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November 1, 2013

CERTIFICATE OF THE SECRETARY OF ENERGY AND ENVIRONMENTAL AFFAIRS  
ON THE  
PHASE 2 – ALTERNATIVES SCREENING ANALYSIS REPORT

PROJECT NAME :Comprehensive Watershed Nitrogen Management Plan  
PROJECT MUNICIPALITY :Mashpee  
PROJECT WATERSHED :Cape Cod  
EEA NUMBER :12615  
PROJECT PROPONENT :Town of Mashpee  
DATE NOTICED IN MONITOR :September 25, 2013

As Secretary of Environmental Affairs,, I hereby determine that the Phase 2 – Alternatives Screening Analysis Report submitted for this project *adequately and properly complies* with the Massachusetts Environmental Policy Act (M.G.L. c. 30, ss. 61-62I) and with its implementing regulations (301 CMR 11.00).

Project Overview

The Town of Mashpee's comprehensive watershed nitrogen management planning process has been undertaken for the purposes of:

- 1) Evaluating and quantifying the existing and future contributions to nitrogen loading of coastal embayments from anticipated future growth and development in Mashpee;
- 2) Evaluating the feasibility of centralized and decentralized wastewater treatment technologies, wastewater disposal alternatives and non-wastewater nutrient mitigation projects and programs that may be used to meet the future wastewater management needs and nitrogen Total Maximum Daily Loads (TMDLs) established for the marine embayments surrounding Mashpee;
- 3) Evaluating the feasibility of regional wastewater treatment and disposal options involving the Towns of, Mashpee, Barnstable, Falmouth and Sandwich to reduce nutrient loading to the marine embayments shared by these towns; and

- 4) Designing and implementing a comprehensive wastewater management plan to achieve reductions of nitrogen loading and meet nutrient Total Maximum Daily Loads (TMDLs) to the Town of Mashpee's coastal embayments and freshwater ponds.

### Project History

As initially described in the Environmental Notification Form (ENF) submitted in October of 2001, the project involves the development of a comprehensive nitrogen and wastewater management plan for the Town of Mashpee (Mashpee CWMP). The Mashpee CWMP is intended to achieve reductions of wastewater nitrogen loading and to meet Total Maximum Daily Loads (TMDLs) for nitrogen loading to the marine embayments surrounding Mashpee including the Popponesset Bay and Waquoit Bay East watersheds and includes Hamblin and Jehu Ponds, and the Mashpee, Quashnet, Great and Little Rivers.

The Mashpee CWMP project continues to proceed in phases with the submission of reports dealing with four major work elements: Phase 1 - Needs Assessment Report, was completed in 2007 and defined areas of Mashpee that need nitrogen and wastewater management (Project Planning Area (PPA)) and established project wastewater flows from the PPA; Phase 2 - Alternatives Screening Analysis Report, the subject of this MEPA review, includes an evaluation of alternative wastewater and nutrient management technologies to meet the wastewater management and TMDLs requirements of the PPA; Phase 3 - Draft Environmental Impact Report (DEIR)/Draft CWMP, will include an analysis of the environmental impacts and costs associated with each of the three alternative wastewater management options discussed in the Phase 2 document, and a detailed analysis of the environmental impacts and costs associated with the Town's recommended draft CWMP and, Phase 4 - Final Environmental Impact Report (FEIR)/Final CWMP, will provide any additional environmental analysis required to support the Town's proposed CWMP and will respond to comments submitted on the DEIR. The Certificate on the ENF directed the Town to prepare and submit for review the first two reports prior to the submission of the Phase 3 - DEIR and Phase 4- FEIR documents.

### 2007 Notice of Project Change

The Town submitted a Notice of Project Change (NPC), together with a Needs Assessment Report, to the MEPA Office in October 2007 in accordance with the MEPA regulations for a lapse of time, at 301 CMR 11.10(2). As described in the first NPC, the project was put on hold following the submission of the ENF as the Town awaited the results of the Massachusetts Estuaries Project (MEP). The MEP's reports relevant to the PPA were released in 2004 and 2005, and were to be used by the Town in the development of the nitrogen management needs and management plan. The Needs Assessment Report provided information on existing wastewater facilities; physical features, land use and regulatory issues affecting wastewater facilities; and existing conditions related to environmental resources, nitrogen loadings and on-site septic systems. The Needs Assessment Report also identified the impacts of population growth in the PPA on wastewater collection, treatment and disposal facilities. The Town has estimated the total amount of wastewater flow from the PPA to be approximately 2.7 million gallons per day (mgd).

### Permits and Jurisdiction

The project is undergoing review pursuant to Sections 11.03(5)(a)(3) of the MEPA regulations, because the project will likely involve the construction of sewer mains ten or more miles in length. The project will require a Groundwater Discharge Permit, a Chapter 91 License, and a 401 Water Quality Certificate from MassDEP. It must be reviewed by the Natural Heritage Endangered Species Program (NHESP) and the Massachusetts Historical Commission (MHC) because portions of the project will occur within Priority Habitat and within or adjacent to recorded archaeological sites and archaeologically sensitive areas, respectively. It may require Federal Consistency Review with the Massachusetts Coastal Zone Management (MCZM) Office. It may also require a Construction Access Permit from the Massachusetts Highway Department. The project may need to obtain a Section 404 Permit from the U.S. Army Corps of Engineers (ACOE). The project will require an Order of Conditions from the Mashpee Conservation Commission (and, on appeal only, a Superseding Order from MassDEP). The project should comply with the National Pollutant Discharge Elimination System (NPDES) General Permit from the U.S. EPA for stormwater discharges from a construction site.

The Town is seeking Financial Assistance from the Commonwealth under the State Revolving Fund (SRF); therefore, MEPA has broad scope jurisdiction over the project. The project is being reviewed under a Joint Environmental Review Process established between the Executive Office of Energy and Environmental Affairs (EEA) and the Cape Cod Commission (CCC).

### REVIEW OF PHASE 2 - ALTERNATIVES SCREENING ANALYSIS REPORT

The Phase 2 document contains a general discussion and summary report of the Town's CWMP planning process completed to date. The Town's CWMP planning process began with the identification of the nutrient loading limits and nutrient Total Maximum Daily Loads (TMDLs) developed through the Massachusetts Estuaries Project (MEP) for coastal embayments located in Mashpee including Popponesset Bay, Waquoit Bay East, Hamblin Pond, Jehu Pond, the Mashpee River, Quashnet River, Great River, and Little River. The Town completed the Needs Assessment Report to determine the nutrient loads generated by existing and future development in the PPA and to quantify the needed reductions of nitrogen to meet nutrient TMDLs to Mashpee's coastal embayments. The Town reviewed the total number of parcels in Mashpee and in sections of Falmouth, Barnstable and Sandwich that are located within the two watersheds for the marine embayments, freshwater ponds and watersheds surrounding Mashpee, and estimated the water use, wastewater flows and nutrient loading from the PPA's future wastewater flows. The Town estimated a total future wastewater flow from the build-out of the PPA of 2.9 mgd. Approximately 2.2 mgd of future wastewater flow is attributed to the Town of Mashpee, 0.18 mgd to the Town of Barnstable, 0.39 mgd to the Town of Sandwich, and 0.12 mgd to the Town of Falmouth. The Town recently completed an Alternatives Screening Analysis to evaluate alternative wastewater and nutrient management technologies and solutions that may be used to meet TMDLs for the coastal embayments and freshwater ponds in Mashpee. As described below, the Town has identified three potential alternative wastewater management options for further evaluation in developing its CWMP, as described below.

### Alternatives Screening Analysis

The Alternatives Screening Analysis Report (ASAR) describes the Town's review and evaluation of centralized and decentralized wastewater treatment technologies, wastewater disposal alternatives, and non-wastewater management activities that may be used to meet TMDLs for the coastal embayments and freshwater ponds in Mashpee. Numerous wastewater management technologies were evaluated based on criteria including capital costs, operation and maintenance costs, effluent quality, regulatory requirements, energy use, and ease of implementation and operation. Comments received from MassDEP, the CCC and others indicate support for the analysis and conclusions included in the Town's Alternatives Screening Analysis Report.

The ASAR presents three wastewater management options (Options 1A, 1B, and 1C) that involve the conveyance of wastewater flows from the PPA to existing and proposed new wastewater treatment facilities (WWTFs) for treatment and subsequent disposal to numerous existing and new recharge sites located both in and outside of the Popponesett Bay and Waquoit Bay East watersheds. Each of the wastewater management options includes the proposed use of non-wastewater nutrient mitigation projects and land use policies designed to help reduce or attenuate nitrogen loading to the coastal embayments surrounding Mashpee. These wastewater management options would incorporate a mix of wastewater treatment technologies including the use of innovative and alternative (I/A) technologies having MassDEP's General Use Approval and decentralized and centralized technologies capable of achieving enhanced nitrogen removal in compliance with MassDEP's groundwater discharge regulations. According to the Town, the MEP modeling results indicate that all three options would meet the TMDL thresholds for Popponesett Bay, Great/Little River, and Upper Waquoit Bay, but none would meet these requirements for Jehu Pond or Hamblin Pond.

The three alternative wastewater management options are:

1. Option 1A: This option involves the continued use and expansion of existing WWTFs, and the construction of new WWTFs to treat the estimated future build-out wastewater flows from the PPA (2.7 mgd). Under Option 1A, approximately 1.55 mgd of treated effluent would be conveyed to recharge sites located out of the watersheds, including the proposed New Seabury and Rock Landing discharge sites. The Rock Landing discharge site would require the Town's abandonment of its Rock Landing water supply wells and corresponding Zone II water supply protection areas for use as a recharge site for treated wastewater flow. Most of the estimated future wastewater flows from those areas of Barnstable, Falmouth and Sandwich located in the Popponesett and Waquoit Bay East watersheds would be recharged outside of the watersheds. Approximately 0.5 mgd of flow from on-site I/A and Title 5 septic systems would be recharged in the watersheds.
2. Option 1B: This option assumes that the Town's Rock Landing water supply wells and Zone II areas would be preserved for continued water supply and would not be available for recharge of wastewater flow from the PPA. Option 1B involves the expansion of existing WWTFs and the construction of new WWTFs to treat the future wastewater flow from the PPA and the recharge of 2.0 mgd of treated wastewater flow at existing and new recharge sites located in the watersheds. Under this option, most of the treated

wastewater flows from Sandwich and Falmouth would be recharged in the watersheds. According to the ASAR, the MEP modeling indicated that Option 1B could provide the Town with the ability to coordinate with the Town of Falmouth to meet the TMDL thresholds for Hamblin and Jehu Ponds and the Quashnet River. This option also incorporates continued use of Title 5 and I/A systems to recharge approximately 0.34 mgd of wastewater flow in the PPA watersheds.

3. Option 1C: Similar to Option 1B, this option also assumes the Town's Rock Landing water supply wells and Zone II areas would not be available for recharge of wastewater flow from the PPA. Option 1C includes the expansion of existing WWTFs and construction of new WWTFs to treat the wastewater flows from the PPA. Approximately 1.51 mgd of wastewater flow would be conveyed to recharge sites located in the watersheds and .423 mgd outside of the watersheds. The wastewater flows from Barnstable, Falmouth and Sandwich would be recharged outside of the watersheds. This option also incorporates the continued use of Title 5 and I/A systems to recharge approximately 0.5 mgd of wastewater flow in the watersheds.

### Wastewater Treatment

As described in the ASAR, the Town has identified eight existing wastewater treatment facilities (WWTFs) located in the PPA that will be further evaluated for possible upgrade and expansion to accommodate the treatment of future wastewater flows and the required nitrogen removal efficiencies as part of the Town's draft CWMP. Facility upgrade and expansion measures may include physical plant improvements, upgrades to handle currently permitted design flows, and upgrades that may be required to accommodate additional wastewater flows and alternatives involving the construction of a new WWTF to replace the existing WWTF. The ASAR identifies additional locations in the PPA for the potential construction of up to four new WWTFs to help accommodate the treatment of future wastewater flows from the PPA. The Town has also identified the potential use of the Massachusetts Military Reservation (MMR) WWTF as a part of a regional solution for the treatment and disposal of a portion of the anticipated future wastewater flows from the PPA.

### Groundwater Discharge

The ASAR has identified for further evaluation seven existing recharge sites located within the PPA and three proposed new recharge site locations within the PPA to accommodate the recharge of future wastewater flows. As mentioned above, the ASAR has also identified for further evaluation two recharge sites located outside of the watersheds in the southeastern section of Mashpee (New Seabury and Rock Landing) that may be suitable for the recharge of treated wastewater effluent from the PPA.

### Non-wastewater Nutrient Management Alternatives

The ASAR identifies a menu of non-wastewater nutrient mitigation projects and policies designed to reduce or attenuate nitrogen loading to be included as part of each of the three

wastewater management options described above, including: dredging/inlet widening; use of shellfish aquaculture; use of permeable reactive barriers (PRBs); conversion of abandoned cranberry bogs and shallow ponds including Santuit Pond; acquisition of open space and/or water supply well locations; fertilizer and pet waste management by-laws; stormwater management by-laws; and new zoning or land use regulations to address growth neutral requirements for 0% loans from the State Revolving Fund (SRF).

#### Adaptive Management

As described in the Phase 2 document, the Town's draft CWMP will include a water quality monitoring program and an Adaptive Management Plan (AMP) that will provide the results of the Town's monitoring of water quality and eel grass to document the reductions in watershed nitrogen loads associated with the CWMP. The AMP will support the Town's evaluation of compliance with established TDMLs and identify the need for adjustments or mid-course corrections to subsequent phases of the structural and non-structural components of the CWMP.

#### Regional Strategies

As described in the ASAR, the Town's draft recommended plan will identify and discuss potential opportunities for shared regional approaches to achieve reductions of wastewater nitrogen loading and meet nutrient TMDLs to those coastal embayments shared by Mashpee, Barnstable, Falmouth and Sandwich. According to the Town, additional wastewater disposal sites or reuse options may be required to support shared regional approaches. The Phase 2 document includes a copy of the Town's letter to the MMR to initiate discussions regarding opportunities for shared regional approaches for wastewater management.

### SCOPE FOR THE DRAFT ENVIRONMENTAL IMPACT REPORT

The Town should prepare a DEIR in accordance with this Scope which identifies the information and analysis necessary to complete MEPA review and ensure that impacts and issues are fully analyzed. The DEIR should contain additional information and analysis of potential direct and indirect project-related impacts to wastewater management, wetlands, water quality and water supply for the Town's draft CWMP. The Town should use the DEIR to demonstrate that the Mashpee CWMP has been designed consistent with the Wetlands Regulations (310 CMR 10.00) and associated stormwater management standards for water quality, recharge to groundwater, and protection of existing public water supply sources for projects located within an Outstanding Resource Water (ORW) and critical resource areas. Also, the DEIR should demonstrate consistency with c.91 Waterways permitting and 401 Water Quality Certification requirements and the ACOE Section 404 permitting requirements.

#### Project Description

The DEIR should include a detailed description of the draft CWMP to reduce nutrient loading to the marine embayments and freshwater ponds in Mashpee. It should identify significant environmental benefits and impacts, and measures that will be taken to avoid, minimize and mitigate adverse impacts. The DEIR should describe the proposed schedule for the

remaining phases of project planning, design, environmental permitting and review, and construction. The DEIR should discuss the state permitting for this project and describe how it will meet applicable performance standards.

The DEIR should include a detailed description of the proposed alteration and/or expansion of existing WWTFs and recharge sites and the construction of new WWTFs and recharge sites, including maps that show where new sewer lines, cross-country easements, pumping stations, and other facilities would be located. Detailed information should be provided for each area in Mashpee where the construction of cluster systems, new I/A systems, satellite facilities, centralized or decentralized wastewater management systems and non-wastewater nutrient mitigation alternatives are proposed, including maps that show where sewer lines, cross-country easements, pumping stations, and other facilities will be located. In preparing this section of the DEIR, the Town should review the provisions of Executive Order 181 and CZM Coastal Hazards Policy #3 to ensure that the Draft CWMP does not promote growth and development in high hazard areas designated in Flood Insurance Rate Maps (FIRMs) as V zones, AO zones and specific A zones that are accompanied by moderate wave action capable of structural damage (MoWa). CZM recommends that the DEIR include a description and discussion of any contingency plans the Town will adopt if the Mashpee CWMP is not meeting the nitrogen Total Maximum Daily Loads (TMDLs) established for the marine embayments surrounding Mashpee.

The MEP's linked watershed embayment model and the CCC's watershed management tool (Watershed-MVP) should be used to confirm the effectiveness of the CWMP in providing required reductions in nitrogen loading. The DEIR should include a discussion of additional wastewater disposal or reuse alternatives that may be required to support any inter-municipal (regional) approaches to wastewater management. The DEIR should identify the estimated costs and potential environmental benefits associated with the implementation of the draft CWMP.

#### Land Alteration

The DEIR should quantify the total amount of alteration associated with the draft CWMP (including areas to be altered for sewer mains, wastewater treatment and disposal, and other project components). The DEIR should include a breakdown showing the amount of alteration associated with each project element. The DEIR should clarify the amount of new impervious area associated with the construction of the components of the draft CWMP.

#### Wastewater Treatment

The DEIR should evaluate the potential resource area impacts associated with all aspects of the project. The DEIR should include a detailed discussion of any/all proposed improvements, upgrades or replacement of existing WWTFs and construction of any new WWTFs. The DEIR should discuss individual I/A systems, small wastewater treatment systems and cluster and centralized wastewater management systems to be included in the Town's draft CWMP. The DEIR should identify the proposed sites for locating cluster wastewater treatment systems, areas to be served, system design capacity, and treatment efficiency. The DEIR should include a discussion of the potential benefits associated with the implementation of a targeted and incremental approach to wastewater nutrient management in Mashpee. This discussion should evaluate the feasibility for initially constructing cluster wastewater treatment systems to serve neighborhoods located in the sub-watersheds of the most significantly impacted coastal

embayments and freshwater ponds in Mashpee. The DEIR/Draft CWMP should include a discussion of the opportunities and obstacles for using technologies assigned with MassDEP's Provisional Approval. The Town should consult with MassDEP and the CCC during the preparation of this section of the DEIR.

### Groundwater Recharge

The DEIR should include a detailed discussion of any proposed expansions of existing wastewater recharge sites and any proposed new recharge sites. The DEIR should evaluate the potential impacts associated with the use of these recharge sites to nearby surface and groundwater levels, effluent flow and nutrient loading (nitrogen, phosphorous), and down-gradient public water supplies and watersheds serving numerous water resource areas. The DEIR must provide a detailed discussion of how the draft CWMP will meet the TMDLs established for Hamblin and Jehu Ponds and the Quashnet River. The DEIR should provide groundwater evaluations to satisfactorily demonstrate the feasibility of increasing the effluent discharge at existing recharge sites and/or constructing new recharge sites. I ask that the Town of Mashpee work closely with CCC, MassDEP and others to identify and complete any additional groundwater modeling and/or nutrient loading analysis that may be needed to determine the feasibility of the Town's wastewater effluent discharge plans under the draft CWMP.

The DEIR should also include a discussion of how the draft CWMP will comply with MassDEP's Groundwater Discharge Regulations and water quality standards for groundwater discharges to Zone II areas associated with drinking water supply wells. The DEIR should provide additional information and analysis of the potential impacts to existing public water supplies from any proposed increases in wastewater discharges or from any proposed new discharge sites to Zone II areas under the Town's draft CWMP. This analysis should include a summary of the quality of existing public water supplies in Mashpee, including the presence of sodium, volatile organic compounds and the occurrence of Contaminants of Emerging Concern (CEC), and the distances of wastewater discharge sites from Zone II areas. I note that in March 2009, MassDEP revised its Groundwater Discharge Regulations (314 CMR 5.00) to limit the amount of carbon-based compounds and contaminants typically found in pharmaceuticals and personal care products in treated wastewater flows discharged in Zone II areas. MassDEP's Total Organic Carbon (TOC) regulations are intended to provide increased protection of groundwater resources by limiting naturally occurring and man-made forms of organic carbon present in treated wastewater. MassDEP's groundwater discharge regulations establish a low limit (3 milligrams per liter (mg/L)) for TOC in wastewater effluent discharged to Zone II areas. The DEIR should identify any potential new water supply sites in Mashpee and the feasibility of their development for future water supplies to replace the abandonment of any existing water supply wells for use as a recharge site.

### Non-Wastewater Nutrient Management Projects and Programs

The DEIR should provide information for each of the non-wastewater nutrient management projects and programs to be included in the Town's CWMP sufficient to understand their potential environmental impacts to resources areas. The DEIR should include a description of all aspects of each project and program and a schedule for construction and implementation activities. The DEIR should describe the range of potential impacts to wetland resource areas,

coastal sediment transport, and local beaches associated with any proposed non-wastewater nutrient management project, including the potential for flooding of upstream rare species habitats. The DEIR should identify the proposed sites for locating non-wastewater nutrient management projects and programs and should also include maps and plans at a reasonable scale that clearly locate and delineate project elements, surface water and wetlands resource areas, adjacent land uses, and aquifer protection districts on and adjacent to the project site. Maps and plans should show water supply resources, conservation areas, and any priority and estimated rare species habitat in the project area.

The DEIR should describe how projects will be evaluated for incorporation into the Town's CWMP. It should provide modeling, evaluation, and impact assessments to demonstrate the effectiveness of these non-wastewater nutrient management projects. It should address how the projects can provide targeted and incremental nitrogen removal from the more stressed sub-watersheds in Mashpee. This section of the DEIR should also include a list of permits, anticipated schedules and cost estimates for the proposed Pilot Projects. The DEIR should indicate whether any of these projects, evaluated individually, would exceed MEPA thresholds for an ENF or EIR. If projects do exceed an ENF and/or EIR threshold, the DEIR should address whether sufficient information will be provided in the DEIR to facilitate the review of impacts and associated mitigation or if individual MEPA review will be requested. The Proponent should work closely with MassDEP, CCC, the Buzzards Bay Coalition and others in the design and implementation of any proposed non-wastewater nutrient management project included in the draft CWMP.

#### Water Quality Monitoring and Adaptive Management

The Mashpee CWMP will include a water quality monitoring program. The Town's water quality monitoring activities should include periodic sampling events during the summer season and surveys for benthic infauna organisms over an extended period of time (approximately every five years). This water quality monitoring program should include groundwater monitoring at existing and proposed WWTFs and wastewater recharge sites. The DEIR should include a commitment to monitor groundwater, embayment and pond water quality and related habitat areas. The DEIR should describe how existing and proposed water quality studies and water quality monitoring programs will be incorporated into the Town's water quality monitoring program activities.

The DEIR should discuss how the water quality monitoring plans will be used to inform the Town's long-term adaptive management planning process. As described in the Phase 2 document, the Town's CWMP will incorporate the use of an AMP to identify the need for any adjustments or mid-course corrections to the Town's CWMP based on the results of its water quality monitoring program. The DEIR should provide a detailed description of the Town's proposed AMP and water quality monitoring program to accommodate the Town's CWMP. This AMP should describe a systematic process for determining the effectiveness of the Town's CWMP and the need for any revisions before initiating subsequent CWMP phases. The AMP should include a Groundwater and Surface Water Quality Monitoring Plan that identifies specific annual water quality monitoring activities to be completed by the Town for the coastal embayments and select freshwater ponds in the PPA watersheds. The DEIR should include a commitment to coordinate the Town's water quality monitoring activities with MassDEP, CZM,

CCC and the Mashpee Conservation Commission and any ongoing water quality monitoring and modeling activities in the watershed areas. The AMP should describe the process for reporting the results of the Town's ongoing annual groundwater quality and habitat monitoring activities. The DEIR should include a commitment to prepare an annual report (TMDL Compliance Report) to document reductions in watershed nitrogen loads.

The DEIR should include a commitment to provide TMDL Compliance Reports to MassDEP, DMF, CZM, CCC, MEP, local area watershed associations, and representatives from the Towns of Barnstable, Falmouth and Sandwich. MassDEP will review the TMDL Compliance Report to determine the Town's compliance with the established TDMLs identified for the coastal embayments in Mashpee. The AMP should clearly identify the process the Town will employ to consider whether adjustments or mid-course corrections are necessary prior to initiating the next phase of CWMP project construction.

#### Regional Approaches to Nitrogen Reduction/Wastewater Management

The DEIR/Draft CWMP should provide a detailed discussion of the potential opportunities for regional approaches to achieve reductions of wastewater nitrogen loading and meet nutrient TMDLs to those coastal embayments shared by Mashpee, Barnstable, Falmouth and Sandwich. This section of the DEIR should help to identify and guide future opportunities for regional cooperation. The Town should continue its efforts to initiate discussions with MMR regarding how the Upper Cape municipalities could share in the use of the MMR WWTF. The Town should continue to work closely with the CCC and MassDEP to ensure that the DEIR is consistent with the goals of the Regional Policy Plan (RPP) and MassDEP's Groundwater Discharge Regulations and that proposed wastewater infrastructure design and construction accounts for the unique aspects of linked groundwater and surface water system that characterizes Cape Cod. The DEIR should include an update of the Town's ongoing efforts to identify regional strategies and opportunities for reducing the nutrient loading to coastal embayments.

#### Wetlands and Stormwater

The project is expected to impact a variety of inland and coastal wetland resources. The DEIR should analyze both direct and indirect impacts on wetlands and water bodies resulting from the project, and quantify the amount of direct wetland impacts. The DEIR should delineate on a plan of reasonable scale all environmental resources areas located within areas proposed for wastewater nitrogen management activities associated with the Mashpee CWMP including wetlands, water bodies, drinking water supplies, sensitive habitats, fisheries, designated Areas of Critical Environmental Concern (ACECs), Article 97 lands, historic resources, and agricultural lands. The DEIR should include an analysis of cumulative impacts and a breakdown of impacts for different CWMP project components. Proposed areas of impact and replication areas should be identified on site plans, and described and quantified. The DEIR should describe measures that will be implemented to avoid and minimize, or mitigate, adverse impacts to wetlands and buffer zones.

The DEIR should examine alternatives that avoid impacts to wetland resource areas, their associated buffer zones, riverfront protection areas and 100-year flood plain areas. The DEIR

should identify all parcels that are currently deemed unbuildable within the 100-year flood plain that would potentially become buildable as a result of sewer installation. Where it has been demonstrated that impacts are unavoidable, the DEIR should demonstrate that the impacts can be minimized, and that the project will be accomplished in a manner that is consistent with the Wetlands Regulations (310 CMR 10.00) and associated performance standards. The Town must provide wetlands replication at a ratio of 1:1, at a minimum, for any unavoidable impacts to wetlands. For any amount of required wetlands replication, a detailed wetlands replication plan should be provided in the DEIR that, at a minimum, includes replication location(s), elevations, typical cross sections, groundwater elevations, the hydrology of areas to be altered and replicated, list of wetlands plant species of areas to be altered and the proposed wetland replication species, planned construction sequence, and a discussion of the required performance standards and monitoring.

The DEIR should clarify the amount of new impervious area associated with the implementation of the draft CWMP. The DEIR should describe the proposed stormwater management system and its consistency with the Wetlands Regulations and associated stormwater standards, including construction-period stormwater controls.

#### Rare Species

According to comments from the Massachusetts Natural Heritage and Endangered Species Program (NHESP), portions of the PPA are mapped as Priority and Estimated Habitat in accordance with the 13th Edition of the MA Natural Heritage Atlas. The ASAR identifies the use of cluster systems for locations that may contain mapped Priority and Estimated Habitat areas. NHESP comments also indicate that a number of the potential wastewater treatment and recharge sites identified in the ASAR for further assessment may also be located within Priority and Estimated Habitat areas. The DEIR should include a habitat assessment, additional information on proposed project components, and a description (including a quantification of altered habitat) of potential impacts to state-listed species. The DEIR should analyze the impacts to rare or endangered species and evaluate avoidance/mitigation strategies and address the comments raised in NHESP's comments. The Town should work closely with NHESP and consult with the Mashpee Conservation Commission during the preparation of the draft CWMP project design and this section of the DEIR to identify design, construction and post-construction commitments to avoid adversely impacting habitats of state-listed rare species. The DEIR should report on the results of the Town's consultations with NHESP.

#### Fisheries Resources

According to the comments received from the Division of Marine Fisheries (DMF), the rivers and embayments located within the Popponesset Bay and Waquoit Bay East watersheds provide important foraging, spawning, and/or nursery habitat for a variety of diadromous fish species, including winter flounder, horseshoe crabs and shellfish. DMF comments express support for the Town's efforts to reduce nitrogen loading in the Popponesset Bay and Waquoit Bay East watersheds. According to DMF's comments, the DEIR should include an analysis of options to remove source nitrogen to meet the TMDLs for Hamblin and Jehu Ponds and the Great/Little River system. The DEIR should include an evaluation of the potential impacts to aquatic resources located downstream from existing and proposed new effluent recharge sites proposed

in the draft CWMP. I encourage the Town to work with DMF to ensure that diadromous fish species, winter flounder, horseshoe crabs and shellfish are protected and that habitat impacts from the project are avoided or minimized.

### Greenhouse Gas Emissions (GHG)

The project is subject to the MEPA Greenhouse Gas Emissions Policy and Protocol (“the Policy”). The Policy requires projects to quantify carbon dioxide (CO<sub>2</sub>) emissions and identify measures to avoid, minimize or mitigate such emissions. The Town will be required to quantify the direct and/or indirect CO<sub>2</sub> emissions associated with the project's stationary source energy usage (e.g., building energy use, process-related energy use) and transportation-related emissions (mobile sources), if applicable. Unlike many projects reviewed under the Policy, wastewater treatment process energy loads and subsequent CO<sub>2</sub> emissions play a large role in the overall project's GHG emissions, rather than the buildings that contain the facilities. To ensure that the DEIR includes adequate analysis of GHG emissions, emissions associated with wastewater alternatives and mitigation consistent with other similar facilities, the Town should consult with the MEPA Office, MassDEP and DOER to further define the scope for the GHG analysis.

The ASAR contained descriptions of three project alternatives that include modifications of existing wastewater management systems, pump stations and discharge facilities and construction of new systems and facilities. The analysis should evaluate existing and proposed infrastructure. To establish a baseline and to evaluate upgrades and/or expansion of existing infrastructure, the Town should provide data on existing energy use and conduct energy audits. The energy audits can identify energy use of existing facilities and identify measures to increase energy efficiency of buildings and processes.

Because there is no building energy code equivalent that applies specifically to wastewater management systems and facilities or a readily available energy use model (such as eQUEST) to estimate the projected energy use of wastewater processing energy loads, the Town should use the EPA's Energy Star Portfolio Manager (ESPM) computer modeling program to assess energy usage associated with proposed treatment technologies with data that is readily available at the CWMP stage (i.e. influent flow, influent BOD, effluent BOD, design capacity, etc.). This program will allow the Town to rank the estimated energy use of the proposed facilities to compare their rankings with other facilities that have similar fundamental operating parameters and are located in similar climate zones. In addition, the Town could perform an analysis of power consumption to compare the energy use of specific treatment technologies. The GHG analysis should also address energy use associated with existing and proposed wastewater collection. I encourage the Town to identify a base case for pump stations a preferred alternative using best engineering practices for improved energy efficiency.

At this stage of planning, I encourage the Proponent to consider, in addition to the ESPM program, a comparison of GHG emissions associated with the WWTF versus other wastewater disposal systems – specifically on-site septic systems – using the Local Government Operations (LGO) Protocol. This analysis is not mandated as part of the Policy; however, it could assist the Town in understanding the energy impacts of the alternatives currently under review.

The DEIR should include evaluation of the feasibility of installing renewable energy on-site (e.g., solar (photovoltaic (PV)), wind, geothermal). Installation of PV systems on municipal buildings or on municipal properties may achieve cost-savings beneficial to the community and offset ongoing operational costs. Analysis of PV (either ground-mounted or building-mounted) should use online DOER and Massachusetts Clean Energy Center (CEC) resources to calculate potential project cost, payback periods and returns on investment. The DEIR should state assumptions with regard to available area for PV equipment, efficiencies, etc and should consider both first-party and third-party ownership/lease scenarios.

The DEIR should identify appropriate energy efficiency measures for the collection system, facility buildings, treatment processes and operations for the draft CWMP. It should outline, in a qualitative manner, a commitment to evaluate and implement, as feasible, GHG reduction strategies that will be determined upon advancement of facility design (which may occur after MEPA review of the CWMP has concluded but prior to permitting). The BMPs should be based on EPA's BMP Guidance Document (Evaluation of Energy Conservation Measures for Wastewater Treatment Facilities, September 2010) or other best practices and informed by the knowledge about the community and needs as part of the CWMP planning process. MassDEP and DOER will work with the Town to incorporate proposed GHG reduction measures through MEPA review and continuing into advanced design through its project financing and permitting authority. The Section 61 Findings should include a commitment to provide a self-certification to the MEPA Office upon completion of the construction of proposed improvements and upgrades and new wastewater management systems and facilities. It should be signed by an appropriate professional (e.g., engineer, architect, general contractor) and indicate that all of the GHG mitigation measures committed to have been incorporated into the project(s).

#### Historical/Archaeological Resources

The DEIR should describe potential impacts of the draft CWMP to historic and archaeological resources and identify measures to avoid and minimize, or mitigate impacts to cultural resources. The Town should provide Massachusetts Historical Commission (MHC) with a U.S. Geological Survey topographical map that clearly locates the phased project areas and scaled project plans showing existing and proposed conditions. These plans should be submitted to MHC as early as possible during the design of each of the proposed project development phases. The Town should coordinate with MHC to address potential historic impacts and the DEIR should provide an update on the status of these discussions. If MHC determines the project will have an "adverse effect" on historic or archaeological resources, the DEIR should include a discussion of appropriate measures to avoid, minimize and mitigate impacts.

#### Coastal Hazards and Adaptation

The availability of sewer infrastructure in coastal areas subject to storm damage, flooding, and erosion could allow new or expanded development in these hazard-prone areas. This development may also adversely impact natural buffers to storm waves and erosion, and compromise the storm protection provided to landward development, infrastructure, natural resources, and upland areas. The DEIR should contain an analysis of specific planning and design considerations for areas located within mapped coastal flood zones and barrier beaches. Specifically, the project must be designed to comply with the Massachusetts State Building Code

requirements and local requirements for structures located within the floodplain. Current rates of sea level rise, as well as projections for accelerated rates of sea level rise, pose significant threats to coastal development and resource areas from potentially increasing storm surge heights and related increasing frequencies of coastal flooding events. The DEIR should discuss how the project design will incorporate adaptation measures for sea level rise and the potential for more frequent and intense storm events. The Town should work closely with CZM and others to identify appropriate adaptation measures to be incorporated into the project design for the draft CWMP.

### Sewering and Growth Management

Executive Order #385 requires that state and local agencies engage in protective and coordinated planning oriented towards resource protection and sustainable economic development. For reasons of both environmental protection and fiscal prudence, investments in public infrastructure should be carefully targeted toward those areas for which clear existing needs have been established and for areas where denser development is appropriate, thereby relieving development pressures on open space, agricultural lands, and other valuable natural resources. The DEIR should include a detailed discussion of potential land use control mechanisms that can be employed to limit secondary growth impacts associated with implementation of the CWMP. The Town should consider adopting and implementing growth control by-laws, regulations, and policies prior to the construction of any new sewers. I encourage the Town to consult with MassDEP and CCC in developing growth-neutral policies and a strategy to prohibit and/or discourage future new development requesting municipal sewer service and located in areas outside the AOCs and the proposed new sewer areas.

### Costs to Homeowners

Although economic considerations are not typically addressed through the MEPA process, for informational purposes, I encourage the Town to provide revised cost estimates (both capital and operating) for the draft CWMP, a projection of the impact on local sewer rates, and a comparison of the resulting local sewer rates to Massachusetts Water Resources Authority (MWRA) and statewide averages. The DEIR should include estimates for the costs of land acquisition associated with the location of any proposed new wastewater management facilities and groundwater recharge sites. Cost evaluations for groundwater recharge sites should include the land acquisition costs for the required acreage for recharge beds, plus a reasonable buffer zone (as opposed to the entire parcel). The Town should not presume market rate acquisition costs for all parcels identified as potential groundwater discharge sites, especially those parcels that may be owned by the Commonwealth or non-profit organizations.

### Construction Period Impacts

The DEIR should include a Construction Management Plan (CMP) describing project activities and their schedule and sequencing, and BMPs that will be used to avoid and minimize adverse environmental impacts. The Town's CMP should address potential demolition and construction period impacts (including but not limited to land disturbance, noise, vibration, dust, odor, nuisance, vehicle emissions, construction and demolition debris, impacts on trees and other vegetation, and construction-related traffic) and analyze and outline feasible measures that can

be implemented to eliminate or minimize these impacts. The DEIR should outline potential measures to address materials management during the construction period. The CMP should discuss plans for reuse and recycling of construction materials including asphalt, brick and concrete (ABC). The CMP should include an erosion control component to address protection of water quality and wetlands resources. The project must comply with MassDEP's Solid Waste and Air Quality Control regulations during construction.

#### Hazardous Materials

The Town should consider the potential for encountering contamination during excavation. The DEIR should identify known hazardous waste sites governed by the Massachusetts Oil and Hazardous Material Release Prevention and Response Act (M.G.L. c. 21E) in the vicinity of the project area and provide an updated summary on the status of these sites consistent with the Massachusetts Contingency Plan (MCP, 310 CMR 40.0000). The DEIR should provide an overview of any anticipated or planned remediation efforts in the PPA. The Town is advised that, if oil and/or hazardous material (OHM) is identified during the implementation of the project, notification pursuant to the MCP must be made to MassDEP, if necessary. A Licensed Site Professional (LSP) may be retained to determine if notification is required and, if need be, to render appropriate opinions. Construction protocols and procedures should reflect the potential for discovery of OHM during the construction period. The Town should consult with MassDEP for additional guidance on the prevention and management of potential releases of OHM.

#### Public Participation

I note that the SRF regulations require the Town to conduct a minimum of one public meeting and one public hearing for this project. The DEIR should include a summary of the Town's public participation program activities completed and proposed.

#### Mitigation and Section 61 Findings

The DEIR should include a separate chapter on mitigation measures, which should include a summary table of all mitigation commitments as well as detailed draft Section 61 Findings for all State Permits. The draft Section 61 Findings should describe proposed mitigation measures, contain clear commitments to mitigation and a schedule for implementation based on the construction phases of the project, estimate the individual cost of each proposed measure, and identify parties responsible for funding and implementing the mitigation measures. The draft Section 61 Findings will serve as the primary template for permit conditions.

#### Comments

The DEIR should include a copy of this Certificate and a copy of each comment letter received. In order to ensure that the issues raised by commenters are addressed, the DEIR should include a response to comments received on the Phase 2 document to the extent that the subject matter of the comment is within the Scope. The Town must provide a detailed response to the comment letters submitted by MassDEP and the Cape Cod Commission as part of the joint DRI/DEIR review process. The Town should use either an indexed response to comment format,

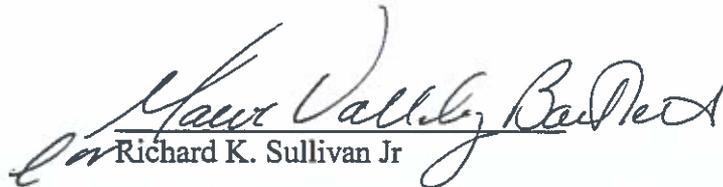
or direct narrative response. The DEIR should present any additional narrative or quantitative analysis necessary to respond to the comments received. This directive is not intended to, and shall not be construed to enlarge the scope of the DEIR beyond what has been expressly identified in this Certificate.

### Circulation

The DEIR should be circulated in compliance with Section 11.16 of the MEPA regulations and copies should also be sent to the list of "comments received" below and to town officials from the Towns of Barnstable, Falmouth and Sandwich. A copy of the DEIR should be made available for public review at the public libraries in the Towns of Mashpee, Barnstable, Falmouth and Sandwich.

November 1, 2013

Date

  
Richard K. Sullivan Jr

### Comments Received:

10/21/2013	Division of Marine Fisheries (DMF)
10/25/2013	Department of Environmental Protection (MassDEP), Southeast Regional Office (SERO)
10/25/2013	Coastal Zone Management (CZM)
10/25/2013	Natural Heritage and Endangered Species Program (NHESP)
10/25/2013	Cape Cod Commission (CCC)

RKS/NCZ/ncz

EEA #12615, Phase 2 - Alternatives Screening Analysis Report



Paul J. Diodati  
Director

# Commonwealth of Massachusetts

## Division of Marine Fisheries

251 Causeway Street, Suite 400

Boston, Massachusetts 02114

(617) 626-1520

fax (617) 626-1509



Deval Patrick  
Governor  
Richard K. Sullivan, Jr.  
Secretary  
Mary B. Griffin  
Commissioner

October 21, 2013

Richard K. Sullivan, Jr.  
Secretary, Executive Office of Energy and Environmental Affairs  
Attn: Nicholas Zavalas, MEPA Office  
100 Cambridge Street, Suite 900  
Boston, MA 02114

Re: EEA# 12615

Dear Secretary Sullivan:

The Division of Marine Fisheries (*Marine Fisheries*) has reviewed the Alternatives Screening Analysis Report (ASAR) by the Mashpee Sewer Commission as part of the Comprehensive Watershed Nitrogen Management Plan for the Town of Mashpee. The Plan relates to the Popponesset Bay and Waquoit Bay East watersheds and includes Hamblin Pond, Jehu Pond, the Mashpee River, Quashnet River, Great River, and Little River. The ASAR presents three wastewater management options (1A, 1B, and 1C), which involve increased treatment of wastewater and recharge to a variety of locations both within and outside of the associated watersheds. Massachusetts Estuaries Project (MEP) modeling results indicated that all options would meet TMDL thresholds for Popponesset Bay, Great/Little River, and Upper Waquoit Bay, but none would meet these requirements for Jehu Pond or Hamblin Pond. Existing marine fisheries resources associated with the project watersheds and potential project impacts to these resources are outlined in the following paragraphs.

The rivers and embayments within the Popponesset Bay and Waquoit Bay East watersheds provide foraging, spawning, and/or nursery habitat for a variety of diadromous fish species, winter flounder, horseshoe crabs, and shellfish [1]. These areas also contain mapped eelgrass (*Zostera marina*) beds, one of the most productive habitats for numerous marine species [2,3]. Mapping of eelgrass in these regions has demonstrated significant reductions in eelgrass bed area in Hamblin and Jehu Ponds as well as the Great/Little River system over the past decade [4]. These declines are likely due to nitrogen loading to these systems [5].

*Marine Fisheries* offers the following comments for your consideration:

- The ASAR identifies three wastewater management options (1A, 1B, and 1C) that all fail to meet TMDL thresholds for Jehu Pond and Hamblin Pond. The DEIR alternatives analysis should include options that adequately remove source nitrogen to meet TMDL thresholds for all embayment sections.

- Options 1A, 1B, and 1C include discharge of treated flow to a variety of locations. The DEIR should consider potential impacts to aquatic resources downstream of these discharge locations.
- The ASAR framework includes a variety of direct environmental mitigation components including shellfish aquaculture as potential supplements to the overall wastewater management approach. The *Marine Fisheries Shellfish Planting Guidelines* [6] will be used by *Marine Fisheries* as the template for approval of any local shellfish restoration or planting program and should be used in the development of any shellfish aquaculture-based nitrogen removal projects.

Questions regarding this review may be directed to John Logan in our New Bedford office at (508) 990-2860 ext. 141.

Sincerely,



Paul J. Diodati  
Director

cc: Mashpee Conservation Commission  
J. Jefferson Gregg, GHD, Inc.  
Rick York, Shellfish Constable  
Lou Chiarella, NMFS  
Robert Boeri, CZM  
Ed Reiner, EPA  
Ken Chin, DEP  
Richard Lehan, DFG  
John Mendes, Kathryn Ford, Christian Petipras, 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. Jackson EL, Rowden AA, Attrill MJ, Bossey SJ, Jones MB (2001) The importance of seagrass beds as a habitat for fishery species. *Oceanography and Marine Biology: an Annual Review* 39: 269-303.
3. Heck KL, Jr., Carruthers TJB, Duarte CM, Hughes AR, Kendrick G, et al. (2008) Trophic transfers from seagrass meadows subsidize diverse marine and terrestrial consumers. *Ecosystems* 11: 1198-1210.
4. Costello CT, Kenworthy WJ (2011) Twelve-year mapping and change analysis of eelgrass (*Zostera marina*) areal abundance in Massachusetts (USA) identifies statewide declines. *Estuaries and Coasts* 34: 232-242.
5. Hauxwell J, Cebrián J, Valiela I (2003) Eelgrass *Zostera marina* loss in temperate estuaries: relationship to land-derived nitrogen loads and effect of light limitation imposed by algae. *Marine Ecology Progress Series* 247: 59-73.
6. Hickey JM, Shields T, Kennedy J, Ford K (2011) Shellfish planting guidelines. Massachusetts Division of Marine Fisheries. December 2011. <http://www.mass.gov/cca/agencies/dfw/dmf/programs-and-projects/shellfish-planting-guidelines.html>

PD/JL/sd

MEMORANDUM

TO: Nicholas Zavolas, Environmental Reviewer, MEPA Unit

THROUGH: Jonathan Hobill, Regional Engineer, Bureau of Resource Protection  
Philip Weinberg, Regional Director  
David Johnston, Deputy Regional Director, BRP  
Maria Pinaud, Deputy Regional Director, BWP  
Millie Garcia-Serrano, Deputy Regional Director, BWSC  
Brenda Chabot, Deputy Regional Director, ADMIN

CC: Elizabeth Kouloheras, Chief, Wetlands and Waterways and  
Team Leader, Cape Cod Watershed  
Jeffrey Gould, Chief, Wastewater Management Program  
Brian Dudley, Cape Cod Wastewater Management  
Richard Keith, Chief, Municipal Services  
Pamela Truesdale, Municipal Services  
Leonard Pinaud, Chief, Site Management  
Allen Hemberger, Site Management

FROM: Sharon Stone, SERO MEPA Coordinator

DATE: October 25, 2013

RE: Alternatives Analysis EOEEA #12615 – MASHPEE – Comprehensive  
Watershed Nitrogen  
Management Plan

\*\*\*\*\*

"For Use in Intra-Agency Policy Deliberations"

The Southeast Regional Office of the Department of Environmental Protection (MassDEP) has reviewed the Environmental Notification Form (ENF) for the proposed Comprehensive Watershed Nitrogen Management Plan for the Town of Mashpee, Massachusetts (EOEEA #12615).

Wastewater Management Program Comments

The Wastewater Management Program has reviewed the Final Alternatives Screening Analysis Report submitted by the Town of Mashpee Sewer Commission and is pleased with the opportunity to provide comments.

It is clear that this document is a preliminary evaluation of a range of options prior to developing a recommended plan as part of a Draft Comprehensive Wastewater Management Plan (DCWMP). As such it is somewhat broad in scope and has evolved over several iterations since 2007. MassDEP is pleased to see that the analysis incorporates a watershed approach and is flexible enough to encourage consideration of an inter-municipal approach as one of the options available. In developing the DCWMP,

MassDEP expects that the Town will incorporate appropriate elements of the Cape Cod Commission's 208 planning study and will further develop inter-municipal or regional strategies in the draft document.

The alternatives analysis focuses on three wastewater treatment options that attempt to incorporate the existing privately owned treatment works to the maximum extent feasible while providing for construction of new wastewater treatment facilities. The document acknowledges that upgrades to existing facilities to achieve stringent effluent limits will likely be necessary. There are three options presented which differ mainly in the locations of wastewater recharge. Option 1A attempts to move as much treated wastewater out of the Popponesset Bay and Waquoit Bay watersheds. Recharge would occur at Site 7 (New Seabury) and at the Rock Landing Well Site. Portions of Barnstable Falmouth and Sandwich would be treated and disposed outside the watersheds. Option 1B evaluates wastewater treatment and recharge if the Rock Landing Well site and Site 7 are not available. Recharge would be within the affected watersheds and would require a greater portion of the watersheds to be treated. Barnstable and Sandwich would be treated within the watersheds, but Falmouth, west of the Moonakis/Quashnet River, would not. Option 1C focuses on wastewater recharge are more dispersed in eastern Mashpee and manages the towns similar to Option 1A.

All of the proposed options have been modeled through the Massachusetts Estuaries Project (MEP); however, none have been shown to meet critical nitrogen thresholds at all of the sentinel stations. The DCWMP will have to review other alternatives to demonstrate that nitrogen thresholds will be met at all appropriate sentinel stations.

The Alternatives Screening Analysis also addresses some non-traditional approaches to managing nitrogen which include restoration and management of the Santuit Bogs, shellfish aquaculture, stormwater management, inlet reconfiguration, permeable reactive barriers and potential land management strategies. These approaches may help augment the identified options described above and their potential effectiveness will be further informed by the aforementioned 208 study and the demonstration projects currently underway in the Town of Falmouth.

MassDEP recognizes that this document is an interim work product and looks forward to coordinating with the Town of Mashpee as it moves forward in its wastewater and nitrogen management planning.”

#### Bureau of Waste Site Cleanup

Based upon the information provided, the Bureau of Waste Site Cleanup (BWSC) searched its databases for disposal sites and release notifications located within and near the proposed project area. A disposal site is a location where there has been a release to the environment of oil and/or hazardous material that is regulated under M.G. L. c. 21E, and the Massachusetts Contingency Plan [MCP – 310 CMR 40.0000].

The proposed project involves development of a town-wide nitrogen management plan for the Town of Mashpee. Please be advised that there are many BWSC disposal sites located within and near the proposed project area. Many of the sites have been closed

under the MCP, but many others are open sites that are undergoing continued environmental monitoring and/or active remediation. A listing of these sites and a discussion of the site status will not be presented here. The Project Proponent is encouraged to consult the BWSC Waste Sites/Reportable Release Lookup at: <http://public.dep.state.ma.us/SearchableSites2/Search.aspx>

In addition, the Project Proponent can view a map showing BWSC disposal sites located within and near the proposed project area using the MassGIS online data viewer (Oliver) at: [http://maps.massgis.state.ma.us/map\\_ol/oliver.php](http://maps.massgis.state.ma.us/map_ol/oliver.php) Under "Available Data Layers" select "Regulated Areas", and then "DEP Tier Classified 21E Sites".

The Project Proponent is advised that if oil and/or hazardous material are identified during the implementation of this project, notification pursuant to the Massachusetts Contingency Plan (310 CMR 40.0000) must be made to MassDEP, if necessary. A Licensed Site Professional (LSP) should be retained to determine if notification is required and, if need be, to render appropriate opinions. The LSP may evaluate whether risk reduction measures are necessary or prudent if contamination is present. The BWSC may be contacted for guidance if questions arise regarding cleanup.

#### Proposed s.61 Findings

The "Certificate of the Secretary of Energy and Environmental Affairs on the Alternatives Screening Analysis Report" may indicate that this project requires further MEPA review and the preparation of a Final 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.

The MassDEP Southeast Regional Office appreciates the opportunity to comment on this proposed project. If you have any questions regarding these comments, please contact Sharon Stone at (508) 946-2846.





THE COMMONWEALTH OF MASSACHUSETTS  
EXECUTIVE OFFICE OF ENERGY AND ENVIRONMENTAL AFFAIRS  
OFFICE OF COASTAL ZONE MANAGEMENT  
251 Causeway Street, Suite 800, Boston, MA 02114-2136  
(617) 626-1200 FAX: (617) 626-1240

## MEMORANDUM

TO: Richard K. Sullivan, Jr., Secretary, EEA  
ATTN: Nicholas Zavalas, MEPA Unit  
FROM: Bruce Carlisle, Director, CZM  
DATE: October 25, 2013,  
RE: EEA 12615, Comprehensive Watershed Nitrogen Management Plan – Final  
Alternatives Screening Analysis Report, Mashpee

The Massachusetts Office of Coastal Zone Management (CZM) has completed its review of the above-referenced Final Alternatives Screening Analysis Report noticed in the *Environmental Monitor* dated September 25, 2013, and offers the following comments.

### Project Description

The Alternatives Screening Analysis Report (ASAR) was developed as a component of the Mashpee Sewer Commission's Comprehensive Watershed Nitrogen Management Plan (Plan) for the Town of Mashpee ("Town"). The ASAR presents the findings of the Massachusetts Estuaries Project (MEP) modeling work and includes the Popponesset Bay and Waquoit Bay East watersheds. These watersheds encompass Hamblin Pond, Jehu Pond, the Mashpee River, Quashnet River, Great River, and Little River. The ASAR presents three options involving the treatment of wastewater and recharge to various locations within and outside of the associated watersheds which are to be used in the development of the town's Recommended Plan/Draft Environmental Impact Report (DEIR). Each option was modeled by the Massachusetts Estuaries Project (MEP). The modeling indicated that all options meet the threshold values/TMDLs for Popponesset Bay, Great River, Little River, and Upper Waquoit Bay, but fail to meet the requirements for Jehu Pond or Hamblin Pond. Four types of alternative nutrient management projects are considered in the ASAR as direct environmental mitigation; dredging/inlet opening, shellfish aquaculture, permeable reactive barriers, and enhanced natural systems (wetlands and cranberry bog restoration).

### Project Comments

CZM recognizes that a significant issue for the towns on Cape Cod is the impact caused by the discharge of nitrogen through both private septic and municipal sewer systems to surrounding water bodies. These impacts have both environmental and economic consequences. CZM supports the comprehensive planning for wastewater management and applauds the effort that has gone into the development of this plan. CZM is committed to working with the Town and assisting with the development of the final Plan and offers the following comments.

### Nitrogen Removal

The DEIR should include the following information relating to the efficacy and fate of the recommended plan;

- A description of the modeling and monitoring that will be used to establish the efficacy of the proposed alternative at removing nitrogen from the watershed
- A description of the modeling and groundtruthing efforts that will be used to determine the ultimate fate of the nitrogen load



- The long-term monitoring program upstream and downstream of the project that will be used to ensure that the selected alternative continues to remove nitrogen at the required rate for the duration of the project

### ***Natural Resources***

The DEIR should include the following information relating to direct and indirect resource impacts;

- The locations of resources including, but not limited to, eelgrass, diadromous fish runs, salt marsh, shellfish beds, fish spawning areas, and Special, Sensitive, or Unique resource areas listed in the Massachusetts Ocean Management Plan and any potential impacts
- The long-term monitoring program that will ensure that the structure and function of adjacent wetlands and other natural resources are not negatively impacted during the life of the project
- The contingency plan that the Town of Mashpee Sewer Commission will adopt should it be found that natural resources are being affected by the project and/or the project is not removing nitrogen at the desired rate
- The modeling that will be used to project any potential flooding effects and the parcels affected (if the project is a wetland deepening, beach breaching, or culvert widening project)
- The modeling that will be used to determine how long the project will be stable and how often the project area will need to be altered (e.g., dredging, replanting, replacement of a carbon source)

### **Federal Consistency**

The proposed project may be subject to CZM federal consistency review. For further information on this process, please contact, Robert Boeri, Project Review Coordinator, at 617-626-1050 or visit the CZM web site at [www.state.ma.us/czm/fcr.htm](http://www.state.ma.us/czm/fcr.htm).

BC/sm/tc/rlb

cc: Stephen McKenna,  
CZM Cape & Islands Regional Coordinator



MassWildlife

Commonwealth of Massachusetts

# Division of Fisheries & Wildlife

Wayne F. MacCallum, *Director*

October 25, 2013

Richard K. Sullivan, Jr., Secretary  
Executive Office of Energy and Environmental Affairs  
Attention: MEPA Office  
Nicholas Zavalas, EEA No. 12615  
100 Cambridge St.  
Boston, Massachusetts 02114

*Project Name:* Watershed Nitrogen Management Plan  
*Proponent:* Sewer Commission, Town of Mashpee  
*Location:* Town of Mashpee  
*Document Reviewed:* Final Alternatives Screening Analysis Report  
*EEA No.:* 12615  
*NHESP No.:* 12-31134 (formerly 01-9528)

Dear Secretary Sullivan:

The Natural Heritage & Endangered Species Program of the Massachusetts Division of Fisheries & Wildlife (the "Division") has received and reviewed the proposed the *Final Alternatives Screening Analysis Report* (FASAR) for the Town of Mashpee and would like to offer the following comments regarding state-listed species and their habitats.

Portions of the Town of Mashpee and potential infrastructure improvements associated with the FASAR are mapped as *Priority* and *Estimated Habitat* in accordance with the 13<sup>th</sup> Edition of the *MA Natural Heritage Atlas*. Those activities that are not otherwise exempt (321 CMR 10.14) will require review through a direct filing with the Division for compliance with the Massachusetts Endangered species Act (MGL c. 131A) and its implementing regulations (321 CMR 10.18) (MESA) and/or the rare species provisions of the Wetlands Protection Act Regulations (310 CMR 10.37 & 10.59) (WPA). Although the Division is supportive of the Town's plan to improve wastewater and nitrogen management, as many state-listed species rely on aquatic habitats and may directly benefit from improved water quality, potential impacts from infrastructure improvements to rare upland species should also be considered during the planning process and avoided / minimized to the greatest extent possible.

Although the FASAR identifies which potential cluster system sites are located within mapped habitats, it does not contain an assessment of potential impacts to state-listed species at these sites. Additionally, the Division notes that many of the potential treatment and recharge sites identified within the FASAR for further assessment are also located within *Priority* and *Estimated Habitat*. This includes the Massachusetts Military Reservation, which provides important habitats for numerous state-listed species. Since it appears that the Town will seek to compare centralized and cluster development approaches to

[www.mass.gov/nhesp](http://www.mass.gov/nhesp)

Division of Fisheries and Wildlife

*Temporary Correspondence:* 100 Hartwell Street, Suite 230, West Boylston, MA 01583

*Permanent:* Field Headquarters, North Drive, Westborough, MA 01581 (508) 389-6300 Fax (508) 389-7890

*An Agency of the Department of Fish and Game*

managing wastewater within the *Draft Environmental Impact Report*, an assessment of potential impacts to state-listed species from the development of these sites should be included in these analyses. The Division would encourage the Town to consider design and implementation alternatives that avoid and minimize impacts to state-listed species and their habitats, and to initiate consultations with the Division as soon as possible in order to inform this assessment.

We appreciate the opportunity to comment on this project, commend the Town for its efforts to improve water quality within aquatic habitats, and look forward to working with the Town to proactively address any potential concerns related to state-listed species and their habitats. If you have any questions about this letter, please contact Jesse Emerson Leddick, Endangered Species Review Biologist, at 508-389-6386 or [jesse.leddick@state.ma.us](mailto:jesse.leddick@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.

Thomas W. French, Ph.D.  
Assistant Director

cc: Paul Gobell, Town of Mashpee, Sewer Commission Administrator  
Town of Mashpee, Department of Public Works  
Town of Mashpee, Conservation Commission  
DEP Southeastern Regional Office, Wetlands Program  
GHD Engineering

3225 MAIN STREET • P.O. BOX 226  
BARNSTABLE, MASSACHUSETTS 02630

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(508) 362-3828 • Fax (508) 362-3136 • [www.capecodcommission.org](http://www.capecodcommission.org)



CAPE COD  
COMMISSION

By Email to Analyst and Regular Mail

October 25, 2013

Secretary Richard K. Sullivan  
Executive Office of Energy and Environmental Affairs  
100 Cambridge Street  
Suite 900  
Boston, MA 02114

RECEIVED

OCT 28 2013

MEPA

**RE: MEPA Unit Project Number 12615  
Mashpee Watershed Nitrogen Management Plan Final Alternatives Screening  
Analysis Report  
MEPA Analyst Nicholas Zavolas**

Dear Secretary Sullivan:

On September 12, 2013, Cape Cod Commission (Commission) staff received a copy of the Final Alternatives Screening Analysis Report (Report) from GHD Inc. on behalf of the Town of Mashpee. The Report incorporates findings of work proposed in the Notice of Project Change (NPC) filed in June 2012.

Commission Water Program staff reviewed the Report and supports the Town's continued effort to advance its Comprehensive Wastewater Management Plan. The Report details findings of MEP linked model runs used to evaluate three (3) wastewater-management Options proposed in the 2012 NPC.

The Report identifies four (4) existing wastewater treatment facilities that will be considered in the Recommended Plan for upgrade and expansion:

- New Seabury
- Willowbend
- Mashpee High School
- Mashpee Commons



Potential use of the existing wastewater treatment facility at Joint Base Cape Cod (MMR), an option that would reduce capital costs and remove nitrogen loads from the Project Planning Area, will be evaluated through an adaptive process to be described in the Recommended Plan.

The two (2) Options for effluent disposal at Rock Landing have been abandoned due in part to the anticipated difficulty and expense of replacing the existing water-supply at the site under Option 1A and 1C. Option 1B, which preserves the Rock Landing site for water supply, assumes that Sandwich and Barnstable flows would be treated and remain in the Popponesset Bay system, that Falmouth flows would be removed from the Project Planning Area and assumes that New Seabury site would be unavailable for expanded discharges. Opportunities for reducing the amount of conventional infrastructure through source-reduction measures and experimental technologies will be evaluated under the Recommended Plan and adaptive process as the plan is phased in.

Wastewater flows managed under Option 1B are summarized in the following table (4-2) from the Report.

**Table 4-2 Option 1B—Summary of Recharges (from Table 2)**

Planning Area	Locations	Est. Average Annual Future Flow (gpd, rounded)
WWTF recharge within Popponesset Bay Watershed	Site 6 (Keeter); South Cape Village; Site 4 (Transfer Station); Willowbend and golf course; Windchime Point; Stratford Ponds; Cotuit Meadows; Wampanoag Village; Pirates Cove; Santuit Pond Cluster, Sandwich	1,520,000
WWTF recharge within Waquoit Bay East Watershed	Back Road; Site 6 (Keeter)	480,000
Septic / I/A recharge in planning area	Various	340,000
Recharge outside watershed	Site 6 (Keeter); New Seabury; Barnstable; Falmouth	350,000
<b>Totals (rounded)</b>		<b>2,700,000</b>

Results of the MEP's linked model run for Option 1B shown in the following table (4-4) from the Report indicates that the nitrogen threshold for eelgrass restoration in Popponesset Bay and infaunal habitat in the Quashnet River would be met, while the restoration threshold for eelgrass restoration in Hamblin and Jehu Ponds would not be met.

**Table 4-4 Summary of Threshold Comparison Results**

Watershed/Embayment Section	TMDL/MEP Threshold	Option 1A	Option 1B	Option 1C
	mg/L	mg/L	mg/L	mg/L
Popponesset Bay—Head	0.38	0.359	0.366	0.381
Mashpee River—Mid to lower	0.4-0.5	0.447	0.474	0.492
Shoestring Bay—Upper to lower	0.4-0.5	0.433	0.440	0.481
Ockway Bay—Upper	0.4-0.5	0.413	0.436	0.451
Jehu Pond—WB1	0.446	0.471	0.481	0.481
Great/Little River—WB3	0.38	0.355	0.359	0.359
Hamblin Pond—WB4	0.38	0.39	0.398	0.398
Quashnet River—WB7, WB8	0.52	0.502	0.503	0.503
Upper Waquoit Bay—WB12	0.38	0.358	0.359	0.359

Blue shading represents those that do not meet the Threshold.

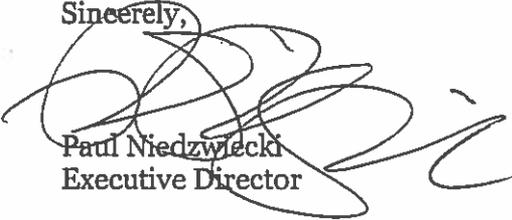
As noted in the Report, opportunities do exist for Mashpee to address Hamblin and Jehu Ponds thresholds through a reallocation of wastewater collection from Project Planning Areas where thresholds are overachieved under Option 1B (e.g. Shoestring Bay). Option 1B model results assume nitrogen thresholds will be met in other portions of Waquoit Bay shared with the Town of Falmouth. Nitrogen reductions to Waquoit Bay planned by the Town of Falmouth could bring Hamblin and Jehu Ponds in line with the MEP thresholds. However, Falmouth solutions for Waquoit Bay are many years out. The Recommended Plan should lay out a process for coordinating solutions for Hamblin and Jehu Ponds and the Quashnet River with Falmouth's planning efforts to restore water quality in the greater Waquoit Bay system.

Consistent with 208 planning efforts, the Town of Mashpee is considering a number of alternatives to conventional wastewater management options that will be evaluated under an adaptive process. Evaluations of similar alternatives by the Town of Falmouth will provide useful information to the Town of Mashpee as it begins to develop its Recommended Plan. The Commission encourages continued regional discussions concerning the potential shared use of the MMR treatment facility by Upper Cape municipalities.

Sec. Richard K. Sullivan  
October 25, 2013  
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The Commission's Water Resources staff is available to address questions concerning this letter.

Sincerely,



Paul Niedzwiecki  
Executive Director

Cc: Ernest Vigilio, Mashpee Commission Representative  
F. Thomas Fudala, Mashpee Sewer Committee Chair  
Paul Gobell, Mashpee Sewer Administrator