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February 7, 2020

CERTIFICATE OF THE SECRETARY OF ENERGY AND ENVIRONMENTAL AFFAIRS
ON THE
THIRD NOTICE OF PROJECT CHANGE/COMPREHENSIVE WASTEWATER MANAGEMENT PLAN UPDATE

PROJECT NAME	: Comprehensive Wastewater Management Plan and Targeted Watershed Management Plan – South Coast Embayments and West Falmouth Harbor
PROJECT MUNICIPALITY	: Falmouth
PROJECT WATERSHED	: Cape Cod
EEA NUMBER	: 14154
PROJECT PROPONENT	: Town of Falmouth
DATE NOTICED IN MONITOR	: December 23, 2019

Pursuant to the Massachusetts Environmental Policy Act (MEPA; M.G. L. c. 30, ss. 61-62I) and Section 11.10 of the MEPA regulations (310 CMR 11.00), I hereby determine that this project change **does not require** the submission of a supplemental Environmental Impact Report (EIR). However, as discussed below, the Town is directed to submit Notices of Project Change (NPC) in 2022 that document the draft and final Targeted Watershed Management Plans (TWMP) for Great Pond and provide additional updates about the Comprehensive Wastewater Management Plan (CWMP).

Original Project and Procedural History

The Town of Falmouth (Town) developed a CWMP in 2014 in anticipation of the adoption of Total Maximum Daily Loads (TMDL) by the Massachusetts Department of Environmental Protection (MassDEP) and the United States Environmental Protection Agency (EPA) pursuant to the federal Clean Water Act. Poor water quality, including high nitrogen loads, were documented by the Massachusetts Estuaries Project (MEP) for the following estuaries: Little Pond, Great Pond, Green Pond, Bournes

Pond, Waquoit Bay and West Falmouth Harbor. Based on water quality data and modelling, the MEP developed nitrogen thresholds to restore these waterbodies and potential nitrogen reduction scenarios that allow these estuaries to meet their respective nitrogen thresholds. The MEP nitrogen thresholds were subsequently adopted as TMDLs for nitrogen for these waterbodies.

The CWMP proposed sewer extensions to portions of the Little Pond Watershed; improvements to the Blacksmith Shop Road Wastewater Treatment Facility (WWTF); new treated wastewater recharge beds north of the WWTF, and implementation of the Nitrogen Control Bylaw for Fertilizer. The CWMP also identified non-traditional wastewater and nutrient removal techniques, including shellfish aquaculture, inlet widening, permeable reactive barriers (PRB), stormwater management, composting Eco-Toilets[1], and Innovative/Alternative (I/A) denitrifying septic systems. The CWMP identified pilot projects that would be implemented by the Town, including Bourne's Pond Inlet Widening, installation of an aquaculture system in Little Pond, and the installation of a permeable reactive barrier (PRB) in the West Falmouth Harbor watershed. The CWMP also proposed the development and implementation of an adaptive management plan to document the steps that will be taken to implement the CWMP, including any changes that are necessary to meet TMDLs. Components of the CWMP may have environmental impacts unrelated to wastewater, such as wetlands or rare species habitat, that require documentation and mitigation. MEPA review of the CWMP concluded with the issuance of a Certificate on the Final Environmental Impact Report (FEIR) on January 10, 2014.

The FEIR Certificate identified supplemental filings required of the Town as it continued to design and implement the CWMP. For any pilot project that exceeds MEPA review thresholds, the Town must file an NPC that addresses the pilot project's potential contribution towards attaining water quality standards within the watershed, identifies potential environmental impacts and mitigation measures and reviews alternative designs. In 2016, the Town submitted the first NPC for the Bourne's Pond Inlet Widening Pilot Project, which consisted of widening the inlet to the pond to increase tidal flushing and improve water quality and aquatic habitat. On March 11, 2016, a Certificate on the first NPC was issued indicating that the project change did not require the submission of a supplemental EIR. A second NPC was filed in 2019 to evaluate the effectiveness of engaging private aquaculture growers to propagate oysters at three locations within the Eel River as a method of achieving TMDL compliance. On September 20, 2019, a Certificate on the second NPC was issued indicating that the project change did not require the submission of a supplemental EIR.

The FEIR Certificate also required the Town submit an NPC to provide an overall update on the status of implementation measures set forth in the CWMP, including:

- Implementation and evolution of the CWMP;
- Development of Targeted Watershed Management Plans (TWMPs);
- An update on the Town's progress on achieving TMDL goals;
- Identification of environmental impacts and mitigation measures;
- The results of water quality monitoring;
- A schedule for project implementation and attainment of water quality goals;
- A discussion of regional wastewater management options; and,
- A list of mitigation commitments and draft Section 61 Findings.

[1] According to the NPC, eco-toilets are either composting or urine-diverting fixtures or combinations thereof.

This third NPC which is reviewed in this Certificate was filed to satisfy the requirement in the FEIR Certificate that an update be filed by December 31, 2019.

Third Notice of Project Change

The third NPC provided a summary of activities completed since 2014, reviewed components of the CWMP to be implemented through 2040 and provided updates on the TWMPs for Little Pond and West Falmouth Harbor. It summarized data collected through water quality monitoring and reviewed the status and effectiveness of pilot projects, including shellfish aquaculture, permeable reactive barriers (PRBs), eco-toilets, I/A septic systems, adoption of a Nitrogen Control Bylaw for fertilizer, stormwater management and the Bournes Pond inlet widening project. The third NPC provided updates on the TWMPs for Little Pond and West Falmouth Harbor, and reviewed planning strategies for meeting TMDLs in the Great Pond, Green Pond, Bourne Pond and Waquoit Bay watersheds. It outlined a plan for developing a TWMP for Great Pond, provided a general schedule for implementation of the CWMP and included revised draft Section 61 Findings.

Permitting and Jurisdiction

The CWMP is subject to a mandatory EIR pursuant to 301 CMR 11.03(5)(a)(3) because it will result in construction of one or more new sewer mains ten or more miles in length. The project is subject to ENF thresholds under 301 CMR 11.03(1)(b)(1) because it will alter more than 25 acres of land; 301 CMR 11.03(1)(b)(3) because it may convert land held for natural resource purposes in accordance with Article 97 of the Amendments to the Constitution of the Commonwealth to a purpose not in accordance with Article 97; 301 CMR 11.03(2)(b)(2) because it may disturb greater than two acres of designated priority habitat that results in a take of a state-listed endangered or threatened species; 301 CMR 11.03(3)(b)(1)(a) because it will alter a coastal dune and barrier beach; 301 CMR 11.03(3)(b)(1)(d) because it may alter 5,000 or more square feet (sf) of Bordering Vegetated Wetlands (BVW); 301 CMR 11.03(3)(b)(1)(e) because it includes new fill or structure or Expansion of existing fill or structure in a velocity zone; 301 CMR 11.03(b)(1)(f) because it may alter more than half an acre of other wetlands; 301 CMR 11.03(b)(10)(b)(2) because it may result in destruction of an archaeological site listed in the State Register of Historic Places or the Inventory of Historic and Archaeological Assets of the Commonwealth; and 301 CMR 11.03(11)(b) because the project is located within a designated Area of Critical Environmental Concern (ACEC).

Components of the CWMP may require one or more permits from MassDEP, including Groundwater Discharge and Sewer Extension/Connection Permits, 401 Water Quality Certifications (WQC), Chapter 91 (c. 91) Licenses, and Watershed Permit pursuant to Chapter 259 of the Acts of 2014. The CWMP may require a Conservation and Management Permit from the NHESP. The project is subject to the EEA Article 97 Land Disposition Policy and the MEPA Greenhouse Gas (GHG) Emissions Policy and Protocol (GHG Policy).

Projects identified in the CWMP will require one or more Orders of Conditions (OOC) from the Falmouth Conservation Commission (and, on appeal only, Superseding Orders of Conditions from MassDEP). The CWMP is subject to review by the Cape Cod Commission (CCC) to determine its consistency with the Section 208 Area-wide Water Quality Management Plan. The project will also

require a National Pollutant Discharge Elimination System (NPDES) Construction Activities Permit from the U.S. Environmental Protection Agency (EPA) and authorizations from the U.S. Army Corps of Engineers (ACOE) under the General Permits for Massachusetts.

The Town will receive Financial Assistance from the Commonwealth through the State Revolving Fund (SRF). Therefore, MEPA jurisdiction is broad and extends to all aspects of the project with the potential to cause Damage to the Environment as defined in the MEPA regulations.

Review of the Third NPC

The third NPC provided a comprehensive analysis of the Town's efforts to address water quality in the south coast embayments and West Falmouth Harbor. It reviewed water quality data, compared nitrogen levels to target concentrations established to meet TMDLs and identified traditional and non-traditional methods for removing nitrogen and attributed a removal rate to each one. The NPC provided supporting technical reports and data, including surface water and groundwater monitoring data, assessments of nitrogen loads, descriptions and results of pilot projects and evaluations of wastewater infrastructure designs.

The use of adaptive management underlies the Town's approach to the executing the CWMP. The results of ongoing monitoring of water quality, groundwater elevations and the effectiveness of nitrogen removal methods as they are implemented will be used to guide decisions on subsequent steps for achieving TMDLs.

Water Quality Monitoring/Data

The NPC reviewed water quality data for Little Pond, Great Pond, Green Pond and Bournes Pond collected by the Falmouth Pond Watch Monitoring Program from 2004 to 2017. Samples were collected from at least four stations in each pond during July and August. The average Total Nitrogen concentration was compared to the target threshold nitrogen concentration established by the MEP report for each water body. According to the NPC, nitrogen levels in each pond exceed the target thresholds, but there are no clear trends in nitrogen concentrations across the sampling stations in each pond.

The Waquoit Bay estuary is located within Falmouth, Mashpee and Sandwich. The NPC summarized water quality data collected by the University of Massachusetts-Dartmouth School for Marine Science and Technology (SMAST) from 2001 to 2017. The MEP report for Waquoit Bay established target threshold nitrogen concentrations for the entire watershed and sub-embayments, including Waquoit Bay- Main Basin, Eel Pond, Childs River, Quashnet River and a portion of Hamblin Pond, all of which are located in Falmouth. Similar to the results for the other water bodies addressed in the CWMP, nitrogen levels exceed the target thresholds and none of the sub-embayments showed any significant trends in nitrogen concentrations over the sampling period.

Pilot Projects

The NPC reviewed seven non-traditional technologies/strategies that have been investigated for use in reducing nitrogen levels in groundwater, including shellfish aquaculture, permeable reactive

barriers (PRBs), eco-toilets, I/A septic systems, adoption of a Nitrogen Control Bylaw for fertilizer, stormwater management and the Bournes Pond inlet widening project.

Aquaculture

The Town has conducted oyster culture pilot projects in Little Pond West Falmouth Harbor, Waquoit Bay and Bournes Pond. As described in the second NPC, the Town is currently soliciting proposals from commercial growers for three sites in Eel Pond. According to the third NPC, large numbers of oysters have been grown successfully in the estuaries and have produced improvements in water quality, including localized reductions of nitrogen. The Little Pond pilot project has been on-going since 2012. A three-year monitoring effort (2013-2015) by SMAST showed some evidence of a localized reduction in nitrogen but there has been no significant reduction in nitrogen concentrations compared to the MEP target thresholds. The third NPC noted evidence of nitrogen removal by oysters in Waquoit Bay and Bournes Pond, but no significant water quality benefits were observed in the sampling results.

I/A Septic Systems and Eco-Toilets

The Town conducted studies of the effectiveness and feasibility of I/A septic systems and eco-toilets. The eco-toilet test program had limited participation by residents despite a number of financial incentives offered to homeowners due to concerns about on-going maintenance needs of these system. Nitrogen removal rates ranged from 48 percent to 86 percent, but these positive results are offset by significant installation and maintenance costs. A number of I/A technologies were evaluated in a two-phased pilot program in West Falmouth Harbor. Most of these systems achieved nitrogen removal rates of at least 68 percent, but site-specific constraints significantly affect installation costs.

Permeable Reactive Barriers (PRB)

According to the NPC, PRBs have been successfully used to remediate groundwater contaminated by hazardous waste but have not been widely used to remove nitrogen. The Town conducted detailed evaluations of soil characteristics and groundwater hydrology at two sites in the Great Pond watershed and a site in the Bournes Pond watershed. One Great Pond site and the Bournes Pond site were identified as good candidates for the use of PRB systems because they are characterized by moderate to high nitrate concentrations, shallow depths to nitrate-contaminated groundwater, soil comprised of well-graded sand and groundwater velocities and chemistry well-suited to this technology. The Town and the Woods Hole Oceanographic Institute (WHOI) have jointly applied for a grant to fund installation of a PRB at the Great Pond site.

Nitrogen Control Bylaw for Fertilizer

The Town adopted a Nitrogen Control Bylaw for Fertilizer at the Fall Town Meeting in 2012. According to the third NPC, fertilizer accounts for five to 10 percent of nitrogen entering the watersheds. With exceptions for golf courses, agriculture and horticulture, the Bylaw-prohibits application of fertilizer from October 16th to April 14th, within 100 feet of a wetland, on impervious surfaces and during heavy rain events. The Bylaw specifies the type of fertilizer and its application rate on golf courses. The Town has sought to increase compliance with the Bylaw through annual mailings

to its residents and through a standard condition in Order of Conditions issued by the Falmouth Conservation Commission.

Stormwater Management

According to the third NPC, stormwater runoff contributes five to 10 percent of nitrogen entering the watersheds and implementation of stormwater Best Management Practices (BMP) can remove 25 percent of the nitrogen from this source. The Town has identified locations in the Green Pond, Falmouth Inner Harbor, Waquoit Bay and Great Pond watersheds where BMPs could be constructed to treat runoff, and is seeking funding from the EPA to evaluate additional BMP technologies before proceeding with any of these pilot projects. The Town anticipates installing BMPs where feasible in connection with roadway projects.

Bournes Pond Inlet Widening

As noted earlier, the Town filed the first NPC in 2016 proposing to widen the Bournes Pond inlet to increase tidal flushing. It is estimated that this measure will remove 50 percent of the target nitrogen load and improve shellfish and eelgrass habitat. The Town expects this project to be completed in 2022.

Targeted Watershed Management Plan Updates

Little Pond

The Town has nearly completed construction of a wastewater collection system in the Little Pond Sewer Service Area (LPSSA). This project will provide connections to the sanitary sewer system to 1,350 parcels, of which 1,010 are in the Little Pond watershed, 253 parcels are in the Great Pond watershed and 87 are in areas that recharge directly to Vineyard Sound. This project alone is expected to achieve at least 70 percent of the nitrogen load reduction necessary to meet the TMDL goal. According to the third NPC, water quality in Little Pond is expected to improve gradually as nitrogen plumes from disconnected septic systems flow through groundwater and are dissipated in Little Pond. The Town will monitor water quality to assess the effectiveness of the sewering project and to guide future implementation of additional measures to remove nitrogen from the watershed. In addition to nitrogen reductions expected through the Nitrogen Control Bylaw and stormwater management, the third NPC identified the potential use of I/A systems and aquaculture to reduce nitrogen levels to meet the target concentration.

West Falmouth Harbor

The Town's WWTF is located within this watershed. It was upgraded in 2005 to provide tertiary treatment with denitrification filters to provide enhanced nitrogen removal. Additional nitrogen removal capacity was added to the WWTF in connection with the LPSSA sewering project. Treated effluent is discharged to 13 recharge beds in the West Falmouth Harbor watershed and to two recharge beds in the Herring River watershed constructed to accommodate added flows from the LPSSA project. The WWTF's groundwater discharge permit specifies an annual nitrogen discharge limit of 4,109 pounds, which corresponds to the amount determined by the MEP to achieve the target threshold concentration. According to the third NPC and public comments, the WWTF has not consistently met discharge

requirements. In order to treat and dispose of increased wastewater from the LPSSA and future sewering projects, a third Sequencing Batch reactor (SBR) will be added to the WWTF and the additional effluent disposal capacity must be provided. Additional information on the Town's selected plan for modifying this facility will be provided in the draft TWMP.

TMDL Compliance Plans for other Watersheds

The third NPC reviewed the current status of planning in the other watersheds where a TWMP has not yet been finalized.

Great Pond

The Great Pond watershed is the next one for which the Town will prepare a TWMP. As noted earlier, 253 parcels in this watershed have been sewered as part of the LPSSA project. The Town has begun the conceptual design of the Teaticket Acapesket Sewer Service Area (TASSA) wastewater collection system that will provide sewer service to 1,791 parcels, including 1,289 parcels in the Great Pond watershed. The combined effect of sewering portions of the watershed by the LPSSA and TASSA projects is expected to result in the removal of up to approximately 75 percent of the nitrogen loading necessary to meet the TMDL. The Town will also monitor potentially significant nitrogen attenuation associated with the Coonamessett River Restoration project, which will restore abandoned cranberry bogs to a natural wetland system. In addition to the Nitrogen Control Bylaw and stormwater management, the Town may use aquaculture and a PRB to gain further reductions in nitrogen.

As noted above, the TASSA project will require the expansion of the WWTF with a third Sequencing Batch Reactor (SBR) and the addition of disposal capacity through open sand beds, subsurface effluent disposal or an ocean outfall. The Scope for the Great Pond TWMP detailed below requires the Town to prepare a comprehensive analysis of alternative treatment and disposal options, including an evaluation of water quality benefits and environmental impacts of each alternative.

Green Pond

The TASSA project will connect 502 parcels in the Green Pond watershed to the Town's wastewater system, which is expected to remove approximately half of the nitrogen necessary to meet the TMDL. Additional measures that may be implemented to achieve the TMDL include continued implementation of the Nitrogen Control Bylaw, stormwater management in the Captain's Lane area and aquaculture. The third NPC also reviewed water quality issues in Mill Pond, which is directly downstream of actively-farmed cranberry bogs and flows into Green Pond. Management of fertilizer use and water flow in the cranberry bogs, construction of a detention pond and grate between the cranberry bogs and Mill Pond and harvesting of macrophytes in Mill Pond are additional measures that could reduce nitrogen levels in Green Pond.

Bournes Pond

As noted earlier, the Town will widen the Bournes Pond inlet from 50 feet to 90 feet to increase tidal flushing and remove approximately 50 percent of the nitrogen load in the watershed. Shellfish aquaculture in the pond is expected to achieve most of the remaining reduction in nitrogen levels needed

to achieve the TMDL; stormwater management and implementation of the Town's Nitrogen Control Bylaw are also expected to contribute to nitrogen removal.

Waquoit Bay

The Waquoit Bay watershed includes parts of Falmouth, Mashpee and Sandwich. As noted in the third NPC, there are regional opportunities for addressing nitrogen loads in the watershed, including the potential use of the wastewater treatment facility at the Joint Base Cape Cod (JBCC) by Falmouth, Barnstable, Bourne Mashpee and Sandwich. The Waquoit Bay watershed is comprised of six subwatersheds, of which five are located in Falmouth: Eel Pond, Childs River, Hamblin Pond/Little River, Quashnet/Moonakis River and Waquoit Bay. The Town is considering sewering parts of the Eel Pond and Childs River watersheds, which would connect 1,315 parcels to the Town's WWTF. The NPC did not address any necessary expansion of the treatment or disposal facilities. In addition, the Town of Mashpee is planning to sewer areas within the Childs River, Quashnet River and Hamblin Pond/Little River watersheds. Sewering areas within the Waquoit Bay watershed will achieve well over 50 percent of the nitrogen reduction necessary to achieve the TMDL. Continued implementation of the Nitrogen Control Bylaw, stormwater management and aquaculture installations may be used for further reductions in nitrogen to meet the TMDL.

Conclusion

Comments from State agencies and environmental groups are generally supportive of the Town's effort in preparing the CWMP, including its evaluation of a broad range of nitrogen removal measures. Several significant issues of concern were highlighted by commenters, including MassDEP and CZM, and should be comprehensively addressed in future MEPA filings as described below. These issues include the lack of a commitment to a firm schedule for implementing nitrogen reduction measures and completing TWMPs for other watersheds in Falmouth; the attribution of high nitrogen removal rates to non-traditional methods, particularly aquaculture, and the Town's reliance on these methods for achieving TMDLs; the potentially long delay between monitoring the results of pilot projects and using the adaptive management approach to determine any supplemental actions are necessary to achieve TMDLs; and the need for the Town to identify conventional backup measures if targets are not reached. According to the third NPC, the Town intends to file NPCs describing draft and final TWMPs for the Great Pond watershed in 2022. In addition to providing a detailed description of the TWMP, the NPC should provide additional information and analysis on the development and implementation of other parts of the CWMP.

SCOPE

General

The NPC for the draft TWMP for Great Pond (hereafter referred to as the draft TWMP) should be filed early in 2022 to accommodate the Town's schedule for the final TWMP to be reviewed by the end of 2022. It should follow the outline for the TWMP included in the third NPC, as supplemented by this Scope. The draft TWMP should clearly identify a Preferred Alternative and demonstrate that it

includes all feasible measures to avoid Damage to the Environment, or, to the extent it cannot be avoided, to minimize and mitigate Damage to the Environment to the maximum extent practicable.

The third NPC did not include a schedule for implementing the TWMPs or completing the planning needed for adoption of TWMPs in other watersheds beyond Great Pond. To better evaluate the impacts of implementation of the CWMP and potential alternatives and mitigation measures to avoid and minimize impacts, the draft TWMP should include a schedule for other watersheds included in the CWMP. I refer the Town to comments from MassDEP requesting additional information about the implementation of the CWMP.

Project Description and Permitting

The draft TWMP should provide background information on the development of the CWMP and the TWMP. It should provide a detailed description of the Preferred Alternative for the Great Pond TWMP, identify environmental impacts, including rare species habitat, wetlands, water quality, historic and cultural resources, land protected under Article 97 and ACECs. The draft TWMP should identify measures to mitigate impacts, including construction-period measures. It should review the growth projections used to plan for the nitrogen removal requirements of the sewering and non-traditional measures identified in the draft TWMP and the potential secondary impacts associated with development and growth that may be facilitated by implementation of the CWMP.

The draft TWMP should clarify the proposed design and treatment capacity of the WWTF to accommodate the TASSA project wastewater flows and describe, at a conceptual level, how flows from future sewering projects could be accommodated at the facility. I note that MassDEP is evaluating the implications of per- and polyfluoralkyl substances (PFAS) in wastewater, including potential effects of elevated PFAS concentrations in effluent on downstream water supplies and in wastewater residuals. The draft TWMP should review any guidance or regulatory requirements produced by MassDEP or EPA related to PFAS and other contaminants of emerging concern (CEC) that could affect the design of the WWTF or other components of the CWMP. The draft TWMP should provide the results of any sampling or monitoring of these contaminants.

The draft TWMP should identify all required state, local and federal permits or other approvals, provide a brief description and analysis of applicable statutory and regulatory standards and requirements, and describe how the project will meet those standards. It should provide updated information on the effectiveness of nitrogen removal measures identified in TMDL compliance plans. In 2018, MassDEP issued the Pleasant Bay Watershed Permit to the towns of Brewster, Chatham, Harwich and Orleans. This was the first Watershed Permit issued pursuant to Chapter 259 of the Acts of 2014. Based on consultation with MassDEP, the draft TWMP should review the scope and general requirements of a watershed permit and how it may be applicable to the CWMP as a whole or specific watersheds within the CWMP, including Great Pond. According to NHESP, the WWTF, potential effluent discharge sites identified in the third NPC and the JBCC are located within Priority Habitat of rare species. The Town should consult with NHESP prior to filing the draft TWMP regarding potential project components to be constructed in rare species habitat.

Alternatives Analysis

The draft TWMP should include an analysis of alternatives for all major components of the Preferred Alternative. Implementation of the TASSA project will require modifications to the WWTF. The draft TWMP should include a summary of the alternatives reviewed for the collection system and modifications to the WWTF provided in Appendix 5 of the third NPC, including any more recent alternatives the Town has considered.

The draft TWMP should provide comprehensive and detailed analysis of alternative discharge technologies and locations from the WWTF that builds upon the evaluation included in the third NPC. At a minimum, it should describe and evaluate open sand beds, subsurface effluent disposal and ocean outfall alternatives for effluent discharge. For effluent recharge alternatives, the analysis should review potential impacts to downgradient receptors, including Herring Brook, and any nitrogen offsets that may be necessary. At a minimum, the draft TWMP should further evaluate the Nobska Point and Buzzards Bay ocean discharge options identified in the third NPC. The Town should consult with MassDEP and CZM regarding what information should be provided for the outfall alternatives with respect to the Ocean Sanctuaries Act. I refer the Town to comments from MassDEP, CZM, Buzzards Bay Coalition and Falmouth Water Stewards, which may inform the Town's analysis.

Water Quality Monitoring and Adaptive Management

The draft TWMP should review water quality data collected in connection with the aquaculture and other pilot projects and WWTF discharge to provide an updated estimate of the expected nitrogen removal effectiveness of proposed measures as a means of achieving the Great Pond TMDL and water quality goals in other watersheds. If necessary, the draft TWMP should identify any changes to the TMDL compliance plan identified in the third NPC based on data collected on the effectiveness of proposed measures. This analysis should specifically respond to the concerns expressed by MassDEP and CZM that the nitrogen removal effectiveness of shellfish aquaculture may be lower than anticipated in the third NPC and should support the proposed nitrogen removal credits for measures identified in the draft TWMP.

As noted by MassDEP, while the adaptive management approach adopted by the Town facilitates informed decision-making for future actions, it relies to a large extent on water quality monitoring that may take several years to collect and analyze. Furthermore, the TWMP and other TMDL compliance plans identify nitrogen removal measures that may not achieve future target concentrations and do not provide a backup plan for that event. By the time the draft TWMP is filed, the Town will have collected additional data on aquaculture and potentially other pilot projects. This data should be used to support the nitrogen removal estimates included in the draft TWMP for Great Pond and other TWMPs and TMDL compliance plans. The TWMP should identify proven technologies as contingency measures in the event that monitoring demonstrates that the proposed non-traditional nitrogen removal methods do not perform as expected.

Regional Planning

The draft TWMP should provide updates on opportunities for wastewater planning on a regional scale identified in the third NPC, including its coordination with Sandwich and Mashpee to establish nutrient loadings and responsibilities for the Waquoit Bay watershed and discussions related to the potential use of the JBCC wastewater facility. I encourage Falmouth, Sandwich and Mashpee to enter

into an Inter-Municipal Agreement (IMA) to formalize their working relationship. The draft TWMP should identify any potential contingency measures for nitrogen removal that may developed through these regional planning efforts.

Climate Change

Governor Baker's Executive Order 569: Establishing an Integrated Climate Change Strategy for the Commonwealth (EO 569; the Order) was issued on September 16, 2016. The Order recognizes the serious threat presented by climate change and directs agencies within the administration to develop and implement an integrated strategy that leverages state resources to combat climate change and prepare for its impacts. The Order seeks to ensure that Massachusetts will meet greenhouse gas (GHG) emissions reduction limits established under the Global Warming Solution Act of 2008 (GWSA) and will work to prepare state government and cities and towns for the impacts of climate change. Review of these issues through the GHG Policy and requirements to analyze the effects of climate change through EIR review is an important part of this statewide strategy. These analyses inform State Agencies and proponents' understanding of a project's GHG emissions and a project's vulnerability to the effects of climate change.

Adaptation and Resiliency

The Town is a participant in the Commonwealth's Municipal Vulnerability Preparedness (MVP) program. The MVP program is a community-driven process to define natural and climate-related hazards, identify existing and future vulnerabilities and strengths of infrastructure, environmental resources and vulnerable populations, and develop, prioritize and implement specific actions the Town can take to reduce risk and build resilience.

I encourage the Town to consult the data available on the resilientMA.org website to develop climate change scenarios for the project and identify potential adaptation measures. EEA's *Climate Change Adaptation Report*[2] (September 2011) and the Town's *Climate Change Vulnerability Assessment*[3] (dated December, 2019) provide additional resources to assist in this analysis. The draft TWMP should review the capacity of the wastewater collection and treatment systems under projected levels of precipitation and sea level conditions and the resiliency of the system to the effects of climate change. It should identify any components, such as pump stations, located within coastal or inland flood zones and consider alternative locations for the infrastructure or identify design measures to improve the resiliency of the project.

Greenhouse Gas Emissions

The FEIR Certificate required the Town to consult with MassDEP during final design of proposed improvements and upgrades for the WWTF and consider implementation of additional GHG reduction measures. This project is subject to review under the May 5, 2010 MEPA GHG Policy. The Policy requires Proponents to quantify carbon dioxide (CO_2) emissions and identify measures to avoid, minimize or mitigate such emissions. The analysis should quantify the direct and indirect CO_2 emissions of the project's energy use. Direct emissions include on-site stationary sources, which typically emit

[2] Available online at http://www.mass.gov/eea/docs/eea/energy/cca/eea-climate-adaptation-report.pdf
[3] Available online at http://www.falmouthmass.us/DocumentCenter/View/7018/FalmouthVA_Final_Report_Draft

GHGs by burning fossil fuel for heat, hot water, steam and other processes. Indirect emissions result from the consumption of energy, such as electricity, that is generated off-site by burning of fossil fuels, and from emissions from vehicles used by employees, vendors, customers and others. The Policy directs proponents to use applicable building codes to establish a project emissions baseline that is "code-compliant." However, there is no building energy code equivalent that applies specifically to WWTFs or energy use models (such as eQUEST) designed to estimate the projected energy use of the WWTF processing energy loads.

The draft TWMP should include an evaluation of GHG emissions associated with modification to the WWTF and any other facilities, such as pump stations, that may emit GHG. It should establish a Base Case and an as-proposed Preferred Alternative Case along with providing the other information required by the Policy. Both the projected energy consumption and related GHG emission should be quantified for both cases. Design assumptions for the base case should be based on a typical WWTF and pump station design that meets the requirements of TR-16, *Guides for the Design of Wastewater Treatment Works*, 2016 Edition, which is commonly used as a guide for wastewater facility design in Massachusetts. The as-proposed Preferred Alternative design should include features and measures that would result in a significant reduction from the Base Case in both the consumption of grid electricity and the related GHG emissions. Measures that should be evaluated include: increasing piping sizes to reduce friction loss; use of premium efficiency pumps and motors; and use of variable frequency pump drives (VFD).

The Town should consult MassDEP's "Energy Efficiency and Renewable Energy Opportunities at Water and Wastewater Facilities" webpage[4], the Water Environment Research Foundation's *Utilities of the Future Energy Findings*[5] report published in 2014, the EPA's *Evaluation of Energy Conservation Measures for Wastewater Facilities*[6] (2010), the *Water and Wastewater Energy Management Best Practices Handbook*[7] (2010) prepared by the New York State Energy Research and Development Authority, and other resources to identify energy efficiency practices at WWTFs. For key components and systems of the WWTF, the draft TWMP should review energy-efficient alternatives identified in the reports cited above and indicate whether the Town will adopt the measure or not, and provide a rationale for the decision. The draft TWMP should review opportunities for on-site energy generation, including biogas and solar photovoltaic (PV) systems. The Town should consult with MEPA staff before completing this analysis.

Mitigation and Draft Section 61 Findings

The draft TWMP should include a separate chapter summarizing proposed mitigation measures. This chapter should also include draft Section 61 Findings for each permit or other approval to be issued by State Agencies. The draft TWMP should contain clear commitments to implement these mitigation measures, estimate the individual costs of each proposed measure, identify the parties responsible for

[4] http://www.mass.gov/eea/agencies/massdep/climate-energy/energy/water-utilities/energy-efficiency-at-water-and-wastewater-facilities.html
[5] Available online at https://www.werf.org/a/ka/Search/ResearchProfile.aspx?ReportId=ENER6C13
[6] Available online at https://nepis.epa.gov/Exe/ZyPDF.cgi/P1008SBM.PDF?Dockey=P1008SBM.PDF
[7] Available online at https://www.nyserda.ny.gov/-/media/Files/Programs/Clean-Energy-Communities/NYSERDA-Water-Wastewater-Energy-Management-Best-Practices-Handbook.pdf

implementation, and a schedule for implementation. It should clearly indicate which mitigation measures will be constructed or implemented based upon project phasing.

Responses to Comments

The draft TWMP should contain 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 draft TWMP should include direct responses to comments to the extent that they are within MEPA jurisdiction. This directive is not intended to, and shall not be construed to, enlarge the Scope of the draft TWMP beyond what has been expressly identified in this certificate.

Circulation

The Town should circulate the draft TWMP to those parties who commented on the third NPC, to any State Agencies from which the Proponent will seek permits or approvals, and to any parties specified in section 11.16 of the MEPA regulations. Per 301 CMR 11.16(5), the Town may circulate copies of the draft TWMP to commenters in CD-ROM format or by directing commenters to a project website address. However, the Town must make a reasonable number of hard copies available to accommodate those without convenient access to a computer and distribute these upon request on a first-come, first-served basis. The Town should send correspondence accompanying the CD-ROM or website address indicating that hard copies are available upon request, noting relevant comment deadlines, and appropriate addresses for submission of comments. The draft TWMP submitted to the MEPA office should include a digital copy of the complete document. A copy of the draft TWMP should be made available for review at the Falmouth Public Library.

February 7, 2020
Date

K. Theoharides
Kathleen A. Theoharides

Comments received:

01/03/2020 David Dow
01/10/2020 David Dow
01/13/2020 Natural Heritage and Endangered Species Program (NHESP)
01/15/2020 Falmouth Water Stewards
01/27/2020 Buzzards Bay Coalition
01/28/2020 Cape Cod Commission
01/28/2020 Massachusetts Office of Coastal Zone Management (CZM)
01/28/2020 Massachusetts Department of Environmental Protection (MassDEP) – Southeast Regional Office

KAT/AJS/ajs

From:	David Dow
To:	Strysky, Alexander (EEA)
Cc:	David Dow
Subject:	Relationship between MEPA EEA 14154 & US EPA Science Advisory Board WOTUS Review
Date:	Friday, January 10, 2020 10:38:05 PM

From: David Dow <ddow420@comcast.net>
Subject: Comments for EPA Chartered Scientific Advisory Board on WOTUS
Date: January 8, 2020 at 11:11:42 AM EST
To: armitage.thomas@epa.gov
Cc: David Dow <ddow420@comcast.net>

I am a retired marine scientist and grassroots environmental activist living on Cape Cod, Ma.
I have been involved in the EPA/US Army Corps of Engineers WOTUS (Water of the US)
dialog since 2017, when I participated in an online public hearing. I live in the Waquoit Bay
Watershed on Cape Cod which is has eutrophication problems in Ashumet Pond from “P”
enrichment from the former wastewater treatment plant at Joint Base Cape Cod (JBCC)
and “N” enrichment from septic systems which has caused loss of habitat for marine biota
and water quality problems in Waquoit Bay. When I worked at the Northeast Fisheries
Science Center in Woods Hole, I participated in the EPA-lead Waquoit Bay Watershed
Ecological Risk Assessment project which identified nutrients as the major human stressor
in the watershed. This project explored the relationship between bay scallops; loss of eelgrass
beds and “N” enrichment from the watershed.

The Cape Cod Commission; Massa. Department of Environmental Protection and EPA Region 1
have been overseeing the Comprehensive Wastewater Management Plans/Targeted Watershed
Management Plans (CWMP/TWMP) program to reduce “N” loading from septic systems to our >
50 coastal embayments suffering from eutrophication. The Conservation Law Foundation consent
decree was folded into the CWMP/TWMP process.

There are 14 “N” sensitive embayments in
the Town of Falmouth (which includes Waquoit Bay which is occupied by the towns of Falmouth;
Mashpee and Sandwich). I recently submitted comments to Ma. DEP on the Falmouth Notice of
Project Change for the South Coast Embayments and West Falmouth Harbor for Phase 1 of the

CWP/TWMP. (see Letter to Editor in CapeCodToday).

In more recent times, PFOS and PFOA from the Ashumet Valley Plume (AVP) at Joint Base Cape Cod has contaminated public and private drinking water wells in Falmouth and Mashpee. This required GAC (granular activated carbon treatment) to remove PFOS and PFOA from the drinking water wells. The source areas for the AVP include: former fire training area and wastewater treatment plant at JBCC plus the water/sediments of Ashumet and Johns Ponds. Thus the plume has expanded to a big blob effecting both public and private drinking water in Falmouth and Mashpee.
I represent the Sierra Club on the University of Rhode Island STEEP (Sources, Transport, Exposure, Effects of PFAS) grant Cape Cod Advisory Committee. The STEEP grant project includes monitoring of 150 private drinking water wells on Cape Cod for 25-30 PFAS chemicals and research on the uptake of PFAS chemicals by fish in Ashumet Pond (US Geological Survey endeavor). I have spent over 20 years engaged in the CERCLA/SDWA cleanup at JBCC.

My specific concerns about the proposed EPA changes to WOTUS include:

* Dropping groundwater based watersheds (like those here on Cape Cod) from the jurisdictional of the Clean Water Act) is a bad idea

* Need to address wastewater ("N" enrichment of coastal embayments and "P" pollution of freshwater ponds) and drinking water challenges (toxic chemicals and contaminants of emerging concern) simultaneously in an integrated and cost effective fashion

* Since the treatment systems and waste site cleanup standards will require a lot of resources ($ and people), Environmental Justice and polluter pays concerns need to be addressed

* Since the NOAA Fisheries Essential Fish Habitat regulations extend into state jurisdictional water(0—3 miles), the effects of nutrients; increased water temperature and ocean acidity; periodic hypoxia; microplastics; etc. need to be considered in addition to water quality improvements. I used to serve on the New England Fishery Management Council's Habitat Plan Development Team which helped develop Omnibus Habitat Amendments 2 which was published in 2018

* There is a need to use the best available science in developing targetted “N” cleanup standards for coastal embayments and “P” for freshwater ponds and maximum contaminant levels for PFAS chemicals in drinking water. When I participated in the online WOTUS public hearing, no mention was made of science and environmental protection as the basis for the proposed changes. President Trump’s Executive Order and the Trump Administrations new definition of federalism were given as the justification. Since the wastewater and drinking water problems on Cape Cod will take many years to resolve and be quite costly, we can’t afford to have the infrastructure costs funded entirely by state/local entities.

Thanks for your consideration of these comments.

Dr. David D. Dow

Letter - Implementation of Comprehensive and Targeted Wastewater Management on Cape

from Dr. David Dow, East Falmouth

ARTICLE | **LETTERS TO THE EDITOR** | JANUARY 4, 2020 04:45 AM | BY **CAPECODTODAY STAFF**

<letter-to-the-editor_17_336.jpg>

Letters to the editor reflect the opinion of the letter writer. They do not necessarily represent the opinions of the editors, staff and advertisers of CCToday.

I recently submitted comments to the Massachusetts Department of Environmental Protection on the Town of Falmouth’s Notice of Project Change for the South Coast Embayments and West Falmouth Harbor Comprehensive Wastewater Management Plan (CWMP)/Targeted Wastewater Management Plan (TWMP). This is the first phase for restoring habitats (eelgrass beds; oyster reefs; salt marshes) for marine biota and improving water quality (reducing Nitrogen loading from septic systems and improving water transparency) for 13 watersheds within the town boundaries and the Waquoit Bay Watershed which includes Falmouth; Mashpee and Sandwich.

Since I live in the Waquoit Bay Watershed and have been engaged as a grassroots environmental activist in the Superfund/Safe Drinking Water Act cleanup at Joint Base Cape Cod for over 20 years, I am concerned about the drinking water and wastewater challenges where I live. In addition, perfluroinatei chemical contamination of private and public drinking water wells from the Ashumet Valley Plume has created concerns about toxic chemicals in our drinking water. Thus I accepted an invitation to join the Cape Cod Advisory Committee for the University of Rhode Island's STEEP (Sources, Transport, Exposure, Effects of PFAS) grant which has been measuring the levels of PFAS chemicals in private drinking water wells on Cape Cod. Ma. DEP is developing a maximum contaminant levels for 6 PFAS chemicals of 20 parts per trillion (down from the current hazard warning level of 70 ppt).

During my time working as a marine scientist at the Fisheries Lab in Woods Hole, I served as the recreational fisheries coordinator in the Northeast; participated in the New England Fishery Management Council's Habitat Plan Development Team (which helped develop Omnibus Habitat Amendment 2 which was published in 2018); served on the Environmental Protection Agencies Waquoit Bay Watershed Ecological Risk Assessment project; and participated in the EMaX (Energy Modeling and Analysis Exercise) research project which developed a food chain carbon flow model from the Northeast Continental Shelf Ecosystem. Thus I have a concern on the effects of the CWMPs/TWMPs on Cape Cod on both habitat restoration critical to marine biota and water quality (both excess nutrients and toxic chemicals). I support the US Water Alliance's One Water concept of addressing both drinking water and wastewater from a watershed perspective. The Cape Cod Commission; Ma. DEP and EPA Region 1 have adopted a watershed perspective for the CWMP/TWMP for the > 50 "N" impacted embayments here on Cape Cod.

Some of my concerns on the Falmouth Notice of Project Change (EEA # 14164) include:

* Essential Fish Habitat in coastal embayments are effected by warming waters and ocean acidity; shifting ranges of managed fish species from the Mid-Atlantic region or migrating further offshore/into the rapidly warming Gulf of Maine (i.e. Summer Flounder moving in and American lobsters migrating out of Nantucket Sound); microplastics contamination from stormwater and wastewater treatment plants (wwtps); contaminants of emerging concern (cecs) bioaccumulating in the marine food chain; seasonal hypoxia (low dissolved oxygen levels win bottom waters of Cape Cod Bay) in addition to eutrophication ("N" loading from septic systems).

* The primary solution to be employed by the Town of Falmouth is upgraded or new wwtps with ocean outfalls for treated swage effluent (which likely will contain cecs) and disposal of sewage sludge which likely contains PFAS chemicals. This is likely to be a costly approach to implement without government grants covering 50% of the infrastructure costs and close down costs for residents to connect to sewers/close down their septic systems. There has been discussion of the Town of Barnstable taking over the former wwtp at JBCC and expanding it to serve the Upper Cape towns. Thus the cost of this component of the project is poorly understood.

* The NPC doesn't discuss environmental justice concerns that would include seniors on fixed incomes and service industry employees living paycheck to pay check and how they would pay for these expensive infrastructure improvements. Some type of socioeconomic analysis is required which would be accompanied a community outreach program.

* Finally an ecosystem based approach for management of marine biota and their habitats is required to address the reality that we live in rapidly changing marine environment which is not at a steady state. equilibrium condition (underlying concept for CWMP/TWMP watershed plans). The Waquoit Bay ERA project examined the interaction between bay scallop fishery collapse and loss of eelgrass beds/excess nitrogen loading.

Others may want to offer additional comments on the strengths and weaknesses of the CWMP/TWMP watershed approach here on Cape Cod to address both our drinking water and wastewater challenges. The comment period on EEA # 14164 extends until January 13, 2020.

Dr. David Dow

East Falmouth, Ma.

From: Strysky, Alexander (EEA) on behalf of MEPA (ENV)
To: Strysky, Alexander (EEA)
Subject: FW: Comments on MEPA EEA #14164
Date: Friday, January 3, 2020 2:27:22 PM

Alex Strysky
MEPA Office
100 Cambridge St.
Boston, MA 02114
(617) 626-1025

From: David Dow <ddow420@comcast.net>
Sent: Friday, January 3, 2020 10:49 AM
To: MEPA (ENV) <mepa@mass.gov>
Cc: David Dow <ddow420@comcast.net>
Subject: Comments on MEPA EEA #14164

> Dear Alex Strysky:
>
> I am submitting comments on the Falmouth South Coast Embayments and West Falmouth Harbor
> CWMP/TWMP Notice of Project Change (EEA #14164). I am a resident of the Waqiout Bay Watershed
> in East Falmouth and retiree from the Northeast Fisheries Science Center in Woods Hole, Ma. My
> duties included being Recreational Fisheries Coordinator in the Northeast, being a member of the New
> England Fishery Management Council's Habitat Plan Development Team which helped develop
> Omnibus Habitat Amendment 2 (which was published in 2018) and being a member of the EPA-lead
> Waquoit Bay Watershed Ecological Risk Assessment project. I was involved in the EPA / US Army Corps
> of Engineers dialog on Water of the US (WOTUS) as a grassroots environmental activist. WOTUS redefined
> the federal jurisdictional for the Clean Water Act under which the Falmouth Comprehensive Wastewater
> Management Plan (CWMP)/Targeted Watershed Management Plan (TWMP) is being developed (along with
> oversight by the Cape Cod Commission and Ma. DEP).
>
> Since I view the CWMP/TWMP from the perceptive of both restoring water quality (i.e. lowering "N" loading

from septic systems) and restoration of Essential Fish Habitat (eelgrass beds; oyster reefs; saltmarshes; etc.),
I have serious doubts that the Falmouth CWMP/TWMP will meet these goals for the 13 "N" impacted watersheds
within its boundaries and the Waquoit Bay watershed which is shared with Mashpee and Sandwich. The South
Coast Embayments and West Falmouth Harbor represent the first phase of this endeavor and is the focus of the
Notice of Project Change published in the Environmental Monitor on December 23, 2019. Given the limited 20 day
comment period, I will focus on a few items in the action plan for the next 5 years.

Since Falmouth needs to upgrade its wastewater treatment plant and develop an additional ocean outfall or join
the proposed effort by the Town of Barnstable to take over the wwtp at Joint Base Cape Cod which discharges
treated effluent into the Cape Canal, there is a lot of uncertainty on the costs of this endeavor and who will pay for it.
The Little Pond Watershed pilot sewering project was funded by a $ 50 million grant with homeowners paying $ 3-5
thousand to hook up to the sewer/close down their septic systems. Since EPA's WOTUS revision eliminates ground-
water based watersheds from the CWA jurisdiction, it seems unlikely to me that they will fund this expensive endeavor
which leaves the financial burden (hundreds of million of dollars) up to the residents of Falmouth/Commonwealth of
Massachusetts. In addition, the excess sludge from the wwtp will be contaminated by toxic chemicals (PFAS and other
contaminants of emerging concern) which will have to be disposed of as hazardous wastes.

Perchlorate and PFAS
chemicals have contaminated public and private drinking water wells in Falmouth (the Environmental Working Group
lists 10 toxic chemicals above their levels of concern in Falmouth Drinking Water- includes TCE a contaminant of concern
at Joint Base Cape Cod). Thus the wastewater and drinking water challenges are interconnected in Falmouth and have
to be addressed in a joint fashion which is totally ignored in the CWMP/TWMP.
Contaminants of emerging concern (cecs)
are already found in Nantucket Sound and the South Coast Embayments (see Provincetown Center for Coastal Studies
Monitoring Program reports). Ma. DEP is in the process of developing a maximum contaminant level (mcl) of 20 ppt
for 6 PFAS chemicals (down from the current treatment target of 70 ppt for PFOS and

> PFOA) which will increase public
> attention to this drinking water crisis. I support the US Water Alliance watershed approach (One Water Campaign) for jointly addressing drinking water and wastewater challenges faced by local municipalities.

> As the waters warm in Nantucket Sound; Gulf of Maine and coastal embayments on Cape Cod, fish species are migrating
> in from the Mid-Atlantic region (black sea bass; Summer Flounder; Scup; forage fish; shark species; etc.) and moving
> either into deeper waters offshore or into the Gulf of Maine (lobsters; Winter flounder; sea herring; etc.) which has greatly
> altered state/federal fisheries management policies and commercial/saltwater angler catches. The "productive capacity"
> of Essential Fish Habitat in coastal embayments has been altered by warming waters; increased ocean acidity in the water
> columns and sediments; seasonal hypoxia; other human uses and eutrophication ("N" enrichment). Thus we have a dynamic,
> nonlinear ecosystem that is not at equilibrium, rather than the steady state equilibrium ecosystem that is assumed in the
> CWMP/TWMP. Studies on the Pacific Coast have shown an interaction between hypoxia; ocean acidity and eutrophication
> which could further complicate this situation.

An emerging problem is Microplastics contamination of marine biota and the consequences for human consumption. In 2019
the Woods Hole Oceanographic Institution held a conference on this challenge with a public panel dialog and plenary presentation
by Dr. Kara Lavender Law (Research Professor of Oceanography at the Sea Education Association). WHOI Sea Grant scientists are conducting research on microplastics in coastal marine animals and assessing the seasonal and storm impacted transport and biological fate of micro- and nanoplastic discharged
from wastewater treatment facilities into Massachusetts coastal waters. This research could have relevance to ocean outfalls for treated sewage effluent from the South Cape Embayments and West Falmouth Harbor. I would hope that Ma. DEP would utilize this state of the art research in the implementation of the CWMP/TWMP projects here on Cape Cod (as opposed to the lack of science in developing environmental policy by EPA- see recent article in Boston Globe on EPA Scientific Advisory Committee concerns).

> Thus some type of adaptive, ecosystems based management approach (AEbM)
> is required to manage habitat recovery and fisheries in our coastal embayments. Having a static water column "N" target for
> recovery of the South Coast Embayments and West Falmouth Harbor will prove inadequate. Having done research on
> eutrophication in fresh (P) and marine (N) waters, the turnover rate and nutrient recycling within the ecosystem are key factors

> influencing water quality (see scientific studies on “N” cycle in Waquoit Bay) and the EPA Waquoit Bay Watershed Ecological
> Risk Assessment which linked bay scallop harvest to loss of eelgrass beds/excess “N” loading. The EMaX energy flow model
> of the Northeast Continental Shelf Ecosystem faced a problem of matching primary production at the base of the food chain
> with the yield of living marine/protected/natural trust resources at the top with required alterations at the base of the food chain
> (adding microbial food web to increase community respiration). As the water column becomes more stratified in the coastal

ocean surrounding Cape Cod this imbalance in the carbon flow in the marine food chain will lead to increased natural mortality in food stocks (i.e. Gulf of Maine cod and sea herring being examples).

> The Cape Cod Commission CWMp/TWMP model didn’t include Environmental Justice concerns associated with funding this
> expensive endeavor ($ 4-7 billion over the next 20-30 years). We have many seniors on limited incomes and the working
> poor in service industries that live from paycheck to paycheck and could no longer live on Cape Cod if sewering and new wwtps
> with ocean outfalls are the solution to our water quality/habitat restoration challenges in over 50 coastal embayments. Some
> type of socioeconomic analysis and outreach program is required to address this problem. The Falmouth Water Quality
> Management Committee insists that property taxes will not be raised to fund the CWMs/TWMPs for 14 “N” impacted coastal
> embayments, but this seems highly unlikely to me based upon my experience as a marine scientist/grassroots environmental
> activist.
>
> Thanks for your consideration of these comments.
>
> Dr. David D. Dow
> East Falmouth, Ma.

MASSWILDLIFE

DIVISION OF
FISHERIES & WILDLIFE

1 Rabbit Hill Road, Westborough, MA 01581
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MASS.GOV/MASSWILDLIFE

January 13, 2020

Kathleen A. Theoharides, Secretary
Executive Office of Environmental Affairs
Attention: MEPA Office
Alex Strysky, EEA No. 14154
100 Cambridge Street
Boston, Massachusetts 02114

Project Name:	*Comprehensive Wastewater Management Plan*
Proponent:	*Town of Falmouth*
Location:	*South Coast Embayments and West Falmouth Harbor*
Document Reviewed:	*CWMP/TWMP Notice of Project Change*
EEA No.:	*14154*
NHESP No.:	*08-23886*

Dear Secretary Theoharides:

The Natural Heritage & Endangered Species Program of the Massachusetts Division of Fisheries & Wildlife (the "Division") has reviewed the *Notice of Project Change* (dated December 2019) for the Comprehensive Wastewater Management Plan (CWMP; the Project) and would like to offer the following comments regarding state-listed species and their habitats.

As stated in the Division's previous comments regarding the Project's *Final Environmental Impact Report*, the ponds, bays, and estuarine waters of Falmouth's south coast provide critical foraging, breeding, migration, and over-wintering habitats for a suite of state-listed rare species. We commend the Town of Falmouth for its efforts to improve water quality within these critical habitats, and in particular, for its consideration of both traditional and non-traditional approaches to wastewater and nutrient management.

Portions of the Town of Falmouth are mapped as Priority Habitat for state-listed rare species. All projects proposed within Priority Habitat, which are not otherwise exempt from review pursuant to 321 CMR 10.14, will require review through a direct filing with the Division pursuant to the Massachusetts Endangered Species Act (M.G.L. c. 131A) and its implementing regulations (MESA; 321 CMR 10.00). The MESA is administered by the Division and prohibits the Take of state-listed species, which is defined as "in reference to animals…harm…kill…disrupt the nesting, breeding, feeding or migratory activity…and in reference to plants…collect, pick, kill, transplant, cut or process…Disruption of nesting, breeding, feeding, or migratory activity may result from, but is not limited to, the modification, degradation, or destruction of Habitat" of state-listed species (321 CMR 10.02).

To the extent possible, the Division has evaluated and provided comments below on the recommended actions outlined within the NPC (Section P.3). As the Division has not yet received a direct filing pursuant

to the MESA for these recommended actions, including detailed limits of work associated with each, the comments provided below should be considered preliminary in nature.

Upgrading the Wastewater Treatment Facility

The Division notes that the Town's existing wastewater treatment facility does not appear to be located within the Priority Habitat of state-listed rare species, as indicated in the Massachusetts Natural Heritage Atlas (14th Edition). Therefore, the Division anticipates that any proposed upgrades to the Town's existing wastewater treatment facility would not require review for compliance with the MESA.

Connecting to the Plant / Sewering Great Pond Watershed

The Division notes that wastewater collection systems proposed within Priority Habitat may be exempt from MESA review pursuant to 321 CMR 10.14 (6) and or (10), which state that "[t]he following Projects and Activities shall be exempt from the requirements of 321 CMR 10.18 through 10.23…"

> *[6] construction, repair, replacement or maintenance of septic systems, private sewage treatment facilities, utility lines, sewer lines, or residential water supply wells within existing paved areas and lawfully developed and maintained lawns or landscaped areas, provided there is no expansion of such existing paved, lawn and landscaped areas;*
>
> *[10] installation, repair, replacement, and maintenance of utility lines (gas, water, sewer, phone, electrical) for which all associated work is within ten feet from the edge of existing paved roads…;*

The complete list of MESA filing exemptions may be found on the Division's website. We would encourage the Town to examine design alternatives which avoid and minimize impacts to Priority Habitat, including re-use of existing paved, developed, and or landscaped areas wherever possible. For any proposed work within Priority Habitat, the Town should consult with the Division to determine whether proposed work is exempt from MESA review or will require review through a direct filing with the Division.

A New Discharge Site

The NPC states that a new discharge site will be needed to accommodate flows from new sewered areas, and that three potential sites are currently being studied. The Division notes that the Augusta Parcel, the Falmouth Country Club, and the Potential Nobska Point Ocean Outfall sites do not appear to be located within the Priority Habitat and that proposed discharge at these locations would not require review for compliance with the MESA.

The Allen Parcel and the Potential Buzzards Bay Ocean Outfall appear to be located within Priority Habitat. Any proposed project or activity at these locations would require review for compliance with the MESA. The Division would encourage the Town to examine alternative locations for the proposed discharge site that are located outside of, or that otherwise avoid and minimize disturbance within, Priority Habitat. For any proposed work within Priority Habitat, including the Allen Parcel and the Potential Buzzards Bay Ocean Outfall, the Division would encourage the Town to contact the Division in advance of a formal filing to proactively address any rare species concerns.

Joint Base Cape Cod

The NPC states that there is a regional evaluation being conducted on wastewater discharge options on Joint Base Cape Cod (JBCC). Although the NPC doesn't provide substantive detail about this potential option, Figure 3 shows a new proposed force main connecting the existing wastewater treatment facility in Falmouth to an existing JBCC collection system and effluent disposal facility in Bourne. The Division notes that the new proposed force main would occur within Priority Habitat and require review for compliance with the MESA.

In addition, the new proposed force main would cross the Francis A. Crane Wildlife Management Area, which is under the care, custody and control of the Division to conserve the Commonwealth's fish and wildlife resources for the benefit of the citizens of the Commonwealth. In addition, Chapter 47 of the Acts of 2002 transferred the care, custody and control of the northern 15,000 acres of JBCC to the Division as the Camp Edwards Wildlife Management Area. Any proposed easement over the Francis A. Crane or Camp Edwards Wildlife Management Area would require review and approval by the Division and two-thirds of the State Legislature pursuant to Article 97 of the amendments to the State Constitution.

The Town should contact the Division as soon as possible to discuss this proposal. In advance, we request that the Town provide more detailed information about this proposal to the Division for review, including but not limited to whether it would include upgrades to or expansion of existing JBCC effluent disposal facilities. We also request that the Town evaluate alternative locations for this proposal that avoid and minimize work within Priority Habitat or within lands owned or managed by the Division.

We appreciate the opportunity to comment on this project. If you have any questions about components of this letter related to the MESA, please contact Jesse Leddick, Chief of Regulatory Review, at jesse.leddick@mass.gov or 508-389-6386. If you have any questions about the components of this letter related to the Francis A. Crane or Camp Edwards Wildlife Management Area, please contact Jason Zimmer, Southeast District Manager, at jason.zimmer@mass.gov 508-759-3406. We look forward to working with the Town to address the comments provided herein and further its efforts to improve the water quality of Falmouth's south coast.

Sincerely,

Everose Schlüter, Ph.D.
Assistant Director

cc: Julian Suso, Falmouth Town Manager
J. Jefferson Gregg, GHD Inc.
Town of Falmouth Board of Selectmen
Town of Falmouth Planning Board
Town of Falmouth Conservation Commission

14154 AS

Falmouth WATER Stewards

P.O. Box 156
Falmouth, MA 02541

January 15, 2020

Secretary Kathleen Theoharides
Executive Office of Energy and Environmental Affairs
MEPA Office
100 Cambridge Street
Suite 900
Boston, MA 02114

Dear Secretary Theoharides:

Falmouth Water Stewards (FWS) applauds the work of the Falmouth Water Quality Management Committee (WQMC) to address coastal nitrogen pollution during the last five years. Falmouth's water quality problems in coastal waters caused by nitrogen are long-standing and severe, and we understand that the WQMC's work is challenging and arduous. The report – *Draft South Coast Embayments Notice of Project Change* – represents a thorough synthesis of the status of South Shore embayments, some recent accomplishments, and the major challenges that lie ahead.

FWS commends the town on the successful implementation of the Little Pond Sewer Extension Project. This project was an important step, although in the bigger picture a relatively small step, towards reducing nitrogen loads to all of the Town's 18 estuaries and embayments.

The proposed upgrading of the existing municipal wastewater treatment plant on Blacksmith Road is needed to meet projected increased flows from the Town's existing sewered area.

FWS also commends the Town for putting in motion two other actions that were approved by an April 2014 Town Meeting appropriation (strongly supported by FWS): permitting to widen the Bournes Pond inlet, and the implementation of shellfish aquaculture projects. FWS also applauds the WQMC's investments in the continued monitoring of water quality in response to management actions. This includes monitoring in estuaries like Little Pond where expanded sewers should result in future reductions to nitrogen loads, in estuaries where shellfish aquaculture has been initiated, in the Coonamessett River where wetland restoration projects are underway, and in Bournes Pond where the inlet widening is planned. FWS also supports continued monitoring of water quality in estuaries where no immediate actions are proposed.

FWS also identified a number of shortcomings in this report. Some of these are general, but extremely important, because they will determine the timetable over which improvements to the

Town's overall water quality can be addressed as well as the long-term cost of implementing those projects.

(1) The schedule for implementing cleanup of nitrogen pollution town-wide needs to be more proactive in scheduling implementation. This plan currently calls for no additional sewering until 2024. This is despite the fact that there are clearly identified areas that will need to be connected to sewers if water quality improvement is to occur, and that Falmouth has a demonstrated ability to effectively expand its sewer network. The report states that the reason for the less aggressive schedule proposed is that any financing for expanding sewers can only come from retirement of debt that will allow funds to be raised without any increase in taxes. This assumption drives the entire timetable presented in this report and pushes any action to reduce nitrogen in Oyster Pond out a minimum of five years and action on estuaries east of Green Pond out into a far and unstated future. This report should include a more aggressive schedule that is based on the assumption that Falmouth residents would support modest tax increases to solve a critical environmental problem—as they have many times in the past.

(2) This report does not adequately address the most important single technical issue that currently constrains Falmouth's ability to remove more nitrogen from its estuaries—the location of a site (or sites) to discharge a greater volume of treated effluent. This is a potentially very contentious issue because discharge of even highly-treated wastewater into one estuary could delay or even prevent water quality improvement of that receiving estuary even while improving water quality elsewhere. Handled hastily, the discharge question has the potential to be a very divisive issue.

This report provides four options for expanded discharge and claims that a decision among these options is anticipated in 2021. But this plan provides no detail on how these sites will be evaluated. These sites also differ from the options that were presented to the public on September 16 (which included an option at Joint Base Cape Cod and an ocean outfall at Nobska Point). Given how this issue will influence all other options available to the Town in the future, the process of selection of potential sites, the evaluation of sites, and the ultimate selection of a preferred discharge site needs to be spelled out in much more detail in this report. Importantly, the short and long-term costs of this decision should be clearly evaluated, because a decision to go with a potentially cheaper but not Town-wide solution will delay or impede cleanup in the future. Any discharge into the Allen Parcel, which was presented as a viable option on September 16, would fall into this category.

(3) Any potential for additional discharge into current or expanded open sand beds 14 and 15 north of the Blacksmith Shop Wastewater should be eliminated. This should not be a discharge option for Falmouth. Groundwater flow from these beds is estimated to flow into the Herring Brook estuary. Herring Brook is a small, salt marsh-dominated estuary that currently has low water quality, limited flushing, and a limited ability to absorb additional nitrogen. Recent science indicates that salt marshes, while they contribute to nitrogen removal from surface waters, are themselves vulnerable to increased nitrogen loading because greater nitrogen accelerates decomposition and slumping of salt marsh sediments. Instead of recommending discharge of more effluent to beds 14 and 15, this report should include (a) a clear commitment by the Town to the monitoring of ground and surface water in Herring Brook that is required by its current Department of Environmental Protection (DEP) discharge permit, and (b) a pathway by which Falmouth will fund the completion of a Massachusetts Estuaries Project report and establish a TMDL (Total Maximum Daily Load) for Herring Brook so that it can better evaluate its current impact on that estuary. TMDL is calculated as the maximum amount of a pollutant allowed to

enter a waterbody so that the waterbody will meet and continue to meet water quality standards for that particular pollutant.

(4) This plan should include more aggressive actions and commitments to evaluate the nitrogen removed by Innovative Alternative (IA) denitrifying septic systems. The Town has collaborated with the Buzzards Bay Coalition to install and evaluate 25 systems near West Falmouth. Because of the important role that IAs will almost certainly play in reducing nitrogen in areas of Falmouth that are too expensive to sewer, this program should be expanded. Right now, the program addresses only about 0.1 percent of Falmouth's approximately 21,000 housing units. A variety of systems have been installed, but in numbers that are not yet adequate to determine the best performing systems under a variety of conditions (such as year-round or seasonal occupancy). This information could help to greatly increase the amount of nitrogen removal that is achieved by expanding the usage of IA systems.

(5) This plan should include expanded commitments to monitoring of waters that have been, or will be, affected by management actions. Falmouth is in a unique position to acquire valuable information by conducting more detailed studies of the situations that create "experiments" in which nitrogen fluxes could be quantified before and after certain actions. These situations include (1) Little Pond, West Falmouth Harbor now, and West Falmouth Harbor in the future when the previous high-nitrogen plume generated before the plant's 2005 upgrade to tertiary treatment will no longer enter the estuary, (2) changes to nitrogen concentrations in response to wetland restoration on the Coonamessett River, (3) the opening of the Bournes Pond inlet, and (4) installation of oyster or another shellfish aquaculture program. Investments in these studies will provide information to help make future decisions about nitrogen-removal approaches other than sewering.

(6) The assumption that no further action will be required in West Falmouth Harbor might be overly optimistic. Instead of assuming that no future action will be needed, this plan should include continuing efforts at monitoring water quality in West Falmouth Harbor and installation of IA septic systems to reduce additional nitrogen that will provide a buffer around the uncertainty associated with the claim that no action is needed.

(7) Falmouth has a fertilizer use by-law that most other towns do not. FWS was a strong supporter of this by-law. But it calls for very modest fertilizer reductions. There is no record of any enforcement action ever being taken, and any reductions in nitrogen loading caused by the by-law are totally speculative. No credits should be granted to Falmouth for nitrogen reductions because of the current by-law. The town should develop a fertilizer use enforcement plan.

We hope these inputs are taken in the spirit that the Falmouth Water Stewards intend, i.e., we are in complete support of the WQMC's efforts to improve Falmouth's estuaries and offer these inputs to help make the best improvements possible to our embayments. If there are any questions, we are open and available for any support needed.

Respectfully submitted,

Judith C. McDowell

Judith E. McDowell, President
Falmouth Water Stewards

January 27, 2020

Secretary Kathleen Theoharides
Executive Office of Energy and Environmental Affairs
MEPA Office
100 Cambridge Street
Suite 900
Boston, MA 02114

Re: Falmouth Comprehensive Wastewater Management Plan EEA#14154

Dear Secretary Theoharides,

The Buzzards Bay Coalition (Coalition) has reviewed the "Draft South Coast Embayments CWMP/TWMP Notice of Project Change Update – 2019" ("2019 NPC") and offers the following comments.

The Coalition is a nonprofit, membership organization dedicated to the restoration, protection and sustainable use and enjoyment of Buzzards Bay and its watershed. The Coalition works to improve the health of the Bay ecosystem for all through education, conservation, research and advocacy and is supported by more than 10,000 individuals, families and businesses throughout the region, including over 1,437 who live in Falmouth.

The town faces a serious issue with respect to nitrogen pollution which threatens Falmouth's economy and environment if left unaddressed. While the Coalition continues to view this planning process as an important step in both Falmouth's and the region's efforts to combat nitrogen pollution, we urge the Secretary to make any final approval contingent upon the town of Falmouth's completion of a nutrient threshold study for Herring Brook and require further evaluation of an ocean discharge site in Vineyard Sound. It is critical that the town's efforts to solve the nitrogen pollution problem in their South Coastal Ponds does not cause or contribute to nitrogen impairment in coastal waters in the western part of town.

www.savebuzzardsbay.org
114 Front Street, New Bedford, Massachusetts 02740 | Tel: 508-999-6363 Fax: 508-984-7913
21 Luscombe Avenue, Woods Hole, Massachusetts 02543 | Tel: 508-540-6222

I. Selection of an Appropriate Wastewater Discharge Site

It is well established that traditional sewers and advanced treatment at wastewater treatment facilities are the most effective methods to remove bacterial and nutrient pollution from wastewater. Identifying a discharge site for this treated wastewater, however, is the town of Falmouth's greatest challenge. The 2019 NPC identifies several potential sites currently being studied, including an ocean outfall into Buzzards Bay and expanded recharge beds at the Town-owned "swap parcel" (existing recharge beds 14 and 15). The Coalition disputes the feasibility of either of these discharge sites and suggests the town abandon any further investment in their evaluation.

The 2019 NPC estimates that expanded sewering in Great Pond, Green Pond, and Waquoit Bay will remove between 35,000 and 44,000lbs of total nitrogen from these estuaries.[1] In order to achieve this nitrogen reduction, the town of Falmouth will need to treat an additional 486,000 to 611,000 gallons per day (gpd) at the Wastewater Treatment Plant ("WWTP") in West Falmouth. Assuming the WWTP is achieving a treatment level of 3mg/L total nitrogen, which it fails to do consistently as stated in this 2019 NPC, a nitrogen load of between 4,439 -5,581 lbs/year of nitrogen will be discharged after treatment. Importing this new load to West Falmouth Harbor, Herring Brook, Buzzards Bay or any nitrogen sensitive embayment is inappropriate. Both groundwater discharge and surface water quality regulations prevent the discharge of pollutants which will cause or contribute to a violation of water quality standards. In order to avoid violating state law, the 2019 NPC must further develop discharge sites outside the Buzzards Bay watershed.

A. West Falmouth Harbor Continues to Fail to Meet its Total Maximum Daily Load ("TMDL")

The January 10, 2014 Final Environmental Impact Report Certificate required a plan and schedule to bring West Falmouth Harbor into compliance with the TMDL and surface water quality standards by December 2, 2016. Unfortunately, the Harbor has yet to see total nitrogen concentrations at the sentinel station meet the TMDL.

The current modified groundwater discharge permit for the WWTP limits the discharge to West Falmouth Harbor to 450,000 gpd and 4,109lbs/year total nitrogen with a best efforts to meet 3mg/L total nitrogen. The more than 4,109lbs of nitrogen discharged to West Falmouth Harbor from the WWTP is all imported from outside the West Falmouth Harbor watershed. In other words, none of the homes or businesses within the West Falmouth Harbor watershed are connected to sewer. This requires West Falmouth Harbor to absorb septic nitrogen load from within its watershed in addition to the nitrogen load imported from other parts of town. The 2019 NPC cites to modeling which claims that at a wastewater discharge volume of 450,000 gpd at a concentration at or below 3mg/L total nitrogen West Falmouth Harbor should meet the TMDL.

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[1] These figures are the sum of the estimated nitrogen loading reductions from sewer extensions found in tables 6.2, 7.2 and 9.1.

However, the WWTP's has struggled to consistently meet its permit limit of 3mg/L total nitrogen (as it failed to do in 2019) and continues to contribute to the delay in West Falmouth Harbor recovery.

The 2019 NPC states that the permit limit will be exceeded in 2019 due to mechanical malfunctions at the WWTP but that the plant did meet the permit limit in 2017 and 2018. Meeting the permit limit two years out of nearly fifteen years since the WWTP has been upgraded is insufficient to protect West Falmouth Harbor. The waters of West Falmouth Harbor will likely be warmer by the time this nutrient-rich plume enters West Falmouth Harbor, exacerbating the adverse impact this violation will have on water quality. Figure ES.5 in the 2019 NPC, and copied below, illustrates the plant's consistent inability to meet permit limits.

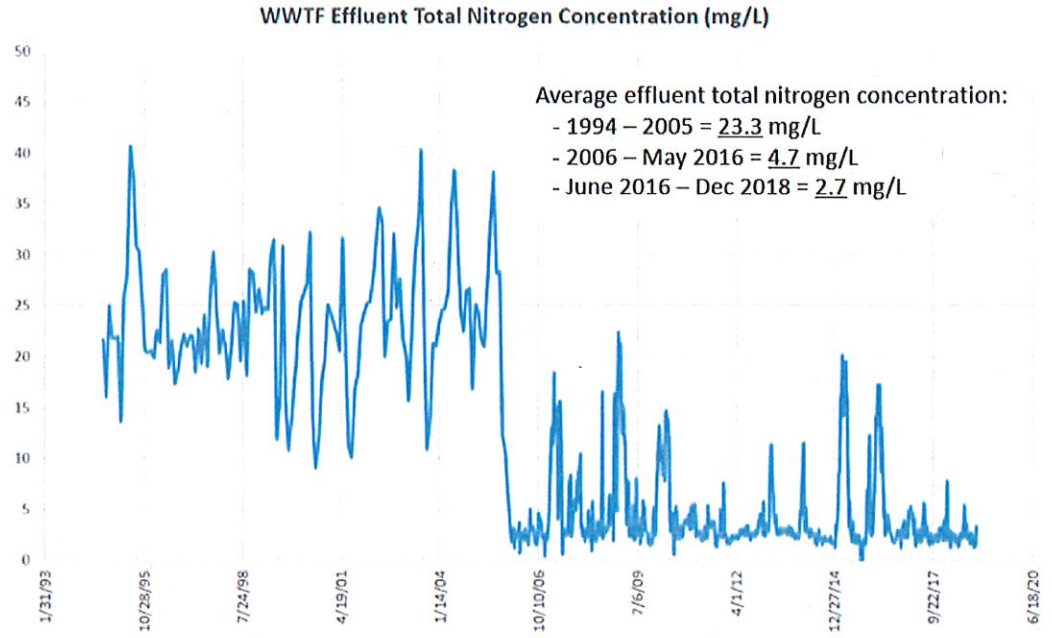


Figure ES.5 Historical Wastewater Treatment Facility Effluent Total Nitrogen Concentrations

While the 2019 NPC acknowledges that the town will need to identify and construct a new discharge site outside the West Falmouth Harbor watershed for any additional flow from new sewering, the GHD Technical Memo, TASA TM-3 suggests that there could be an increased discharge flow to West Falmouth Harbor above the 450,000gpd if treatment levels were reduced to 2.5 or 1.8 mg/L total nitrogen.[2] The Coalition expects that the town will not seriously entertain this suggestion given the town's inability to consistently meet a 3mg/L total nitrogen limit.

[2] TASA TM-3 at 13.

The Coalition urges the town to identify and pursue a discharge location outside the greater Buzzards Bay watershed capable of discharging both new flow from expanded sewering in East Falmouth and the existing flow from the WWTP currently discharging to West Falmouth Harbor. The town's failure to consistently meet permit limits at this discharge location warrants a careful look at a new discharge location outside the West Falmouth Harbor watershed for all of the town's wastewater discharge needs.

B. Recharge Beds 14 and 15 are Inappropriate for an Increased Discharge

Herring Brook suffers from nitrogen impairment and is listed on the Massachusetts Year 2012 Integrated List of Waters requiring the development of a TMDL. It has been and continues to be the Coalition's position that any increased nitrogen discharged to Herring Brook, unless offset, will further impair that waterbody in violation of state law.

Groundwater modeling confirmed that 15% of the discharge from recharge beds 14 and 15 is expected to flow to Herring Brook resulting in a near tripling of the existing nitrogen load. The Coalition's appeal of the town's 2015 groundwater discharge permit resulted in a requirement to offset new nitrogen to Herring Brook from an increased discharge of wastewater. The appeal also resulted in the town's commitment to partner with the Coalition to design a Nutrient Threshold Study for Herring Brook. The purpose of this study was to understand the health of the estuary and what impact increased nitrogen loading from the discharge site would have on it. While all other Falmouth estuaries have scientific studies to support TMDLs, the town has orphaned and deprioritized Herring Brook, robbing that estuary of critical information needed to guide whether a discharge within that watershed is appropriate and legal. To date, there has been no town allocation of funds to finance a study for Herring Brook.

Herring Brook is a saltmarsh estuary explored by children for generations, adjacent to one of the Cape's most beloved bathing beaches, Old Silver Beach. The Secretary should require the town to pursue alternative discharge sites that do not further impair a listed waterbody and should, at a minimum, require the town to complete a nutrient threshold study for Herring Brook.

C. Vineyard Sound Outfall

Virtually all of Falmouth's harbors, coves, and coastal ponds require nutrient reductions over current levels. In many cases the best way to reduce existing nitrogen loads is through the expansion of municipal wastewater treatment and disposal. The Coalition supports the town's expansion of sewering in order to reduce nitrogen loads to impaired estuaries, but challenges the town to further evaluate the feasibility of discharging treated wastewater from the south coast watershed facing Nantucket Sound, back into the Sound. The town's approach, to date, has been to identify several different sites that can absorb a finite amount of wastewater because it is the cheapest alternative in the short term. This has and continues to threaten the health of downstream receiving waters, West Falmouth Harbor and Herring Brook and are outside the basin producing the wastewater. The town must consider an alternative discharge strategy. The

most appropriate solution for Falmouth's wastewater disposal challenge may be an ocean outfall at Nobska Point that bypasses all of the Town's sensitive coastal embayments.

TASA TM 6, appended to the 2019 NPC, states that ocean outfalls have the advantage of bypassing nutrient impacted watersheds, estuaries and coastal ponds. Unfortunately, the 2019 NPC does not go far enough in the evaluation of an ocean discharge to the Sounds. Discharging highly-treated effluent directly at the confluence of Buzzards Bay, Vineyard Sound and Nantucket Sound would remove nitrogen loading from the sensitive coastal ponds and harbors. The greater depth and strong flushing of the waters off Nobska Point, potentially make it a water body that can tolerate input of nutrients better than the Town's shallow, restricted coastal harbors and ponds. Furthermore, it returns the treated wastewater partially back to the basin from which it originated.

The town invested resources in a 2018 hydrodynamic model of a Buzzards Bay discharge but failed to equally evaluate the Nobska outfall alternative. The Secretary's 2014 FEIR Certificate anticipated that a proper evaluation of this alternative would require significant technical feasibility studies including studies and modeling of potential impacts. Unfortunately, it does not appear that the town completed this work. The Secretary should direct the town to consider and evaluate a Nobska Point Outfall as an alternative wastewater discharge for the entire town.

The Coalition urges the town of Falmouth to pursue a discharge alternative that meets both near and long term discharge needs and returns the treated water back to the basin in which in originated instead of pursuing alternatives that transfer the nitrogen load to other basins which will continue to cause water quality degradation. If the town pursues an ocean outfall at Nobska, the town can eliminate a more than 4,000 lb source of nitrogen to West Falmouth Harbor in addition to creating discharge capacity for the eastern part of town.

II. Innovative and Alternative Septic System Pilot Projects

The Coalition values the opportunity to work with the town of Falmouth on the West Falmouth harbor Shoreline Septic System Remediation Project. This partnership continues to provide significant learning to be applied on a regional basis together with important nitrogen reductions to West Falmouth Harbor. The Coalition offers the following clarifications to section 3.4 of the 2019 NPC.

- To date, 27 innovative/alternative systems have been installed as part of this project.
- The Barnstable County Department of Health and the Environment provides the monitoring of the systems. The 2019 NPC indicates that the BCDHE performs groundwater monitoring. No groundwater monitoring is performed. ES-6
- The cost range between the Eliminite equipment and Hoot equipment was $4,580 and $10,625 respectively. The blackwater tank equipment cost is $4,147. The Coalition is unclear as to where the $15,000 in reference to the blackwater tank originates. 3-15

- There were no FujiCLEANs installed as part of this project. There was a Fast System in combination with a drip dispersal and a SanTOE technology installed in addition to the other technologies listed. 3-15

Nitrogen reducing septic systems will play an important role in meeting water quality goals in many of the region's estuaries. The Coalition supports the continued efforts of the Water Quality Management Committee to create a watershed management and monitoring plan to ensure that the systems installed as part of the town's CWMP are properly maintained and perform as needed. Likely, the most effective and affordable way to ensure performance it through the creation of a responsible municipal management entity whereby the town is becomes responsible for maintenance and performance.

III. A Board of Health Regulation Requiring Nitrogen Reducing Septic Systems for New Construction

It is clear that the town has invested significantly in wastewater planning. However, new development constructed in town and outside the sewer service area is undoing the investment the town has made in cleaning up their estuaries. The town of Falmouth's Board of Health should require all new construction to install nitrogen reducing septic systems. New septic systems constructed town-wide add new nitrogen to Falmouth's impaired estuaries. The town well knows, and the 2019 NPC specifically describes, several technologies that can reduce nitrogen over conventional septic system levels.

The expansion of sewer takes time. The 2019 NPC describes needed upgrades to the WWTP, the construction of a new discharge site, and then finally the construction of a collection system in 2030. That is a decade away, allowing 10 years' worth of new development to add to the nitrogen problem the town is working hard to remediate.

An increasing number of Boards of Health in southeastern Massachusetts have passed regulations requiring new construction to install a nitrogen reducing septic system. The Coalition looks forward to supporting Falmouth's Board of Health in the passage of a similar requirement in order to protect the town's investment.

IV. Failure to Consider Town-Wide Water Quality Requirements

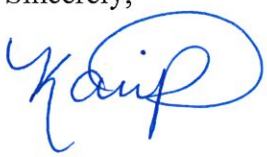
The 2019 NPC provides a compliance approach for only a subset of the town's watersheds and remains silent on plans to meet TMDLs for other critical coastal waters in town. Since the Secretary's January 10, 2014 certificate, TMDLs have been issued for Quissett Harbor, Wild Harbor, Rands Harbor, Fiddlers Cove and is in draft form for Megansett Harbor. The Coalition requests that the Secretary require the town to establish a compliance approach for all Falmouth estuaries within twenty-four months of the approval of the 2019 NPC. Furthermore, the 2019 NPC anticipates a construction timeframe of 2035 to 2040 for sewer construction for the South Coast Embayments. The Coalition requests that all compliance plans be implemented in parallel

and no later than 2040. The Coalition looks forward to working with the town on developing those additional compliance plans.

Conclusion

Falmouth is facing serious nitrogen pollution problems due to the inadequacy of how wastewater is currently being treated. The 2019 NPC is an important step in the process of solving the Town's wastewater problems. However, the wastewater solution considered here must not sacrifice the water quality of other estuaries.

Sincerely,



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Cc: Town of Falmouth
Board of Selectmen
Board of Health
Conservation Commission
Planning Board
Department of Public Works
Water Quality Management Committee

Representative Dylan Fernandes
Massachusetts Department of Environmental Protection
US Environmental Protection Agency
Cape Cod Commission

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CAPE COD COMMISSION

Via Email

January 28, 2020

Kathleen A. Theoharides, Secretary of Energy and Environmental Affairs
Executive Office of Energy and Environmental Affairs
Attn: MEPA Office, Alex Strysky, MEPA Analyst
100 Cambridge Street, Suite 900
Boston, MA 02114

Re: Notice of Project Change — EEA No. 14154 (Cape Cod Commission File No.07014)
Town of Falmouth Comprehensive Wastewater Management Plan

Dear Secretary Theoharides:

The Cape Cod Commission is pleased to see towns on Cape Cod proceed with wastewater and watershed management planning and implementation, and more specifically, to see the Town of Falmouth continue with its efforts on this front.

After MEPA review concludes, the Cape Cod Commission will review the updated elements of Falmouth's CWMP as described in the NPC to determine consistency with the Section 208 Area-wide Water Quality Management Plan for Cape Cod, and issue a consistency determination on the updated CWMP. The Commission may request additional or clarifying information or materials from the Town at that time pursuant to its consistency review.

Sincerely,

Kristy Senatori

Kristy Senatori
Executive Director

Cc: Project File
Jeff Gregg, GHD Inc., via email
Julian Suso, Falmouth Town Manager, via email
Falmouth Cape Cod Commission Representative via email
Cape Cod Commission Chair via email
Cape Cod Commission Committee on Planning and Regulation Chair via email

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: Kathleen Theoharides Secretary, EEA
ATTN: Alex Strysky, MEPA Office
FROM: Lisa Berry Engler, Director, CZM
DATE: January 28, 2020

RE: EEA 14154 - Notice of Project Change Update Report, South Coast Embayments, Comprehensive Wastewater Management Plan/Targeted Watershed Management Plan, Falmouth

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The Massachusetts Office of Coastal Zone Management (CZM) has completed its review of the above-referenced Notice of Project Change (NPC), noticed in the *Environmental Monitor* dated December 23, 2019, and offers the following comments.

Project Description

This NPC is an update on efforts made by the Town of Falmouth to move forward with its Comprehensive Wastewater Management Plan (CWMP)/Targeted Watershed Management Plan (TWMP) in the five years since the issuance of the Secretary's Certificate approving the CWMP/TWMP. The CWMP seeks to address nutrient loading and eutrophication in the watersheds of Little Pond, Great Pond, Green Pond, Bourne's Pond, and Waquoit Bay on the Nantucket Sound side of Falmouth, as well as the West Falmouth Harbor watershed in Buzzards Bay. The 20-year plan (2015 to 2035) proposes a range of strategies including: sewering, upgrading the wastewater treatment facility in West Falmouth, widening the Bourne's Pond inlet, and implementing a variety of non-traditional wastewater and nitrogen management methods. This NPC reports on the progress of those efforts.

Project Comments

Shellfish Aquaculture and Harvest for Nitrogen Removal

With the release of the Section 208 Area Wide Water Quality Management Plan, many Cape Cod communities have proposed using oysters, quahogs, and/or bay scallops as a biological mechanism for filtering nitrogen (in the form of phytoplankton) from estuaries. While CZM supports biological remediation, the idea is still conceptual, and the nitrogen removal quantities are hypothetical estimates based upon lab studies. For example, despite the estimated nitrogen removal calculations in Fig. 3.4, the NPC reports that the oysters deployed in Little and Bourne's Ponds were only able to reduce nitrogen in the immediate vicinity of the cages (not at the ponds' respective sentinel stations) and in Bourne's Pond an unexpected increase in nitrogen regeneration from the bottom sediments into the water column was reported (p. 3-8). As nitrogen regeneration from sediments is an important component of estuarine nitrogen budgets, CZM suggests that the Town and the Massachusetts

Department of Environmental Protection (MassDEP) assess the site-specific differences in how shellfish aquaculture operations affect estuarine ecosystems, including their dissolved oxygen and benthic communities, and whether they offer a sufficient net benefit toward nitrogen remediation.

Recent public comments provided to the Massachusetts Shellfish Initiative, a process involving state and local agencies, legislators, recreational and commercial harvesters, aquaculturists, and environmental and trade organizations, identified a rising concern that town-funded aquaculture for nutrient remediation in southeastern Massachusetts would create new economic competition with local, commercial shellfish harvesters (both wild harvest and aquaculture). Some of those concerns may be addressed by the Town's proposal to hire a licensed, commercial harvester to manage aquaculture operations but the Town, MassDEP, and the Division of Marine Fisheries should evaluate how town-funded aquaculture and the shellfish brought to market may adversely impact the economic viability of local, small businesses.

Ocean Outfall

The NPC recommends an expansion and upgrade of the existing wastewater treatment facility as a necessary action for managing the additional wastewater that will be generated through sewering targeted areas of the Town. Six options for treated wastewater disposal were evaluated and according to the NPC four were selected for conceptual layout: open sand beds at the Allen parcel, subsurface effluent disposal at the Falmouth Country Club, expanding existing sand beds 14 and 15, and an ocean outfall in Buzzards Bay (p. 6-6). In Appendix 5.1, TASA Technical Memo 6, the potential costs of ocean outfalls in Buzzards Bay and Vineyard Sound are compared, with the Vineyard Sound/Nobska Point option estimated at a lower cost. TASA Technical Memo 6 recommends that a hydrodynamic model for a potential ocean outfall off Nobska Point in Vineyard Sound be developed (p. 9). However, Appendix A of the TASA Technical Memo 6 includes the results of a hydrodynamic model for a potential ocean outfall to Buzzards Bay. Future documents should make it clear which, if any, ocean outfall options the Town is likely to pursue. Regardless of which location the Town decides to pursue further, the Town should consult with CZM and MassDEP about the short and long-term requirements for siting and operating an ocean outfall in an ocean sanctuary pursuant to 301 CMR 27.

To date, there has been no modeling to determine the appropriate load of nitrogen that will protect the appearance, ecology, and marine resources of the Cape and Islands Ocean Sanctuary (301 CMR 27.07(3)). Several communities, in addition to Falmouth, have recently discussed moving nutrient loads from upland or up-estuary into deeper waters, and the summer population in these communities continues to increase. The regional planning commissions and municipalities should work with state and federal agencies to determine the acceptable load of nitrogen for the Nantucket Sound and Buzzards Bay estuaries.

Coastal Hazards and Growth

There appears to be little information in this NPC on efforts toward controlling new growth in hazard prone areas or managing growth to control nutrient loading. As growth and development increase in Cape Cod communities, stormwater and fertilizer use are likely to increase as well, resulting in additional nutrient loading. A future NPC should specifically identify and evaluate planning mechanisms for managing growth and associated increases in nitrogen loads.

In previous comments, CZM noted that the availability of sewer infrastructure in coastal areas subject to storm damage, flooding, and erosion could allow new or expanded development in hazard-

prone areas. It was suggested that the Town investigate growth control measures that meet the spirit and intent of Executive Orders 181 and 149 to minimize the risk of infrastructure damage in flood zones and that the Town's analysis of potential growth in hazard-prone areas include, at a minimum, primary frontal dunes in addition to those areas shown on the most current maps as flood zones.

The NPC states that areas requiring sewers located in barrier beaches will have to be designed and constructed to meet specific state requirements for work within these areas under Executive Order 181. To address this, Section 12.3.2 states that areas requiring sewers cannot promote additional growth on barrier beaches that would not have otherwise been allowed. The planning mechanisms that will assist the Town in managing community growth should be included in the next NPC.

Targeted Watershed Management Plan

As a CWMP update that records the Town's nitrogen reduction and mitigation efforts and their results in one place, this NPC is a useful document that shows recent progress and the Town's level of commitment to addressing eutrophication and restoring coastal water quality and habitat. That an eelgrass bed was recently identified in West Falmouth Harbor, where it had not been seen previously, is a sign that the Town's efforts have led to recovery in at least part of the West Falmouth Harbor watershed.

Understanding the difficulties associated with addressing nonpoint source pollution, CZM commends the Town for its efforts made to date and appreciates that the NPC includes watershed-specific options in the event that the proposed plans are not adequate for nitrogen removal. However, the Town should increase the specificity in the individual TWMPs especially regarding performance standards and timelines for evaluating the innovative nitrogen removal strategies (e.g., aquaculture, stormwater improvements, pond management, and permeable reactive barriers). Chapter 12.4 mentions adaptive management and TMDL compliance but provides no details or firm timeline. The TWMPs should have an implementation schedule associated with achieving specific nitrogen removal goals as evidenced through field monitoring. Some strategies may be phased, but the timing of those phases should be made clear and all innovative strategies should have an adaptive management component and an alternative plan that is triggered when performance standards are not met within reasonable, pre-defined time periods.

As an example, the Summary of Compliance Approach for Bourne's Pond and its associated Table 8.1 (p. 8-3) list the proposed methods for reducing nitrogen in the Bourne's Pond watershed and the estimated quantities that each strategy may remove. Roughly half of the nitrogen load is proposed to be removed by shellfish aquaculture and harvest. Given the results to date and considering the uncertainties of weather and biology (predators, disease), expecting that such a large fraction of Bourne's Pond's nitrogen will be removed by shellfish may not be a reliable solution. Sewer extensions, upgrading onsite septic systems, and exploring locations for a permeable reactive barrier are listed as options that the Town could consider if the aquaculture program fails and/or additional nitrogen needs to be removed. The Bourne's Pond TWMP should explicitly state how many trial months are needed before the aquaculture program is deemed adequate/inadequate and at what point the alternatives will be triggered. The TWMP should also explicitly reference the water quality monitoring sentinel station and the value to be achieved (0.45 mg/l total nitrogen according to the Total Maximum Daily Load document) to demonstrate that the proposed 4,162 kg of nitrogen per year have been removed.

Regarding the credit for the Town's fertilizer bylaw and outreach efforts, while the contribution to nitrogen removal is only about 5% or less of the total for any given watershed, the figures for several watersheds show that nitrogen has not improved over the last 15 years (e.g., Figs 2.2, 2.5, 2.8, 2.11) despite five years of implementation of the fertilizer bylaw and while additional innovative methods such as aquaculture have been implemented. The NPC provides no data on the actual reduction in fertilizer use in Falmouth. MassDEP allows nitrogen "credits" of 25% of both the fertilizer and stormwater loads if a town commits to addressing them. However, for an accounting of actual nitrogen removal, the Town should make reasonable efforts to quantify the reduction in nitrogen from these two pathways.

In summary, CZM commends the Town of Falmouth for its commitment to improving coastal and estuarine habitats and significant investments made to date. For the next phase of the CWMP/TWMP, the Town should address the need for watershed permits, identify permit conditions for each of the proposed nitrogen remediation actions, work with MassDEP to propose enforceable timelines, and propose how the Town will plan for and manage additional nitrogen inputs associated with growth and development.

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.

LE/tc

cc: Stephen McKenna, CZM Cape & Islands Regional Coordinator
Brian Dudley, MA DEP Southeast Regional Office, 20 Riverside Drive, Lakeville, MA 02347
Peter McConarty, Falmouth DPW, 59 Town Hall Square, Falmouth, MA 02540

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

Kathleen A. Theoharides
Secretary

Martin Suuberg
Commissioner

January 28, 2020

Kathleen A. Theoharides
Secretary of Environment and Energy
Executive Office of Energy and Environmental Affairs
ATTN: MEPA Office
100 Cambridge Street, Suite 900
Boston, MA 02114

RE: NPC Review. EOEEA #14154
FALMOUTH. Falmouth CWMP (South Coast Embayments and West Falmouth Harbor) at 180 Scranton Avenue

Dear Secretary Theoharides,

The Southeast Regional Office of the Department of Environmental Protection (MassDEP) has reviewed the Notice of Project Change (NPC) for the Falmouth CWMP (South Coast Embayments and West Falmouth Harbor) located at 180 Scranton Avenue, Falmouth, Massachusetts (EOEEA # 14154). The Project Proponent provides the following information for the Project:

The Town of Falmouth has worked diligently during the last five years, from the time that the initial Secretary's Certificate was issued, to develop and evaluate various demonstration/pilot projects as discussed in the approved CWMP/TWMP. This document provides an update of the findings of that work and next steps in the development of the next Targeted Watershed Management Plan for Great Pond as requested in the Secretary's Certificate. This is a continuation of the implementation of the approved plan and its adaptive management approach that is fundamental to our environmental and economic sustainability of Falmouth. This document also addresses the various issues raised in the Secretary's Certificate regarding the filing of subsequent NPC's related to the CWMP/TWMP process. We have consulted with the MEPA Office, the Massachusetts Department of Environmental Protection, the Cape Cod Commission and many other stakeholders on this document and on our overall planning process, and have responded to their input.

Bureau of Water Resources Comments

Wetlands and Waterways. The SERO Wetlands & Waterways Program has reviewed the above-referenced EOEA file. The proposed and active projects involve the development of a comprehensive

wastewater management plan in the Little Pond, Great Pond, Green Pond, Bournes Pond, Eel Pond, Waquoit Bay East & West and West Falmouth Harbor watersheds, including several projects to demonstrate non-traditional technologies and approaches to reduce the extent of sewering.

Wetlands Comments:
Based on the information submitted, it appears that several of the proposed Project components will be located within Wetlands Protection Act (WPA) jurisdiction; potential impacts to a variety of inland and coastal Areas Subject to Protection, including Riverfront Area, can be anticipated. Therefore, WPA Notices of Intent or/and Requests for Determination of Applicability will need to be submitted to the Falmouth Conservation Commission prior to any temporary or permanent alterations [except for planning and design activities that meet the provisions of the minor activity exemption at 310 CMR 10.02(2)(b)1.g.].

This municipal Project is subject to MassDEP's Stormwater Management Standards as a whole, although not all of the individual standards will apply to all components of the work. Notices of Intent and Water Quality Certification applications should include Stormwater Reports.

Waterways Comments:
The SERO Waterways Program offers the following comments on the Notice of Project Change (NPC) Update Report submitted by the Town of Falmouth.

- The widening of the Bourne Pond inlet, bridge replacement, jetty reconstruction, and associated dredging was authorized under DEP Waterways License No. 14802.
- A comprehensive dredge permit authorizing dredging at 24 locations in Falmouth, including the Bourne Pond inlet, was authorized under DEP Waterways Permit 13266 and 401 Water Quality Certification X238551.
- If any additional proposed work occurs within Chapter 91 *Geographic Areas Subject to Jurisdiction,* as defined at 310 CMR 9.04, consultation with the Waterways Program is necessary to determine if an additional permit, license, and/or authorization is required.

Wastewater Management. MassDEP's Southeast Regional Office is pleased to have the opportunity to comment on the Town of Falmouth's South Coast Embayments and West Falmouth Harbor CWMP/TWMP Notice of Project Change Update (the "NPC"). The Town is to be commended on its efforts to restore the south coastal Project impacted by nutrient enrichment and on its commitment to evaluating innovative approaches to help mitigate those impacts.

Introduction
The NPC has been prepared as a requirement of the Secretary of Energy and Environmental Affairs' January 10, 2014 Certificate on the Town's CWMP and TWMP. That Certificate stated:

"The NPC shall include: an update on construction and operation of the Little Pond sewering project; and update on design, construction and implementation of pilot projects; documentation of progress towards achieving (TMDL') (sic) for each sub-watershed; data and analysis of water quality monitoring; and, based on the information developed over this time period, assessment of the effectiveness of the CWMP/TWMP in reducing nitrogen loads in Little Pond and other Project and the need for any revisions to the Falmouth CWMP/TWMP before initiating subsequent CWMP phases. The NPC will address how information, data, and subsequent analysis obtained over the five year period has informed the Town's strategy for meeting water quality standards and TMDLs for

Little Pond, Great Pond, Green Pond, Bournes Pond, Waquoit Bay East and the West Falmouth Harbor Project in Falmouth."

The NPC provides a summary of activities completed since 2014 and those anticipated through 2040. The Town plans to utilize a variety of strategies including sewering, shellfish aquaculture, permeable reactive barriers (PRBs), Innovative/Alternative (I/A) septic systems, fertilizer controls and stormwater management to achieve nitrogen reduction targets necessary to meet the TMDL in each of the Projects covered by the NPC.

The NPC contains a number of innovative and thoughtfully chosen alternative approaches to nutrient management; however, while ambitious in scope and despite admirable goals, it falls short in developing a clear schedule toward resource restoration and compliance with in all of the targeted embayment systems. MassDEP recognizes that this is a progress report, but expects that future submittals will more explicitly address the implementation schedule of nitrogen reduction strategies in the respective Project.

Wastewater Treatment

As noted in the West Falmouth Harbor discussion, the waste water treatment facility (WWTF) is scheduled for upgrades and improvements. The 2013 Draft CWMP/Draft Environmental Impact Report (DCWMP/DEIR/NPC) proposed to expand treatment at the Blacksmith Shop Road (BSR) WWTF from the existing 1.2 MGD to 2.1 MGD. It is not specifically stated in the NPC if this is still the proposal; however, MassDEP assumes that it is. The Town should clarify the ultimate design capacity. Technical Memorandum 4, presented as part of the Appendices, indicates that that the BSR WWTF will maintain its treatment capabilities with the Teaticket/Acapesket Sewer Study Area (TASSA), but is unclear about the ability to handle future sewering projects. The report provides a general outline of improvements/upgrades needed at the treatment works to accommodate both the increase in flow and reliability in performance. The proposed changes are consistent with existing operations and processes at the facility and all design issues will be addressed during plan and/or permitting review.

Wastewater Disposal

The NPC acknowledges limitations in wastewater recharge at the BSR WWTF that other options need to be explored to accommodate additional flows. The NPC appears to be focusing on the Allen Parcel for expanded effluent recharge as well as rerating the allowable loading at Infiltration Beds 14 and 15. However, this rerating, with an eye towards increasing the allowable discharge at these beds must be accompanied by appropriate analysis of potential impacts to downgradient receptors. Further investigations will proceed in 2020 and 2021 as part of the TWMT for Great Pond as well as through the BRP WP 81 Hydrogeological Review application process.

The 2013 DCWMP/DEIR/NPC discussed ocean outfalls as a possible option for a long term solution to wastewater disposal. The current NPC suggests that consideration of an outfall should be held in abeyance for the time being. Whereas land availability for wastewater recharge is becoming more of a Cape wide challenge, MassDEP believes that despite current restrictions, ocean outfall should be further discussed for feasibility in the Great Pond TWMP.

Opportunities for Regional Cooperation

It is MassDEP's opinion, supported by local studies, that economies of scale, both from a cost savings and a sustainability perspective, should drive the planning process to consider regional solutions. As

mentioned previously, future planning for the Waquoit Bay watershed may well benefit from coordinating with the towns of Mashpee and Sandwich with respect to whatever infrastructure or other alternative approaches may be needed to meet TMDLs in the combined Waquoit Bay – West and Waquoit Bay – East Project. In addition, Falmouth has been actively engaged in discussions with Barnstable, Bourne, Mashpee and Sandwich regarding a cooperative effort for a regional facility at Joint Base Cape Cod (JBCC). While the Town has acknowledged that at the present time it is interested only in disposal capacity over the long term, it should remain engaged in these regional discussions to maintain all its options. Additionally, the Town should move expeditiously with Mashpee and Sandwich to finalize an Inter-municipal Agreement (IMA) for the Waquoit watershed.

TMDL Compliance. The Town has passed a "Nitrogen Control Bylaw for Fertilizer Management" for which it intends to take a 25 % credit for reduction in the fertilizer loads, as calculated through the Massachusetts Estuaries Project (MEP) Technical Report. MassDEP is willing to accept this as a placeholder, but its effectiveness will have to be borne out by continued monitoring of water quality in Little Pond and subsequent Projects.

The Town has calculated a 25 % reduction credit for stormwater best management practices (BMPs). As in the fertilizer calculations MassDEP is willing to accept this as a placeholder with further monitoring required to demonstrate effectiveness. It should be mentioned, however, leaching catch basins may not be an effective nitrogen reduction strategy. Nitrate nitrogen is a conservative element and unless attenuated, will travel predominantly unimpeded through a homogenous sand and gravel aquifer. Effective stormwater management for nitrogen reduction will likely require alternatives such as the bioretention approaches listed in the NPC.

Shellfish aquaculture will continue to be monitored and evaluated for its effectiveness in providing improvements in water quality and nitrogen reduction. MassDEP is reviewing data regarding uptake in the flesh and shells of these organisms as a means of nitrogen reduction; however, the research on enhanced sediment denitrification associated with shellfish aquaculture is still too speculative at this point for this to be considered in a nitrogen management plan.

The Town is relying on I/A septic systems to make up the highest percentage of the remaining nitrogen reduction. MassDEP wants to make clear that there are currently no I/A systems approved for General Use that are able to perform at the level anticipated by the NPC, and until such time as any of these systems do achieve General Use approval, they are not considered as conventional technologies.

Finally, any future planning must address conventional contingency plans in the event that the alternatives proposed to augment the sewering projects identified do not achieve the nitrogen reductions anticipated.

Little Pond

The Town has virtually completed the installation of new sewers in the Little Pond Sewer Service Area as proposed in the 2013 DCWMP/DEIR/NPC. Construction of this sewer extension is projected to significantly reduce the nitrogen load to Little Pond; however, as acknowledged in the 2013 DCWMP/DEIR/NPC, that the proposed sewering alone would not be sufficient to meet the full nitrogen reduction targets. The NPC proposes continued monitoring of water quality in Little Pond to assess the effectiveness of sewering on the watershed and to guide future actions. It must be noted

that the range of estimated nitrogen reductions as listed in the NPC bracket the removal goal; therefore, monitoring is critical in assessing the effectiveness of the proposed approaches.

Recognizing that there is a certain lag between sewer connections and the time water quality improvements will be observed, MassDEP agrees with the monitoring approach proposed while the Town pursues infrastructure projects in watersheds. However, if after a reasonable time, there is no discernable improvement in water and/or habitat quality, further action will be required have to be implemented to meet restoration goals.

West Falmouth Harbor

The upgrade of BSR WWTF, located in the West Falmouth Harbor watershed, from a former Class III discharge at an average of 23 mg/L total nitrogen to the current configuration has greatly reduced the nitrogen load to West Falmouth Harbor. The current groundwater discharge permit requires the WWTF's best efforts to discharge no more than 4,109 lbs-N/yr. This is the amount determined by the Massachusetts Estuaries Project (MEP) modeling to achieve the threshold concentration at the Harbor's sentinel station. The upgraded facility has been operating since 2006, and while improvements to the Harbor have not been as rapid as anticipated, there is recent data to suggest that habitat conditions (*i.e*. eelgrass restoration) are beginning to improve. However, the WWTF at times still struggles to meet its discharge goals.

The NPC provides a schedule for adding a third sequencing batch reactor (SBR) to the facility in order to improve performance and allow for more reliable and consistent treatment. Addition of this SBR, along with other proposed upgrades, should be complete by 2022.

Additionally, the Town has installed some I/A septic systems as part of a demonstration project to provide some more immediate reductions in nitrogen load and, at the same time, test the efficiency and performance of these systems to determine the level of treatment of which they may be capable. As with other embayments, the Town is looking for modest nitrogen removal credits from the Town's Fertilizer By-Law and Stormwater BMPs.

Great Pond

253 parcels in the Great Pond watershed have been connected to sewer as part of the Little Pond Sewer Service Area (LPSSA). In addition, the Town has developed the TASSA proposing to serve 1,791 parcels of which 1,289 are located in the Great Pond watershed. The proposed TASSA represents 7,179 to 9,105 kg–N/yr of the total N load reduction (12,154 kg-N/yr) for the watershed. This represents between 59% and 75% of the target removal. Alternative approaches suggest N removal credits for the fertilizer by-law, shellfish aquaculture, a PRB and the potential attenuation of N from the Coonamesset River Restoration Project. Given that the proposed conventional option does not meet the target goal, future planning must include a contingency plan utilizing proven technology to make up the difference.

As with Little Pond, it must be noted that the range of estimated nitrogen reductions listed in the NPC bracket the removal goal; therefore, monitoring is critical in assessing the effectiveness of the proposed approaches. Furthermore, there appears to be a discrepancy between the target load reductions appearing on Page 6-10 and in Table 6.2. MassDEP understands that the N load reduction in the table is correct. The discrepancy should be rectified.

The NPC sets a schedule for TASSA construction to commence in 2025. The Town should explore the possibility of consolidating the schedule in order to accelerate construction prior to that date.

Green Pond

The TASSA anticipates serving 502 parcels in the Green Pond watershed for an estimated nitrogen load removal of 2,058 to 2,610 kg-N/yr. This represents between 46% and 59% of the target removal. The plan for this watershed proposes to augment nitrogen removal from sewering with credit for the fertilizer by-law, stormwater BMPs, shellfish aquaculture and restoration of the Mill Pond system to improve nitrogen attenuation. Monitoring water quality in Green Pond, as in all Projects, will guide future activities and gauge their effectiveness. Overall, the sum of nitrogen removal from all activities bracket the target nitrogen removal goal. Given that the proposed conventional option does not meet the target goal, future planning must include a contingency plan utilizing proven technology to make up the difference.

Bournes Pond

The proposed plan for Bournes Pond does not include any infrastructure proposals. The proposed inlet widening represents approximately 50% of the required load reduction with shellfish aquaculture providing an additional 32% to 40% with the remainder being made up with a credit for the fertilizer by-law and stormwater BMPs. The anticipated sum total of these activities exceeds the removal target. However, a removal of between 676 and 840 kg-N/yr from sediment denitrification associated with shell fish aquaculture is part of that equation. As stated previously, MassDEP believes that much more research is required to verify the efficacy of this credit and that it is premature to factor this into nitrogen removal mechanisms. Without this anticipated credit, the N removal range now brackets the N reduction target. Again, monitoring will be key in demonstrating the effectiveness of these proposals, but a contingency plan utilizing proven technology to address shortfalls must be provided in any future planning.

The NPC notes that the inlet widening should be completed by December 2022.

Waquoit Bay

The Towns of Falmouth, Mashpee and Sandwich are currently engaged in discussions about appropriate load allocations in order to develop an Inter-municipal Agreement (IMA) to manage jointly nitrogen reductions required in this watershed. The NPC addresses four sub-projects: Eel Pond, Childs River, Hamblin Pond/Little River, and Quashnet/Moonakis River.

Plans for Hamblin Pond/Little River appear to meet the nitrogen targets through the activities proposed by Mashpee in their approved CWMP. However, the activities proposed for the Quashnet/Moonakis Rivers do not meet the nitrogen targets. Mashpee sewering is augmented by fertilizer reduction and stormwater management (presumably from Falmouth), but no other provisions are documented or discussed to meet the target threshold, including any conventional contingency plans. For Childs River, proposed sewer extensions achieve approximately between 60% and 80% of the required load reduction, but once again, the range of estimated reductions bracket the target reduction goal with no contingency plan to address the potential deficiencies. Finally, the estimated nitrogen load reductions in Eel Pond exceed the removal goal and can be achieved entirely through the proposed sewering program. Unfortunately, due to the structure of the overall watershed, it does not appear that the excess nitrogen removed in Eel Pond would be available to offset the shortfalls in the other subembayments.

Adaptive Management

The NPC largely relies on the concept of adaptive management to meet TMDL compliance. While there are many interpretations of what "adaptive management" actually means, MassDEP views it as a certain amount of flexibility to recognize alternative approaches that allow for mid-course corrections in the implementation of a recommended plan. As such, a plan that clearly leads to TMDL compliance must be presented in the document and as alternative technologies or approaches are shown to be effective, they may be appropriately incorporated into revisions of the original plan dependent on their relative nitrogen removal credits.

Conclusion

The NPC is an ambitious step forward. MassDEP commends Falmouth's effort to start to address the town's nitrogen issues in a phased approach. MassDEP is encouraged by the town's willingness to look at alternatives while at the same time reserving judgment on their effectiveness until they can be fully evaluated under field conditions.

Given the reliance of alternative approaches, the Town and MassDEP must determine if and when the Town should pursue watershed permits in the individual watersheds.

However, MassDEP believes that the NPC lacks a defined schedule for the Project other than Great and Bournes Pond (and to some degree Green Pond). While it is understood that this is an adaptive management plan and that much depends on the results of the demonstration projects, there is no backup plan identified that will result in TMDL compliance for any of the identified Project except for the Waquoit watershed and the WFH watershed (dependent on future modeling). Additionally, there is no prioritization to suggest a sequence in which the Project should be addressed after Great Pond or cost (other than a projected $40 million) for 2025 through 2040. MassDEP strongly believes that an alternative for TMDL compliance must be identified with in an appropriate planning horizon or else much time and effort will have gone into planning and implementation without generating the desired result of habitat restoration in the impacted embayment systems.

Recognizing that a central tenet of financing the plan is to retire old debt before assuming new debt without tax increases, the town's anticipated capital outlays for all aspects of the town's needs should be described as part of future submittals. It is noted that the Table 11.7 does mention betterment percentages and this discussion should be further developed to provide a sound financial plan. While not relieving the town from its responsibility to meet TMDLs, this exercise certainly has the benefit of putting the town's fiscal challenges in proper perspective.

Finally, MassDEP recognizes that the Town is prioritizing its south coast embayments, but it must not lose sight of the need to address other impaired embayments such as Falmouth Inner Harbor, Quisset Harbor, Rands Harbor/Canal, Wild Harbor and Megansett/Squeteague Harbors.

MassDEP recognizes that the NPC is clearly the result of hard work and thoughtful deliberation. Furthermore, MassDEP believes that the NPC can serve as the basis of a sound and innovative plan that with appropriate modifications can accommodate both the needs of the town and MassDEP. MassDEP looks forward to working cooperatively with Falmouth, as both parties have in numerous past occasions, in order to achieve the goal of habitat restoration that we both ardently desire.

Bureau of Waste Site Cleanup Comments

NPC #14154 – Based upon the information provided, the Bureau of Waste Site Cleanup (BWSC) searched its databases for disposal sites and release notifications that have occurred at or might impact 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 Comprehensive Wastewater Management Plan is long-term project (2009 – 2040) spanning a very large area (27,251 acres). There are many MCP sites located near and possibly within the proposed project area. Some of these sites have been closed, but other sites require on-going response actions and reporting until final closure under the MCP. A list of all MCP sites will not be presented here. Interested parties may view a map showing the location of BWSC disposal sites using the MassGIS data viewer (Oliver) at: http://maps.massgis.state.ma.us/map_ol/oliver.php Under "Available Data Layers" select "Regulated Areas", and then "DEP Tier Classified 21E Sites". MCP reports and the compliance status of specific disposal sites may be viewed using the BWSC Waste Sites/Reportable Release Lookup at: https://eeaonline.eea.state.ma.us/portal#!/search/wastesite

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 if contamination is present. The BWSC may be contacted for guidance if questions arise regarding cleanup.

Bureau of Air and Waste (BAW) Comments

Air Quality. 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 all non-road diesel equipment rated 50 horsepower or greater meet EPA's Tier 4 emission limits, 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 appropriate emissions reduction equipment. Emission reduction equipment includes EPA-verified, CARB-verified, or MassDEP-approved diesel oxidation catalysts (DOCs) or Diesel Particulate Filters (DPFs). The Proponent should maintain a list of the engines, their emission tiers, and, if applicable, the best available control technology installed on each piece of equipment on file for Departmental review.

Massachusetts Idling Regulation. MassDEP reminds the Proponent that unnecessary idling (i.e., in excess of five minutes), with limited exception, is not permitted during the construction and operations phase of the Project (310 CMR 7.11). With regard to construction period activity, 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 install permanent signs limiting idling to five minutes or less on-site.

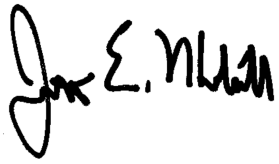
Proposed s.61 Findings

The "Certificate of the Secretary of Energy and Environmental Affairs on the Notice of Project Change" 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.

Other Comments/Guidance

The MassDEP Southeast Regional Office appreciates the opportunity to comment on this NPC. If you have any questions regarding these comments, please contact George Zoto at (508) 946-2820.

Very truly yours,



Jonathan E. Hobill,
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JH/GZ

Cc: DEP/SERO

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