full restoration of this sub-basin, it will not occur unless and until provisions are in place to prevent any structural impacts to private property. Regulatory approvals and funding will also be required to implement mitigation measures if deemed necessary.

### Low-lying Properties

The project will result in impacts to low-lying properties situated within the historic floodplain due to increased tidal influence and potential changes to State and local wetland resource areas regulatory jurisdictions. According to the FEIR there are 378 parcels of potentially affected private land, owned by 325 individuals and trusts. The majority of these properties are located within the Mill Creek or Upper Pole Dike Creek sub-basins.

### *CYCC*

The HRRC and FHR hired a team of golf course designers to prepare plans to reconstruct the fairways, tees, greens, and other modifications to prevent impacts from the restoration of tidal flow in Mill Creek on CYCC property. According to the FEIR, representatives from the CYCC and HRRC agreed upon a detailed design plan for the golf course to allow for the assessment of project impacts and to inform ongoing negotiations regarding the potential funding and execution of Option 1 or 2.

Under Alternatives B and D portions of the CYCC property (golf hole numbers 1, 6, 7, 8, 9 and the practice area) will be impacted by tidal waters that require modification to avoid flooding. Option 1, relevant to either Alternatives B or D, will relocate the practice area and portions or all of holes 1, 6, 7 and 8 to upland areas west of the current golf course and will elevate portions of fairway 9 in place. A portion of former fairway 1 will also be elevated to accommodate a new area. In this option, most abandoned parts of the golf course will become subject to tidal exchange and transition back to wetland resource areas. This option will require filling approximately 89,000 sf on hole number 9, which according to the FEIR, cannot be relocated due to its proximity to the CYCC golf clubhouse. This option will result in approximately 30 acres of long-term upland disturbance. According to the FEIR the relocation of low-lying golf holes will require an extensive archaeological investigation given the likely cultural and archaeological resources in these upland areas.

Option 2 will retain the current layout of the course, elevate low-lying golf holes, and relocate the practice area to an upland site that will also serve as the borrow area for the fill necessary to elevate the low fairways. In this option, the current practice area and an area between fairways 7 and 8 will be restored to tidal wetland. This option will result in the loss of approximately 360,000 sf (8.3 acres) of wetlands due to placement of approximately 150,000 cy of fill. Under existing conditions all of the wetland areas to be filled are currently maintained by the CYCC as part of the golf course, with the exception of approximately 4,800 sf, which is naturally vegetated. Fill will be elevated above the high tide line and regraded as golf holes, leaving the layout of the golf course generally unchanged. Fill would be generated from an approximately 5-acre borrow area on adjacent uplands owned by the CYCC. Preliminary cultural resource assessment reports have identified this borrow area as highly sensitive for potential pre-contact archaeological resources. If selected as a borrow site, the Proponent will likely be required to complete a site-specific archaeological inventory prior to site disturbance.

Implementation of Alternative B or D with Options 1 or 2 will curtail use of the golf course during the process of moving or filling the low-lying golf holes (estimated at 20 months). This construction period will result in loss of revenue to CYCC. Alternative C, with its tidal exclusion dike at the mouth of Mill Creek eliminates the need for additional flood protection measures for CYCC and other Mill Creek properties. In Alternative C the CYCC golf course remains unchanged and will

continue to experience periodic flooding and land subsidence issues due to its low elevation and underlying marsh peat.

I note that comments from CYCC's environmental consultant and a technical memorandum prepared by Woods Hole Group (dated March 4, 2016) present divergent conclusions regarding the potential impacts of the various project alternatives (including Alternative C) on groundwater and flooding on CYCC property. The Proponent will implement a surface water and groundwater monitoring program prior to any changes to tidal range in the Herring River. This monitoring program will include establishing baseline groundwater conditions and collecting data to detect future project-related groundwater elevation changes on the golf course. Groundwater monitoring wells will be located at key locations within the Mill Creek sub-basin and other parts of the floodplain. The monitoring and mitigation program should be established in agreement with the CYCC and include quantifiable and objective criteria to determine when additional mitigation may be necessary. Monitoring should be implemented regardless of the selected action alternative and mitigation should be implemented for Alternative B or D.

Project costs include reconstruction of the golf course and offsets of business losses during the construction period as part of the overall funding for the restoration project. The Proponent and CYCC continue to work towards development of a conceptual framework to address anticipated impacts and mitigation to the golf course. As noted in the FEIR, if an agreement on the framework by CYCC and HRRC is achieved prior to the preparation of the project's permitting applications, the golf course work will be proposed as part of the initial phase of design, permitting, and funding for the restoration project. If an agreement cannot be reached prior to preparation of permit applications:

1. Tidal restoration will not be proposed in the Mill Creek sub-basin until a later project phase after mitigation agreements are finalized with the CYCC and other affected Mill Creek landowners;
2. The Proponent will continue to advance permitting and other elements of the project that support tidal restoration in the main Herring River basin; and
3. The Proponent will, in good faith, continue to seek mitigation agreements with CYCC and other affected landowners in the Mill Creek sub-basin.

### *Residential Properties*

Increased tidal exchange under all action alternatives will result in impacts to multiple low-lying properties. Benefits may include the retreat of invasive vegetation and a transition to open marsh and water vistas, resulting in potential increases in property values. Adverse impacts may include tidal flooding of low-lying structures and cultivated vegetation. Any of the action alternatives will result in changes to jurisdictional wetland resource areas on some properties within the project area. These jurisdictional changes will likely occur due to the anticipated landward shift of the 200-foot Riverfront Area resulting in expanded jurisdictional areas on properties already partially located in the Riverfront Area or those that are currently located outside of the Riverfront Area.

Hydrodynamic modeling results, aerial photography, topographic and ground survey data, and property records from town assessor databases were used to assess potential physical and regulatory impacts to these properties. Properties were categorized based upon the frequency of tidal water



reaching the property (e.g., one day per year, monthly high spring tides, daily high tides, etc.) and the character of the land (e.g., non-cultivated, non-landscaped, lawns, gardens, planted trees, etc.) or impacted structures (e.g., buildings including residences, sheds, garages; driveways, private lanes, wells, septic systems). To refine impact data, the Proponent has consulted with individual property owners, and in some cases, acquired more detailed site-specific data. This process will continue as the project advances through the design, permitting, and implementation phases.

The FEIR included a comparative table summarizing the potential number of affected low-lying residential properties for each action alternative:

Physical Impacts due to Restored Tidal Influence	Number of Affected Parcels <sup>a</sup>		
	Alternative B	Alternative C	Alternative D
Natural Vegetation Only Total	126	120	145
Frequent Only <sup>b</sup>	8	7	8
Infrequent Only <sup>c</sup>	46	50	54
Both Frequent and Infrequent <sup>d</sup>	72	63	83
Cultivated Vegetation Only	2	1	2
Frequent Only	None	None	None
Infrequent Only	2	1	1
Both Frequent and Infrequent	None	None	1
Both Natural and Cultivated Vegetation Total	28	24	32
Frequent Only	None	None	None
Infrequent Only	None	None	None
Both Frequent and Infrequent	28	24	32
<b>Total Physically Affected Parcels</b>	<b>156</b>	<b>145</b>	<b>179</b>
Parcels with Affected Structures <sup>ef</sup>			
Frequent	5	4	6
Infrequent	2	2	4
<b>Changes to Riverfront Area</b>			
Parcels with both Riverfront Area Change and Physical Impacts	318	247	322
Parcels with Riverfront Area Change Only <sup>g</sup>	165	126	169

<sup>a</sup> These approximations are based primarily on preliminary desktop analysis and will be refined upon further consultation with individual property owners and development of more comprehensive, site-specific property data.

<sup>b</sup> Entire parcel or structure affected by mean high and mean high spring tides

<sup>c</sup> Affected portion of the parcel or structure impacted only by annual high and storm tides

<sup>d</sup> Parcels contain areas both above and below mean high spring tide

<sup>e</sup> Includes physically affected driveways, wells, and buildings; several parcels include multiple affected structures

<sup>f</sup> Lots with affected structures may also include vegetation and Riverfront Area impacts

<sup>g</sup> No physical impacts expected

The data presented in the FEIR identify the potential scope of properties that will require mitigation measures to facilitate implementation of the Preferred Alternative and maximize tidal restoration within the Herring River estuary. The HRRC has met, and will continue to meet, with potentially affected landowners to discuss potential impacts and mitigation. I note that within the boundary of the Seashore in the Lower Herring River, there are two private properties that will be flooded by the initial phases of project implementation. No tide control structures are located between these properties and the Chequessett Neck Road Dike. At present, a voluntary acquisition is being negotiated for one of the properties. According to the FEIR, as no other flood mitigation measures may be feasible, the NPS may consider an eminent domain taking in the absence of a willing seller.

Other low-lying properties that may be impacted by the project will be subject to an ongoing process by the Proponents to identify the properties, assess impacts, and work with substantially-affected landowners on mutually acceptable solutions to mitigate impacts. The FEIR indicated that those properties with predicted impacts to structures will require additional analysis (i.e., on-site survey, soils testing, etc.). A suite of potential mitigation measures include: elevating or relocating driveways and landscaping; relocating wells; construction of small berms or flood walls; moving or elevating structures; and compensation for lost value or voluntary sale of easements or other interests in land.

As the majority of structurally affected private properties are located within the Mill Creek or Upper Pole Dike Creek sub-basins, numerous measures will be implemented to provide overlapping and redundant protection of restored tidal flow in these sub-basins, including:

1. The tide control structure at the reconstructed Chequessett Neck Road Dike will be opened incrementally. Tidal ranges and water levels throughout the project area will be monitored to ensure that the river/estuary system is responding as modeling predicts and no adverse impacts will occur.
2. Additional tide control structures will be installed to provide additional tidal control and will be designed and operated to create a tidal regime specific to each sub-basin. These structures will be opened and monitored similar to the Chequessett Neck Road Dike tide gates.
3. Site-specific mitigation measures will be employed for individual properties to prevent tidal flows from impacting structures. These mitigation measures will be constructed with the explicit consent and cooperation of landowners under the terms of site-specific landowner agreements.
4. The effectiveness of all individual impact mitigation practices will be specifically monitored to ensure they are working properly, maintained, and in good condition. The exact nature and duration of this monitoring will vary based on site-specific circumstances, but will be specified within each landowner agreement. Baseline data should be gathered prior to taking actions that may impact individual properties. Monitoring will likely include use of surface water instrumentation and groundwater wells placed downgradient of areas of concern. For those properties where wells may be impacted, the monitoring should include evaluation of drinking water quality.

### Wetlands and Waterways

The project is proposed as an Ecological Restoration Limited Project in accordance with newly promulgated MassDEP regulations. These regulations include provisions for Combined Applications and Limited Project status for eligible ecological restoration projects. Projects that “may result in the temporary or permanent loss of Resource Areas and/or the conversion of one Resource Area to another when such loss is necessary to the achievement of the project’s ecological restoration goals” may be approved in accordance with 310 CMR 10.24(8) and 310 CMR 10.53(4). As noted in the FEIR, there are no thresholds for the amount of alteration/loss allowed if it is determined that the project complies with applicable Ecological Restoration Limited Project provisions. The FEIR discussed project characteristics that, in the opinion of the Proponent, make it eligible for approval as an Ecological Restoration Limited Project. These include:

- It meets the definition of an Ecological Restoration Limited Project (310 CMR 10.04) because “its primary purpose is to restore or otherwise improve the natural capacity of an Resource Area(s) to protect and sustain the interests identified in M.G.L. c. 131 s.40, when such interests have been degraded or destroyed by anthropogenic influences”;
- It will be implemented in accordance with a Habitat Management Plan approved by NHESP;
- It will be carried out in accordance with any TOYs or other conditions recommended by DMF;
- It will not involve any work on or adjacent to a Coastal Dune or Barrier Beach;
- The FEIR and subsequent NOIs will clearly demonstrate the extent and severity of impairments to the Herring River estuary, the magnitude and significance of the project benefits to protect and sustain the interests of the WPA, and that any unavoidable adverse impacts to existing Resource Areas will be minimized while achieving the project’s ecological restoration goals;
- BMPs will be used to avoid and minimize construction-period impacts; and
- It will not increase flooding or storm damage impacts to the built environment (e.g., buildings, wells, driveways, roads, etc.). Potential impacts will be avoided through implementation of site-specific flood prevention measures in accordance with recognized design standard and formal agreements with landowners.

The Proponent will be required to provide all supporting data and design details, as necessary, to demonstrate that the project can be approved as an Ecological Restoration Limited Project by MassDEP. This should include details of flood impact mitigation measures and landowner agreements to ensure protection of private properties.

The Proponents will submit a 401 WQC/c. 91 application for a Combined Permit. Although the project will involve dredging of more than 100 cy in an ACEC and Outstanding Resource Water (ORW) it will be permitted with a 401 WQC, per 310 CMR 10.12(1)(l). The 401 WQC application will include: details regarding removal, handling, and placement of sediment entrained in former tidal channels and other measures required to improve tidal circulation and accretion of marsh surface elevations; additional information about sediment

chemistry, including plans for additional sampling and characterization of metals and organochloride pesticides potentially mobilized during the project; stormwater management considerations; and details regarding BMP's for construction, TOY restrictions, erosion and sediment control, and construction sequencing.

The placement of fill and the new construction, substantial alteration, or expansion of existing structures below the historic (pre-Chequessett Neck Dike ) MHW line may be subject to c. 91 jurisdiction. According to the FEIR, no structures or fill within the Herring River floodplain (with the exception of the Bound Brook culvert) have c. 91 licenses. License applications will be submitted for all fill and structures below the historic MHW, including:

- The Chequessett Neck Road Dike;
- The Mill Creek dike and tide control structure;
- Fill placed to elevate portions of the CYCC golf course;
- New culvert (or bridge) and access improvements along High Toss Road;
- New culverts and fill placed along reaches of Pole Dike Creek, Bound Brook Island, and Old County Roads; and
- Other small culverts and related fill along roadway segments in the upstream reaches of the project area.

The Proponent reviewed Coastal Restriction Order maps and other documents on file at the Town of Wellfleet Health and Conservation Office. No portions of the Herring River project area were identified within these restricted areas. Although it appears that no portions of the Herring River project are subject to a Coastal Restriction Order pursuant to M.G.L. c. 130, s. 105, should it be determined that any portion of the Herring River estuary is under a Coastal Restriction Order, an amendment to said Order may be necessary.<sup>5</sup>

### *Salinity of Surface Waters*

The project is strongly influenced by the geographic extent of tidal inundation with saline water, the variable salinities of that water, the frequency and depth of inundation (both during daily cycles and infrequent storm events), and the volume of tidal water (i.e., tidal prism) moving in and out of the estuary. Existing conditions within Wellfleet Harbor include salinity ranges between 30 and 32 part per thousand (ppt). Construction of the Chequessett Neck Road Dike has limited upstream mean tide range to only 2.2 feet compared to 10.3 feet downstream of the dike. Because of this altered hydrology, saline waters during high tide currently extend 1.2 miles upstream of the dike. Monitoring data between 2006 and 2010 conducted by the Seashore confirm that waters within the upper estuary are consistently fresh, with other data documenting that saline waters never reach High Toss Road during normal tides.

Under the Preferred Alternative, the predicted mean high spring tide water surface elevation of approximately 5.6 feet in the Lower Herring River will restore tidal influence to approximately 890 acres of the former Herring River floodplain. High salinity water will consistently reach the Lower Herring River, Middle Herring River, Lower Pole Dike Creek, and

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<sup>5</sup> Email from Patti Kellogg, MassDEP, July 14, 2016

Mill Creek sub-basins, and the eastern half of the Duck Harbor sub-basin, while salinity levels will remain low (generally below 5 ppt) in the Upper Herring River, Upper Bound Brook, and Upper Pole Dike Creek sub-basins. All three of these upper sub-basins will be subjected to small tidal fluctuations, and salt marsh species will not be expected to dominate these areas, except possibly in locations immediately proximate to the tidal channels. These salinity changes will result in permanent, estuary-wide changes in the penetration of high salinity water into lower and mid-floodplain sub-basins, critical to achieving the desired transition from a degraded freshwater wetland to a functioning estuarine wetland. Salinity is a critical factor in the presence or relocation of non-native *Phragmites* within the Herring River estuary. The project's impact on *Phragmites* is discussed later in this Certificate.

### *Water and Sediment Quality*

The Herring River is designated as a Class SA water (the highest coastal and marine class) under the Massachusetts Surface Water Quality Standards (314 CMR 4.00) requiring excellent habitat for fish, other aquatic life and wildlife, and primary and secondary recreation. The Herring River is also designated by the Commonwealth as an ORW. The Herring River estuary does not meet its targeted designations under Massachusetts' regulations due to its degraded water quality conditions and has been listed on the 303(d) list of impaired waters under the federal Clean Water Act (CWA). The Herring River segment between Herring Pond and High Toss Road is impaired for metals and pH, while the segment from south of High Toss Road to Wellfleet Harbor is impaired for pathogens.

Degraded conditions are associated with low dissolved oxygen concentrations, highly acidic water resulting from the oxidation of organic matter and iron-sulfide minerals in salt marsh soils, increased dissolved iron concentrations in locations with the lowest rates of flushing, and dissolved aluminum concentrations above levels of concern within some portions of the estuary. The lack of tidal flushing within the Herring River estuary has resulted in an accumulation of nutrients. High organic matter production in salt marshes results in high concentrations of carbon and nutrients in marsh soils. Reflooding sediments within the estuary will release accumulated ammonium-nitrogen into receiving waters. This aspect of marsh restoration will be a focus of ongoing nutrient monitoring. While pesticides were used historically within the system for mosquito control, samples analyzed did not exceed NOAA guideline values. Finally, high fecal coliform concentrations (likely from wildlife in the estuary and watershed) have kept the Herring River downstream of the dike permanently closed for shellfishing in some parts and only conditionally approved in other parts.

Under the Preferred Alternative, the project is expected to reduce system residence times upstream of High Toss Road by a factor of 33 (200 days vs. 6 days), resulting in regular tidal flushing of the Herring River estuary with well-oxygenated water from Wellfleet Harbor. The maximum extent of tidal exchange is projected to be 889 acres in the Preferred Alternative compared to existing conditions (70 acres). Increased tidal exchange and reduced residence times are expected to maintain dissolved oxygen concentrations above State water quality standards at all times. However, summertime dissolved oxygen levels could remain low in ponded areas and obstructed ditches that are not regularly flushed by tidal waters. Tidal flushing is also expected to reduce acidification within the mid-portion of the Herring River estuary

where saline water will again saturate drained peat. Restored salinities will reduce the leaching of aluminum and iron from the soils to receiving waters in concentrations that stress aquatic life. Decreased decomposition and increased saturation of soil pore spaces with water will also prevent further subsidence of the marsh surface. Improved tidal flushing will dilute and remove nutrients from the system with each tide cycle and the gradual reintroduction of tidal exchange is expected to allow ammonium-nitrogen to be slowly released, avoiding nitrogen loading that could contribute to algal blooms in receiving waters. Fecal coliform concentrations are also expected to substantially decrease with regular tidal flushing and will likely allow for the removal of the Herring River from the 303(d) list for pathogens.

### *Sediment Transport and Soils*

Sediment transport analyses of the existing system found that normal tidal flow velocities are sufficient to initiate sediment movement, but only in the vicinity of the Chequessett Neck Road Dike. This study also confirmed that the system is flood-dominant; meaning that net transport of sediment is into the Herring River. The Chequessett Neck Road Dike has caused a substantial reduction in flow velocity during flood tides in the area immediately downstream of the dike (as compared to pre-dike conditions), which likely has resulted in settling and deposition of suspended sediment during the slack flood tide in this area. When the Herring River was diked in 1909, sediment transport processes were interrupted and both the salt marsh and the underlying peat began to subside and the former tidal channel system completely or partially filled with sediment. According to the FEIR, much of the marsh surface upstream of the Chequessett Neck Road Dike is currently at elevation between one and three feet; up to three feet lower than marsh surface downstream of the dike relative to modern mean sea level. This difference is attributable to both subsidence from pore-space collapse and peat decomposition on the upstream side of the dike and sediment accretion on marsh located downstream of the dike. The FEIR identified the various types of soils within the project area, as determined and classified by the U.S. Department of Agriculture Natural Resources Conservation Service (NRCS). Approximately 80 percent of the Herring River floodplain is comprised of hydric soils.

Opening the dike and increasing tidal exchange will mobilize sediment that has accumulated within the existing channels, including a flood-tidal shoal located just upstream of the Chequessett Neck Road Dike, and the smaller ebb-tidal shoal that has formed just downstream of the Chequessett Neck Road Dike. Restoration of tidal flows will resaturate drained peat, increase peat accumulation through the stimulated growth of marsh vegetation, reduce subsidence, and enhance sediment delivery to the marsh leading to an increase in marsh elevation. Changes in the tidal water surface elevation and subsidence of the marsh surface will be monitored to ensure a successful transition back to a salt marsh with healthy vegetation.

The Preferred Alternative will enhance sediment transport throughout the Herring River estuary. Three classes of sediment transport are anticipated to occur: bedload, suspended load, and suspended fines. Fine sediments that have accumulated in the tidal channels upstream and downstream of the Chequessett Neck Road Dike will be temporarily mobilized as suspended load and suspended fines. Over a longer period, bank and bed erosion will increase the dimensions of the restored tidal conditions. Finally, increases in tidal flow will alter the long-term sediment transport patterns, providing a source of marine sediment to the marsh surface.

Incremental increases in tidal flows will gradually increase the width and depth of channels due to bank erosion and erosion of the channel bed. As tidal flows increase, a much deeper, wider and well-defined channel is expected to form from just below the Chequessett Neck Road Dike upstream to the Middle Herring River and Lower Pole Dike Creek sub-basins. Coarser-grained sediments are expected to mobilize within the bedload along the bottom of tidal channels just upstream and downstream of Chequessett Neck Road Dike slightly seaward toward Wellfleet Harbor. Finer-grained sediments will be transported predominantly upstream, eventually settling out in the upper sub-basins of the Herring River. Very fine particles of sediment will remain in suspension and may be transported in either direction.

The FEIR described the potential impacts of sediment transport on tidal channels and marsh elevations and identified the three sources of sediment as inorganic matter from Wellfleet Harbor, upland sediment sources, and organic matter. While the rate and depth of sediment accretion cannot be quantified with certainty, the Preferred Alternative will increase the areas of potential sediment mobilization upstream of the Chequessett Neck Road Dike. Assuming a 10-foot high tide gate opening (the maximum), the potential area of sediment mobilization will range from 58 acres during normal tidal conditions to approximately 217 acres under 100-year storm conditions. This is substantially greater than the 0.1-acre of potential sediment mobilization under existing conditions. Areas of increased erosion upstream of the dike will be mostly confined to the future location of a more defined Herring River Channel. Areas of potential sediment mobilization downstream of the dike during normal tidal conditions will increase by 75 percent (from 56 to 98 acres) over existing conditions and by 50 percent (153 to 230 acres) during 100-year storm events.

The project will result in estuary-wide, beneficial changes to hydric soil types within the floodplain by increasing pore space, soil pH, and organic content as the soils are subjected to tidal inundation. Local changes in soil texture are also possible dependent upon the different erosional and/or depositional forces placed upon varying soil types.

### Vegetation

The FEIR summarized current wetland habitats and vegetation within the Herring River floodplain based upon vegetation mapping conducted by the Seashore. The FEIR included refined vegetation cover type data to: project transitions from freshwater and upland habitat to tidally-dependent estuarine habitats; estimate changes to the coverage, and potential expansion, of non-native, invasive species common reed (*Phragmites australis*); and assess potential impacts to freshwater dependent State-listed rare species habitat.

The FEIR compared existing cover type acreages to those predicted under each alternative in each sub-basin. All action alternatives will result in widespread change of existing, degraded freshwater wetlands to estuarine sub-tidal and intertidal habitats. The restoration of tidal inundation and associated soil saturation and salinity is anticipated to result in the mortality of upland shrubland and woodland vegetation in approximately 700 acres of the project area. The proposed vegetation management plan will address the removal of woody debris as necessary to limit obstructions in tidal channels and hindrance to the establishment of marsh

grasses. In areas that have experienced subsidence monitoring data will be used to inform adaptive management decisions regarding supplementing the sediment supply, removing blockages to salt water circulation, and planting appropriate native species. These actions may also influence the extent and type of vegetation in the marsh system.

Many changes in wetland habitat and vegetation will occur in conjunction with the project, notably the extensive restoration of salt marsh vegetative communities, primarily in the Lower Herring and Middle Herring River, and Lower Pole Dike Creek sub-basins. Due to the low salinity levels expected in the upper reaches of the system, little if any salt marsh vegetation will colonize the Upper Herring River, Upper Bound Brook, and Upper Pole Dike Creek sub-basins. Within the Duck Harbor and Lower Bound Brook sub-basins salt marsh species are expected to colonize marsh areas adjacent to tidal channels and in some areas extend landward across the marsh surface. Subsided, former salt marsh areas within the Middle and Upper Herring River, Lower and Upper Pole Dike Creek, Duck Harbor and Lower Bound Brook sub-basins will be subject to sediment accretion and thus support a mix of salt marsh, brackish, and tidal freshwater plant communities.

Based upon refined salinity modeling and data, full implementation of the Preferred Alternative is estimated to restore approximately 868 acres of the 1,006-acre project area as intertidal habitat. Of this, approximately: 585 acres will be subjected to regular water column salinity levels of 18 ppt or higher; 99 acres will be affected by salinity between 6 and 18 ppt; 98 acres will be affected by freshwater tidal flow with salinity consistently below 6 ppt; and 86 acres will be tidally influenced sub-tidal, open water habitat with a salinity gradient ranging from approximately 30 ppt in the downstream reaches to 0 ppt in the upper reaches.

The 585-acre restoration area will consist of low and high salt marsh, intertidal mud flats, and open water salt pannes and pools. Habitat changes will occur based on variation in marsh surface elevation, frequency of tidal inundation, and salinity levels. These variables limit the ability to model and predict precise acreage estimates or the locations of specific intertidal habitats. The 99-acre area that will be subject to brackish tidal flow (6 - 18 ppt) will experience vegetation changes depending upon actual salinity levels and the extent and duration of tidal inundation. It is anticipated that these vegetation habitat changes will result in a substantial reduction in the extent of existing shrub, woodland, and forested habitats and an increase in the overall extent of emergent freshwater marsh species and limited expansion of moderately salt tolerant species in higher salinity zones. According to the FEIR, the vegetation community changes within the 98-acre freshwater tidal zone are difficult to predict given the subtle hydrologic change. Overall, the Preferred Alternative, upon full implementation, will result in the loss or substantial reduction of several existing upland and freshwater habitat types with virtually all of the existing forest, woodland, dry shrubland, and heath/old field habitat replaced with intertidal marsh. Some areas of existing wet shrubland and varied freshwater and wetland-upland transition habitats will persist on the periphery of the intertidal area above the reach of mean high spring tides.

Invasive *Phragmites* (common reed) primarily occupies approximately 70 acres within the Lower Herring River and Mill Creek sub-basins, with scattered small stands in Middle Herring River and Upper Pole Dike Creek. Changes in salinity (greater than 24 ppt) and tidal



ranges in the Preferred Alternative are expected to reduce the coverage of common reed in the lower reaches of the Herring River system (Lower and Middle Herring River, Mill Creek, and Lower Pole Dike Creek). However, according to the FEIR, common reed may migrate, and potentially expand, in the mid to upper portions of the Herring River where salinities will be brackish. The FEIR indicated that it is less likely that common reed will expand into remaining freshwater areas that will. Approximately 150-250 acres of brackish habitat within the project area may be susceptible to invasion by common reed.

Several management actions will be undertaken to limit the expansion of common reed within the estuary. Prior to increasing tidal range, the NPS will treat stands of common reed with herbicide above High Toss Road within the Seashore boundary. The NPS will also work with the Towns and project partners to treat significant stands of common reed on private lands, with a goal of controlling the species in the project area before tides are restored. According to the FEIR targeted management techniques will be used to limit potential impacts to native species. Techniques may include the use of backpack sprayers in large, dense areas of common reed, while “cut and drip” or “glove” herbicide application techniques will be used for areas of common reed that are less dense and interspersed with native vegetation. Regrowth and potential expansion of common reed throughout portions of the estuary subject to mid- to lower salinity levels will be monitored and follow-up actions taken as necessary as part of the AMP.

#### Aquatic Species and Fisheries

The FEIR listed the types and abundance of estuarine finfish, macroinvertebrate, and anadromous and catadromous fish species, and shellfish within the Herring River and Wellfleet Harbor based upon the results of aquatic fauna inventories and wildlife observations. The estuary downstream of the Chequessett Neck Road Dike is characterized by estuarine species that are dependent on marine conditions, while the abrupt change in salinity and tidal flushing in the Lower Herring River basin between the dike and High Toss Road results in a dramatic change in species richness and abundance, with species more tolerant of lower salinities becoming most dominant. Upstream of High Toss Road only freshwater or anadromous/catadromous species are found.

The FEIR assessed potential impacts to aquatic species under each project alternative based on known life histories and habitat requirements, and their past and present occurrence in the Herring River estuary and Wellfleet Harbor. This analysis used the projected mean high spring tide from the hydrodynamic model to approximate the extent of tidal influence and estuarine habitat.

Total estimated estuarine habitat under the Preferred Alternative will be approximately 878 acres. Approximately 11.5 miles of mainstem tidal creek for use by resident and migratory and anadromous species will be restored upon full implementation of the Preferred Alternative. Areas upstream of the dike where salinity penetrates are expected to experience an increase in diversity and population of resident estuarine fish species. The Preferred Alternative will create more habitat available for spawning of certain species. Freshwater fish species habitat will be reduced in the lower sub-basins; however, in the upper basins improved water quality and levels are expected to benefit these species. However, exactly how much habitat is available for fish

species will be dependent on accessibility. As the number and location of tidal creeks, marsh surface depth, and hydroperiod all play a role in accessibility for various species and life stages, these factors will be considered during implementation of the AMP. The new dike will benefit all species of anadromous and catadromous fish, including river herring, hickory shad, white perch and American eel through better fish passage, while improved water quality and salinity levels will increase the amount of nursery habitat for juvenile fish.

The FEIR described the existing conditions of the shellfishing industry, limitations on commercial and recreation harvesting, and aquaculture. Four commercially important species were identified: northern quahog (*Mercenaria mercenaria*), eastern oyster (*Crassostrea virginica*), bay scallop (*Argopecten irradians*), and softshell clam (*Mya arenaria*). Currently, shellfishing is prohibited in a 90-acre area immediately downstream of the Chequessett Neck Road Dike and within the Herring River due to poor water quality caused by fecal coliform bacteria. Finfishing is an important commercial industry and recreational activity, with bluefish (*Pomatomus saltatrix*) and striped bass (*Morone saxatilis*) as the two predominately fished species in Wellfleet Harbor. Estuaries provide habitats for finfish to spawn and grow, with many species dependent upon estuarine conditions for at least some stage of their lifecycle. The project will benefit commercial and recreational finfishing by improving habitat and water quality.

Softshell and hard clams will likely be able to colonize areas upstream of the dike within their preferred salinity ranges. According to the FEIR, it is unlikely that oysters will establish themselves naturally upstream of the dike, unless the bottom substrate of the river hardens naturally with restoration. Increased tidal flows will erode sediments in the existing tidal creek upstream and downstream of the dike; it is not known how much deposition will occur or how much sediment will be mobilized in areas of new or existing erosion. While softshell and hard clams can move up and down in the sediment column, they are not likely to be affected by sedimentation. However, oysters will be susceptible to burial by excessive sedimentation. The incremental opening of the dike will limit mobilization of sediment all at once or over short periods of time. For sediment that will mobilize as part of the restoration process, impacts to oysters are expected to be temporary due to the fine-grained nature of the mobilized sediment. The particle size of mobilized sediment and predicted flow velocities will be inadequate to deposit sediment within established aquaculture areas in Wellfleet Harbor as sediment transport processes in Wellfleet Harbor are far more dependent on tidally-driven forces in Cape Cod Bay than whatever forces may be exerted by a new, larger tidal opening at the Herring River. It is anticipated that the project will enable shellfish habitat areas currently closed to shellfishing to be reopened subject to the approval of DMF and the Town of Wellfleet. The project is not expected to negatively impact aquaculture resources in Wellfleet Harbor.

#### Wildlife and Rare Species Habitat

Over 450 species of amphibians, reptiles, fish, birds, and mammals depend on the diversity of upland, wetland, and coastal ecosystems found in the Seashore and nearby environs. Depending on the species, the Seashore may provide habitat all year round, or only during nesting season, migration, or winter. The FEIR identified known species and described suitable habitat for freshwater marsh birds and upland birds, salt marsh birds, mammals, reptiles and

amphibians. Much of these data were derived from ongoing Seashore monitoring and surveying efforts.

The project will result in habitat changes that will affect the distribution of terrestrial wildlife. Mammals, reptiles, and amphibians will gradually relocate to suitable habitat as the estuary transitions. No significant adverse impacts on regional populations are anticipated. While gradual, there will be a substantial change in the composition of birds species that use the area for nesting, foraging, migration, etc. based upon the corresponding changes to vegetation within the floodplain. Changes in avian community structure include an overall increase in species abundance and a shift from a community of generalist species to one dominated by waterfowl, shorebirds, and wading birds. Species dependent on woodland, shrubland, or heathland will become less abundant and will relocate to the periphery and upper extents of the 890-acre area affected by mean high tide or other adjacent upland areas.

There are six State-listed wildlife species within the project area that are currently listed as rare, threatened or endangered by the Natural Heritage and Endangered Species Program (NHESP) and regulated in accordance with the MESA. These wildlife species include: three birds, American bittern (*Botaurus lentiginosus*), least bittern (*Ixobrychus exilis*), and northern harrier (*Circus cyaneus*); two reptiles, diamondback terrapin (*Malaclemys terrapin*) and eastern box turtle (*Terrapene c. Carolina*); and one invertebrate, water-willow stem borer (*Papaipema sulphurata*). The FEIR also noted the presence of two federally listed threatened and endangered species under the Endangered Species Act: the rufa red knot (*Calidris canutus rufa*) a shorebird, and the northern long-eared bat (*Myotis septentrionalis*). The FEIR described each of the aforementioned protected species as well as their current status within the Herring River estuary.

The FEIR evaluated impacts to rare species based on the results of the hydrodynamic modeling and the projected changes to vegetation and habitats resulting from increased tide range and salinity. A comparative analysis of impact to each species was provided for Alternatives B and D. This analysis estimated potential acreage available as potential nesting, foraging, roosting, migratory, or breeding habitat (as applicable for each species) as well as unsuitable habitat within the project area. While the project will likely affect State-listed species and their habitats, not all impacts will be adverse in nature.

The following is a summary of the project's impact on protected species.

- **Northern Harrier:** while small habitat changes may occur in the Bound Brook sub-basin where nesting pairs have been recorded, areas suitable for harrier nesting will remain unchanged or may increase. The project will provide improved habitat for foraging.
- **American Bittern and Least Bittern:** while these species primarily use freshwater marsh habitats, they both also use brackish marsh habitats. Existing foraging, resting, or migratory habitat for these species will be affected or shifted within the project area.
- **Diamondback Terrapin:** while these species may be temporarily affected during the dike construction process as they currently use the small amount of salt marsh habitat upstream of Chequessett Neck Dike for nesting. Over the long-term the project is expected to restore hundreds of acres of nesting, nursery, wintering and foraging habitat in the Lower Herring River, Mill Creek, Middle Herring River, Lower Pole Dike Creek

sub-basins and portions of the Duck Harbor sub-basin (up to 30 times more habitat than existing conditions).

- **Eastern Box Turtle:** the project will restore more saline and/or wetter conditions which will render approximately 883 acres as unsuitable habitat. As the estuary transitions, turtles are expected to move to adjacent uplands. Turtles may be restricted in movement throughout the estuary in comparison to existing conditions, and will likely move to the periphery of the project area into upland areas. The FEIR noted that approximately 3,870 acres of suitable habitat is located adjacent to the project area in the Seashore.
- **Water-Willow Stem-Borer:** this nocturnal moth feeds almost exclusively on water-willow (*Decodon verticillatus*), a plant species with a low tolerance to frequent inundation by salt water. The FEIR assumed moth habitat was concomitant with observed water-willow stands and mapped wet shrubland and wet deciduous forest types. The Preferred Alternative will reduce water-willow habitat from an estimated 386 acres to approximately 131 acres. Approximately 265 acres of adjacent suitable habitat will remain unchanged. The project will affect the distribution of water-willow within the estuary's ecosystem, and may die off in certain sub-basins and increase in others. The project is not expected to have a negative impact on the regional population.

A more detailed plan and protocol to monitor potential impacts to rare species will be presented to NHESP in the draft Habitat Management and Monitoring Plan. It will be reviewed pursuant to MESA's habitat management exemption provisions (321 CMR 10.14(15)). NHESP comments indicate that it "appears that the proposed project will qualify for MESA Habitat Management Exemption...". Baseline data collection for listed species commenced in the spring of 2015 to inform the AMP.

### Historic and Archaeological Resources

Potential impacts to archaeological resources will be associated primarily with the footprints of construction activities, as well as any other ground-disturbing activities, including borrow or construction staging areas. Additional surveys and data collection may be required prior to flooding of archaeological sites or archaeologically sensitive areas.

The NPC and MHC have executed a PA to address Section 106 compliance and facilitate the long-term implementation of the project and AMP. Under the PA, and the appropriate MHC and NPS archaeology permits, Phase 1B intensive/locational investigations are underway for proposed work areas near the Chequessett Neck Road Dike, CCYC golf course, and Mill Creek. A Phase 1A Archaeological Sensitivity Assessment was previously conducted within the Area of Potential Effect (APE) in 2011. The APE is defined as areas in the estuary below the 10-foot contour elevation, and certain upland areas where project impacts may occur, such as areas around CYCC, the Chequessett Neck Road Dike, and several low-lying roads including High Toss, Bound Brook Island and Pole Dike Roads, and the former Cape Cod Railroad bed. The NPS, MHC and Tribal Historic Preservation Officer (THPO) continue to consult regarding the scope of additional archeological investigations and mitigation measures necessary to implement the project.

No structures located in the Herring River estuary are listed in the National Register of Historic Places. However, a former tidal gristmill once spanned an historic dike at Mill Creek. Additionally, the Atwood-Higgins House, listed on the National Register in 1976, and other buildings associated with the house lie within 100 meters of the APE in the area associated with the restoration project near the confluence of Bound Brook and the Herring River on the eastern tip of Bound Brook Island. Other historic structures may be identified and evaluated as the extent of the project impacts are finalized; steps necessary to identify and evaluate historic structures in the APE are defined in the PA.

### *Climate Change Adaptation and Greenhouse Gas Emissions*

The effects of predicted sea-level rise and climate change were considered throughout the preparation of the hydrodynamic modeling process that was used to inform the selection of the Preferred Alternative. The project is expected to function as a buffer to climate change, by improving the extent and health of wetlands to diffuse storm surges and stormwater runoff and act as a carbon sink.

The hydrodynamic model used for project planning, design and mitigation needs assessment evaluated a maximum impact scenario consisting of a coastal storm in Wellfleet Harbor of a similar magnitude to the “storm of record” lasting for three days forced through the rebuilt Chequessett Neck Road Dike with all tide gates completion open across the proposed 165-foot span. The Mill Creek Dike will be built to a crest elevation of at least 9.5 feet, two feet above the maximum storm-driven tide elevation in the Lower Herring River. Any constructed mitigation measure to prevent tidal flow impacts to low-lying roads or private properties will be designed based on the maximum storm-driven high tide elevation. According to the FEIR, the amount of freeboard provided for flood protection measures will vary and be determined based on site specific measures. To assess the potential impact of an extreme storm (and sea-level rise that may occur within the next 50 years), the hydrodynamic model was used to simulate the 1,500-year storm event. This 1,500-year storm event (less than 0.07 percent chance of occurring in any year) consisted of a storm event with tides peaking at 11.9 feet through three cycles with all tide gates open on the Chequessett Neck Road Dike. An 11.9-foot tide is the most severe storm that can occur prior to overtopping the Chequessett Neck Road Dike. Under this scenario, the maximum high tide in the Lower Herring River will be 8.8 feet, 0.7 feet below the crest of the Mill Creek Dike.

Furthermore, the Proponent evaluated the Preferred Alternative in light of various forecasted sea level rise scenarios in USACE guidance documents.<sup>6</sup> According to this analysis, the most extreme sea-level rise scenario will increase mean high water in the Lower Herring River from 4.3 to 4.6 feet by 2060 with the restoration project fully implemented. The analysis concluded that the amount of freeboard incorporated into the design of the project and its mitigation measures is sufficient to ensure continued protection against surface water impacts for at least the next 50 years. The FEIR acknowledged the challenges of predicting and analyzing the specific impacts of sea-level rise within the project area beyond 50 years. Within the 50-100 year timeframe sea-level rise impacts will become more severe – A CZM report estimates an

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<sup>6</sup> *Sea-Level Changes Considerations in Civil Works Programs*. USACE Engineer Circular 1165-2-212 (2011) and *Water Resource Policies and Authorities Incorporating Sea-Level Change Considerations in Civil Works Programs*. USACE Circular 1165-2-211.

increase by four to six feet by 2100 – and future managers and stakeholders of the Herring River will need to revisit the tide control infrastructure and mitigation measures currently proposed. The FEIR did consider the feasibility of increasing the height of the Mill Creek Dike as a climate adaptation measure when selecting the preferred design. I encourage the Proponent to continue to consider adaptability during the selection of mitigation measures for private property owners and the final design of tidal control structure at Upper Pole Dike Creek.

### Construction Period

The FEIR addressed construction-period impacts associated with the major project elements, including the Chequessett Neck Road Bridge, Mill Creek Dike and CYCC.

#### *Chequessett Neck Road Dike*

The FEIR presented a traffic management plan to be implemented during the construction of the Chequessett Neck Road Bridge in order to maintain traffic flow and avoid long detours. Estimated average daily traffic volume on the road is 811 vehicles, with a summertime increase to 1,067 vehicles. The project will include the construction of a temporary bypass route on the eastern side (upstream) of Chequessett Neck Road to allow for a one-lane signalized alternating two-way traffic setup. The bypass route will consist of a temporary prefabricated modular steel bridge that will span approximately 190 feet across the Herring River. A cantilevered walkway platform will be provided as a bypass route for pedestrians and dismounted cyclists. This design will allow for the bypass of surface water around respective active work areas and avoid and/or minimize impacts to wetland resource areas. Temporary sheeting will be installed to form the embankments that will serve as temporary bridge abutments, as well as northbound and southbound approaches from those portions of the existing roadway that will remain outside the construction area. An estimated 6,400 sf of salt marsh and LUO will be impacted by the placement of the sheeting and approximately 6,300 cy of fill material to construct the two roadway approaches. These wetland resource areas will be subject to tidal action in the post-construction state.<sup>7</sup>

The FEIR identified several potential areas suitable for construction staging, laydown, and storage. The sites are generally proximate to the construction site and include areas that were previously disturbed (6,000 sf), currently paved roads and parking areas (15,000 sf), and an undisturbed site immediately adjacent to the Griffin Island side of the construction area (3.25 acres). Use of the adjacent undisturbed area could likely avoid construction costs and limit trucking given its immediate proximity to the dike; however, it would require the clearing of approximately two acres of upland vegetation, grading and may impact rare species habitat (eastern box turtle) and/or areas of potential cultural or archaeological sensitivity. The other potential staging areas are smaller and up to 1.3 miles from the project site, rendering them less practical. The undisturbed site could be constructed to avoid Herring River floodplain and associated wetland resource areas. Studies for turtle use and cultural resources were conducted in spring 2015 and the Proponent will continue to work with NHESP, SHPO and THPO during permitting to minimize and mitigate unavoidable impacts. Other potential staging areas may be used for longer-term staging and materials storage and will only be used during the vacation off-

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<sup>7</sup> Email from Tim Smith, NPS, July 11, 2016.

season. These areas are already disturbed/paved; impacts to cultural or natural resources are not expected. Staging areas will be restored as closely as possible to the original vegetated condition upon project completion.

Construction of the bridge will result in temporary loss of wetland habitat and short-term increases in sedimentation. Mitigation will include erosion and sedimentation control BMPs and maintenance of freshwater flow throughout the construction period.

### *Mill Creek Dike*

Dewatering and other associated work associated with construction of the Mill Creek Dike will temporarily impact approximately 105,000 sf (2.4 acres) of vegetated wetlands. To mitigate these impacts the Proponent will implement erosion and sedimentation control BMPs and will maintain freshwater flow throughout the construction period. These altered areas will be subject to tidal flow upon project completion and are not expected to suffer long-term impacts.

The following access routes continue to be evaluated to access the Mill Creek Dike construction site.

- CCYC Golf Course Access – this route includes approximately 2,235 feet along dirt roads and carts paths within the CYCC golf course. Disturbance will be limited to active portions of the course, limiting impacts to natural and cultural resources. This option requires approval, coordination and an access easement from CYCC.
- Access from Old Chequessett Neck Road (a/k/a Snake Creek Lane) – this route will include a 650-foot long newly cleared access path from the end of Old Chequessett Neck Road. It will require approximately 3,600 sf of wetland fill. Most of the route is located on NPS property; however, access easements will be required from one or two private landowners.
- Access from Chequessett Neck Road – this route will traverse approximately 1,890 feet from Chequessett Neck Road to the south side of the Mill Creek Dike construction zone. It is located entirely within NPS land, but will require clearing of a 12-foot path along the entire route length through undisturbed upland and may require some grading and slope stabilization to keep the route entirely within NPS property.

Staging areas will be determined based upon selection of an access route. The Proponent will conduct additional field studies, including cultural resource investigations, engineering design, and consultations with landowners to identify the most suitable access route and staging location. Final estimates of potential land clearing and temporary or permanent wetland impacts should be provided in local and State wetland permitting applications along with confirmation of access rights and any specific construction-related restoration mitigation actions.

### *CYCC*

As noted previously, either option to mitigate potential tidal impacts to the CYCC will result in impacts to either undisturbed upland areas or wetland resource areas that are generally

maintained as part of the golf course. The FEIR did not address potential traffic-related impacts should an off-site borrow site be required to meet the fill volumes necessary to achieve Option 2 (fill of low-lying golf holes). The selection of a final mitigation alternative will be subject to approval by the Proponent and CYCC. This final agreement should include additional clarity on construction period coordination and sequencing to minimize both environmental impacts and limit the closure period of the golf course.

#### *Low-lying Properties*

Implementation of mitigation measures on low-lying properties will be subject to the agreed upon terms and conditions of individual landowner agreements. Some mitigation measures will impact regulated wetland resource areas and will be subject to review per the proposed regulatory strategy outlined previously. I anticipate that the design and construction of mitigation measures will be completed in a manner that avoids, minimizes and mitigates impacts to wetland, fisheries, cultural, and rare species resources. Construction BMPs should be used to reduce any potential erosion and sedimentation impacts.

#### *Low-lying Roadways and Culverts*

Temporary impacts to wetland resource areas are anticipated during the construction process to elevate low-lying roadways. These impacts are anticipated to occur within a 3-foot temporary work zone beyond the limits of grading. These areas will be restored to preconstruction conditions following the completion of work.

These roadways are too narrow to maintain even a single lane of traffic during construction; therefore, closures will likely be necessary during reconstruction of each roadway section. The FEIR described three potential detour loops that will be implemented in phases based upon the roadway segment under construction. In some instances, access may be limited to local traffic. The Proponent should work with affected property owners to ensure sufficient communication of construction phasing, detours, and assurances of property access at all times for both property owners and public safety personnel.

Construction of replacement culverts will require open cuts through existing roadways. Culvert replacement will likely require dewatering below the proposed bedding subgrade. It may be accomplished using either a well point system or a sheet pile cofferdam system and sumps. A temporary by-pass will be required at each stream crossing during culvert installation to maintain water flow. All roadway work should be completed consistent with a Stormwater Pollution Prevention Plan (SWPPP) to reduce potential erosion and sedimentation impacts.

#### *Secondary Restoration Actions*

Secondary restoration actions (i.e., vegetation management, sediment management, and channel improvements) are proposed to maximize the effects of tidal restoration. More specific information and guidelines governing these activities will be included in the AMP and developed through the ROG.



Vegetation management and marsh sediment supplementation activities will be prioritized for completion during the winter months when the ground is partially or completely frozen to limit soil erosion and potential sedimentation. Assisted redistribution of sediment trapped within the floodplain is proposed to occur before tidal flow is restored in each sub-basin. Sediment augmentation may require the import of materials from outside the floodplain. These sediments will be of suitable particle size and free of contaminants. The FEIR estimated that up to approximately 250 acres may require sediment augmentation which will be conducted on a sub-basin by sub-basin basis in coordination with incremental tidal restoration and the AMP. Additional BMPs will include completing as much work as possible by hand, using low ground pressure heavy equipment and marsh mats, siltation fencing, and haybales. Areas prone to erosion, such as streambanks adjacent to high velocity tidal flows, will be planted to stabilize exposed soils.

### *Fisheries and Shellfisheries Resources*

Construction of the new dike and other infrastructure improvements such as upstream culverts or road improvements will likely cause local, temporary adverse impacts to both fish and macroinvertebrate species. The project will implement BMPs to minimize siltation and impacts to water column turbidity near construction activities. The project includes adoption of Essential Fish Habitat (EFH) recommendations made by NOAA including: 1) use of cofferdams to isolate in-water work and use of sediment curtains or similar BMPs during their installation and removal, and 2) no in-water construction between March 1 and June 30, although once cofferdams are in place, work may occur behind them at any time of the year so long as adequate fish passage is provided. Additional TOY restrictions have been proposed by DMF for the Herring River. These include:

<b>Species</b>	<b>TOY Period</b>
Alewife	April 1 to June 15; September 1 to November 15
Blueback Herring	April 1 to June 15; September 1 to November 15
American Eel	March 15 to June 30; September 15 to October 31
White Perch	April 1 to June 15
Winter Flounder	February 1 to June 30
Shellfish	May 1 to November 15
Combined Resources	February 1 to November 15

As evident from the table, if all TOYs are followed strictly, the remaining work window of late November to early February will be inadequate for the scale of proposed work activities. DMF has indicated that, contingent upon the type, location, timing and duration of work, construction activities can occur within these TOY restrictions if certain mitigation measures are implemented (i.e., cofferdam, silt curtains, maintain a channel of free-flowing water at a sufficient width and depth for diadromous fish passage). The Proponent should continue to coordinate with DMF and NOAA on specific TOY restriction recommendations for individual construction activities. If work cannot be completed outside recommended TOY restriction periods, the Proponent should consult with DMF and NOAA to determine appropriate construction methodologies to avoid impacts to existing aquatic resources including diadromous fishes, winter flounder and shellfish.

### Mitigation and Section 61 Findings

The project consists of an ecological restoration project designed to restore native tidal wetland habitat to upwards of 950 acres of the Herring River floodplain by re-establishing tidal flow. It is expected to significantly improve water quality, rare species habitat, fisheries, and recreational opportunities throughout the Herring River floodplain while improving its resiliency and ability to adapt to the effects of climate change. Construction of project elements and restoration of tidal flow will result in direct and indirect alteration of wetlands, rare species habitat and other environmental resources. The FEIR has identified an organizational structure and regulatory framework that is intended to guide project implementation while avoiding, minimizing and mitigating environmental impacts and providing continued opportunities for consultation and input.

The FEIR included significant discussion of potential impacts and commitments to avoid, minimize and mitigate environmental impacts. Avoidance and mitigation is incorporated into the design of the project including: incremental increases in tidal flow guided by the AMP to balance ecological goals with flood control measures to allow the highest tide range practicable while protecting vulnerable properties, including roads and homes; monitoring; improvements to public access and recreation opportunities; vegetation management; restoration of tidal channel and marsh surface elevation; and, construction of tide control structures at Mill Creek and Upper Pole Dike Creek under certain Alternatives. Full restoration of the Mill Creek and Pole Dike Creek sub-basins will not occur unless and until provisions are in place to prevent structural impacts to private property. Site-specific mitigation measures will be employed for individual properties to prevent tidal flows from impacting structures. These mitigation measures will be constructed with the explicit consent and cooperation of landowners. Agreements with landowners will be executed to memorialize mutually-agreed upon design, implementation, and monitoring of mitigation measures on private property.

The FEIR also provided draft Section 61 Findings for use by State Agencies. These draft Section 61 Findings should be revised in response to this Certificate and provided to State Agencies to assist in the permitting process and issuance of final Section 61 Findings. General mitigation measures noted in the draft Section 61 Findings include:

- The restoration, for the most part, will occur on previously developed parcels and along existing roadways and infrastructure;
- Any new structures will have exterior facades which will compliment and be consistent with local aesthetics. Vegetative screens will be used if it is determined that they are necessary for aesthetic reasons;
- The Proponent will continue to consult with the ROG and expert agencies during the design and construction phases if a regulated resource may be affected;
- Contractors will be required to thoroughly clean-up sites before a contract is considered complete;
- Contractors will be required to properly handle and store possible contaminants and hazardous substances;
- Access roads will be dampened to minimize construction dust, as necessary;

- Debris will not be burned or buried on site as a means of disposal; and
- No construction work will normally be performed during evening, holiday, or weekend hours.

### Conclusion

Based on a review of the FEIR, comment letters and consultation with State Agencies, I find that the FEIR adequately and properly complies with MEPA and its implementing regulations. Outstanding issues will be addressed during State and local permitting, the proposed regulatory structure, and the AMP. The Proponent and State Agencies should forward copies of the final Section 61 Findings to the MEPA Office for publication in accordance with 301 CMR 11.12.



July 15, 2016

Date

Matthew A. Beaton

### Comments received:

Undated	Judith Stiles
6/29/2016	Heather L. Davis
6/29/2016	Jodi Birchall
6/30/2016	Nutter on behalf of Chequessett Yacht and Country Club
7/1/2016	Office of Coastal Zone Management
7/1/2016	Mass Audubon
7/2/2016	Laura Runkel
7/7/2016	Massachusetts Department of Environmental Protection – Southeast Regional Office (MassDEP-SERO)
7/7/2016	Association to Preserve Cape Cod
7/8/2016	Cape Cod Commission
7/8/2016	Division of Marine Fisheries
7/8/2016	Division of Fisheries and Wildlife – Natural Heritage and Endangered Species Program

MAB/HSJ/hsj



**David E. Pierce**  
*Director*

# *Commonwealth of Massachusetts*

## **Division of Marine Fisheries**

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*Lieutenant Governor*

**Matthew A. Beaton**  
*Secretary*

**George N. Peterson, Jr.**  
*Commissioner*

**Mary-Lee King**  
*Deputy Commissioner*

July 8, 2016

Secretary Matthew A. Beaton  
Executive Office of Energy and Environmental Affairs (EEA)  
Attn: MEPA Office  
Holly Johnson, EEA No. 14272  
100 Cambridge Street, Suite 900  
Boston, MA 02114

Dear Secretary Beaton:

The Division of Marine Fisheries (*Marine Fisheries*) has reviewed the Final Environmental Impact Statement/Environmental Impact Report (FEIS/EIR) by the Cape Cod National Seashore and the Herring River Restoration Committee (HRRC) for the Herring River Restoration Project in the Towns of Wellfleet and Truro. The preferred alternative (Alternative D) consists of the gradual opening of the existing tide gates at a rebuilt Chequessett Neck Road Dike and the installation of an adjustable, two-way tide gate at the mouth of Mill Creek. Existing marine fisheries resources and potential project impacts to these resources are outlined in the following paragraphs.

The Herring River/Wellfleet Harbor complex currently supports a variety of finfish and shellfish resources as well as associated habitat for these species. Diadromous fishes in the Herring River include alewife (*Alosa pseudoharengus*), blueback herring (*Alosa aestivalis*), white perch (*Morone americana*), and American eel (*Anguilla rostrata*) [1]. The Herring River/Wellfleet Harbor complex provides foraging and spawning habitat for winter flounder (*Pseudopleuronectes americanus*). Wellfleet Harbor also contains a variety of shellfish species, many of which support commercial and recreational fisheries. Wellfleet Harbor contains mapped shellfish habitat for American oyster (*Crassostrea virginica*), bay scallop (*Argopecten irradians*), quahog (*Mercenaria mercenaria*), razor clam (*Ensis directus*), and soft shell clam (*Mya arenaria*). Mapped shellfish habitat extends to the region downstream of the Chequessett Neck Road Dike for oysters and quahogs and upstream of the Dike for oysters. The Herring River also contains salt marsh (*Spartina* spp.) vegetation, which provides important habitat for a variety of finfish and invertebrate species [2,3,4].

The proposed tidal restoration should expand and improve habitat for all of the above listed species. The new control structure at Chequessett Neck should enhance diadromous fish passage. Increased salinity associated with increased tidal flow may also remove or reduce existing watercress, which would further promote fish passage. Expansion of estuarine habitat following tidal restoration should also result in additional foraging habitat for these species as well as a variety of estuarine fishes and invertebrates. Increased tidal exchange should also improve water quality, including increases in pH and dissolved oxygen. Increased salinity

should also expand shellfish habitat for several mapped species and, in conjunction with increased sediment supply, should allow for the expansion of salt marsh habitat.

*Marine Fisheries* offers the following comments for your consideration:

- The proposed restoration project should enhance habitat for a variety of marine fisheries resources. However, a variety of shellfish and finfish species currently exist within the Herring River/Wellfleet Harbor complex, and construction methods and timing should be designed to minimize impacts to these existing marine fisheries resources. Recommended time-of-year (TOY) restrictions outlined in a previous *Marine Fisheries* comment letter on the draft EIS/EIR for this project dated December 12, 2012 and summarized in the *Marine Fisheries* TOY technical report for the Herring River [1] represent the most conservative suite of TOY restrictions based on all existing marine resources. These TOY restrictions are designed to protect marine resources during vulnerable periods, but all construction activities will not necessarily pose threats during these periods. A full set of potential TOY restrictions is listed below (Table 1), but all TOYs will not likely be applicable to any single construction activity. In the FEIS/EIR, the HRRC references potential TOY restrictions (Tables 4-28) associated with existing diadromous fish species and notes that if all potential TOYs were applied, the remaining work window of late November to early February would be inadequate for proposed construction activities. Construction activities can occur within these TOY restriction periods as long as any silt producing activities are buffered from the main channels by cofferdams and silt curtains and a channel of free-flowing water is maintained with sufficient width and depth for diadromous fish passage. As indicated in the FEIS/EIR, the HRRC should coordinate with *Marine Fisheries* on specific TOY restriction recommendations for individual construction activities. For cases where work cannot be completed outside of recommended TOY restriction periods, the HRRC should coordinate with *Marine Fisheries* on appropriate construction methodologies for avoidance of impacts to existing marine resources including diadromous fishes, winter flounder, and shellfish. *Marine Fisheries* should also be consulted with to review final dike designs and associated operation and management plans with regards to diadromous fish passage.
- The FEIS/EIR includes potential actions to promote marsh accretion due to subsidence under the current tidal restrictions. *Marine Fisheries* supports an active approach to supplementing sediment accretion as part of the overall restoration effort, but these activities should also be performed in a manner that minimizes impacts to existing marine resources. Any sediment augmentation should be performed in a manner that avoids siltation of the bordering estuarine waters. Timing and methods should also be developed in coordination with *Marine Fisheries* to minimize impacts to bordering finfish and shellfish resources.

<b>Table 1. TOY Restrictions for the Herring River [1].</b>	
<b>Species</b>	<b>TOY Period</b>
Alewife	April 1 to June 15; Sept. 1 to Nov. 15
Blueback Herring	April 1 to June 30; Sept. 1 to Nov. 15
American eel	March 15 to June 30; Sept. 15 to Oct. 31
White perch	April 1 to June 15
Winter flounder	Feb. 1 to June 30
Shellfish	May 1 to Nov. 15
Combined Resources	Feb. 1 to Nov. 15

Questions regarding this review may be directed to John Logan in our New Bedford office at (508) 990-2860 ext. 141.

Sincerely,



David E. Pierce  
Director

cc: Wellfleet Conservation Commission  
Truro Conservation Commission  
Lou Chiarella & Alison Verkade, NMFS  
Robert Boeri, CZM  
Ed Reiner, EPA  
Ken Chin, DEP  
Richard Lehan, DFG  
Kathryn Ford, John Sheppard, Brad Chase, Tom Shields, Kelly Kleister, Christian Petitpas, DMF

### References

1. Evans NT, Ford KH, Chase BC, Sheppard J (2011) Recommended Time of Year Restrictions (TOYs) for Coastal Alteration Projects to Protect Marine Fisheries Resources in Massachusetts. Massachusetts Division of Marine Fisheries Technical Report, TR-47.
2. Boesch DF, Turner RE (1984) Dependence of fishery species on salt marshes: the role of food and refuge Estuaries 7: 460-468.
3. Deegan LA, Garritt RH (1997) Evidence for spatial variability in estuarine food webs. Marine Ecology Progress Series 147: 31-47.
4. Deegan LA, Hughes JE, Rountree RA (2000) Salt marsh ecosystem support of marine transient species. In: Weinstein MP, Kreeger DA, editors. Concepts and Controversies in Tidal Marsh Ecology: Kluwer Academic Publisher, The Netherlands. pp. 333-365.

DP/JL/sd



Commonwealth of Massachusetts  
Executive Office of Energy & Environmental Affairs

## Department of Environmental Protection

Southeast Regional Office • 20 Riverside Drive, Lakeville MA 02347 • 508-946-2700

Charles D. Baker  
Governor

Karyn E. Polito  
Lieutenant Governor

Matthew A. Beaton  
Secretary

Martin Suuberg  
Commissioner

July 7, 2016

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

RE: WELLFEET and TRURO – FEIR  
EOEEA # 14272  
Herring River Restoration Project

Dear Secretary Beaton,

The Massachusetts Department of Environmental Protection (MassDEP) has reviewed the Final Environmental Impact Report (FEIR) for the Herring River Restoration Project (EOEEA #14272) submitted by the Cape Cod National Seashore (CCNS) and the Herring River Restoration Committee (HRRC) located within the Towns of Wellfleet and Truro, Massachusetts, and offers the following comments.

### Wetlands and Waterways

The restoration of the Herring River estuary represents the largest single restoration project proposed in Massachusetts and is extremely complex. Many factors including salinity, water quality, sediment transport, soil chemistry, wetland habitat and vegetation, aquatic species, rare, threatened and endangered species, terrestrial wildlife, cultural resources, existing developed community and socioeconomics are under consideration, with analysis and mitigation options factored into achieving the restoration objectives while minimizing adverse impacts. The project requires permits under the Massachusetts Wetland Protection Act (WPA), Section 401 of the Clean Water Act and Chapter 91, the Public Waterfront Act.

New regulations, promulgated by MassDEP in October 2014, resulted in important changes to how the Herring River Restoration Project (HRRP) may be permitted, compared to information presented in the draft EIS/EIR. Most notable among these changes is the provision for Ecological Restoration Limited Projects, which would allow the HRRP to proceed without a variance to the WPA or S. 401 WQC regulations, as had been noted in the draft EIS/EIR.

310 CMR Sections 10.24(8) and 10.53(4) (coastal and inland, respectively) of the WPA allow approval of an Ecological Restoration Limited Project that “may result in the temporary or permanent loss of Resource Areas and/or the conversion of one Resource Area to another when such loss is necessary to the achievement of the project’s ecological restoration goals.” There are no thresholds for the amount of alteration/loss allowed if the issuing authority determines that the project complies with the other applicable Ecological Restoration Limited Project provisions. This regulatory change eliminates the need for a WPA variance to permit the project, provided that, among other things, “the project including any proposed flood mitigation measures will not significantly increase flooding or storm damage impacts to the built environment, including without limitation, buildings, wells septic systems, roads or other human-made structures or infrastructure (310 CMR 10.24(8)(e)1.”

The unique and complex nature of this project will require multiple permits and approvals from several federal, state, county and municipal regulatory agencies. These approvals need to encompass the project’s multi-year implementation period and allow flexibility to accommodate inherent uncertainties through adaptive management. The permitting approach is to submit one “umbrella” NOI that proposes implementation of all project elements; initial project elements (Class 1) in more detail, and other more uncertain project elements (Class2) in more broad terms, to be defined in more detail in permit amendments when they are proposed for implementation. Each permit amendment will be subject to the necessary review pursuant to the regulations. It is the proponents intent to meet the standards outlined in 10.24(8)(e)1 by implementing site-specific flood prevention measures in accordance with formal agreements with landowners. Details of flood impact mitigation measures and landowner agreements must be included in forthcoming permit applications to demonstrate that it will not “significantly increase flooding or storm damage to the built environment” per the regulation citation above. MassDEP is hopeful that the HRRC can develop a mitigation plan that complies with the requirements of the Ecological Restoration Limited Project so it does not significantly increase flooding or storm damage to the built environment while achieving significant environmental restoration.

The project lies within the Wellfleet Harbor Area of Critical Environmental Concern (ACEC). Another regulatory change made in 2014 establishes the ability for such Ecological Restoration Projects to go forward within an ACEC. This provision states, “When any portion of a designated Area of Critical Environmental Concern is determined by the Issuing Authority to be significant to any of the interests of M.G.L. c. 131, § 40, any proposed project in or impacting that portion of the Area of Critical Environmental Concern shall have no adverse effect upon those interests, except as provided under 10.24(8) and 10.53(4) for Ecological Restoration Projects.”

MassDEP believes that the CCNS and the HRRC has clearly and adequately identified in the FEIR the project alternatives that range from minimally meeting project objectives to the alternative that maximally meets project objectives given the aforementioned factors and limitations. All alternatives have clearly identified benefits (except the no action alternative) as well as detriments.



As requested in the DEIR, the FEIR provides further clarification and additional information on what “management actions” the project proponent would undertake should the monitoring show impacts to downstream shellfish areas.

Under all action alternatives, sedimentation and erosion downstream of the dike in Herring River and Wellfleet Harbor could pose some adverse impacts to shellfish. Monitoring for potential sediment transport and deposition downstream of the dike, including within the aquaculture areas, will be a component of the project’s long-term adaptive management and monitoring program. Monitoring will be designed to detect changes in volume of suspended particles, particle size, and rate of deposition at key areas. As part of the adaptive approach to restoring tide range, alternate management actions will be considered in response to detections of change beyond pre-established threshold values. In addition, if the dike is opened slowly so that none of the sediment is mobilized at once or over a short period, adverse impacts would be avoided or minimized.

As requested in the DEIR, the FEIR further clarifies how and if landowner permission will be obtained for mitigation to properties impacted by flooding.

Approximately 390 non-federally owned properties lie partially or fully within the Herring River flood plain, as it existed prior to construction of the Chequessett Neck Road Dike. In total, these parcels cover approximately 354 acres of land within the Herring River flood plain. In addition to the physical changes caused by increased tidal influence, restoration of tidal exchange throughout the Herring River flood plain will also result in changes to the jurisdictional limits of several state statutes and local bylaws that regulate activity in wetlands, flood plains, and associated buffer zones. Depending on the alternative, up to 190 properties may be physically impacted by water and approximately 150 properties would be affected to varying extents by changes to the boundary of the Riverfront Area.

Since the draft EIS/EIR, the HRRC has been working with potentially affected landowners about how the project affects their property. The purpose of the meetings is to develop effective and practical mitigation plans. The HRRC has outlined 4 levels of protection from the impacts of restored tidal flow:

First, slow controlled openings of the new tide control structure at Chequessett Neck Road Dike. Second, additional tide control structures where necessary, such as Mill Creek and Upper Pole Dike Creek. Third, construction of berms, elevation of land or structures, or relocation of structures, conducted in accordance with consent and cooperation of landowners. Fourth, specific monitoring of all individual mitigation practices.

The analysis presented in the final EIS/EIR represents an on-going process to identify potentially affected properties, assess impacts, and work with substantially affected landowners on mutually acceptable solutions to mitigate impacts. Properties with estimated structural impacts will require additional site-specific analysis to confirm and refine those impacts and to develop cost-effective flood mitigation measures. Generally, these measures could include elevating or relocating roads, driveways, wells and other structures building small berms or flood walls, , and compensation for lost value or voluntary sale of easements or other interests in land.

Any flood prevention or other physical work activities, such as vegetation management, proposed on private property as part of the initial phase Class 1 elements would require the signature(s) of respective landowners on the NOIs. To ensure that approved Class 1 elements do not cause flooding or storm damage impacts to the built environment, proponents anticipate that the orders of conditions would include a requirement that tide gates and water levels be managed to prevent adverse impacts to the built environment. These conditions would remain in effect until additional Class 2 flood prevention and other project elements are fully designed, permitted, and implemented. All structures and fill associated with the project and the proposed mitigation below the historic mean high water level will require licensing under M.G.L. Ch 91.

As requested in the DEIR, the FEIR has clarified MNHESP's requirements and the effect they may have on the project design.

Additional information was provided in the FEIR regarding impacts to rare and endangered species. The restoration of the Herring River estuary under any of the action alternatives will likely affect state listed species and their habitats, although not all impacts would be adverse. Proposed measures to monitor impacts to listed-species are also generally discussed and will be presented in greater detail in a draft Habitat Management and Monitoring Plan to be submitted to NHESP as part of habitat management plan for review and approval under MESAs habitat management exemption provisions (321 CMR 10.14(15)).

As requested in the DEIR, the FEIR has further clarified the amount of salt marsh expected to expand and how much of the area of *Phragmites* will be converted/lost to this expansion. Some loss of wetland is deemed acceptable for restoration projects that show an overall improvement to the areas ability to protect the interest of the Act, however it will be necessary to quantify the predicted increase in wetlands expansion to offset wetland losses, or a significant improvement in wetland habitat by expansion of wetland, particularly salt marsh, through control of invasive species in order to obtain the necessary permits.

Modeling indicates that mid-range salinity levels of approximately 5 to 18 ppt may persist in some upper reaches of the estuary, especially in the Bound Brook and the Upper Herring River sub-basins. Salinities within this range may not be high enough to allow native salt marsh plants to outcompete *Phragmites* without active management, and could lead to expansion of *Phragmites* into areas where it currently does not occur. It is possible that without active management, that common reed could colonize and increase in coverage in upstream areas. Overall, there could be 150-250 acres of brackish habitat that may be susceptible to invasion by common reed. To manage this, herbicide likely would have to be used to greatly reduce coverage of *Phragmites* from the system prior to tidal restoration and subsequently in a targeted fashion if new stands of *Phragmites* colonize elsewhere in the estuary. As tidal exchange is incrementally restored, monitoring will be conducted to track vegetation change and salinities throughout the system. If *Phragmites* is observed to be significantly expanding its range or colonizing new areas, supplemental management actions in addition to herbicide application, including mechanical control or hydrological (increased inundation and salinity) alterations could be implemented to limit or control its spread. Any herbicide application would be planned and implemented carefully as a component of the adaptive management plan. During restoration,

vulnerable areas will be monitored for *Phragmites* occurrence and measures implemented to control its spread in accordance with guidelines laid out in the adaptive management plan.

Over the long term, all action alternatives are expected to result in extensive restoration of salt marsh, however, treatment of *Phragmites* may require constant and continuous monitoring and treatment. Active management of vegetation within the Herring River flood plain is considered necessary in order to maximize and hasten the benefits of tidal restoration

As requested in the DEIR, the FEIR has clarified alternatives to acquiring sediments for marsh accretion.

Approximately 250 acres of the Herring River floodplain have subsided to elevations below the projected mean low water line when the Chequessett Neck dike is removed. This means that without accretion of the marsh surface, these areas would hold water at low tide and remain inundated. Poor drainage and near-permanent inundation of the marsh surface could also cause adverse effects, such as increasing mosquito breeding habitat that could be worse than existing conditions. Thus, it will be necessary to take certain secondary actions in order to ensure maximum restoration of ecological functions and project benefits

In coordination with incremental restoration of tide range and salinity, several methods will be considered to increase the rate and extent of marsh accretion. The decision-making process for implementation, monitoring, and oversight of these activities will be guided by the project's adaptive management plan, including the redistribution of sediment trapped within the floodplain and the augmentation of sediment supply.

The DEIR states that many actions such as dike construction, road relocation/elevation, culvert replacement/removal, golf course relocation and elevation, tree and brush removal, sediment introduction, structure relocation, berm construction, side cast removal, etc, will occur over many years as the tide régime is slowly reintroduced. As requested in the DEIR, the FEIR adequately addresses how they propose to proceed with permitting those actions.

Section 5.3.5 of the FEIR provides an overview of how the HRRC envisions permitting could occur under the Massachusetts Wetlands Protection Act (WPA). This is intended to serve as an example for regulatory review and approval under other jurisdictions, such as Ch. 91, S. 401, and S. 404, which would be approached in a similar fashion as the WPA process. To the extent that these regulations apply to specific activities, original permits/approvals would be sought for project elements as they are proposed for implementation. It is recommended that a regulatory oversight group be assigned to be regularly briefed on adaptive management and monitoring progress, and to advise the project proponents on regulatory review requirements as additional project elements are proposed for implementation.

The permitting approach is to submit one "umbrella" NOI that proposes implementation of the Class 1 project elements that will be required to implement the initial phase of the project. Other project elements that fall into Class 2 would be covered more broadly with lesser detail in the initial NOI, but would be further refined in detailed applications for permit amendments when they are proposed for implementation based on adaptive management analysis as tidal restoration

progresses over time. Class 2 elements proposed for implementation based on analysis of monitoring data and other factors would be generally described in the NOIs and cited as “potential work” in the orders of conditions. These elements include activities such as additional vegetation management, sediment management, channel dredging, and other flood impact mitigation actions. When any of these elements are subsequently proposed for definitive implementation, they will be submitted to the conservation commissions under requests to amend the Orders of Conditions, and would be accompanied by detailed plans, narratives, and other information as necessary to demonstrate compliance with the WPA. Class 2 elements have varying degrees of uncertainty about whether, where, when, and/or how they would be implemented.

Portions of the Herring River estuary are under a Coastal Restriction Order pursuant to MGL Chapter 130, section 105. As requested in the DEIR, the FEIR adequately identifies those areas subject to the restriction order and how the project complies with the requirement of said order. The regulations at 310 CMR 10.24(4)(b) state “When the site of a proposed project is subject to a Restriction Order which has been duly recorded under the provisions of M.G.L. c. 130, § 105, such a project shall conform to 310 CMR 10.21 through 10.37.” In addition, projects are bound by the Restriction Order. Further elaboration is required that discusses how the project will comply with the applicable Coastal Restriction Order, or whether an amendment to said Order will be necessary.

The Coastal Restriction Order regulations at 310 CMR 12.11 require public notice and public hearing pursuant to 310 CMR 12.03 and 12.05 prior to adopting any Amendment or Modification Order. In addition, “Any Amending or Modifying Order shall be adopted and recorded in the manner required by 310 CMR 12.07 and 12.08 and a copy of the Amending or Modifying Order and plan shall be sent by certified mail to those assessed owners affected by the Amending or Modifying Order”.

#### Solid Waste Management Comments

- **Demolition and Asbestos Containing Waste Material:** The proposed project includes the removal of the existing culvert and associated headwalls which may contain asbestos. The project proponent is advised that demolition activity must comply with both Solid Waste and Air Quality Control regulations. Please note that MassDEP promulgated revised Asbestos Regulations (310 CMR 7.15) that became effective on June 20, 2014. The new regulations contain requirements to conduct a pre-demolition/renovation asbestos survey by a licensed asbestos inspector and post abatement visual inspections by a licensed asbestos project monitor. The Massachusetts Department of Labor and Work Force Development, Division of Labor Standards (DLS) is the agency responsible for licensing and regulating all asbestos abatement contractors, designers, project monitors, inspectors and analytical laboratories in the state of Massachusetts.
- In accordance with the Air Quality Regulations at **310 CMR 7.09(2)**, the proponent must submit a **BWP AQ 06 Notification Prior to Construction or Demolition** form to MassDEP for all construction or demolition projects. The proponent should propose measures to prevent or alleviate dust, noise, and odor nuisance conditions, which may occur during the demolition.

- In accordance with the revised Asbestos Regulations at **310 CMR 7.15(4)**, any owner or operator of a facility or facility component that contains suspect asbestos containing material (ACM) shall, prior to conducting any demolition or renovation, employ a DLS licensed asbestos inspector to thoroughly inspect the facility or facility component, to identify the presence, location and quantity of any ACM or suspect ACM and to prepare a written asbestos survey report. As part of the asbestos survey, samples must be taken of all suspect asbestos containing building materials and sent to a DLS certified laboratory for analysis, using USEPA approved analytical methods.
- If ACM is identified in the asbestos survey, the proponent must hire a DLS licensed asbestos abatement contractor to remove and dispose of any asbestos containing material(s) from the facility or facility component in accordance with **310 CMR 7.15**, prior to conducting any demolition or renovation activities. The removal and handling of asbestos from the facility or facility components must adhere to the Specific Asbestos Abatement Work Practice Standards required at **310 CMR 7.15(7)**. The proponent and asbestos contractor will be responsible for submitting an **Asbestos Notification Form ANF-001** to MassDEP at least ten (10) working days prior to beginning any removal of the asbestos containing materials as specified at **310 CMR 7.15(6)**.
- The proponent shall ensure that all asbestos containing waste material from any asbestos abatement activity is properly stored and disposed of at a landfill approved to accept such material in accordance with **310 CMR 7.15 (17)**. The Solid Waste Regulations at **310 CMR 19.061(3)** list the requirements for any solid waste facility handling or disposing of asbestos waste. Pursuant to **310 CMR 19.061(3) (b)1.**, no asbestos containing material; including VAT, asphaltic-asbestos felts or shingles; may be disposed at a solid waste combustion facility.
- Asphalt, brick and concrete (ABC) rubble, such as the rubble generated by the demolition of structures must be handled in accordance with Massachusetts solid waste regulations. These regulations allow, and MassDEP encourages, the recycling/reuse of ABC rubble. The proponent should refer to MassDEP's Information Sheet, entitled "[Guide to Regulations for Using or Processing Asphalt, Brick and Concrete Rubble, revised February 2000](#)", that answers commonly asked questions about ABC rubble and identifies the provisions of the solid waste regulations that pertain to recycling/reusing ABC rubble. This policy can be found on-line at the MassDEP website: [www.mass.gov/dep](http://www.mass.gov/dep).

If you have any questions regarding the Solid Waste Management Program comments above, please contact Mark Dakers at (508) 946-2847 or Cynthia Baran at (508) 946-2887.

#### Solid Waste Dredging.

If any solid waste is found in the dredged material, it must be disposed of at an appropriate facility.

#### Air Quality Comments

Construction and operation activities shall not cause or contribute to a condition of air pollution due to dust, odor or noise. To determine the appropriate requirements please refer to:

- 310 CMR 7.09 Dust, Odor, Construction, and Demolition
- 310 CMR 7.10 Noise

Construction-Related Measures. MassDEP requests that the proponent use construction equipment with engines manufactured to Tier 4 federal emission standards, which are the most stringent emission standards currently available for off-road engines. If a piece of equipment is not available in the Tier 4 configuration, then the proponent should use construction equipment that has been retrofitted with the best available after-engine emission control technology, such as oxidation catalysts or diesel particulate filters, to reduce exhaust emissions. The proponent should provide a list of the engines, their emission tiers, and, if applicable, the best available control technology installed on each piece in the subsequent environmental filing.

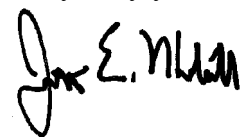
Massachusetts Idling Regulation. MassDEP requests that the proponent state specifically in the subsequent environmental filing how it plans to prohibit the excessive idling during the construction period. Typical methods of reducing idling include driver training, periodic inspections by site supervisors, and posting signage. In addition, to ensure compliance with this regulation once the project is occupied, MassDEP requests that the proponent establish permanent signs limiting idling to five minutes or less at the completed project.

#### Proposed s.61 Findings

The “Certificate of the Secretary of Energy and Environmental Affairs on the Environmental Notification Form” may indicate that this project requires further MEPA review and the preparation of an Environmental Impact Report. Pursuant to MEPA Regulations 301 CMR 11.12(5)(d), the Proponent will prepare Proposed Section 61 Findings to be included in the EIR in a separate chapter updating and summarizing proposed mitigation measures. In accordance with 301 CMR 11.07(6)(k), this chapter should also include separate updated draft Section 61 Findings for each State agency that will issue permits for the project. The draft Section 61 Findings should contain clear commitments to implement mitigation measures, estimate the individual costs of each proposed measure, identify the parties responsible for implementation, and contain a schedule for implementation.

MassDEP finds that the Final Environmental Impact Report prepared by the CCNS and the HRRC clearly and adequately identifies the project alternatives that range from minimally meeting project objectives to the alternative that maximally meets project objectives given the complex matrix of environmental and socioeconomic factors and limitations. All alternatives have clearly identified benefits (except the no action alternative) as well as detriments. MassDEP will continue to work with the CCNS and the HRRC to assist in reaching those goals and benefits.

Very truly yours,



Jonathan E. Hobill,  
Regional Engineer,  
Bureau of Water Resources

JH/GZ

Cc: DEP/SERO

ATTN: Millie Garcia-Serrano, Regional Director  
David Johnston, Deputy Regional Director, BWR  
Maria Pinaud, Deputy Regional Director, BAW  
Gerard Martin, Acting Deputy Regional Director, BWSC  
Jennifer Viveiros, Deputy Regional Director, ADMIN  
Lealdon Langley, Director, Wetlands and Waterways Program  
Jim Mahala, Chief, Wetlands and Waterways  
David Hill, Wetlands and Waterways  
Dahlia Medeiros, Wetlands and Waterways  
Patty Kellogg, Compliance and Enforcement  
Allen Hemberger, Site Management  
Mark Dakers, Chief, Solid Waste



Commonwealth of Massachusetts

# Division of Fisheries & Wildlife

Jack Buckley, *Director*

July 8, 2016

Secretary Matthew A. Beaton  
Executive Office of Environmental Affairs  
Attention: MEPA Office  
Holly Johnson, EOEPA No. 14272  
100 Cambridge St, Suite 900  
Boston, MA 02114

<i>Project Name:</i>	<i>Herring River Restoration Project</i>
<i>Proponent:</i>	<i>Cape Cod National Seashore and the Herring River Restoration Committee</i>
<i>Project Location:</i>	<i>Truro &amp; Wellfleet</i>
<i>Project Description:</i>	<i>Tidal restoration of large portions of the Herring River flood plain</i>
<i>Document Reviewed:</i>	<i>Final Environmental Impact Report/ Final Environmental Impact Statement</i>
<i>EEA File Number:</i>	<i>14272</i>
<i>NHESP Tracking No:</i>	<i>04-15126</i>

Dear Secretary Beaton:

The Natural Heritage & Endangered Species Program (NHESP) of the Massachusetts Division of Fisheries & Wildlife has reviewed the Final Environmental Impact Report (FEIR) / Final Environmental Impact Statement (FEIS) for the *Herring River Restoration Project*. At this time, the NHESP would like to offer the following comments regarding state-listed species and their habitats.

The project site is located within *Priority* and *Estimated Habitat* as indicated in the 13<sup>th</sup> Edition of the MA Natural Heritage Atlas and therefore requires review by the NHESP for compliance with the Massachusetts Endangered Species Act (MESA 321 CMR 10.00).

The NHESP has been actively involved in the review of the proposed restoration plan through on-going participation in the Herring River Restoration Technical Working Group. While the NHESP strongly supports habitat restoration, care must be taken to reduce impacts to state-listed species and their habitats. It appears that the proposed project will qualify for a MESA Habitat Management Exemption (321 CMR 10.14 (15)), however, the proposed Habitat Management and Monitoring Plan must be submitted to the NHESP for final review and approval. As stated in Chapter 5, the NHESP is continuing to work closely with the proponent to establish appropriate monitoring and survey activities, as well as design specific sampling protocols. Preliminary data collected to date and over the course of the project implementation will assist in identifying opportunities for avoiding, minimizing, and mitigating impacts to state-listed species.

The NHESP looks forward to continued careful coordination with the proponent on the proposed project. We appreciate the opportunity to comment on this project. Please contact Eve Schlüter, Ph.D., Chief of

[www.mass.gov/nhesp](http://www.mass.gov/nhesp)

Division of Fisheries and Wildlife

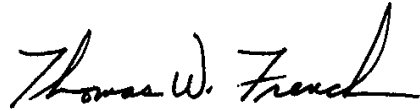
Field Headquarters, 1 Rabbit Hill Road, Westborough, MA 01581 (508) 389-6300 Fax (508) 389-7890

*An Agency of the Department of Fish and Game*



Regulatory Review, of our office with any questions about this letter at (508) 389-6346 or eve.schluter@state.ma.us

Sincerely,

A handwritten signature in black ink that reads "Thomas W. French". The signature is written in a cursive style with a large, sweeping flourish at the end of the name.

Thomas W. French, Ph.D.  
Assistant Director

cc: Margo Fenn, Herring River Restoration Committee  
George Price, Cape Cod National Seashore  
Truro Board of Selectmen  
Truro Conservation Commission  
Truro Planning Board  
Wellfleet Board of Selectmen  
Wellfleet Conservation Commission  
Wellfleet Planning Board  
Heather McElroy, Cape Cod Commission  
DEP Southeastern Regional Office, MEPA Coordinator



## Advocacy Department

208 South Great Road • Lincoln, Massachusetts 01773  
tel 781-259-2172 • email [hricci@massaudubon.org](mailto:hricci@massaudubon.org)

July 1, 2016

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

Via Email: [Holly.S.Johnson@state.ma.us](mailto:Holly.S.Johnson@state.ma.us)

Re: **EOEEA# 14272, Herring River Restoration Project, Wellfleet and Truro**

Dear Secretary Beaton:

On behalf of Mass Audubon, I submit the following comments on the Final Environmental Impact Report/Statement (FEIR/S) for the Herring River Restoration Project. Mass Audubon has a long-held interest in the Herring River restoration and has commented numerous times. We continue to be strongly supportive of this largest salt marsh restoration project in Massachusetts.

Mass Audubon supports the preferred Alternative D, with Mill Creek Option 2. This would include fully opening the Herring River Dike (incrementally), installation of a dike at Mill Creek, and raising some of the holes at the Chequessett Yacht and Country Club. These actions will maximize the tidal flow in the Herring River basin while providing protection for development historically located in former salt marsh and other low-lying areas.

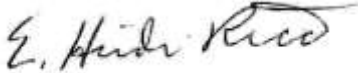
Monitoring and the adaptive management plan and oversight will be implemented to address any issues that arise as water flow is restored to the maximum amount feasible.

Benefits include:

- Restoring salt marsh and estuary habitat
- Improved water quality
- Restoring natural sedimentation and improving carbon sequestration
- Restoring free passage for blue back herring, alewives, eels and other fish species
- Reduction in nuisance mosquitoes
- Improved recreational opportunities, namely kayaking, on the Herring River
- Improved habitat for a number of state-listed species, including the diamondback terrapin, and the American and least bittern

Thank you for considering these comments.

Sincerely,



E. Heidi Ricci  
Senior Policy Analyst

cc: George Price, Superintendent, Cape Cod National Seashore  
Tim Smith, Herring River Restoration Committee  
Don Palladino, President, Friends of the Herring River  
Tim Purinton, Director, Massachusetts Division of Ecological Restoration

*Mass Audubon works to protect the nature of Massachusetts for people and wildlife. Together with more than 100,000 members, we care for 35,000 acres of conservation land, provide school, camp, and other educational programs for 225,000 children and adults annually, and advocate for sound environmental policies at local, state, and federal levels. Founded in 1896 by two inspirational women who were committed to the protection of birds, Mass Audubon is now one of the largest and most prominent conservation organizations in New England. Today we are respected for our sound science, successful advocacy, and innovative approaches to connecting people and nature. Each year, our statewide network of wildlife sanctuaries welcomes nearly half a million visitors of all ages, abilities, and backgrounds and serves as the base for our work. To support these important efforts, call 800-AUDUBON (800-283-8266) or visit [www.massaudubon.org](http://www.massaudubon.org).*

*Protecting the Nature of Massachusetts*

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BARNSTABLE, MASSACHUSETTS 02630



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**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)

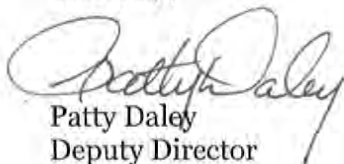
Dear Secretary Beaton:

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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## STAFF REPORT

**JOINT REVIEW  
HERRING RIVER RESTORATION IN WELFLEET AND TRURO  
FINAL ENVIRONMENTAL IMPACT REPORT  
(CCC #08009/ EOE A # 14272)**

### COMMISSION SUBCOMMITTEE

Kevin Grunwald (Truro)  
John Krajovic (Provincetown)  
Roger Putnam (Wellfleet) (Chair)  
Leonard Short (Orleans)  
Elizabeth Taylor (Brewster)

### COMMISSION STAFF

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

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## INTRODUCTION

The Cape Cod Commission (Commission) has received a copy of the Final Environmental Impact Report (FEIR)<sup>1</sup> 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.

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<sup>1</sup> 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 permissible 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 WELFLEET, 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  
Commission;

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 they 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.

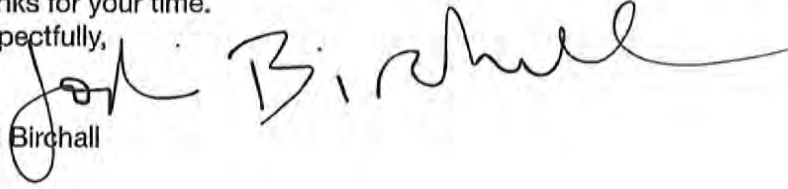
I say, have them go back to the drawing board and come up with a viable plan that they CAN offer insurance and guarantees to the towns folk about town and private property at

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

A handwritten signature in black ink, appearing to read "Jodi Birchall". The signature is written in a cursive style with a large, looping initial "J" and a long, sweeping underline.

Judith Newcomb Stiles

79 Briar Lane

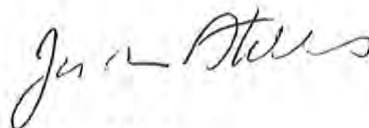
Wellfleet, MA 02667

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 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,

A handwritten signature in cursive script that reads "Judith Stiles".

Judith Stiles



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

**Ed DeWitt**  
*Executive Director*

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**Daniel Webb**

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,

A handwritten signature in blue ink, appearing to read "Ed DeWitt", is written over a light blue horizontal line.

Ed DeWitt  
Executive Director

cc: Cape Cod Commission

482 Main Street | Dennis, MA 02638

Tel: 508-619-3185 | info@apcc.org | www.apcc.org

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**Eliza Z. Cox**  
Direct Line: (508) 790-5431  
E-mail: [ecox@nutter.com](mailto:ecox@nutter.com)

**Sarah A. Turano-Flores**  
Direct Line: (508) 790-5477  
E-mail: [sturano-flores@nutter.com](mailto: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

Secretary Beaton and Attorney Idman

June 30, 2016

Page 2

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

Secretary Beaton and Attorney Idman  
June 30, 2016  
Page 3

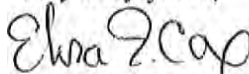
suggested, no parameters are provided to establish quantitative and objective criteria for when and what mitigation will be triggered.

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.

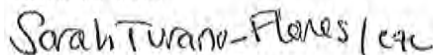
This concludes our general written comments submitted on behalf of the CYCC. Please also refer to the technical comments prepared by Dr. Jacobs on behalf of CYCC, enclosed herewith as Exhibit A.

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

Very truly yours,



Eliza Z. Cox



Sarah A. Turano-Flores

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

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

Ms. Sarah A. Turano-Flores

June 30, 2016

Page 3

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,

A handwritten signature in cursive script that reads "Bruce Jacobs".

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

# BRUCE L. JACOBS

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## 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, Envirolnsite, 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).

## PUBLICATIONS

Rodriguez-Iturbe, I., Q. Wang, B.L. Jacobs, and P.S. Eagleson, "Spatial Poisson Models of Stationary Rainfall: Theoretical Development," *Ralph M. Parsons Laboratory Technical Report No. 307*, 1987.

Jacobs, B.L., I. Rodriguez-Iturbe, and P. S. Eagleson. "Stochastic Modelling of Precipitation Events in Space and Time: Parameter Estimation and Scales of Fluctuation", *Ralph M. Parsons Laboratory Technical Report No. 314*, 1987.

Jacobs, B.L., I. Rodriguez-Iturbe, and P.S. Eagleson. "Evaluation of a Homogeneous Point Process Description of Arizona Thunderstorm Rainfall," *Water Resources Research*, 24 (7), 1174-1186, 1988.



- Jacobs, B.L., D. Agostini, and L. Olivera. "Development of an Integrated Decision Support System for the Guarapiranga Reservoir," presented at ASCE Water Resources Planning Conference, Cambridge, Massachusetts, 1995.
- Zhou, Q., L.W. Gelhar and B.L. Jacobs, "Comparison of Field-scale Effective Properties of Two-phase Flow in Heterogeneous Porous Media Obtained by Stochastic Analysis and Numerical Experiments," presented at Bridging the Gap between Measurement and Modeling in Heterogeneous Media, Berkeley, California, March 25-28, 2002.
- 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)  
Chapter 3.4, "Modeling of Natural Attenuation" by B. Jacobs, R. Fitzgerald and F. Wilhelm-Miralles.
- Jacobs, B.L. and L.W. Gelhar. "Effective Properties of Two-phase Flow in Heterogeneous Aquifers", *Water Resources Research*, 41 (1), 2005.
- Novotny, Vladimir and Paul Brown, editors. *Cities of the Future: Towards integrated sustainable water and landscape management*. ISBN 1843391368. IWA Publishing, London, England. September 2007.  
"Ground Water and Cities" by Peter Shanahan and Bruce L. Jacobs.
- 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)
- Jacobs, B. "Chapter 1: Introduction" in *International Manual on the Hydraulics of Wells*, edited by Ahmed, N., American Society of Civil Engineers, 2014.



June 28, 2016

Dear Secretary Matthew Beaton,

As a homeowner in an eight unit condominium building located at 34 Eric's Way, Wellfleet, MA I write with concerns over the Herring River Restoration project.

In 2014 our association had a title V septic upgrade as well as a new water well installation financed through Barnstable County.

Given how the building is sited, and how it abuts wetlands our choices for septic and well placement are limited to begin with. If due to the project, the Herring River encroaches and affects our water quality, who will pay for a new well? What if a new water source with acceptable quality cannot be found on the property? If the wetlands in front of our building flood due to the project and erode the present embankment, destroying the roots of the tall strand of trees, who will pay for their removal before they possibly fall over and damage our building?

The Town of Wellfleet voters decided the Town will not be responsible for financial hardships or displacement of homeowners due to the Herring River Restoration project.

My heartfelt question is simply: Who will be responsible?

Sincerely,



Heather L. Davis  
34 Eric's Way, Unit #5  
Wellfleet, MA 02667

Secretary Matthew A. Beaton

July 2, 2016

MEPA Office, 100 Cambridge Street, Suite 900.

Boston, MA 02114

**RE: Herring River Restoration Project FEIR/EIS comments**

Dear Sir or Madam,

The HRR project aims to restore tidal flow to the largest possible areain Wellfleet and Truro by recommending Alternative D in the FEIR/EIS. While the report acknowledges the diversity that exists across the multiple sub-basins, in terms of socioeconomic impacts and habitats, it does not evaluate the *benefit/risk factor for each sub-basin separately*. I don't believe that there is **sufficient justification to include a sub-basin when risks outweigh the benefits**. This is particularly true for the Upper Pole Dike Creek sub-basin (but also applies to the Mill Creek area). Please see examples below of adverse impacts versus stated benefits for UPDC in the FEIR/EIS.

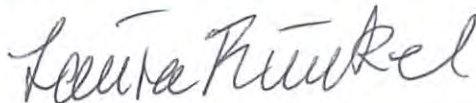
An additional related concern is the **lack of a mitigation fund** for unintended consequences of the restoration. Currently, only 'up front' mitigation measures for a few properties will be financed by the HRRP, but liability for non-structural, and later, unintended damage is not covered by the project. Recent discussions about the liability issue have pointed to the Towns to take responsibility for these costs. Such an approach would require the taxpayers to assume these high costs, or to leave it to the damaged property owner to sort out. These solutions are unlikely to be viable. Hence, limiting the scope of the project in order to limit detrimental impacts is advisable.

Finally, I take issue with the one-sided argument for the restoration that is made throughout the FEIR/EIS. Parts of the historic estuary have intrinsic ecological value and are more than simply a degraded salt marsh. In fact, many areas have converted to other types of healthy ecosystems that *have been protected in their own right as wetlands for years, and serve a valuable function in the ever changing habitats on earth*. While I understand the reason proponents take this approach to justify the project, it does not ring true and is misleading to a casual reader.

I believe that the main objectives of the project, to improve the river's overall health, would be served by a *limited scope to restoration to the main Herring River basin*. A limited 1restoration scope would be both more manageable and immensely reduce the risks and liabilities of the project.

Thank you for taking these concerns into consideration.

Sincerely yours,



Laura Runkel, PhD.

3175 State Highway, Rt. 6

Wellfleet, MA 02667

Telephone: (617)864-8052

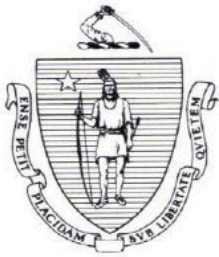
Restoring tidal flow to the UPDC area would **high risk of adverse effects**, including:

- Insufficient tidal flow to realize substantial habitat benefits (see below);
- “The Upper Pole Dike Creek sub-basin also contains areas of significant subsidence of the former salt marsh. The lowest of these areas (16 acres under alternative B and 42 acres under alternatives C or D) would lie below mean low water if the current topography remains unchanged.” (page 231). Drainage issues would ensue and lead to stagnant water pooling.
- Heightened risks of damage to structural elements of homes, septic and water supplies;
- Undue impact on property owners financially (threat of flooding, loss of jurisdiction, additional costs associated with insurance, diminished property values/salability as the threat of flooding exists, costs for legal assistance).
- Damage to existing vegetation in an inaccessible area not likely to be cleared as described in EIR, would lead to lingering dead vegetation;
- Loss of a 274 acre fresh water marsh, which has an intrinsic beauty and ecological value.
- 

There is **little tangible benefit** defined to the UPDC sub-basin., including:

- Per FEIR: “substantial vegetation change would not be expected” (alternative B) and “extensive vegetation change would not be expected (alternatives C and D)”;
- “Uncertainty about salinity modeling in the upper sub-basins ... make specific projections about vegetation change difficult...” (page 231).

Laura Runkel, PhD.  
3175 State Highway, Rt. 6  
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Telephone: (617)864-8052



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**CHARLES D. BAKER**  
GOVERNOR

**KARYN E. POLITO**  
LIEUTENANT GOVERNOR

July 14, 2021

Rebecca Slick  
300 Main Street  
Wellfleet, Massachusetts 02667

Dear Rebecca Slick:

Congratulations! I am pleased to notify you that the Town of Wellfleet has been awarded a Municipal Vulnerability Preparedness (MVP) program Action Grant in the amount of \$589,960 to complete the project entitled "Herring River Restoration Project Phase 1 Final Construction Plans and Bid Specifications." We want to thank you for your commitment to implementing priority climate change adaptation actions identified through your MVP planning process, or similar climate change vulnerability assessment and action planning process. We want to commend the Town's outstanding application to our grant program and look forward to partnering with you on this important project.

You will be receiving further instructions from the Executive Office of Energy and Environmental Affairs MVP Program in the coming days. In the meantime, please feel free to contact Kara Runsten ([kara.runsten@mass.gov](mailto:kara.runsten@mass.gov)) if you have any questions.

Governor Charles D. Baker

Lt. Governor Karyn E. Polito

Handwritten signature of Charles D. Baker in blue ink.

Handwritten signature of Karyn E. Polito in blue ink.