



# MEMORANDUM

Revised July 11, 2013

To	Town of Falmouth DPW		
Copy to	Jerry Potamis, P.E.		
From	Nathan Weeks, P.E., BCEE, GHD Virginia Valiela, Falmouth WQMC	Tel	774-470-1633
Subject	Comprehensive Wastewater Management Planning (CWMP) Project Comments on November 14, 2012 Draft Environmental Impact Report (DEIR) Certificate and Comment Letters Received	Job No.	8612163

This memo is written to address comments received from the public and environmental review process for the Town's Comprehensive Wastewater Management Planning (CWMP) Project.

The July 30, 2012 Draft Comprehensive Wastewater Management Plan and Draft Environmental Impact Report, and Notice of Project Change (DCWMP/DEIR) was submitted to many regulatory groups and citizens as part of the study's review process, and written comments were received from twenty-three agencies and individuals.

The written comments are attached at the end of this memo and are discussed in the memo. Excerpts from the comment letters are provided in standard type and then addressed with numbered responses (A.1, A.2 etc.) in **bold italics**. This memo will be attached in an appendix to the Final Comprehensive Wastewater Management Plan and Final Environmental Impact Report (CWMP/FEIR) with the Secretaries Certificate and the original comment letters. Reviewers and Commenters will be able to read these items to understand how we have addressed the comments.

We have prepared this Comment Response memo with a broad perspective that is appropriate for the broad scope of this project.



A. COMMENTS FROM THE MASSACHUSETTS SECRETARY OF ENERGY AND ENVIRONMENTAL AFFAIRS, DATED NOVEMBER 14, 2012.

For the Final Environmental Impact Report (FEIR) to be found adequate, I am requiring the Town of Falmouth to provide additional information in the FEIR pertaining to the Town's proposed effluent recharge plan, Pilot Projects design, water quality monitoring program and adaptive management plan. The FEIR must also adequately describe how the Town proposes to meet the Total Maximum Daily Loads (TMDLs) established for Little Pond, Great Pond, Green Pond, Bournes Pond, Waquoit Bay East and the West Falmouth Harbor watersheds within an appropriate planning horizon. This information is necessary to ensure that the requirements of 301 CMR 11.07 are met, that the aspects and issues of the project have been clearly described, that a range of project alternatives have been fully analyzed, that the proponent has committed to a set of mitigation measures that will allow the State Agencies to satisfy their Section 61 obligations, and that there will be meaningful opportunities for public review of the additional analysis prior to any Agency Actions.

**A1. This information is provided in the CWMP/FEIR. In summary, the CWMP/FEIR includes the following components:**

- 1) Sewer extension only to the Lower Little Pond Watershed to begin mitigation of that water body.**
- 2) WWTF upgrades to address the current effluent discharge permit and needed upgrades.**
- 3) Treated water recharge of up to 0.26 mgd outside of the West Falmouth Harbor Watershed at Site 7.**
- 4) Adaptive Management Plan.**
- 5) Demonstration Projects as funded by Town Meeting to investigate the feasibility of the following non-traditional nitrogen management processes:**
  - a. Permeable Reactive Barriers (PRBs)**
  - b. Aquaculture to harvest/mitigate excessive nitrogen in the estuaries**
  - c. Inlet opening of Bournes Pond and Little Pond**
  - d. Composting and urine diverting toilets (ecotoilets)**
  - e. Stormwater management initially evaluated for the Little Pond Watershed**

**Two other initiatives (not demonstration projects) have been funded by Town Meeting that are expected to provide additional nutrient management and include:**

- a. Development of a Comprehensive Fertilizer Bylaw**
- b. Information gathering on the feasibility and performance of individual property and clustered nitrogen removal septic systems**

**These demonstration projects and other initiatives will become evaluations independent of this CWMP/FEIR and will enter the MEPA review process if they trigger MEPA review**



*thresholds. If these evaluations (and possible MEPA reviews) demonstrate feasibility, the Town plans to add them to the CWMP through the Adaptive Management Plan component of this CWMP/FEIR.*

*Much work has already been completed on the Bournes Pond Inlet Opening Demonstration Project and a stand-alone Notice of Project Change (NPC) will be submitted for MEPA review in the near future after a pre-submittal meeting with the appropriate stakeholders. The Bournes Pond Inlet Opening Demonstration Project findings are also summarized in the CWMP/FEIR in Chapter 3 and Appendix 3-4. Evaluations have been initiated on the other demonstration project scopes, and initial findings through June 2013 are summarized in the CWMP/FEIR.*

The FEIR should include a copy of this Certificate and a copy of each comment letter received. In order to ensure that the issues raised by commenters are addressed, the FEIR should include a response to comments received on the DEIR to the extent that the subject matter of the comment is within the Scope.

**A2. This information is provided in the CWMP/FEIR, and this memo summarizes our response to comments.**

The FEIR should include a detailed description of the Town's CWMP to reduce nutrient loading to the marine embayments and freshwater ponds in Falmouth.

**A3. This information is provided in the CWMP/FEIR in detail for the Little Pond Lower Watershed area and will document the nitrogen removals that will occur from that proposed sewer extension. The Town is committed to reducing nutrient loadings to all of its impaired marine embayments, but this CWMP does not have plans for reductions beyond the Little Pond Lower Watershed sewer extension. Also, as of June 2013, the Town has not included freshwater pond mitigation into this CWMP. It was not part of the original scope and Town meeting appropriation; therefore, it is not part of the CWMP. However, the Town has adopted a Comprehensive Fertilizer By-law to protect all water bodies, both fresh and marine.**

*A copy of this Nitrogen Control Bylaw can be found in Appendix 3-8.*

*On May 15, 2013, the Attorney General disapproved the new bylaw stating that the Legislature has vested the regulatory authority over fertilizers with the Department of Agricultural Resources. The town's legislative delegation has filed corrective legislation that, if enacted, would enable the Attorney General's Office to approve the town's Nitrogen Control Bylaw.*

Detailed information should be provided for each area in Falmouth where the construction of new sewers and/or non-wastewater nutrient management Pilot Projects are proposed, including maps that show where sewer lines, cross-country easements, pumping stations, groundwater discharge sites and other facilities will be located.

**A4. This information is provided in the CWMP/FEIR Chapter 4, Section 4.6, and Appendices 4-24 to 4-30 for the recommended wastewater infrastructure. Detailed information, available as of June 2013, is also presented for the demonstration projects.**



The FEIR should include a detailed analysis of the environmental impacts and costs associated with the Town's proposed CWMP project. The FEIR should identify the percent of nitrogen removal that could be achieved by sewerage the Phase 1 and 2 areas compared to the total load for removal identified by the MEP. The FEIR should also include a detailed description of the Town's proposed implementation schedule for the construction of new and expanded wastewater management, treatment, conveyance and discharge facilities, individual Pilot Projects, and implementation of needed management structures, local regulations and funding requirements. MassDEP has recommend that the Town's proposed implementation schedule for its CWMP be accelerated to initiate needed additional nutrient reduction work in the 2017-2020 time period.

This section of the FEIR should respond to MassDEP's comments to identify opportunities to accelerate the Town's proposed implementation schedule for its CWMP. According to the comments received from MassDEP and the CCC, the Town's CWMP should prioritize critically impaired watersheds and sub-watersheds for nutrient reduction projects to achieve the greatest amount of nutrient removal in the shortest time frame. The FEIR should include a discussion of the potential benefits associated with the implementation of a targeted approach to wastewater nutrient management in Falmouth. This discussion should evaluate the feasibility for constructing new sewers and Pilot Projects to serve neighborhoods located in the sub-watersheds of the most significantly impacted coastal embayments in Falmouth including, but not limited to, the West Falmouth Harbor watershed and the Waquoit Bay East and West watersheds. The Town should identify opportunities for extending new sewers to additional areas in the Lower Little Pond Watershed Sewer Expansion area including, but not limited, to Hitching Post Lane, Kimberly Lane, Village Lane and Cataument Street. The FEIR should discuss the potential benefits of constructing interim cluster system facilities in extremely stressed watersheds to expedite the time frame for nitrogen reduction. The comments from CCC point out that the Orleans CWMP included the proposed near-term construction of interim cluster system facilities that could be retro-fitted as pump stations in later stages of the Orleans CWMP's construction.

**A5. A detailed analysis of the environmental impacts and costs associated with the CWMP/FEIR project as summarized in Item A1 is provided in the CWMP/FEIR at Chapter \_\_\_\_\_. Sewering of the previously referenced Phase 1 and 2 areas is not part of the CWMP/FEIR at this time and is not analyzed for environmental impacts and/or costs. The CWMP/FEIR provides a detailed description of the proposed implementation schedule. The Town has considered MassDEP's recommendations to accelerate CWMP implementation, and the CWMP/FEIR provides a summary of those considerations. The Town is targeting the Lower Little Pond Watershed in this CWMP because it is located adjacent to existing wastewater infrastructure and is expected to be the lowest cost area for sewer extension. It is noted that the Town plans to implement wastewater and nutrient facilities in a practical and systematic way. The Town does not want to waste money on a solution or implementation that will need to be replaced or made redundant in a few years. The Town does not want to present a plan that is unrealistic or unlikely to be funded.**

MassDEP has requested that the Town identify a contingency plan to demonstrate how the Town will meet the TMDLs established for Little Pond, Great Pond, Green Pond, Bourne Pond, Waquoit Bay East and the West Falmouth Harbor watersheds within an appropriate planning horizon. This section of the FEIR should discuss whether any previously proposed CWMP alternatives identified in the ENF are being further



considered or retained as a contingency plan to augment the Town's currently proposed draft CWMP activities.

**A6. *The Town wishes to evaluate the demonstration projects before it creates a more detailed plan beyond the Little Pond Lower Watershed area. The Town does not want to develop a contingency plan because such a plan would have little meaning. We have referenced an earlier plan (extensive sewerage south and north of Route 28, advanced treatment at the MMR site, and well injection at the Route 151 right-of-way) as a possible worst case scenario to be used for comparison purposes. These items are in Appendices 4-7 and 4-8, and in Table 4-4.***

***All previous evaluations will be included in appendices to provide a complete history of the CWMP evaluations.***

The Town should consult with the Department of Conservation and Recreation's (DCR's), Waquoit Bay National Estuarine Research Reserve (WBNERR) regarding an evaluation of the combined effects of expected climate change and infrastructure development in coastal communities. The FEIR should consider how climate-related impacts to groundwater hydrology and coastal resources may impact the Town's long-term wastewater infrastructure planning process.

**A7. *The Town has consulted with WBNERR staff and has considered these items. The Town and the local scientific community are very aware of the problems that will be caused by sea level rise.***

The FEIR should quantify the total amount of alterations associated with the proposed improvements and upgrades of the Blacksmith Shop Road WWTF (including areas to be altered for buildings, roadways, sewer mains, pump stations wastewater treatment and disposal, and other project components). The FEIR should clarify the location, type and amount of alteration proposed in previously undisturbed areas.

**A8. *This information is provided in the CWMP/FEIR in Chapter 4, Section 4.6, and in Appendix 4-29.***

The FEIR should include a detailed description of any proposed new and/or expanded wastewater discharge areas, a revised analysis of the alternative discharge locations and the potential impacts associated with all aspects of the Town's currently proposed effluent discharge plan. The FEIR should clarify the proposed discharge volumes at each proposed recharge location including the existing Blacksmith Shop Road WWTF and the proposed new recharge sites, Sites 7 & 10. The FEIR should include graphics that show the proposed recharge sites in relation to watershed boundaries.

**A9. *This information is provided in the CWMP/FEIR at Chapters 4 and 7. It is noted that discharge at Site 10 is not part of this CWMP, and recharge of only 0.3 mgd is proposed at Site 7.***

The FEIR should include an evaluation of any revision of nitrogen loads using the MEP water quality models as recommended by the CCC.

**A10. *The MEP water quality modeling completed by SMAST as of March 31, 2013 are presented in Chapter 7, Section 7.6.3.***



The FEIR should evaluate any limiting factors for the proposed discharge locations and the costs associated with permitting and constructing wastewater pipelines.

***A11. This information is provided in the CWMP/FEIR at Chapters 4 and 7 for the area downgradient of the proposed Site 7 recharge. Expected benefits for the area downgradient of the Little Pond Lower Watershed sewer extension are also summarized.***

The FEIR should evaluate potential project impacts on groundwater hydrology, surface water and wetlands resources, wildlife habitat and other sensitive resources in the project area.

***A12. This information is provided in the CWMP/FEIR at Chapter 7.***

The FEIR should describe measures to avoid and minimize, or mitigate impacts associated with the proposed project.

***A13. This information is provided in the CWMP/FEIR at Chapter 8 with the draft Section 61 findings.***

The FEIR should provide the results of the modified groundwater modeling recommended in the comments received from CCC, the Buzzards Bay Coalition and others. The Town's groundwater modeling studies should be modified to better simulate the hydrologic features for Crocker Pond and Wing Pond. The FEIR should provide an evaluation of the potential impact of the Town's proposed wastewater discharge plan on Wing Pond, Crocker Pond, Herring Brook, West Falmouth Harbor and Buzzards Bay. The Town should undertake additional field work to verify the hydrogeologic conditions, the groundwater surface water interfaces and the recharge areas for these water bodies. The Town should monitor the water quality of Wing Pond to determine the capacity of Wing Pond's to accommodate additional nitrogen loading.

***A14. This information is provided in the CWMP/FEIR at Chapter 4. Because Site 10 will not be used for recharge, no treated water will impact Wing Pond. Increased hydrogeologic features of Crocker Pond have been modeled and will be presented. Information on the potential impact on these water bodies will be presented.***

The Town should take advantage of the Ponds and Lakes Stewardship's (PAL's) freshwater pond sampling program to properly characterize the fresh water conditions of the Town.

***A15. As discussed in Item A3, the Town has not included freshwater pond mitigation into this CWMP. It is likely that the Town will utilize services of the PAL's program outside of this CWMP project.***

The FEIR must provide a detailed discussion of the Town's plan to bring West Falmouth Harbor into compliance with the West Falmouth Harbor TMDL and Surface Water Quality Standards to offset current and future nitrogen loading to West Falmouth Harbor.

***A16. This information is provided in the CWMP/FEIR at Chapter 6.***

The FEIR should explain why sewerage within the West Falmouth Harbor watershed is not proposed as part of the Town's draft CWMP and how this will affect total flows from the Blacksmith Shop Road WWTF to meet the West Falmouth Harbor TMDL.

***A17. This information is provided in the CWMP/FEIR at Chapter 4.***



The Town should conduct additional site specific hydrogeologic studies to characterize the potential for the West Falmouth Harbor-Buzzards Bay underflow phenomenon described above. The FEIR should provide a detailed discussion of any additional site-specific hydrogeologic studies and analysis undertaken by the Town subsequent to the submittal of the DEIR.

***A18. Hydrogeologic evaluations conducted since submittal of the DEIR are provided in the CWMP/FEIR at Chapter 4. No additional studies have been undertaken to characterize the potential for the West Falmouth Harbor underflow phenomenon because we have taken the more conservative position that under flow is not occurring.***

The FEIR should also include a discussion of how the Town's CWMP will comply with MassDEP's Groundwater Discharge Regulations.

***A19. This information is provided in the CWMP/FEIR at Chapter 8.***

The Town should use the MEP's linked watershed embayment model and the CCC's watershed management tool (Watershed-MVP) to confirm the CWMP's ability to provide the necessary reductions in nitrogen loading in compliance with published or expected TMDLs.

***A20. MEP modeling by SMAST is provided in the CWMP/FEIR at Chapter 7 for the Little Pond area. The Town understands that according to the model, this sewer extension is not sufficient to meet the nitrogen TMDL for Little Pond. The Town is pursuing an Aquaculture Demonstration Project in Little Pond to see how much additional nitrogen will be removed. Reduction of stormwater and fertilizer loadings may also help. The Town plans to monitor the results of all these efforts for several years and compare those results with the model predictions.***

The FEIR should include a discussion of additional wastewater disposal or reuse alternatives that may be required to support inter-municipal (regional) approaches to wastewater management.

***A21. This discussion is provided in the CWMP/FEIR at Chapter 4. It is noted that no sewer extensions are currently recommended for inter-municipal (regional) approaches to wastewater management. It is also noted that only two of Falmouth's 14 marine watersheds are regional [Megansett and Waquoit].***

The FEIR should identify additional alternatives and/or appropriate mitigation for the potential water quality impacts to downgradient resource areas resulting from the Town's proposed recharge plan.

***A22. This information is provided in the CWMP/FEIR at Chapters 4 and 7.***

The FEIR should identify alternative sites for treated effluent disposal, ocean outfall, and regional use of the MMR infiltration beds.

***A23. This information is provided in the CWMP/FEIR at Chapter 4.***

I strongly recommend that the Town consult with the CCC, DMF and the Buzzards Bay Coalition regarding their comments and requests for additional information and analysis relating to potential impacts to Wing Pond and Crocker Pond, Herring Brook, the West Falmouth Harbor watershed and Buzzards Bay.

***A24. The Town plans to (has consulted) with these stakeholders. See Chapter 4, Section 4.6.12***



The FEIR should provide an update on the Town's consultations with MassDEP, DMF, CCC and others regarding the Town's proposed groundwater discharge plan.

***A25. This information is provided in the CWMP/FEIR at Chapter 4, Section 4.6.12.***

The FEIR should provide a discussion of the potential impacts of wastewater discharges from the Blacksmith Shop Road WWTF, the proposed new wastewater effluent recharge sites and existing individual septic systems on Zone II areas in Falmouth under existing and anticipated future wastewater flow rates. This discussion should include a summary of the existing quality of public water supplies in Falmouth including the presence of sodium, volatile organic compounds and the occurrence of CEC, and the distances of existing wastewater discharge sites from Zone II areas. This section of the FEIR should compare the potential TOC removal to be achieved from the sewerage of the Town's Zone II areas and the construction of additional TOC treatment technologies at the Blacksmith Shop Road WWTF. The Town should consult with MassDEP and the CCC during the preparation of this section of the FEIR, and report on the results of these consultations.

***A26. Treated water recharges from the Blacksmith Shop Road WWTF and the proposed recharge at Site 7 are not into or near Zone II areas. There are individual septic system discharges into Zone II areas as allowed by state and local regulations.***

***Evaluation of the drinking water quality with respect to the occurrence of CEC and evaluation of Zone II sewerage and TOC treatment is beyond the scope of the CWMP project. The Town is involved in a drinking water improvement project for its Long Pond source, which has periodic water quality problems common to pond water sources. The Town has talked with MassDEP and CCC about this issue which is summarized in the CWMP/FEIR.***

#### Ocean Outfall Discharge

The FEIR should include a detailed discussion of the technical, statutory and permitting challenges that must be addressed if the Town selects this alternative as part of its CWMP. This section of the FEIR should include information and analysis to support MassDEP's Variance application process. I encourage the Town to consult with MassDEP, CZM and the CCC during the preparation of this section of the FEIR.

***A27. This information is provided in the CWMP/FEIR at Chapter 3, Section 3.9, and the Town has consulted with MassDEP, CZM, and CCC on this issue.***

#### Lower Little Pond Watershed Sewer Expansion

The FEIR should provide the best information currently available for the phased construction of new sewers to serve the proposed Lower Little Pond Watershed sewer expansion project and explain what additional information is proposed for later collection and analysis. This section of the FEIR should include a detailed description of the proposed sewer expansion alternatives analyzed, the type and extent of potential impacts, and mitigation measures that the Town is committing to. The FEIR should quantify the total amount of alteration associated with the proposed phased sewer expansion construction project (including areas to be altered for sewer mains, pump stations and other project components). The FEIR should include a breakdown showing the amount of alteration for different project elements. The FEIR should clarify the location, type and amount of alteration in previously undisturbed areas.





The FEIR should describe the proposed schedule for project planning, design, environmental permitting and review, and construction, and discuss the state permitting process for the Town's sewer construction activities and describe how it will meet applicable performance standards. The FEIR should also include a list of permits required and a timetable and cost estimate for the Lower Little Pond Watershed Sewer Expansion project. In preparing this section of the FEIR, the Town should review the provisions of Executive Order 181 and CZM Coastal Hazards Policy #3 to ensure that the Town's CWMP does not promote growth and development in high hazard areas designated in Flood Insurance Rate Maps (FIRMs) as V zones, AO zones, and specific A zones that are accompanied by moderate wave action capable of structural damage (MoWa). CZM recommends that the Town's CWMP specifically consider areas located within mapped coastal flood zones and barrier beach and buffer areas including frontal dunes. The FEIR should clarify MEPA thresholds for the proposed sewer expansion project including the total amount of land and wetlands alteration associated with the project. The FEIR should identify the Town's plan to avoid, minimize and mitigate adverse impacts associated with the sewerage of the lower Little Pond Watershed. The FEIR should describe any changes to the project since the filing of the DEIR.

***A28. This information is provided in the CWMP/FEIR at Chapter 4.***

#### Non-Wastewater Nutrient Management Projects and Programs

The FEIR should provide information for each Pilot Project to be included in the Town's CWMP sufficient to understand their potential environmental impacts to resources areas. The FEIR should include a description of all aspects of each Pilot Project and a schedule for construction and other development activities. The FEIR should identify the proposed sites for locating Pilot Projects and should also include maps and plans at a reasonable scale that clearly locate and delineate project elements, surface water and wetlands resource areas, adjacent land uses, and aquifer protection districts on and adjacent to the project site. The FEIR should include an overlay of the proposed Pilot Projects in the context of sensitive resources in the planning area to facilitate review and assessment of potential impacts. Maps and plans should show water supply resources, conservation areas, and any priority and estimated rare species habitat in the project area. This section of the FEIR should include an analysis of the anticipated benefits of these Pilot Projects to provide targeted and incremental nitrogen removal from the more stressed sub-watersheds in Falmouth. The FEIR should describe how the Pilot Projects will be incorporated in the Town's CWMP to meet nutrient TMDLs for the South Coastal embayments.

***A29. As discussed in Item A1, the demonstration projects will become evaluations independent of the CWMP/FEIR and will enter the MEPA review process if they trigger MEPA review thresholds. Scope and initial findings of these demonstration projects as developed through June 2013 are provided in the CWMP/FEIR at Chapter 3.***

The FEIR should provide detailed plans for the Town's proposed PRB and inlet widening Pilot Projects. The FEIR should describe the processes involved with the construction of PRBs and inlet widening, including a discussion of the proposed methods for excavation, dewatering, erosion and sediment control and sediment disposal. The FEIR should include a discussion of the range of potential impacts to wetland resource areas, coastal sediment transport, and local beaches associated with inlet widening or dredging, including the potential for flooding of upstream rare species habitats. The FEIR should provide detailed modeling, evaluations, and impact assessments to demonstrate the effectiveness of inlet widening as a component of



its CWMP. The FEIR should identify proposed sites for locating PRBs and inlet widening Pilot Projects recommended sites where impacts to Coastal Resources can be minimized to the greatest extent feasible.

**A30. See Response A29.**

This section of the FEIR should also include a list of permits required and a timetable and cost estimate for the proposed Pilot Projects. The FEIR should clarify anticipated MEPA thresholds for the proposed Pilot Projects including the total amount of land and wetlands alteration associated with the project. The FEIR should describe how the proposed Pilot Projects will meet applicable MassDEP permit requirements, including requirements for disinfection of water proposed for recharge. The FEIR should contain an update on the status of the Town's Request for Proposals (RFPs) process initiated for these Pilot Projects.

**A31. See Response A29.**

I strongly encourage the Town to work closely with MassDEP, CCC, the Buzzards Bay Coalition and others in the design and implementation of the Town's proposed Pilot Projects. The Town should also consult with MassDEP and CCC during Town's RFP review process and Pilot Projects design.

**A32. The Town will coordinate (has coordinated) with these stakeholders.**

Water Quality Monitoring and Adaptive Management

The FEIR should include a commitment to monitoring of groundwater, embayment and pond water quality and related habitat areas. The FEIR should identify proposed groundwater monitoring activities at the proposed new Site 10 wastewater effluent recharge location. The FEIR should describe how existing and proposed water quality studies and water quality monitoring programs will be incorporated into the Town's water quality monitoring program activities. The FEIR should discuss the Town's monitoring plans for groundwater and surface water to evaluate impacts and inform the Town's long-term adaptive management planning process.

**A33. This information is provided in the CWMP/FEIR at Chapter 6. Site 10 is no longer in the Plan. It is understood that this information will be finalized as part of effluent discharge permit application and MassDEP approval as well as CCC DRI approval after MEPA approval.**

The FEIR should provide a detailed description of the Town's proposed Adaptive Management Plan [AMP] and water quality monitoring program to accommodate the Town's CWMP. This AMP should describe a systematic process for determining the effectiveness of the Town's sewerage of the lower Little Pond watershed area and construction of the Pilot Projects and the need for any revisions to the Falmouth CWMP before initiating subsequent CWMP phases. The AMP should include a Groundwater and Surface Water Quality Monitoring Plan that identifies specific annual water quality monitoring activities to be completed by the Town for the South Coastal area, coastal embayments and select freshwater ponds in Falmouth. The FEIR should include a commitment to coordinate the Town's water quality monitoring activities with MassDEP, DMF, CCC and the Buzzards Bay Coalition and any ongoing water quality monitoring and modeling activities in Falmouth. The AMP should describe the process for reporting the results of the Town's ongoing annual groundwater quality and habitat monitoring activities. The FEIR should include a commitment to prepare an annual TMDL Compliance Report to document the reductions in watershed nitrogen loads achieved from the Town's phased CWMP program.



This annual TMDL Compliance Report should be provided to MassDEP, CCC, the Buzzards Bay Coalition, MEP, local area watershed associations, representatives from neighboring towns and others. MassDEP will review the TMDL Compliance Report to determine the Town's compliance with the established TDMLs identified for the coastal embayments in Falmouth. The AMP must outline the process the Town will employ to identify the need for any adjustments or mid-course corrections to the construction of the CWMP to achieve compliance with TMDLs for the South Coastal embayments. This TMDL Compliance Report will also be used to identify the need to make any adjustments or mid-course corrections to the Falmouth CWMP prior to initiating the next phase of CWMP project construction. The Town must work closely with MassDEP, CCC and others in the design and implementation of the Town's proposed water quality monitoring program and its Adaptive Management Plan.

***A34. Similar to the Adaptive Management Plan (AMP) and reporting requirements developed for the Chatham CWMP, the Town believes the AMP should be prepared in a robust manner based on trust among the stakeholders. The AMP for Falmouth will be prepared and summarized in the CWMP/FEIR. The Town will coordinate with MassDEP and CCC on these items.***

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

In their respective comments on the DEIR, the CCC and the Town of Mashpee note that Waquoit Bay is a shared regional watershed that has been identified as one of the more regionally impacted embayment systems on Cape Cod. CCC has requested that the Town continue to identify potential regional wastewater management solutions with the Town of Mashpee and the MMR to expedite nitrogen removal for Waquoit Bay. The FEIR should respond to CCC's comments and identify potential regional nutrient management solutions with Mashpee and the MMR.

***A35. The Town will continue to identify potential regional solutions. The Town has met with the Mashpee Sewer Commissioners and the two communities are sharing information.***

I ask the Town of Falmouth, together with the Towns of Bourne, Mashpee and Sandwich and MMR to work together with MassDEP, the CCC and others to continue the discussion of possible opportunities to integrate the Town's wastewater treatment planning efforts with the wastewater management planning efforts undertaken by the Towns of Mashpee and Sandwich. The Town should consult with the towns of Bourne, Mashpee and Sandwich during preparation of the FEIR and the refinement of the Town's CWMP project. The FEIR should include an update of the Town's ongoing efforts to identify regional strategies and opportunities for reducing the nutrient loading to coastal embayments. The Town should continue to work closely with the Cape Cod Commission to ensure that the FEIR is consistent with the goals of the Regional Policy Plan (RPP) and that proposed wastewater infrastructure design and construction accounts for the unique aspects of linked groundwater and surface water system that characterizes Cape Cod.

***A36. The Town will continue these discussions and efforts.***

#### Wetlands

The FEIR should identify the location of these activities and describe potential wetlands and watershed impacts, and measures to avoid and minimize or mitigate impacts. All wetlands resource areas and buffer zones on and adjacent to the project site, including Riverfront Area and Bordering Land Subject to Flooding, should be clearly identified and delineated on site plans. Proposed project elements should be superimposed



on a plan with existing conditions to facilitate review and assessment. The FEIR should include an analysis of cumulative impacts, a breakdown of impacts for different project components, and a comparison of impacts among project alternatives. The FEIR should delineate on a plan of reasonable scale all environmental resources and resource areas located within those areas proposed for new sewers and Pilot Projects including: wetlands, drinking water supplies, fisheries, water bodies, sensitive habitats, parklands, recreational resources, historic resources, and agricultural lands. All resource area boundaries, riverfront areas, applicable buffer zones, and 100-year flood elevations should be included on this plan. Each wetland resource area and riverfront area should be characterized according to 310 CMR 1.00. The FEIR should explain whether the Falmouth Conservation Commission has accepted the resource area boundaries and any disputed boundaries should be identified. The FEIR should analyze both direct and indirect (i.e. changes in drainage patterns) impacts on wetlands resulting from the project, and quantify the amount of direct wetland impacts. The analysis should also include a drainage plan, and should discuss the consistency of the drainage and stormwater management system with the MassDEP Stormwater Management Act regulations and guidelines and the Wetlands Protection Act regulations and performance standards. Proposed activities, including construction mitigation, erosion and sedimentation control, phased construction, and drainage discharges or overland flow into wetland areas, should be evaluated. The Commonwealth has endorsed a "No Net Loss Policy" that requires that all feasible means to avoid and reduce the extent of wetland alteration be considered and implemented. The FEIR should examine alternatives that avoid impacts to wetland resource areas, their associated buffer zones, riverfront protection areas and 100-year flood plain areas. Where it has been demonstrated that impacts are unavoidable, the FEIR should demonstrate that the impacts have been minimized, and that the project will be accomplished in a manner that is consistent with the Performance Standards of the Wetlands Regulations (310 CMR 1.00).

The FEIR should provide a detailed discussion of the potential resource area impacts associated with the Town's proposed Pilot Projects including modification to the ocean inlets of Little Pond and Bourne Pond and proposed construction of PRBs. The FEIR should describe how the Town's CWMP will meet Chapter 91 License and 401 Water Quality Certification requirements, and other applicable requirements of the Wetlands Protection Act.

***A37. This information is provided in the CWMP/FEIR at Chapter 7 for the recommended plan items as summarized in Item A1. Information on the demonstration projects is described as available as of June 2013.***

#### Rare Species

The FEIR should include a habitat assessment, additional information on proposed project components, and a description (including a quantification of habitat altered) of potential impacts to state-listed species. According to the comments received from NHESP, the Blacksmith Shop Road WWTF site and the two proposed new recharge sites (Sites 7 and 10) are mapped as habitat for the Eastern Box Turtle (*Terrapene carolina*), which is a state-listed species of Special Concern. The FEIR should describe, and delineate on site plans, the proposed alteration at this WWTF site and evaluate potential impacts to state-listed species. The FEIR should describe how the project will be designed to avoid and minimize impacts to state-listed species habitat, and include mitigation commitments. I strongly encourage the Town to initiate a pre-filing consultation with the NHESP to address state-listed species concerns prior to filing the FEIR. The FEIR



should analyze the potential impacts to Priority Habitat and evaluate avoidance/mitigation strategies. The Town should continue to work closely with NHESP and consult with the Falmouth Conservation Commission during the preparation of this section of the FEIR and the final project design to identify necessary project construction and post-construction conditions and commitments to avoid an adverse impact to resource area habitats of state-listed rare species located within and adjacent to the project site. The FEIR should report on the results of the Town's consultations with NHESP.

***A38. The CWMP/FEIR provides a habitat assessment for areas under the jurisdiction of the NHESP and we will continue to work with NHESP and the local Conservation Commission through design and construction to address concerns.***

#### Stormwater and Drainage

The FEIR should clarify the amount of new impervious area associated with the construction of the Town's CWMP. The FEIR should describe how the Town's proposed stormwater management system will be designed and constructed to be consistent with MassDEP's stormwater management regulations and policy standards and avoid and minimize adverse impacts associated with any new impervious area. The FEIR should describe proposed measures to manage stormwater during project construction.

***A39. This information is provided in the CWMP/FEIR at Chapter 7.***

#### Historical and Archaeological Resources

The FEIR should describe potential impacts of the proposed CWMP project to historic and archaeological resources and identify measures to avoid and minimize, or mitigate impacts to cultural resources.

***A40. This information is provided in the CWMP/FEIR at Chapter 7.***

#### Greenhouse Gas Emissions (GHG) and Sustainable Development

Following the GHG Policy and DOER's comments, the FEIR should include a GHG emissions analysis that calculates and compares GHG emissions associated with two alternatives as required by the Policy including 1) a Base Case and 2) a Mitigation Case which includes energy efficiency design measures.

The FEIR should clearly identify GHG reduction mitigation measures that will be adopted by the Town and incorporated in the Falmouth CWMP project design. According to DOER, the Town should commit to energy conservation measures recommended in the energy audit report completed by Rise Engineering for the existing Blacksmith Shop Road WWTF building. Consideration should be prioritized for any of the recommended measures which would qualify for Mass Save program incentives. DOER has recommended that the Town also commit to incorporate the following Building and Processing Measures in the final design for the proposed upgrades and improvements to the existing Blacksmith Shop Road WWTF:

- increase roof and wall insulation to meet or exceed compliance with the Massachusetts Stretch Energy Code;
- include energy recovery ventilation for all heated building areas;
- use of optimized lighting;
- reduce heating and ventilation loads; and,
- use of process optimization for the Blacksmith Shop Road WWTF's treatment processes.



DOER has requested that the Town incorporate these building system EDMs and process optimization measures in the final project design and include them in the Section 61 mitigation commitments.

***A41. The Town will continue to work with DOER on these efforts that will be developed in greater detail during design and construction. The town has already made significant contributions to GHG reductions. For example in addition to several PV installations on the Falmouth High School, Town Hall and the Falmouth Recreation Center, the town currently operates two 1.65 MW wind turbines at the WWTF, that are capable of producing approximately 7500 MWh of clean energy annually. In addition, Falmouth is contracting with Trane, Inc. to conduct an Investment Grade Audit (IGA) as the first step in determining the specifics of a Town-wide Energy Performance Contract (EPC). The IGA is a comprehensive, highly-detailed analysis of energy efficiency opportunities. The Wastewater Treatment Facility (WWTF) will be evaluated, and the full range of energy efficiency measures that are feasible will be identified. Moreover, cost information for each of the identified measures will be provided as part of this IGA. This IGA also includes evaluating renewable energy opportunities in general and photovoltaics in particular. This is a Town-wide, integrated approach to siting renewable energy. Appropriate energy efficiency and renewable energy options that are chosen for the Town's WWTF as part of the Energy Performance Contract process will be included in the FEIR.***

The FEIR should also include a feasibility study of the on-site installation of solar photovoltaic (PV). Installation of PV systems on municipal buildings or on municipal properties may achieve cost -savings beneficial to the community and offset ongoing operational costs. The FEIR should include a separate analysis to determine if PV systems (either ground-mounted or building-mounted) are feasible in association with this project.

***A42. The Town has been a leader in the state on the implementation of PV and other alternative energy forms. The Town cannot commit to a feasibility study (as part of this CWMP) of installing PV on municipal buildings and properties. The possible installation of PV at the WWTF will be considered during design with the other "Building and Processing Measures" identified in Item A41.***

The Town should continue to work closely with MassDEP and DOER during final Blacksmith Shop Road WWTF design and permitting to identify and incorporate appropriate energy efficiency measures into the buildings, treatment processes and operations for the Barnstable WWTF. It is anticipated that MassDEP and DOER will work with the Town to incorporate proposed GHG reduction measures into project design through its project financing and permitting authority. Upon completion of the construction of the improvements and upgrades to the Blacksmith Shop Road WWTF, the Town will be required to provide a certification to the MEP A Office signed by an appropriate professional (e.g., engineer, architect, general contractor) indicating that the all of the GHG mitigation measures committed to by the Town as described in the FEIR, or as modified as part of the MassDEP permitting process, have been incorporated into the project. This certification will need to be supported by as-built plans. For those measures that are operational in nature the Town will be required to provide an updated plan identifying the measures, the schedule for implementation and how progress towards achieving the measures will be obtained. The proposed draft Section 61 Findings in the FEIR should include this self-certification requirement.

***A43. The Town will continue to work with MassDEP and DOER on these efforts.***



## Construction

The FEIR should evaluate construction period impacts and should include a discussion of the Town's plans to reseed and replant those portions of the construction corridor located adjacent to wetland resource areas, endangered species habitats, Article 97 lands, and residential properties with appropriate native species of grasses, woody shrubs and trees. The FEIR should include a draft Construction Management Plan (CMP) that provides a detailed description of the Town's proposed sewer expansion and Pilot Project activities and their schedule and sequencing, site access and truck routing, and best management practices (BMPs) that will be used to avoid and minimize adverse environmental impacts. The CMP should address potential impacts and mitigation relating to: land disturbance; oil, hazardous material and/or other contamination; noise; dust; odor; nuisance; vehicle emissions; construction and demolition debris; and construction-related traffic. The CMP should discuss plans for reuse and recycling of construction materials. The CMP should include an erosion control component to address protection of water quality and wetlands resources during construction. I strongly encourage the Town to commit to participation in the MassDEP Diesel Retrofit Program and to use ultra low sulfur diesel (ULSD) in off-road engines. The FEIR should describe how the Town will minimize construction-period diesel emissions

***A44. This information is provided in the CWMP/FEIR at Chapter 8.***

## Sewering and Growth Management

The FEIR should include a detailed discussion of potential land use control mechanisms to limit unwanted secondary growth related to the construction of the Town's CWMP project. The Town should consider adopting regulations (similar to the Town of Chatham's Regulation of Sewer Flow, Article II, May 9, 2005) for controlling new future development requesting municipal sewer service and located in areas inside of any proposed sewer expansion areas. The FEIR should identify parcels located within the proposed sewer service areas and compare the potential secondary growth impacts, water use and increased wastewater flows that may be induced by public sewers and expected reductions of water use and wastewater flows with the Town's proposed growth management policies, regulations and bylaws. The FEIR should include any new proposed by-laws or regulations for controlling future development requesting municipal sewer service and located in areas outside of the new sewer areas. The Town should consider adopting and implementing any proposed growth by-laws, regulations, and policies prior to the construction of any new sewers. I encourage the Town to consult with MassDEP and the CCC in developing growth-neutral policies and a strategy to prohibit and/or discourage future new development requesting municipal sewer service and located in areas outside the AOCs and the proposed new sewer areas.

***A45. The CWMP/FEIR will present the Town's plans for growth and flow management at Chapter 6.***

## Costs to Homeowners

Although economic considerations are not ordinarily within MEPA jurisdiction, for the purpose of providing full information to reviewers, I encourage the Town to provide cost estimates (both capital and operating) for the Town's proposed CWMP, a projection of the impact on local sewer rates, and a comparison of the resulting local sewer rates to Massachusetts Water Resources Authority (MWRA) and statewide averages. The FEIR should include estimates for the costs of land acquisition associated with the location of new wastewater management facilities and groundwater discharge sites. Cost evaluations for groundwater



discharge sites should only include the land acquisition costs for the needed acreage for recharge beds, plus a reasonable buffer zone (as opposed to the entire parcel). The Town should not presume market rate acquisition costs for all parcels identified as potential groundwater discharge sites.

**A46. This information IS PROVIDED IN THE CWMP/FEIR AT Chapter 6 as of June 2013. The project schedule indicates that the proposed Flow Neutral regulation will be considered at Town Meeting in the Fall of 2013; and betterment formulation will be considered at the Fall 2013 Town Meeting.**

#### Public Participation

I note that the State's Revolving Fund (SRF) regulations require the Town to conduct a minimum of one public meeting and one public hearing for this project. The FEIR should include a discussion of the Town's public participation program activities completed and proposed to date.

**A47. This information is provided in the CWMP/FEIT at Chapter 5.**

#### Mitigation

The FEIR should include a separate chapter on mitigation measures, which should include proposed Section 61 Findings for all state permits and a summary table of all mitigation proposed. The mitigation chapter of the FEIR should describe all proposed mitigation measures including the Town's proposed GHG mitigation commitments, and should contain clear commitments to mitigation and a schedule for implementation, and identify parties responsible for funding and implementing the mitigation measures.

**A48. This information is provided at Chapter 8.**

#### Circulation

The FEIR should be circulated in compliance with Section 11.16 of the MEPA regulations and copies should be sent to the list of "comments received" below and to local officials from the Towns of Bourne, Mashpee and Sandwich. A copy of the FEIR should be made available for public review at the Falmouth, Bourne, Mashpee and Sandwich Public Libraries.

**A49. The CWMP/FEIR will be circulated in this way.**

B. COMMENTS FROM THE MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION, DATED NOVEMBER 7, 2012.

The Town is to be commended on its efforts to restore the south coastal watersheds impacted by nutrient enrichment and on its commitment to evaluating innovative approaches to help mitigate those impacts.

**B1. We appreciate your understanding on the great amount of work completed toward this difficult decision-making process.**





The document contains a number of innovative and thoughtfully chosen alternative approaches to nutrient management; however, it does not weave them together into a comprehensive strategy. While ambitious in scope and despite admirable goals, it falls short in developing a clear path toward resource restoration and compliance with Total Maximum Daily Loads (TMDL) in all of the targeted embayment systems.

**B2. Again, we appreciate your recognition of the innovative approach the Town has taken. Often, an Adaptive Management Approach is not a “clear path.” There are still many decisions to be made based on the results of the demonstration projects.**

#### TMDL Compliance

It was expected that the primary goal of the DCWMP/DEIR/NPC would be to propose a comprehensive program to meet the TMDLs within an appropriate planning horizon for Little Pond, Great Pond, Green Pond, Bourne Pond, Waquoit Bay East and West Falmouth Harbor. By its own admission, it does not achieve these goals in the Little Pond, Great Pond watersheds while the Green Pond watershed TMDL can be met with the completion of Phase 1 and 2 sewerage. The Bourne Pond watershed may possibly realize TMDL compliance with an innovative approach but this needs further analysis to confirm. To address the WFH watershed TMDL additional study is needed to finalize a strategy to meet its TMDL. The DCWMP/DEIR/NPC does not address Waquoit Bay - East despite the fact that significant reduction is required in the Falmouth portion of that watershed; however, that particular watershed, perhaps along with the rest of Waquoit Bay, should be considered as part of a regional solution with Mashpee and Sandwich since these three towns share the watershed.

**B3. Yes, there is more work and decisions to be completed particularly as new Massachusetts Estuaries Project (MEPA) reports and TMDLs are developed such as the one for Waquoit Bay. Response A1 lists the main components of the CWMP/FEIR and this final revision has clarified confusing references to evaluations completed but not adopted.**

The DCWMP/DEIR/NPC also makes no attempt to prioritize remediation beyond the initial proposal to sewer portions of the Little Pond watershed. Even if further evaluation of alternatives for TMDL compliance is delayed pending the results of the proposed demonstration studies, the FEIR should at least identify those systems it considers most at risk and rank the order in which those systems need to be addressed.

**B4. The Town of Falmouth has a huge challenge to address the water quality in its many (14) estuaries. The ability to fund the implementation of the CWMP has prioritized the sewer extension of the Little Pond Lower Watershed Area and the development of Demonstration Projects. All of Falmouth’s estuaries are a priority and will be remediated as cost-effectively as possible as allowed by Town Meeting appropriation.**



The MEP Technical Report for Little Pond modeled a scenario where 100% of the septic load had to be removed from the lower watershed and 84% removal from the upper watershed was required to meet the target nitrogen threshold concentration at buildout conditions. However, the proposed sewerage plan leaves out a portion of the lower watershed in the areas of Hitching Post Lane, Kimberly Lane, Village Lane to the north and Cataumet Street to the south. These are relatively small areas that should be evaluated in the FEIR for inclusion in this phase of sewer construction in order to achieve the 100% septic load removal target.

***B5. These areas have been reevaluated and have been added into the proposed sewer extension area.***

As mentioned earlier, this plan is for a twenty year horizon with a forty year perspective. MassDEP is concerned that the pace of remediation may be too slow. While MassDEP is sensitive to the financial impacts that a public works project of this magnitude can impose on a community, the DCWMP/DEIR/NPC does not offer a comprehensive plan for meeting TMDLs in the majority of the watersheds within either the 20 or 40 year planning period. MassDEP believes that there are areas where the process can be accelerated. Specifically, the cost and financing chart found in Table ES-1 and repeated as Table 7-2 indicates that the initial sewerage will commence in 2015 and carry out to 2020. From there, the financing plan allows from 2020-2025 to evaluate effects of remediation to date and plan the next projects. No new construction or remediation will take place until 2025. It is understood that the town plans to issue new debt as old debt is paid off thus dictating to some degree the timing of projects; however, it is not clear from the DCWMP/DEIR/NPC exactly what, how and when old debt will be retired to allow for new debt. As it stands, Table 7-3, the implementation timetable, suggests that Little Pond sewer construction will be finished by June 2017. Given that some demonstration project data will also be available at that time (or before), the period from 2017 - 2020 would be appropriate to start evaluating and planning for the next projects rather than waiting until the 2020-2025 time frame thereby moving up implementation for additional work. The FEIR would benefit from a more detailed explanation of financing including a capital plan that outlines debt retirement schedules and what new projects, wastewater and non-wastewater related, are anticipated to be funded from those available revenues.

***B6. It is very important that MassDEP is sensitive to the financial impacts, and understands that the Town plans to issue new debt as old debt is paid off. MassDEP questions what, how, and when old debt will be retired to allow for new debt. This description was developed by Peter Boyer of the CWMP Review Committee and past Town Manager. The Town's Capital Plan (CIP) is contained in Appendix 6-1. The schedule presented in Table ES-1 and 7-2 has been through much Town stakeholder review and is believed to be a reasonable and fundable approach. The Town would like to move up implementation steps into the 2017 to 2020 period if Demonstration Project components prove feasible and can be cost-effectively implemented at that time; and if debt drop-off allows their funding.***

***Also, please refer to Response A5.***

The DCWMP/DEIR/NPC does not adequately address TMDL compliance in Little Pond, Great Pond, Waquoit Bay- East and, to a certain degree, Bourne Pond watersheds. In the case of the Little Pond watershed, the document is explicit in stating that the proposed Phase 1 and 2 activities are not adequate to



meet TMDL compliance unless additional management options are implemented. While some of these options may include alternatives explored through the demonstration projects, that is not made clear. Furthermore, Phase 1 and 2 strategies do not include adequate conventional nitrogen removal alternatives to provide a back-up plan should more non-traditional strategies fail to meet the desired result. The DCWMP/DEIR/NPC does include a compliance scenario for the Little Pond watershed; however, that scenario appears only to address present conditions. These omissions should be addressed in the FEIR.

***B7. It is recognized that the sewer extension to the Lower Little Pond Area will not meet the TMDL on its own. The non-traditional nitrogen removal technologies being evaluated through Demonstration Projects may be able to meet the TMDL.***

***Please see Response A6 regarding the request for a back-up plan.***

***Also, references to the Phase 1 and 2 areas have been removed from the CWMP/FEIR.***

With respect to the Bourne Pond watershed, TMDL compliance is possible with 100% and 83% nitrogen removal at buildout in the lower and upper watersheds, respectively. However, the DCWMP/DEIR/NPC again states that TMDL compliance is not achievable with the proposed Phase 1 and 2 sewerage without modifications to the existing inlet. The inlet modification demonstration project, including required modeling, will determine if Falmouth can meet the TMDL. For this reason, completion of the studies should be prioritized to either advance finalization of the inlet plan (including both design and pursuit of appropriate permits) or to develop a different compliance strategy that can be completed within the planning horizon.

***B8. This demonstration project was prioritized; and (similar to the other demonstration projects) will enter MEPA review as a stand-alone project and Notice of Project Change to the CWMP/FEIR. A preliminary design of the Bourne Pond Inlet Opening will be attached to the Final CWMP/FEIR with description of the prioritized schedule.***

Modeling of the Great Pond watershed indicates that Phase 1 and 2 sewerage will not achieve TMDL compliance under buildout conditions. As with the Little Pond watershed, additional modeling was performed to evaluate sewerage beyond the Phase 1 and 2 areas under present conditions to achieve TMDL compliance. Modeling showed that this goal could be accomplished, but the necessary sewerage is not contemplated in the DCWMP/DEIR/NPC and unless some of the approaches evaluated through the demonstration projects show feasibility to augment the proposed nitrogen removal, there is no contingency planned. The omission of contingency plans should be rectified in the FEIR.

***B9. See Response A6 regarding Contingency Plan development.***

Phase 1 and 2 sewerage of the Green Pond watershed has been modeled to show TMDL compliance. It is expected that scheduling for the Green Pond watershed will proceed during what is identified in Tables ES-1 and 7-2 as the task to "Evaluate results of remediation to date: plan next construction projects". Currently this is scheduled to take place between 2020- 2024; however, MassDEP, as stated previously, would prefer to see that timeframe accelerated.

***B10. See Response A5 and B6 regarding acceleration of implementation.***

The DCWMP/DEIR/NPC addresses TMDL compliance in the WFH watershed in certain chapters throughout the report, but is not explicit in the Chapter 7's recitation of the recommended plan. It would be appropriate to



reiterate and summarize the required steps discussed in previous chapters. Previous modeling performed in 2007 indicated that without sewerage the WFH watershed, the BSRWWTF could discharge 0.5 MGD at a total nitrogen concentration of 3 mg/L and meet the WFH watershed TMDL. More recent modeling, completed as part of the present effort, indicated that under the present practice of directing all of the discharge to the infiltration beds located in the Mashapaquit Creek sub watershed, the TMDL could not be met with 0.5 MGD discharge. The DCWMP/DEIR/NPC does recognize that options for discharge outside the WFH watershed must be identified in order to expand to the 2.1 MGD flow anticipated for the planning horizon of this DCWMP/DEIR/NPC. The FEIR should be explicit in committing to a determination of the maximum flow that can be accommodated at the BSR WWTF without sewerage (as is the current plan) or with sewerage (if this is potentially considered to be a viable alternative).

***B11. The Town does not intend to discharge more than 0.5 mgd to the West Falmouth Watershed or to extend sewers to this area. The recharges proposed as part of this CWMP and discussion of TMDL compliance are consistent with the current effluent discharge permit and settlement agreement that are attached in Appendix 1-4. Also, it is envisioned that non-traditional technology being investigated in Demonstration Projects will add to the water quality improvements in West Falmouth Harbor.***

#### Demonstration Projects

The other aspect of what these comments consider to be Phase 1 is the pursuit demonstration projects for non-traditional methods of nitrogen mitigation. Falmouth is currently issuing Requests for Proposals (RFPs) for each of the projects previously identified. While the DCWMP/DEIR/NPC identifies different schedules for completion, most, with the exceptions of inlet widening and PRBs, will have data collection completed by 2015. These data will provide some preliminary indication of the efficacy of the individual strategies in mitigating nitrogen loads in order to guide planning for Phase 2 relatively early in the process.

This aspect of the DCWMP/DEIR/NPC shows true commitment to investigating innovative approaches, and MassDEP considers this demonstration program to be forward-thinking and sensitive to the concerns that many have expressed about prior plans incompletely assessing alternative technologies. The DCWMP/DEIR/NPC does not promise to embrace any or all of these options but does intend to provide an adequate and objective forum to evaluate their effectiveness. The town is certainly to be commended for taking this approach.

***B12. No response needed.***

One of the projects will investigate permeable reactive barriers (PRBs). Under the recently issued groundwater discharge permit for the BSR WWTF, a PRB will be installed somewhere in the WFH watershed while the DCWMP/DEIR/NPC calls for an additional installation to be located in one of the south coastal watersheds. RFPs have been issued for a consultant to develop a study protocol for this demonstration project. In discussions with the town MassDEP has indicated that there needs to be close communication to insure that the study is designed to provide appropriate data for the agency to have adequate information to judge the feasibility of using PRBs as an appropriate strategy.

The town will also investigate the feasibility of eco-toilets (composting, packaging and urine diversion toilets). As with the other demonstration projects, this will be conducted through a specialized consultant with whom



MassDEP expects close coordination so that the results will provide adequate data for a determination of effectiveness.

Shellfish cultivation for nitrogen management is a third demonstration project. Some work along these lines has been initiated in Mashpee and Wellfleet as well as large studies in the Chesapeake Bay. The purpose here is to augment those data to determine the effectiveness of shellfish in removing nitrogen and to generate data to correlate nitrogen uptake and removal with the size of shellfish populations. Again, close interaction with MassDEP will insure that appropriate data is developed to judge the effectiveness of this approach.

Inlet widening to improve flushing for more efficient transport of nitrogen out of the system is also proposed. The current watershed models developed under the MEP have the capability of predicting the effectiveness of these types of modifications. This approach is currently being considered for Little Pond and Bournes Pond. Additional modeling is necessary to determine the appropriate configurations which then would need review, approval and permitting by MassDEP.

The recommended plan will investigate the feasibility of nitrogen management through stormwater best management practices. The project will benefit from coordination with MassDEP to insure that appropriate data is developed necessary to evaluate the effectiveness of these practices and to determine if nitrogen reduction from these practices can be reliably quantified.

The final demonstration project is to review the effectiveness of on-site denitrifying septic systems. MassDEP would expect that the extensive database maintained by the Barnstable County Health and Environmental Department will be utilized to provide objective data obtained from local installations in order to identify those technologies that show the most promise and can be integrated in an overall nitrogen reduction plan.

Whereas the results of the demonstration projects are crucial to determining the effectiveness of these alternatives, MassDEP may consider random sampling and monitoring as an independent check on data.

***B13. The Town plans to continue its close coordination with MassDEP and Barnstable County on these projects. The Town and County are open to independent checks on performance data.***

The DCWMP/DEIR/NPC proposes to expand treatment at the BSR WWTF from the existing 1.2 MGD to 2.1 MGD. The report provides a general outline of improvements/upgrades needed at the treatment works to accommodate the increase in flow. The proposed changes are consistent with existing operations and processes at the facility and all design issues will be addressed during permitting review for the required Groundwater Discharge Permit.

***B14. An expansion of treatment capacity is not needed for the Little Pond Lower Watershed Sewer Extension. There are several improvements to the WWTF that are needed to address items in the new effluent discharge permit and to address operational issues. These improvements are detailed in the CWMP/FEIR with cost estimates.***

The DCWMP/DEIR/NPC acknowledges limitations in wastewater recharge at the BSR WWTF and that other options need to be explored to accommodate the proposed buildout capacity of 2.1 MGD. The report identifies the preferred option as the construction of new sand infiltration beds at Sites 7 and 10, both of which are located outside and to the north of the WFH watershed. Particle tracking models indicate that



wastewater will discharge to areas of Buzzards Bay outside of and between watersheds covered either by TMDLs or evaluated by MEP reports. These tracking models have also indicated that the plume from the infiltration beds may discharge to some freshwater bodies (Wings Pond, Herring Brook and Crockers Pond). Further evaluation of the potential impact from these plumes on the freshwater ponds will be necessary as part of the groundwater discharge permitting process.

***B15. Further evaluations have proceeded and are summarized in the CWMP/FEIR. Additional evaluations could not be completed by the December 2013 deadline to submit the CWMP/FEIR and will possibly follow as part of the groundwater discharge permit process.***

The DCWMP/DEIR/NPC suggests that discharge will be apportioned among three recharge beds with 0.5 MGD going to the present beds at the BSR WWTF, 0.9 MGD at Site 7 and 0.7 MGD at Site 10. These flows may have to be redistributed if additional modeling determines the limit of wastewater recharge at the BSR WWTF site to meet the TMDL for the WFH watershed is less than 0.5 MGD. In any event, the maximum capacities at Sites 7 and 10 should be able to accommodate any potential decrease in recharge flow to the BSR WWTF site. MassDEP would also suggest that construction of the recharge beds themselves initially be limited only to the capacity necessary to accommodate the initial sewerage project in the Little Pond Lower Watershed Evaluation Area.

***B16. Yes, the CWMP has been revised to not proceed with Site 10, and to develop Site 7 for up to the 0.3 mgd that could come from the Little Pond Lower Watershed area.***

The DCWMP/DEIR/NPC indicates that there may be some lingering ownership issues regarding Sites 7 and/or 10. These will have to be resolved establishing the town as owner prior to any approval of these sites for wastewater recharge.

***B17. As of March 30, the Town is in the process of securing Site 7.***

The DCWMP/DEIR/NPC also discusses ocean outfalls as a possible option for a long term solution to wastewater disposal. If this were determined to be an acceptable alternative, then the proposed land recharge sites for wastewater disposal may be either temporary or used in conjunction with an outfall. The DCWMP/DEIR/NPC correctly notes that there are significant challenges to siting an outfall ranging from the technical to the statutory. If Falmouth seriously intends to pursue this option, then further discussions with appropriate county, state and federal agencies will be necessary for the town to propose the scope of a feasibility study necessary to support any legislative and/or regulatory remedies that may be necessary as well as addressing the technical and ecological aspects of such a proposal. Whereas land availability for wastewater recharge is becoming more of a Cape-wide challenge, MassDEP believes that despite current restrictions, ocean outfall should be evaluated for feasibility.

***B18. Discussions with federal, state, and regional entities have been initiated by the Buzzards Bay Coalition and will continue as the Town's wastewater planning and implementation continues. Possibly, MassDEP could initiate policy and/or regulatory changes to make this option more feasible.***

The Department commends the Town for its efforts and accomplishments with regards to energy management and GHG control considerations. The Town should continue the close communication and



coordination with EEOEA /MassDEP regarding these issues as the project proceeds into preliminary, and, ultimately final design.

***B19. The Town will continue coordination on this important topic.***

Based on the information submitted, it appears that several of the project components will be located within Wetlands Protection Act jurisdiction; potential impacts to a variety of inland and coastal Areas Subject to Protection, including Riverfront Area, can be anticipated. Therefore, WP A 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 1 0.02(2)(b) 1.g.].

***B20. Yes, the necessary submittals will be made as required.***

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 WQC applications should include Stormwater Reports.

***B21. Yes, the necessary submittals will be made as required.***

Modifications to the ocean inlets of Little Pond and Bournes Pond are proposed to improve tidal flushing. Chapter 91 Waterways permitting and a 401 Water Quality Certification will be necessary; and Sec 404 permitting by the ACOE may be required.

***B22. Yes, the necessary submittals will be made as required.***

Other activities that may trigger jurisdiction under the Wetlands Protection Act include (but are not limited to):

- sewer collection piping and pump stations, including stream crossings;
- expanded or new wastewater treatment facility components incorporating advanced nitrogen removal;
- expanded and new discharge/recharge facilities, conveyance systems and piping;
- shellfish cultivation/nitrogen reduction demonstration project;
- road runoff remediation demonstration project for Little Pond; and
- demonstration project using Permeable Reactive Barriers for groundwater treatment.

***B23. Yes, the necessary submittals will be made as required.***

Conclusion

The DCWMP/DEIR/NPC is an ambitious step forward. MassDEP commends Falmouth's effort to start to address the town's nitrogen issues in a phased approach. By employing a modest expansion of the existing collection system with traditional sewerage, some immediate action is initiated. The unique aspect of the plan is the comprehensive program of demonstrating non-traditional approaches to see if they have a place in the array of options available to address nitrogen reduction. 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.



However, MassDEP believes that the DCWMP/DEIR/NPC extends its timetable too far out and lacks specificity as to how future strategies will be developed and incorporated into a comprehensive solution to wastewater management and nutrient reduction within its watersheds. 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 watersheds except for the Green Pond watershed and the WFH watershed (dependent on future modeling). Additionally, there is no prioritization to suggest a sequence in which the watersheds should be addressed. MassDEP strongly believes that an alternative for TMDL compliance must be identified within 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.

***B24. The Town and MassDEP may need to agree to disagree on the development of a contingency plan and a detailed prioritization beyond the components of the recommended plan. The Town wants to move forward with the very significant CWMP components listed in Response A1.***

Recognizing that a central tenet of financing the plan is to retire old debt before assuming new debt, the town's anticipated capital outlays for all aspects of the town's needs should be described. 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.

***B25. A summary from the Town's Financial Committee on the Town's CIP is provided in Appendix 6-1.***

In finalizing the CWMP/FEIR/NPC, MassDEP anticipates that the following matters would be addressed:

- assessment of the degree of impairment in the subject watersheds in order to prioritize remediation;
- provide some acceleration to the projected timeframes;
- evaluation of the feasibility of sewerage all of the lower Little Pond watershed in the areas of Hitching Post Lane, Kimberly Lane, Village Lane and Cataumet Street;
- a detailed explanation of financing that would include a capital improvement plan and schedule for all known wastewater and non-wastewater related projects over the course of the planning period;
- development of an alternative conventional compliance strategy for Bournes Pond if the inlet widening plan is not feasible;
- determination of maximum flow at the BSR WWTF without sewerage the WFH watershed;
- development of a more conventional contingency for TMDL compliance for Great Pond, Little Pond and Waquoit Bay should alternative approaches prove infeasible;
- exploration of regional options, particularly with respect to Waquoit Bay;
- further evaluation of Sites 7 and 10 with respect to impacts on Buzzards Bay and freshwater ponds;
- MassDEP will need to be involved in the development, review and approval of scopes of work for the demonstration projects in order to insure that the protocols are sufficient to provide enough data and information relative to the effectiveness of the alternatives and nitrogen credits that can be assigned and may also consider confirmatory monitoring and sampling; and
- more comprehensive evaluation of the feasibility of an ocean outfall for wastewater discharge.

***B26. These items have been addressed as detailed in Response B1 to B25.***





C. COMMENTS FROM THE MASSACHUSETTS OFFICE OF COASTAL ZONE MANAGEMENT, DATED NOVEMBER 2, 2012

CZM supports comprehensive planning for wastewater management and applauds the Town for the effort it has put into the development of this plan. CZM commends and supports the innovative approach and believes that non-traditional wastewater and nitrogen management methods may be viable, cost-effective alternatives to traditional wastewater treatment technologies. The adaptive management approach proposed in this plan provides a flexible management framework that allows for the implementation of new technologies if they are determined to be feasible alternatives by the Town and by regulatory authorities. CZM is committed to working with the Town and assisting with the development of the final plan and offers the following comments.

**C1. No response necessary.**

Ocean Outfall, Nobska Point, Woods Hole

The DEIR includes an ocean outfall treatment and discharge alternative (Scenario 1D) in Section 5.2.3.4.5. This alternative describes a 2,000 foot ocean outfall located at Nobska Point which would discharge treated wastewater from the Blacksmith Shop Road wastewater treatment facility. As the Town is likely aware, the state Ocean Sanctuaries Act (OSA) has significant implications for this alternative. The OSA specifically defines what activities are allowed in ocean sanctuaries, and several sections of the OSA must be read together to understand the legislature's direction as to the limited set of projects that are allowed in ocean sanctuaries. MGL c. 132A §15 prohibits the dumping or discharge of commercial, municipal, domestic or industrial wastes in an ocean sanctuary. MGL c. 132A §16 allows municipal wastewater treatment discharges if such discharge into the ocean sanctuary is the only feasible alternative to existing water pollution problems except in the Cape and Islands Ocean Sanctuary, the Cape Cod Ocean Sanctuary, or the Cape Cod Bay Ocean Sanctuary. MGL c. 132A §16A allows a variance to be sought for a proposed increase in volume or change in location of an existing discharge from a publicly owned treatment plant. "Existing discharge" is defined in the OSA as "a municipal, commercial or industrial discharge at the volume and locations authorized by the appropriate federal and state agencies . . . on December eighth, nineteen hundred and seventy-one, in the case of the Cape Cod Bay and Cape and Islands Ocean Sanctuary ... ". Variances from the OSA prohibitions for ocean outfalls are the authority of the Massachusetts Department of Environmental Protection in accordance with MGL 132A §§16B-16F and the implementing regulations at 302 CMR 302 5.10. CZM recommends that this alternative (Scenario 1D) be revised to specifically identify which existing discharge(s) the Town would be proposing to relocate and/ or expand and to describe the steps and actions required to integrate the necessary information and analysis for the variance process into the CWMP. If the Town determines that the relocation of an existing discharge is not feasible, this alternative should be eliminated from the planning process as it would be prohibited by the OSA.

**C2. The use of an ocean outfall is not one of the components currently in the CWMP/FEIR as listed in response A1 but remains a subject of future interest.**

Coastal Hazards

CZM recommends that specific planning consideration be developed for areas located within mapped coastal flood zones and within barrier beach areas. As part of the planning process for this project, the Town



and its consultants should use the best available information regarding the extent of the flood zones, and particularly the highest hazard zones, including the Velocity zone, AO zones, and the portion of the A zone designated as the MoWa (moderate wave action capable of structural damage).

**C3. We have evaluated flood zone extent in our evaluations and planning.**

CZM recommends that the Town's analysis of potential growth in hazard-prone areas also include, at a minimum, primary frontal dunes in addition to those areas shown on the current maps as flood zones. Since the wastewater planning process will continue for many years, it is very likely that new FIRMs will be issued before the planning process is completed. CZM recommends that the Town use the revised FIRMs to determine the extent of the flood zones when they are available. CZM recommends that the Town maintain regular contact with the Barnstable Emergency Manager regarding the schedule for the revised FIRMs. CZM is available to provide technical assistance and to advise the Town on the delineation of flood zones and primary dunes.

**C4. We will continue to take flood zone delineations and primary dunes into account as wastewater planning continues.**

As discussed above, in order to be consistent with the above-mentioned Executive Orders, growth controls are needed to ensure that the project does not increase growth or development in hazard-prone areas.

**C5. The Town is working on a flow neutral regulation that is scheduled to be voted at Fall 2013 Town Meeting. It is noted that the flood hazard prone areas of the Little Pond Lower Watershed areas are already at buildout.**

CZM believes that these storm damage risks can be minimized through careful design considerations. CZM recommends specific design considerations to address these risks, including the locating of pump stations and other critical infrastructure outside of the 100-year floodplain, protecting the collection system from potential wave action, and incorporating a system of check valves into sections of the collection system within flood zones. This would help minimize impacts from a storm related breach to the collection system. Given the historic rate of sea level rise (i.e., one foot over 100 years), the likelihood of the historic rate doubling, or more, in the next century, and the predicted life of wastewater treatment facilities, CZM recommends designing the pump stations and other critical infrastructure system facilities to accommodate at least two feet of sea level rise.

**C6. We have taken the recommendations into account and have minimized the number of pump stations and have increased the use of low pressure systems in flood hazard areas. The design features with isolation valves are recommended.**

**D. COMMENTS FROM THE DIVISION OF FISHERIES AND WILDLIFE, DATED OCTOBER 5, 2012**

Based on a review of the information that was submitted and the information that is contained in our database, the NHESP is currently unable to determine which state-listed species may be impacted by each proposed project. Although portions of the proposed projects may be exempt from review, the NHESP notes that all projects occurring within *Priority* and *Estimated Habitat* will require review through a direct filing with the NHESP for compliance with the MESA and WP A. However, the NHESP recommends that the



Proponent consider a pre-filing consultation with NHESP staff in order to evaluate and proactively address concerns related to state-listed species.

***D1. A habitat assessment has been completed as summarized in Chapter 7 and we will proceed with the pre-filing process for the proposed new treated water recharge site.***

#### Demonstration Projects of Non-traditional Wastewater and Nitrogen Management Technologies and Approaches

The Draft CWMP does not appear to provide information regarding the location of potential demonstration projects or how the Proponent will address potential concerns related to state-listed species. The NHESP encourages the Proponent to examine options which avoid and minimize impacts to *Priority* and *Estimated Habitat*, and to contact the NHESP as early as possible to discuss potential projects and any rare species concerns.

The NHESP notes that it previously provided comments on the potential Bournes Pond Inlet Widening project (*Environmental Notification Form*, EEA No. 14878). The NHESP anticipates that the proposed project will not result in a prohibited "take" of state-listed species. Additionally, the NHESP notes that any proposed widening of Little Pond would be unlikely to result in a "take" of state-listed species; if the project will occur outside of *Priority* and *Estimated Habitat*, no filing with the NHESP will be required.

***D2. All Demonstration Projects will become evaluations independent of this CWMP/FEIR and will need to enter the MEPA review process if they trigger MEPA or NHESP thresholds. See response number A1. The Bournes Pond Inlet Opening Demonstration Project has proceeded quickly and the Town plans to file an ENF (after a pre-submittal meeting) in the near future.***

#### Phased Expansion of the Blacksmith Shop Road WWTF

Portions of this project site are mapped as *Priority* and *Estimated Habitat* for the Eastern Box Turtle (*Terrapene carolina*), a species state-listed as "Special Concern." This species, and its habitats, are protected pursuant to the MESA. The Eastern Box Turtle is a terrestrial turtle which inhabits dry and moist woodlands, brushy fields, thickets, marsh edges, stream banks, and well-drained bottomlands; more information may be found on the NHESP website.

It is our understanding that the Proponent will seek to re-use already developed areas of the site to incorporate new and expanded WWTF, which will likely avoid and minimize impacts to the Eastern Box Turtle at this location. Based on a review of information that was submitted and the information contained within our database, the NHESP anticipates that these portions of the proposed WWTF expansion will not result in a prohibited "take" of the Eastern Box Turtle. However, please note that land alteration within undeveloped portions of this site may result in impacts to Eastern Box Turtle.

***D3. No expansions of the Blacksmith Shop Road WWTF are planned as part of this CWMP.***

#### Phased Construction of the Wastewater Collection System

The Draft CWMP does not appear to provide information regarding the location of the wastewater collection system or how the Proponent will address potential concerns related to state-listed species. The NHESP notes that wastewater collection systems within *Priority* and *Estimated Habitat* proposed within lawfully



paved, developed, and or landscaped areas may be exempt from MESA review pursuant to 321 CMR 10.14, which states: "[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;

**D4. The sewer is planned in the road right-of-way, and we will comply with all NHESP filing requirements.**

#### Phased Construction of Treated Water Recharge Facilities

Portions of this project site are currently mapped as *Priority* and *Estimated Habitat* for the Eastern Box Turtle. The Draft CWMP does not appear to provide information regarding the location of the proposed pump station or the treated-water force main in the vicinity of the Blacksmith Shop Road WWTF. Please note that land alteration within undeveloped portions of the site may result in impacts to Eastern Box Turtle.

It is our understanding that the Proponent also proposes to construct sand infiltration facilities at two sites (Sites 7 and 10) near the Blacksmith Shop Road WWTF. Based on a review of information that was submitted and the information contained within our database, the NHESP anticipates that this project, as proposed, may result in a "take" of the Eastern Box Turtle. Projects resulting in a "take" of state-listed species may be permitted only if they meet the performance standards for a Conservation and Management Permit (321 CMR 10.23). The NHESP would encourage the Proponent to initiate pre-filing consultations with the NHESP as soon as possible to discuss rare species concerns.

**D5. This information is now provided. Only Site 7 is proposed for treated water recharge. We will proceed with pre-filing consultations as the project proceeds.**

E. COMMENTS FROM THE MASSACHUSETTS HISTORICAL COMMISSION DATED SEPTEMBER 17, 2012

The MHC proposes to review phased wastewater management projects as they are designed. Project planners should submit scaled project plans showing existing and proposed conditions for the preferred project alternative to the MHC for review and comment for each phase of improvements or expansion projects, including wastewater treatment plant location(s), recharge areas, pump stations, equipment storage and materials staging areas and cross-country sewer right-of-ways.

**E1. We will provide needed submittals as the project proceeds. It is noted that only two municipal pumping stations are proposed and the collection system will be located in the road right-of-way.**

The MHC notes that an archaeological sensitivity assessment has been conducted by the PAL, Inc., for proposed groundwater recharge sites, including Site 7 and Site 10, east of Route 28, north and south of Thomas Landers Road, and a potential pipeline connection corridor to the existing Blacksmith Shop Road Wastewater Treatment Facility. Archaeological survey may be required for archaeologically sensitive



portions of proposed project impact areas to identify potentially significant archaeological resources that may be affected by project elements.

**E2. We will provide all needed submittals.**

F. COMMENTS FROM THE DIVISION OF MARINE FISHERIES DATED NOVEMBER 7, 2012

This is clearly a needed planning document, and we commend the Town for the efforts that they have undertaken to continue to work on this complicated issue.

**F1. No response needed.**

In general, the actual plan was difficult to follow. It was very challenging to identify what the specific plan was. The best description of the plan was on page 5-23.

**F2. The plan presentation has been clarified; the components of the plan are summarized in response A1.**

Is there still anticipation of considering an ocean outfall at Nobska Point? If so, this should be identified in the Executive Summary and Chapter 7.

**F3. No; the plan does not include an ocean outfall at this time.**

The boundary delineating the Little Pond Lower Watershed Evaluation Area was very difficult to ascertain (see Figures ES-5 and 7-3). We recommend changing the colors or adding another figure identifying the area. The delineated area should be legible in black and white.

**F4. The clarification has been made.**

Because of the linkage between the southern Falmouth watersheds and the West Falmouth Harbor watershed via the Blacksmith Shop Road WWTF, the planning area should include the West Falmouth Harbor Watershed.

**F5. The CWMP was never scoped to include the West Falmouth Watershed but recommendations are made for this area. The plan does not propose adding treated water recharge flow greater than 0.5 mgd to the watershed in compliance with the discharge permit and with past SMAST modeling.**

The plan would benefit from a paragraph describing how the infiltration reduction from the settlement agreement will be addressed. Is it with the build out of Site 7?

**F6. The infiltration reduction at the WWTF site into the West Falmouth Harbor Watershed will be attained by not extending sewers to the West Falmouth Harbor Watershed and developing the eastern portion of Site 7.**

The plan will require the build out of an additional infiltration pond (Site 7) just outside of the West Falmouth Harbor watershed. It is stated that "small percentages of treated water will recharge through Wing Pond and Herring Brook west of Sites 7 and 10" (p. 6-17). Based on Table 5-15 (p. 5-32) that's 567,000 gallons per day into Wing Pond (81% of 0.9 mgd) and 72,000 gallons per day into Herring Brook (8% of 0.9 mgd).



Herring Brook contains spawning runs for alewife and American eel and Wing Pond is a spawning habitat for alewife and American eel. These impacts have not been adequately assessed in the EIR.

***F7. The plan has been modified to not include Site 10. Updated groundwater modeling indicates no treated water recharge flowing as groundwater to Wing Pond. The modeled groundwater flows through Crocker Pond, and ultimately to Buzzards Bay have been modified. Further environmental input analysis is provided in this CWMP/FEIR at Chapters 4 and 7.***

*Marine Fisheries* is the state agency responsible for the regulation of shellfish, finfish, and algae aquaculture and propagation. We do not oppose the inclusion of shellfish propagation in the DCWMP but have a variety of concerns.

- Remediation of nitrogen via shellfish growth has met with mixed success<sup>5</sup>. Demonstration projects need to rigorously assess nitrogen removal estimates, and should do so for a variety of species.
- The quantity of shellfish required for meaningful nitrogen remediation could create user conflict in the ponds. With the exception of Little Pond which is Prohibited, the other ponds of interest (Great, Green, Bourne, Eel and Waquoit) are mostly open as either Approved or Conditionally Approved and available to recreational and commercial harvest. Thus, provision needs to be made to balance the public's right to shellfish with the needs of the nitrogen removal goals.
- Waters in Massachusetts are managed under the NSSP sanitation guidelines. Planting in waters contaminated with bacteria can increase risk to public health. Furthermore, the NSSP requires that there needs to be sufficient enforcement to prevent illegal harvesting or the Shellfish Authority must conduct shellfish depletion (removal).
- Violating shellfish sanitation guidelines could risk the participation of Massachusetts harvesters in interstate and international commerce.
- The town should consider using indigenous shellfish species not consumed by people to eliminate risk to public health and avoid enforcement issues.
- The *Marine Fisheries* Shellfish Planting Guidelines<sup>6</sup> will be used by *Marine Fisheries* as the template for approval of any local shellfish restoration or planting program. Therefore, it is incumbent on the Town of Falmouth to use the Planting Guidelines in formulating their shellfish planting activities and to maintain a dialogue with the *Marine Fisheries* Shellfish Program in New Bedford. *Marine Fisheries* will be permitting the activity and approving any local contaminated area management plan(s) as required by statute.

***F8. The Town is proceeding with a demonstration project to evaluate the feasibility of shellfish aquaculture as a nutrient management strategy and is working with DMF on these issues. As with all demonstration projects (see response A1), this evaluation will enter the MEPA review process independent of the CWMP/FEIR if it triggers MEPA review thresholds.***

The plan should clearly identify that West Falmouth Harbor, Wing Pond, and Herring Brook will be included in the monitoring plan.

***F9. The CWMP/FEIR indicates the planned monitoring at Chapter 6.***



Monitoring studies should include other contaminants from wastewater, not just nitrogen. For example, ecosystem quality will still be impaired if a non-traditional technology remediates nitrogen but not endocrine disrupting compounds.

**F10. The CWMP/FEIR indicates the planned monitoring at Chapter 6.**

MarineFisheries would like to provide input and review of the embayment monitoring plan that the town is developing (p. 7-9).

**F11. Continued input from MarineFisheries is welcome and the embayment monitoring plan details that have been developed as of June 2013 are provided in the CWMP/FEIR at Chapter 6.**

Inlet modifications could benefit water quality inside of the ponds. However, there is a possibility that this could have unintended consequences in Nantucket Sound and/or Vineyard Sound. Any inlet modification plan should require pre and post construction water quality, benthic infauna, and eelgrass bed monitoring.

**F12. These items will be part of any inlet opening demonstration project.**

Inlet modifications should avoid areas with offshore eelgrass beds.

**F13. MEP modeling has indicated only two inlets that could benefit from improved inlets—Little Pond and Bourne Pond. These are the only ones that would be considered for demonstration projects at this time and eelgrass beds will be evaluated.**

MarineFisheries is overall supportive of Falmouth's efforts to tackle this challenging issue. We are available to contribute technical expertise and review capabilities for shellfish propagation and water quality monitoring activities.

**F14. Thank you.**

G. COMMENTS FROM THE CAPE COD COMMISSION DATED OCTOBER 30, 2012

Land Use

Commission staff recommends that the Town of Falmouth elaborate on growth projections used to inform its CWMP, in particular any changes in growth projections since the preparation of the ENF and the assumptions used when calculating additional residential units, non-residential buildings, redevelopment, and additions.

**G1. A more detailed description of the buildout analysis as completed in the Needs Assessment and since modified to develop the preliminary design flow of the Little Pond Sewer Service Area is provided at Chapter 4, Section 4.6.4, and Appendix 4-31.**

Water Resources

The DCWMP/DEIR also includes an assessment of cluster versus centralized treatment alternatives for Seacoast Shores (Appendix 5-9, Technical Memo 6). These include scenarios for 15, 5, and 1 clustered plant to treat an average annual flow of 150,000 gallons per day (gpd) with a peak flow of 300,000 gpd compared to a centralized option. The total cost comparison indicates the following respective costs for each: \$70, \$61, \$54, and \$34 million. Major differences were house connection costs and effluent discharge sites (local versus remote centralized). The peer review indicated that some parameters such as cost share,



and collection systems should be revisited. The Final EIR should make accommodation to revisit this type of assessment within the 5 year implementation of the pilot projects as new information becomes available, for example on the effectiveness of alternative methods such as Permeable Reactive Barriers (PRB). Expediting the time frame for nitrogen reduction is another important component to include in this type of assessment, especially if the centralized alternative, which is removing only a portion of the required nitrogen removal for this area, is not scheduled to be implemented until two decades later. The Orleans CWMP included potential interim cluster facilities that could be retro-fitted as pump stations later on in their plan's implementation.

***G2. All of the evaluations are included in the CWMP/FEIR and can be revisited as implementation proceeds. This is part of the Adaptive Management Plan.***

The DCWMP/DEIR indicates that the selected plan includes a Draft CWMP for Oyster Pond. Commission staff understands that this is not in the planning area and is a separate project from the DCWMP/DEIR, but suggests it should be described in the Final EIR if it too will eventually lead to a project requiring an SRF loan and/ or a NPC.

***G3. The Oyster Pond CWMP is expected to be a Targeted Watershed Plan and receive independent MEPA review.***

#### Wastewater Disposal Sites

The conservative approach of assuming 100% of the discharge enters the Harbor is a valid approach. Additional site specific work to characterize the potential for this underflow phenomenon may be warranted.

***G4. Yes, we have adopted this conservative approach. We do not feel that expensive site-specific work is warranted at this time.***

The Final EIR should provide an evaluation of the potential impact of the discharge on Wing Pond. This should include a diagnostic evaluation of the trophic condition of the pond including the mapping of bathymetry, and hydrologic and nutrient budgets. This data should be integrated into the groundwater model to provide a better estimate of the travel time and fate of the treated effluent components including the pond's contribution to the downgradient cranberry bogs and estuary. Additional field work to verify hydrogeologic conditions and the groundwater surface water interface and its recharge area (watershed) is warranted.

***G5. The plan has been changed to not include recharge at Site 10, and updated groundwater modeling indicates that no recharged water would flow as groundwater through Wing Pond. We do not believe that this expensive work is warranted at this time.***

The groundwater model should be modified to simulate the Crocker Pond hydrologic feature. A diagnostic assessment and hydrogeologic characterization, as described above for Wings Pond should also be conducted to evaluate the potential impacts of effluent disposal on the fresh water pond.

***G6. Bathymetric survey incorporation into the regional model has been completed. A diagnostic assessment and hydraulic characterization has also been completed.***





Depending on the results of the modified modeling recommended above, mitigation for potential impacts to the identified ponds should be developed and/ or additional alternatives for treated effluent disposal including Site 2B, ocean outfall, and regional use of the MMR infiltration beds, should be further considered.

***G7. Mitigation measures have been considered.***

Fresh Water Ponds

The Commission's comments on the 2007 ENF indicated that the Town should take advantage of the Ponds and Lakes Stewardship (PALs) freshwater pond sampling program to better characterize the fresh water conditions of the Town. This opportunity was reinforced by the 2008 MEPA certificate on that ENF. The DCWMP/DEIR did not address this recommendation. The last Falmouth PALs sampling was conducted in 2008 when 3 ponds were sampled. It is recommended that the Final EIR discuss how the Town will implement the Commission's and MEPA's recommendations to better establish the water quality issues associated with its fresh water ponds in an effort to inform future pond and watershed management strategies.

***G8. See responses A3 and A15.***

Modeling of Ocean Outfall Impacts

If the Town wishes to carry this option forward, the budget and timing to conduct the feasibility studies should be clarified.

***G9. The Town is not carrying this option forward at this time.***

Groundwater modeling was used in a general sense to gauge the impact of diverting on "site wastewater on the general water table. The DCWMP/DEIR indicates that the water table may drop 0.5 feet in identified areas. The assessment generally concludes it is a small relative change. If the Town pursues the ocean outfall option, then a more specific assessment that evaluates the change in stream flows and surface waters should be conducted.

***G10. The Town is not carrying this option forward at this time.***

Waquoit Bay

Final EIR should identify and prioritize potential opportunities to expedite nitrogen removal for Waquoit Bay including piloting of the Permeable Reactive Barrier, interim collection and treatment systems, and potential regional solutions with Mashpee and the MMR.

***G11. No CWMP-FEIR components for the Waquoit Bay watershed are currently planned. This area may be suitable for PRBs and is being considered as part of the PRB Demonstration Project.***

***The Town is pleased and willing to work with the CCC as part of their 208 planning project as it pertains to this shared watershed. Also, please see Response A35.***

Demonstration Projects

Commission staff suggests further evaluation of this method (PRB) is needed and recommends sites be selected where impacts to Coastal Resources can be minimized to the greatest extent feasible.



***G12. The PRB Demonstration Project is ongoing with evaluations to minimize impacts to coastal resources.***

In general, Commission staff supports the Town's proposal to demonstrate the effectiveness of inlet widening as a component of its CWMP, provided that all associated impacts, including impacts to wetland resources, coastal sediment transport, and local beaches are identified and mitigated. Commission staff looks forward to reviewing more detailed plans for these proposed demonstration projects.

***G13. No response necessary.***

Migration of Coastal Resources

Commission staff commends the Town for considering climate change impacts in its CWMP.

***G14. No response needed.***

Sites 7 and 10

Recognizing the challenges associated with identifying disposal sites that meet the siting and engineering criteria, Commission staff encourages the Town to investigate alternative disposal bed sites that may have fewer natural resource impacts. Staff notes that neither Site 7 nor 10 appears to be owned by the Town, and would have to be acquired to install the disposal beds. The Town may wish to consider, if it has not already, the option of siting disposal beds on Town owned land (even open space) that currently may be degraded or have fewer natural resource constraints, and swap the "conversion" of such land for the protection of the parcel at Site 10 for open space purposes.

***G15. Site 10 is currently not being considered for recharge. The Town has taken steps to acquire Site 7. We are interested to hear which Town-owned, open-space-restricted, and/or degraded property the Commission has in mind for recharge use.***

Conclusion

Concerns raised during the CCC (public) hearing and in written correspondence included that the proposed plan did not adequately address phosphorous, contaminants of emerging concern, freshwater resources including Crocker and Wings Ponds and the impacts to these ponds from proposed wastewater discharge sites, energy requirements for additional sewer pumping and wastewater treatment, long-term costs associated with the plan, climate change and sea level rise impacts, recovering nutrients for reuse, and impacts to the local shellfisheries. Commission staff recommends that the Applicant address the concerns raised in written comments and at the public hearing in the Final EIR.

***G16. The Town is trying to address all concerns particularly as it pertains to the CWMP plan components as identified in Response A1.***

H. COMMENTS FROM THE BUZZARDS BAY COALITION DATED OCTOBER 24, 2012

Tech Memo 9 concludes that the ultimate location of a discharge at Site 7 will include Herring Brook and Buzzards Bay. Water quality data collected by the Coalition indicate that Herring Brook is already suffering from nutrient related impairment. The Coalition has requested that the State classify Herring Brook as impaired on the Massachusetts Year 2012 Integrated List of Waters. Further discharge to this location is inappropriate.



In the absence of an MEP report for Herring Brook to determine what an appropriate concentration of total nitrogen is, we look to similarly situated estuarine habitats for guidance. The Massachusetts Estuaries Project calculated a threshold nitrogen concentration for Mashapaquit Creek in West Falmouth Harbor at 0.412 mg/L.

**H1. We believe that the concentration that was identified for Mashapaquit Creek was a function of the total load that was allowed into Snug Harbor. Other tidal creeks and salt marsh systems on Cape Cod that drain directly to Nantucket Sound have higher concentration thresholds because they are not considered estuaries but are considered salt marsh systems that are capable of assimilating higher concentrations and loads. Cockle Cove Creek in Chatham was specifically evaluated to determine an appropriate nitrogen concentration for it due to its location down-gradient of a proposed treated water recharge from the Chatham WWTF. (This work is documented in "Cockle Cove Salt Marsh Nitrogen Threshold MEP Technical Memorandum, Final"; November 2006, Howes et al.) This document is available on the Town of Chatham's website at**

**[http://www.town.chatham.ma.us/public\\_documents/ChathamMa\\_CWMPPlan/CockleCoveReport/CockleCove%20N%20Threshold%20Memo%20Final%2011-30-06v2\\_ris.pdf](http://www.town.chatham.ma.us/public_documents/ChathamMa_CWMPPlan/CockleCoveReport/CockleCove%20N%20Threshold%20Memo%20Final%2011-30-06v2_ris.pdf)**

**This work was briefly referenced in the CWMP-FEIR.**

**A SMAST evaluation is under consideration for Herring Brook to fully address this comment. SMAST has completed similar evaluations for other tidal creeks and salt marshes.**

Tech Memo 9 fails to identify any percentage of flow from either proposed discharge site to Crocker Pond. Crocker Pond is approximately 1200 feet from Site 7 and is thus clearly a receiving water of the wastewater plume. The nutrient load and impact to Crocker Pond must be assessed.

The Town needs to evaluate how discharges from Sites 7 and 10 will impact the health of Crocker Pond and protect the relatively high water quality of Crocker Pond. The Town should also consider how the discharge of a significant new volume will affect groundwater flow and may impact pond height and bank stability.

**H2. The CWMP-FEIR presents findings on these evaluations.**

The Coalition is also concerned that Crocker Pond may be hydraulically linked to Mashapaquit Creek, which discharges to West Falmouth Harbor. If this is the case, some of the nitrogen deposited to Crocker Pond will travel to West Falmouth Harbor contributing to West Falmouth Harbor's nitrogen load. As discussed below, additional nitrogen load to West Falmouth Harbor is not acceptable.

**H3. The MEP watershed delineation does not show it linked and the groundwater modeling of the proposed recharge using the USGS model does not show it linked. Aerial photographs and a site visit do not indicate that it is linked with a surface outlet.**

The Coalition encourages the Town to designate a Pond and Lake Atlas (PALS) coordinator in order to take advantage of the free sampling that the Cape Cod Commission provides.

**H4. This step may occur independent of this CWMP-FEIR.**



Tech Memo 9 notes that 2.1 mgd is the *additional* amount of wastewater that would be generated from Phase 1 and 2 Areas, which would bring the total flow to approximately 2.6 mgd if all areas in Phase 1 and 2 were sewered. Tech Memo 9 further states that because of Falmouth's seasonal population shifts, "the wastewater flow in summer (maximum month flow) will increase by a factor of 1.8 to approximately 3.8 mgd" and that "the capacity of recharge areas will need to be based on maximum month flow considerations." While the current DCWMP/DEIR seeks to limit the amount of sewerage required with the demonstration of non-traditional wastewater and nitrogen management technologies, sewerage will still be a significant part of Falmouth's wastewater solution. It is unclear how much the figure of 3.8 mgd may be reduced with the success of nontraditional management technologies. Given that uncertainty, we must plan assuming the maximum 3.8 mgd estimated figure.

***H5. Technical Memorandum No. 9 identified the 1.8 maximum month peaking factor as the engineering criterion for sizing infiltration beds. The criterion that is used for nitrogen loading to coastal estuaries is average annual loading because flows will be significantly less during the minimum month as they are higher during the maximum month. BBC's implied use of 3.8 mgd with respect to nitrogen loading is misleading. The comment is correct that the Town hopes to limit the amount of sewerage required through non-traditional technologies that would be evaluated through the demonstration projects. The CWMP-FEIR is recommending sewerage of only the Little Pond Lower Watershed Area at an estimated increased flow to the WWTF of 0.26 mgd average annual flow.***

The water quality decline is due to West Falmouth Harbor receiving vast amounts of nitrogen from the Wastewater Treatment Facility. A 2005 upgrade to the Wastewater Treatment Facility significantly reduced the concentration of nitrogen in the effluent, yet with current flow volumes, the discharge is close to the amount of nitrogen allowed in the TMDL. Any new discharges to West Falmouth Harbor are likely to exceed the TMDL and must be avoided in order to comply with the site specific water quality criteria established by the state.

***H6. The Draft CWMP does not propose new discharges to the West Falmouth Harbor, only the currently approved discharge.***

The Coalition questions whether the DCWMP/DEIR fully considers the amount of nitrogen that will reach West Falmouth Harbor from the new and existing discharge sites. Tech Memo 9 finds that only 86% of the 0.5 mgd effluent discharge from the Wastewater Treatment Facility within the West Falmouth Harbor watershed actually surfaces in West Falmouth Harbor. This assumes that 14% of the flow dives under the harbor and surfaces in Buzzards Bay beyond West Falmouth Harbor. Tech Memo 9 points to an inconsistency between the modeling techniques used by USGS and the water balance techniques used by the MEP to delineate watersheds. However, the EPA approved TMDL for West Falmouth Harbor adopts the MEP technique as the basis for the nitrogen limit, and it is inappropriate to assume an alternative technique. The Coalition does not believe there is adequate evidence that 14% of the flow dives under the harbor and therefore disputes the conclusion of those scenarios which allow discharges from Site 10 to flow to West Falmouth Harbor.

***H7. Yes, the USGS model indicates that some of the flow goes under the West Falmouth Harbor and its tributary, and flows as groundwater directly to Buzzards Bay. We have taken the***



***conservative approach that all of the 0.5 mgd that is recharged at the WWTF site will flow to West Falmouth Harbor as groundwater, and have not adopted the USGS model finding. The field work to verify the USGS model finding would be expensive and we feel that it is more appropriate to take the conservative approach.***

The Coalition is concerned that effluent discharged to Site 7 will flow to Crocker Pond and eventually surface in West Falmouth Harbor. Thus modeling of flow to Crocker Pond must also entail determining what fraction of nutrients that are discharged to Crocker Pond will flow to West Falmouth Harbor. It is the Coalition's position that any additional flow above 0.5 mgd to West Falmouth Harbor violates state water quality standards and the federal TMDL, unless West Falmouth is sewerred.

***H8. The watershed delineation by SMAST and MEP has already determined that Crocker Pond is not hydraulically connected to West Falmouth Harbor; and the groundwater modeling documented that none of the recharge at Site 7 goes to West Falmouth Harbor. The only flow that is projected to go to West Falmouth Harbor is the 0.5 mgd recharged at the WWTF site. The Draft CWMP does not propose a flow greater than 0.5 mgd to West Falmouth Harbor.***

Tech Memo 9 states that the 30-foot buffer between Site 7 and the West Falmouth Harbor 11 watershed is sufficient separation. However, the GHD technical memo provides no basis for such assertion. Furthermore, the groundwater modeling simulations employed utilized a subregional version of the Sagamore Lens Regional Model which was further refined by tightening the grid spacing from 400 by 400 feet to 200 by 200 feet. A model scenario run at a grid size of 200 by 200 feet does not support the conclusion that a 30 foot separation between Site 7 and the West Falmouth Harbor watershed is sufficient. A more technical review of these assertions is warranted in order to ensure that federal and state law is not violated.

***H9. Technical Memorandum No. 9 was submitted to MassDEP where it received a technical review. The USGS model has been well vetted and supported by MassDEP, the CCC, and MEP.***

The Tech Memo 9 states that the "application of treated water to these sites could reconfigure watershed boundaries." It is essential that this potential reconfiguration is considered when determining appropriate separation between Site 7 and the West Falmouth Harbor watershed.

***H10. The reconfiguration was considered when the groundwater modeling was completed and it was shown that none of the recharge at Site 7 went to West Falmouth Harbor.***

In accordance with the Modified Groundwater Discharge Permit for the Wastewater Treatment Facility (issued June 28, 2012 and included as Appendix 1-5 in the DCWMP/DEIR), the Town is required to include a plan and schedule in this DCWMP to bring West Falmouth Harbor into compliance with the West Falmouth Harbor TMDL and Surface Water Quality Standards by December 2, 2016 or as soon thereafter as possible. The Modified Groundwater Discharge Permit requires that the plan and schedule incorporate the results of a Flow Measurement Plan and Nitrogen Removal Optimization Plan, and identify additional actions needed to reduce the nitrogen loadings to West Falmouth Harbor to be consistent with the West Falmouth Harbor TMDL. This DCWMP fails to present a plan and schedule for bringing West Falmouth Harbor into compliance with the West Falmouth Harbor TMDL by 2016, and is ultimately a violation of the Modified Groundwater Discharge Permit unless it is amended to include such plan and schedule by December 2012.

***H11. The Town is in compliance with the Modified Groundwater Discharge Permit and is completing the necessary evaluation.***



The DCWMP/DEIR notes that neither of the two modeled scenarios for West Falmouth Harbor (WFH-1 and WFH-2) meets the TMDL and recommends additional modeling to determine an optimized scenario that would meet the TMDL. Additional modeling is only a first step in determining how the West Falmouth Harbor TMDL will be met. A plan and schedule must outline how the Town will limit wastewater discharges to West Falmouth Harbor and when specific steps will be taken (e.g., additional scenario modeling will be performed by December 2013, limitations in flow to the necessary levels determined by additional modeling will be achieved by 2015 through repairs that will decrease inflow and infiltration, etc.).

Clearly, any new discharges to West Falmouth Harbor will also exceed the TMDL and must be avoided in order to comply with the site specific water quality criteria established by the state. In its plan and schedule, the Town must outline how it will meet the West Falmouth Harbor TMDL with current flows in addition to the fact that discharges to Sites 7 and 10 will increase nitrogen loading to West Falmouth Harbor. Additional steps must be taken such as limiting flow from the Wastewater Treatment Facility, sewerage parts of West Falmouth, or identifying an alternate discharge location(s). The removal of wastewater from the South Coast Ponds cannot come at the price of continued degradation of West Falmouth Harbor.

***H12. No flow greater than the 0.5 mgd with subsurface flow to West Falmouth harbor is planned or recommended in the CWMP***

Comments on outfall at Nobska Point, Stormwater Remediation, Monitoring, Adaptive Management, and Demonstration Projects

***H13. We appreciate the Coalition's support on these items. No response is warranted.***

I. COMMENTS FROM THE TOWN OF MASHPEE DATED OCTOBER 2, 2012

We strongly urge Falmouth to increase coordination with Mashpee regarding facilities planning for the East Waquoit and Waquoit Bay watersheds in order to determine how the TMDLs can be met and as a basis for the development of an Intermunicipal Agreement, along with the Town of Sandwich, regarding each Town's share of responsibility for meeting the East Waquoit and Waquoit Bay nitrogen TMDLs.

***I1. Falmouth will continue to coordinate with Mashpee to meet proposed nitrogen limits in Waquoit Bay. The Town needs to evaluate several non-traditional methods of nitrogen management before committing to a plan for that area of Town.***

J. COMMENTS FROM KATE BUNKER-NETO DATED NOVEMBER 5, 2012

It seems that Falmouth has done a fairly good job at reducing the nitrates in their waste water, but Crocker's Pond's nitrate level is just 1/10 that of the effluent, which is 3 mg/L, and phosphates in Crocker's Pond are high, according to the 2007 PALS report. This situation could lead to algae blooms, anoxic conditions that would be deadly to the fish. That needs to be addressed. Another contaminant that alarms me are the endocrine blockers that will be sent fairly directly to Crocker's Pond and from there on to other bodies of water. I understand that the current treatment plant is not designed for eliminating endocrine blockers. These will cause mutations and death to the turtle, frog and fish populations.

***J1. Evaluations summarized in the CWMP/FEIR indicate that phosphorus is the limiting nutrient in Crocker Pond; therefore, the addition of nitrogen to the pond will have no effect on algal production. Also, evaluations on the soils between Site 7 and Crocker Pond with respect to***



***phosphorus transport are summarized in Chapter 4. Regarding the “endocrine blockers”, these are contaminants of emerging concern—or CECs—and have no limits. Because there are no limits for these components, there is the need for additional scientific evaluations to determine those limits. The wastewater treatment plant will be modified to provide this additional level of treatment in the future if needed.***

Two other aspects concern me. First, I have seen Falmouth's report with the map of the area, clearly showing Wings Pond, and a report of the effluent it would receive. Meanwhile on the same map, Crocker's Pond, only 400 feet to the west of Site 7, was obscured by black cross hatching so that neither the printed name nor the pond's outline, were easily visible. There was absolutely no mention of Crocker's Pond in the report. It's truly hard to imagine how it could have been overlooked.

***J2. This has been corrected in the CWMP/FEIR.***

Secondly, I know that managing waste and waste water is a universal dilemma, and not easy to solve. But I don't believe that bringing waste from one area only to pollute another area, is a reasonable solution. In the effort to limit nitrates in West Falmouth Harbor, and to save Little Pond in East Falmouth, (both commendable objectives) Falmouth is choosing to sacrifice other bodies of water. The Buzzards Bay Coalition has shown why Vineyard Sound is a more appropriate place to dispose of the waste water, as the Sound is more open to the ocean. This is also appropriate as Little Pond and other East Falmouth ponds/communities would naturally drain to Vineyard Sound. Buzzards Bay is too enclosed to deal well with additional contamination from Sites 7 and 10.

***J3. An ocean outfall to Vineyard Sound has many potential pitfalls. The Town will continue to work with BBC and others as they work to develop that alternative.***

I would ask Falmouth to take more time, to consider all possibilities of modern technology, and avoid using Sites 7 or 10 for disposing of waste water for the whole town. More study and more planning 'outside the box' is needed.

***J4. The Town does need to submit the CWMP/FEIR by a December 2013 deadline. Work will continue on the Demonstration Projects and changes will occur through Adaptive Management.***

K. COMMENTS FROM MATTHEW WATSKY, ATTORNEY AT LAW ON BEHALF OF A GROUP OF POTENTIALLY AFFECTED PROPERTY OWNERS WHO HAVE FORMED A 10 CITIZEN GROUP, THE ASSOCIATION FOR CROCKER POND, DATED NOVEMBER 7, 2012

The Association for Crocker Pond wishes to express its concern that the DEIR has failed to adequately evaluate the significant potential for adverse effects on the water quality of Crocker Pond, and the extent to which the proposed discharge of effluent will impair existing water uses and result in a reduced level of water quality. We note that the Draft Environmental Impact Report for the CWMP simply references a study for the proposition that certain shallow kettle ponds with thick organic layers can function to remove nitrogen from ground water flow. Without studying Crocker Pond, and without evaluating the watershed characteristics and extent of the effluent that would reach that Pond, the drafters of the DEIR apparently assume that Crocker Pond meets the characteristics of those ponds considered in the study. This thinking is flawed. Even if the



concept in general was supportable and permissible, which is unproven, the proponents have failed to investigate Crocker Pond and consider its significant depth and generally sandy bottom, both of which are substantively different from those of the shallow, organic bottomed water bodies considered in the study.

***K1. Subsequent evaluations on Crocker Pond and related groundwater flow are summarized in Chapter 4 and several referenced appendices.***

As noted in the comments submitted by the Buzzards Bay Coalition, Crocker Pond is merely 1200' from the proposed discharge site #7, and thus is a receiving water of that waste water ground water plume. Consideration of both the short and long term effects on Crocker Pond is vitally important, given the Pond's currently relatively high quality water, and, as with most kettle ponds, lack of an outlet. Without an outlet, contaminants in effluent plumes will accumulate and concentrate in the pond. Nutrients, particularly nitrogen and phosphorous, will accelerate eutrophication and lead to the development of algal blooms in this pond, which currently has among the cleanest water with the lowest nutrient load of any pond in the region. The DEIR has not included any study of the total contribution of nitrogen and phosphorous to the pond via ground water flow. Without that evaluation, an actual assessment of the adverse impact to the water quality of the pond is impossible.

***K2. See Response K1.***

The idea that one would purposefully direct effluent pollutants via ground water to a natural "open water" surface water body so that the water body could "treat" that discharge water is arguably unprecedented in Massachusetts, and inconsistent with the requirements of DEP's ground water discharge' and surface water discharge permit programs. That is in effect is what is proposed - to discharge waste water effluent into the ground with the intent to have that waste water effluent flow via ground water to the ground water interface of the bottom sediments of the pond, and through those sediments into the pond. The proponent's consultants hypothesize that the pollutant levels, when reacting with those sediments or through metabolism by benthic organisms, will be reduced in concentrations. Such a hypothesis must be far more intensively studied and evaluated than the apparently off the cuff assertion contained in the DEIR.

***K3. See Response K1.***

The Crocker Pond Association also supports the further consideration of the off-shore outfall.

***K4. See Response J3.***

**L. COMMENTS FROM ASSOCIATION FOR CROCKER POND DATED NOVEMBER 4, 2012**

We believe the town of Falmouth and the DEP has begun to address the most blatant concern that Crocker's Pond, .25 miles from site 7, was almost completely overlooked in preliminary studies. We would like to see the wording of section 6.2.3 .2 Lakes Ponds and Rivers revised to reveal the existence of Crocker's Pond. It appears to be written in a way that masks even the existence of Crocker Pond. For instance comments on the PALS reporting were written, needlessly, only for the ponds within the planning area, not the area near sites 7 and 10. This section also states that "no surface waters are in the vicinity of sites 7 and 10". It mentions a vernal pool that is .3 miles away from the wastewater Treatment facility but does not mention





Crocker Pond which is .25 miles from site 7. So it appears that what is written is designed to exclude mention of Crocker Pond. This must be corrected so any citizen reading the doc. will know the facts.

**L1. This has been corrected in the CWMP/FEIR.**

There is a vernal pool on the East side of 28A, by the West Falmouth Cranberry Bogs, and the bogs themselves, which are not mentioned. There is land to the south of Crocker's Pond, which is owned by Falmouth's "300 Committee" called the Cardoza Land. This land contains a large area of wetland, cedar swamp and most likely vernal pools. This low lying swampy area extends West toward Quaker Road to Cliffwood Lane. Satellite images show "W"etlands in this area bounded on the North by Fox Lane and the South by Cliffwood Lane. These areas must be addressed in Falmouth's DCWMP/DEIR.

We are also concerned that Falmouth's conceptualization of how wetlands, ponds and salt marshes mitigate nitrogen is outdated (Chapter 4 Volume 2). Gross generalizations that Kettlehole Ponds are uniquely suited to the mitigation of nitrogen need to be challenged. The Woods Hole Group has published work explaining this. [Natural Attenuation of Nitrogen in Wetlands and Water Bodies](http://www.mass.gov/dep/water/resources/attenufr.pdf) <http://www.mass.gov/dep/water/resources/attenufr.pdf>. Another important report by the Marine Biological Institute's Diane Kenny states, "Until this study, it seemed that salt marshes had unlimited capacity for nutrient removal, with no harmful effects on the marshes themselves. Now we really understand that there are limits to what salt marshes can do," Why Are Our Salt Marshes Falling Apart? (<http://www.mbl.edu/blog/why-are-our-saltmarshes-falling-apart/>) It is important that Falmouth's DCWMP encompass a much more comprehensive understanding of these effects and avoid the almost polyanna view of ponds', lakes', and salt marshes' ability to absorb extra nutrients.

**L2. We have adopted the same concept of nitrogen attenuation that has been adopted by the Massachusetts Estuaries Project (MEP) which has evaluated the nitrogen attenuation through Mashapaquit Creek and other wetland systems on Cape Cod. This science is well understood and documented in the MEP reports.**

***The treated water should have no adverse impact on the wetlands that are identified.***

And finally we would like to point out that there is no mention of the emerging concern around endocrine disruptors which are only starting to be understood and discussed widely. Falmouth should go slowly with their plans and understand and develop ways to address these new concerns.

**L3. See Response J1.**

Residents of this watershed, near site 7 and 10, North of West Falmouth Harbor and including Crocker's Pond, Wings Pond, The Herring Creek herring run, and the West Falmouth Cranberry Bogs know what a rich area this is for life that inhabits the ponds, wetlands, vernal pools and cedar swamps. The noise of the peepers is nearly deafening in the spring. But we also know that the yearly run of herring up Herring creek has been nearly eliminated by the activities of man. The eco system does not have unlimited abilities to absorb extra nutrients and biological agents. The same holds true for Buzzards Bay. It is a concern that nutrients and pollution from Vineyard Sound watershed will be shifted to another part of town and to the Buzzards Bay Watershed which is experiencing low oxygen levels, fish die off and algae blooms. Please consider all of the above issues as you review and deliberate Falmouth's DCWMP/DEIR.

**L4. We have considered these items in the CWMP/FEIR.**



M. COMMENTS FROM MOLLY BANG DATED NOVEMBER 1, 2012

Since the project began, research has shown that chemicals from many of the products we use in our daily lives and dispose of in our sinks and toilets, such as household cleaners, medicines, beauty products and the like, particularly endocrine disrupter chemicals (EDC), are causing a wide array of destructive mutations in aquatic creatures, especially in their reproductive organs. Unfortunately, 80% of EDCs released to the environment were found in a study conducted in the UK to enter inland waters via *treated* wastewater effluent disposal. The implications for ground and surface water health are obvious, particularly downstream of the proposed effluent disposal Sites 7 and 10, specifically as this pertains to Crocker Pond, Wing Pond, Herring Brook and West Falmouth Harbor.

***M1. Yes, this is a concern when the treated water is discharged directly to surface waters. More study is needed when treated waters are discharged to the groundwater. See Response J1.***

Moreover, Crocker Pond has not been considered or even mentioned to date in any analyses (including the DCWMP and the DEIR), even as they pertain to impacts from nitrogen, phosphorous and other nutrient loading impacts, let alone other adverse impacts from disposal of the above noted household products. Yet Crocker Pond is only 1,200 feet downstream from Site 7 and is the nearest surface water to it, with a depth that extends about 13 feet below sea level.

***M2. This has been corrected and evaluation of potential impacts have been included in the CWMP/FEIR.***

The wastewater plan addresses only nitrogen. The recent findings indicate that all analyses of our wastewater need to measure not only nitrogen but also other chemicals that have such detrimental effects. I am concerned not only about aquatic life but about the humans who will be swimming in these same waters and request that a full environmental impact assessment be conducted of potential impacts to waters downstream of Sites 7 and 10 before any further work is done that require the use of those sites for treated wastewater effluent disposal.

***M3. These impacts have been assessed in the CWMP-FEIR.***

N. COMMENTS FROM PATRICIA HANDLEY DATED OCTOBER 30, 2012

Site 7 is a serious consideration that will not only affect the environment but Crocker Pond as a result of the effluent that Falmouth is going to force into this site. The infiltration bed is going to constantly flood my property and the underground flow to Crocker Pond is only a matter of short time. How can Falmouth be so confident about this review? Also how many of this committee have actually walked this area that was once described as "Kettlehole Conservation Area" by the 300 Committee? Why is the Buzzard Bay Coalition the only agency that understand the seriousness of this site?

***N1. The groundwater is very far below the ground surface. Groundwater modeling indicates that no flooding will occur from the recharge at Site 7. The USGS model that is used for the evaluation is well accepted by the regulators and professionals that complete these types of evaluations. Members of the Committee and GHD have walked these areas as part of our evaluations.***



O. COMMENTS FROM CHRISTINA RAWLEY DATED OCTOBER 4, 2012

Mass GL Chapter 44, Section 7, Clause 1 specifies that the maximum useful life of sewage systems is limited to 30 years.

The DCWMP has the first phase of sewer system expansion in the Maravista area to be completed in 2020 which means its useful life would conclude in 2050 (DCWMP -- Table ES-1).

The Phase 1 & 2 areas are expected to be completed in 2040. In order to meet the nitrogen TMDLs for Little and Great Ponds and possibly Bourne Pond in the Phase 1 and 2 areas, completing the Phase 3 area (Conceptual Water Quality Compliance Area) will likely be constructed no earlier than 2050-2060 (DCWMP - 6.6.3.3). To maintain this timetable, all funding to top up retired debt is dedicated to wastewater mitigation in Falmouth during those years. These areas cover about 1/3 of the Town.

What this clearly means is that reconstruction of the area completed in 2020 will have to begin before the Phase 3 area at least (depending on actual available funding and speed of the draft plan implementation) is completed. The sewer project for planning purposes, at least, will become a perpetual, extremely costly public works project.

Question: Is this plan reasonable for sewers? It appears to be cost prohibitive and thus unrealistic. Sea level rise might also shorten the useful life of the sewer system.

***O1. The plan for the Little Pond Lower Watershed is reasonable for sewers. It is very cost effective due to existing sewer infrastructure being adjacent to this area. Sea level rise may force the Town and individual residents to abandon some low elevation properties. The properties will need to be served by sewers as long as they are used. The sewers will be designed to allow the low elevation areas to be dismantled and recycled if needed in the future.***

***The feasibility of the other option is being evaluated through Demonstration Projects. The decision-making process to select the Lower Little Pond Watershed area for sewers has been a long and thorough process.***

High energy usage to operate a central sewer system and impacts on climate change

At present, about 3% of the homes and businesses in Falmouth are on the town's sewer system. However, about 20% of the Town's annual electricity consumption is required to operate the sewer pumping (75%) and treatment system (25%), serving those homes and businesses. In looking forward, sewer system expansion will definitely increase energy requirements essentially in perpetuity. This will further contribute to greenhouse gas emissions by the town with the municipal turbines and photovoltaic systems remaining in full operation, for these systems contribute roughly one-third of the present municipal electricity use in Falmouth.

Is making such an enormous commitment to sewer construction operation reasonable in light of the lower energy needs and potential nutrient resource recovery from other options? From the energy demand side alone of central sewer systems, a comparative analysis of wastewater management alternatives (e.g., eco-toilets, on-site and cluster denitrifying systems, permeable reactive barriers, surface run-off and fertilizer controls, estuary inlet widening, shellfish aquaculture, etc.) for Falmouth is warranted before going forward with the design and construction of an expanded central sewer system for the Town. A quantitative analysis



that might involve more than one solution combined in a comprehensive approach could possibly lead to a better solution. That analysis is lacking.

**02. The solution is hoped to emerge as the Demonstration Projects proceed and demonstrate feasibility. The sewer extension of the Lower Little Pond Watershed area alone will not provide the complete solution of meeting the TMDLs. This type of evaluation is not planned for the Little Pond Sewer Service Area but is planned as part of future evaluations as part of Adaptive Management.**

Impacts to surface water downstream of proposed treated effluent disposal Sites 7

The potential adverse impacts on water quality, as a result of the disposal of treated wastewater at Sites 7 and 10 upon surface waters in the areas downstream of those sites, need to be evaluated in the draft EIR. Of note, is the oversight of Crocker Pond in any of Falmouth's analysis, and that oversight needs to be rectified. Crocker pond is about 1,400 downstream of disposal Site 7

**03. These evaluations have been added into the CWMP-FEIR.**

P. COMMENTS FROM ANDREW BUNKER RECEIVED SEPTEMBER 19, 2012

Falmouth's Draft CWMP is short on details about Crocker Pond. This pond's shoreline is only 400 yds horizontally from and more than 60 feet lower than the proposed wastewater infiltration site 7. Maps from technical memorandum 9 depict effluent from both sites 7 and 10 entering Crocker Pond. Yet nowhere, except on the map, is the pond mentioned. The impact on other surface waters including Wing's Pond, Herring Creek, Buzzards Bay and West Falmouth Harbor were provided. Crocker Pond, the closest surface water to sites 7 and 10 appears to have been overlooked without even an explanation.

**P1. Evaluation of Crocker Pond has been added into the CWMP-FEIR.**

Chapter -6 of CWMP, The Summary of Environmental Impact Analysis seem to only provide partial or selective information. For instance Crocker Pond is listed in the 2001 PALS Pond Atlas water quality report however the comments on it by CWMP are limited, for no apparent reason, to ponds in an. area of town where Crocker Pond is not. No mention is made of this pond in spite of being one of 7 ponds studied in the PALS report and 400 yds from site 7(6.2.3.2 Lakes, Ponds and Rivers.) Chapter 6 mentions a vernal pool that is .3 miles from the WWTF but it does not mention Crocker Pond that is .25 miles from site 7. The report also says that" no surface waters are in the vicinity the WWTF or .site .7 or 1 0" Since Crocker Pond appears to be in line to receive a large percentage of flow from site 7 and 10 shouldn't the report mention the pond and analyze what will happen when the effluents enter the pond?

**P2. Evaluation of Crocker Pond has been added into the CWMP-FEIR.**

Chapter 4 of Vol. 2 does discuss nitrogen attenuation in kettlehole ponds. It does so in a simplified way. The v.2 ch.4 explanation describes a shallow kettle hole pond where groundwater seeps in gradually through sediment. In contrast, Crocker Pond is a spring fed kettle hole pond that is 28 feet deep. In Crocker Pond the rate of flow from the welling of springs prevents ice from forming in the winter and creates the sandy patches visible to divers in the deeper parts of the pond. The CWMP does not explain how the flow from site 7 and 10 will enter Crocker Pond. Will it seep in gradually through the sediment and thus allow attenuation of nitrogen or will it flow in rapidly via springs and bring large quantities of unattenuated nitrogen? A study done by The



Woods Hole Group for the DEP explains attenuation in kettle hole ponds." A deep pond or lake (>3 min depth) will intercept more groundwater than a shallow pond." (Crocker Pond is 10m deep)"For a pond/lake deeper than ~2m, groundwater should seep into the pond through the bottom slowly enough that channels free of fine particles are not created. **Such channels would prevent denitrification from taking place.**" (emphasis added) And this could "potentially lead to nitrogen overload (exceeding the carrying capacity). In the case of ponds and lakes, this can lead to eutrophication, algal overgrowth, fish kills, etc."(Natural Attenuation of Nitrogen in Wetlands and Water Bodies, <http://www.mass.gov/deolwater/resources/attenufr.pdf>) In order to be a useful document The CWMP must first provide some detail about Crocker Pond and then be sure the detail is complete and accurate. This will provide citizens with some of the knowledge needed to guide good decision making regarding site 7 and 10.

**P3. The evaluations completed for Crocker Pond and related groundwater studies are summarized in Chapter 4 and several appendices.**

Q. COMMENTS FROM PATRICIA HANDLEY DATED OCTOBER 2, 2012

Site 7 plans on using a infiltration bed to accommodate a high loading rate. There will be mounding that will not only flood the bed but my property. In the summer this will happen quite often as a result in the increase of the flow. What about the negative impact this will have on my property, the air quality and the wildlife using the Wildlife Corridor?

**Q1. Groundwater modeling evaluations indicate that no flooding will occur. No air quality impacts are expected. A fence around the infiltration beds will exclude wildlife from entering the beds and the wildlife can walk around the fenced area.**

The force main that will be connecting the WWTP to Site 7 will have a tremendous negative impact. The construction will destroy a heavily forest area that consist of very deep kettle holes, large boulders and several hills. The CUT and FILL will be unbelievable. All of this negative destruction and there is no guarantee that this site will even work. I'm surprise there is no schedule site visit.

**Q2. The construction will be completed to minimize environmental impact.**

This site has been brought to Falmouth attention before by the Buzzard Bay Coalition and the reasons are outlined in a report that I have enclosed .The report should be given every consideration because of its importance and the facts concerning Crocker Pond.

**Q3. Potential impacts to Crocker Pond have been evaluated as part of the CWMP-FEIR.**

On closing there are not enough words to state that Falmouth DEIR is vague in several areas and before issuing any approval you should make your own decision by a site visit. The environment is precious and before we destroy it we should examine all the facts and area ourselves instead of words on paper.

**Q4. The plan has been clarified and potential impacts to the environment have been evaluated and documented in the CWMP-FEIR.**



R. COMMENTS FROM DAVID DOW AND THE SIERRA CLUB DATED NOVEMBER 5, 2012

Dr. David Dow (member of the Sierra Club's national Treated Sewage Effluent and Water Reuse Activist Team) spoke at this public hearing and pointed out that the CWMP is inconsistent with national Club policies and positions in a number of areas. Thus the Sierra Club can't support the draft Falmouth CWMP as it is currently written.

**R1. No response needed.**

It is hard to evaluate the plans to sewer some densely populated parts of Falmouth and upgrade the West Falmouth Treatment Plant (centralized component) in Phases 1 and 2, since so few details are available on the relative economic costs/benefits; environmental justice (EJ) implications on residents and environmental consequences. Based upon questions raised by the Cape Cod Commission Staff in their comments on this project, the Sierra Club suggests that these centralized infrastructure in Phases 1, 2, and 3 be clarified before asking the Spring Town meeting for \$9 million for planning.

**R2. These items have been clarified in the CWMP/FEIR.**

The draft CWMP contains some discussion of potential climate change effects; but this is inadequate as basis for evaluating which alternatives should be incorporated in the final CWMP implementation plan. Various Sierra Club national Activist Teams have expertise in this area and could be consulted to provide insights for impacts both within our impacted coastal embayments and groundwater ecosystem in coastal watersheds.

**R3. Thank you for the offer. Those evaluations may be warranted once the Demonstration Projects are being evaluated for inclusion to the CWMP as part of adaptive management.**

The CC&I Group doesn't want to see the treated sewage effluent discharge at sites 7 and 10 create new underground pollution plumes that slowly move towards Nantucket Sound. We have enough toxic plumes from the MMR which are currently being partially mitigated. We also recognize the need to consider hydrologic balances when the town removes water from one portion of a watershed and discharges it up gradient in another watershed or utilizes an ocean outfall.

**R4. This project is proceeding to remediate the "plumes" that are coming from everyone's septic system in the planning area with a specific focus on the ones in the Lower Little Pond Watershed area. The septic system plumes have a well-documented impact on Little Pond. We have considered the hydraulic balance issue and believe that there will not be an impact.**

The TMDL/CWMP process focuses on reducing nitrogen loading from septic system sources, ignoring atmospheric, fertilizer and storm water inputs and the role of population growth/increased development within our coastal watersheds as the source of our eutrophication challenges.

**R5. We do not have control over the atmospheric sources that land directly on the surface of water bodies or on forested areas. The Town is proceeding on programs for fertilizers and stormwater management, as well as flow-neutral land use controls.**



The Cape Cod Commission staff report addresses the need to address both phosphorus and nitrogen within our coastal watersheds. This issue was raised by commenters at the October 4 Public hearing at the Falmouth Public Library.

***R6. No response necessary. See CCC responses.***

The Ma. DEP Total Nitrogen TMDL goal at sentinel stations is 0.35 ppm (parts per million). The Sierra Club fears that this cleanup target will only result in clearer water (i.e. increased water transparency) which does not coincide with our viewpoint on significant water quality improvements and restoration of habitats degraded by excess nutrient (N and P) enrichment.

***R7. No response necessary.***

The draft CWMP Adaptive Management (AM) component is not described in a manner that allows us to comment. Holding a workshop to identify project criteria for AM is only the start of a long process that should involve the public.

***R8. No response necessary.***

EJ receives no discussion in the CWMP which is a serious omission.

***R9. Economic impacts on residents is a real concern and will be factored in as the Town develops policies to reduce costs for affected homeowners. This discussion may be warranted when the Demonstration Projects are being evaluated for inclusion in the CWMP as part of adaptive management.***

The CWMP would benefit from examining the outcome from a "restoration and resilience" framework (a point made at the recent conference by outside experts). The ecosystem approach to management features resilience, restoration, sustainability and adaptive management of complex dynamic systems. Our wastewater challenges need to be addressed from this perspective. Unfortunately the TMDL/CWMP process is too narrow and lacks a holistic approach.

***R10. Again, this discussion may be warranted when the Demonstration Projects are being evaluated for inclusion in the CWMP as part of adaptive management.***

The draft CWMP only describes Phases 1 and 2 of the sewerage/upgrade of the West Falmouth Treatment Plan during the first 20 years of implementation. The Phase 3 sewerage of Waquoit Bay East is not described in any detail, but will occur after 20 years as a consequence of implementing the AM component of the CWMP. We don't have 20 years to restore our nutrient impacted coastal embayments.

***R11. Please see Response A5.***



The Sierra Club doesn't want the public to spend \$500-600 million over 20 years and only have water with greater transparency as the outcome. Ma. DEP; Barnstable County government and Cape Cod towns need to develop more realistic CWMPs based upon the AE-bM framework which acknowledges: resilience; restoration; adaptive management; EJ; sustainability and cost effective solutions (includes "green infrastructure" for stormwater).

**R12. We agree.**

The costs estimates for sewerage options need to address the costs that homeowners will incur in changing their basement plumbing to have pipes go out through their front yards into sewers in the street

**R13. Contingencies estimated in the capital cost estimates allow for that cost. The costs for a particular house will vary on a site by site basis.**

Relative Sea Level Rise (RSLR) near the coastal developments where sewerage is planned in Phases 1-3 may compromise portions of this proposed infrastructure, with saltwater intrusion threatening drinking water aquifers.

**R14. Water supplies are well inland and are not expected to be at risk from salt-water intrusion. The wastewater collection system in flood-prone areas will be designed to adapt to sea level rise. It will utilize low pressure force main technology with isolation valves.**

The Falmouth CWMP makes no mention of this toxic cec challenge in the discharging of the treated effluent or handling of the excess sludge.

**R15. Additional discussion on Contaminants of Emerging Concern (CEC) has been added to the CWMP/FEIR. There was significant discussion on sludge management alternatives in the Alternatives Screening Analysis Report (ASAR). Additional discussion has been added on the planned sludge disposal/reuse at a regional facility.**

The CCC Solid Waste Advisory Committee (SWAC) is developing a new regional municipal solid waste (MSW) plan for when the SEMASS waste-to-energy contract expires in 2015. Disposal of the excess sludge from the West Falmouth Treatment Plant will pose a major challenge to the new regional msw initiative.

**R16. Disposal/reuse of the sludge at a regional facility will have no effect on the new regional initiative. The planned sewer extension to the Lower Little Pond Watershed area will produce minimal additional sludge (biosolids).**

This sludge removal topic is missing in the Falmouth CWMP, even though it could present a major challenge if cecs occur in the sludge and are regulated by out-of-state disposal sites. The MMR had to remove VOCs (volatile organic carbon toxic chemicals) by soil roasting before sending them to out-of state disposal sites.

**R17. CECs in sludge are not currently regulated by out-of-state disposal/reuse sites. The disposal/reuse of the sludge is expected to be provided in the same manner it is provided now—by municipal bid. There is no indication that there will not be sufficient regional capacity for regional sludge disposal/reuse into the future. The MMR reference made above appears to be for contaminated soil cleanup that occurred at MMR due to chemical/fuel spills and has no connection to municipal sludge disposal/reuse.**





Some specific suggestions for inclusion in revisions of the CWMP include:

- Restoring the Falmouth Friendly lawns program and using organic landscaping on town owned lands to reduce N and P groundwater loading from these sources is mentioned in the .draft CWMP, but needs an implementation approach by paid town employees
- Planting trees on town conservation land and restoring wetlands adjacent to our freshwater ponds to trap atmospheric nitrogen sources from the regional airshed should be considered
- Recovering phosphorus from centralized and decentralized treatment approaches, since its world wide supply is limited and it is important nutrient in agriculture
- Growing more of our food locally in community gardens which would reduce the N and P imported from elsewhere in the country/world

**R18. These are valuable suggestions and may be incorporated in the following way:**

- **The Town has recently completed a fertilizer management bylaw**
- **Planting trees is a good activity and supported by several Town, County, State, Federal, and Not-for-Profit agencies and is expected to receive support in the future**
- **Some of the regional facilities that receive the sludge compost and recycle it to capture soil-conditioning characteristics and nutrients**
- **Growing food locally is supported by several Town, County, State, Federal, and Not-for-Profit agencies and is expected to receive support**

S. COMMENTS FROM JJ BALLAM OF DOER

The DOER commends the proponent for the effort shown in the submittal towards complying with the use of the Energy Star Portfolio Manager for Wastewater Treatment Facilities (ESPM WWTF) as a tool used for establishing both a proxy for and analogue to the building code in defining the baseline case for stationary source energy consumption and GHG emissions for the as-proposed wastewater treatment facility. It is hoped that the information generated by this approach will be of use to the proponent and the design team as a accessible performance metric to be referenced during the design, commissioning and operation phases of the as-proposed facility.

**S1. No response needed.**

Provide a table showing the values used for the ESPM WWTF inputs as listed in section 6.6.2.2.

**S2. This addition has been made.**



It is not clear from what has been submitted in Section 6.6.2 that this approach has been completely followed. In order to provide more clarity, revise Table 6-4 using the format below:

WWTF	ESPM Energy Performance Rank	Site kBTU/gpd	Source kBTU/gpd	CO2 Emissions (Short tons per year)
Current Existing				
As-Proposed Baseline	50	*		
As-Mitigated (Target Only)				

\*The As-proposed site kBTU/gpd is to be included as a section 61 commitment in the FEIR to be met by the final design of the as-proposed WWTF.

**S3. This revision has been made.**

WWTF Buildings:

The MEPA Policy and Protocol requires that energy modeling be performed to establish the expected energy usage and corresponding GHG emissions for both the baseline and mitigated as-proposed cases. In this case, however, the DOER recommends that this requirement be waived for the following reasons and subject to the following conditions:

Reasons:

1. The loads and energy consumption for the buildings are included in the computation of the overall facility site kBTU/mgd.
2. For the buildings as shown, the HVAC, lighting and non-process plug loads are likely to be much smaller than the process loads, and so do not justify the level of analysis represented by full eQUEST modeling.
3. The new construction will be designed and built to meet the Mass. energy building code.
4. The proponent has an audit report for the existing building including recommended energy conservation measures (ECMs) which can be expected to significantly reduce the energy consumption and GHG emissions.
5. The proponent has described significant energy design measures (EDMs) as mitigation for the new construction portion of the as-proposed facility.

Conditions:

The modeling waiver is contingent upon the following conditions being met:

1. All ECMs recommended in the Rise audit for the existing facility will be incorporated are to be listed as Section 61 mitigation commitments in the FEIR.
2. All of the building EDMs listed below in the mitigation section of this letter will be included in the Section 61 commitments of the FEIR.

**S4. No response needed.**



## Mitigation

An energy audit performed by Rise Engineering is referenced in the GHG section. The audit should be included in the EIR as an appendix. Consideration should be prioritized for any of the recommended measures which would qualify for MassSave program incentives.

### **S5. This appendix has been provided.**

#### Building Measures

Optimize lighting and reduce heating and ventilation loads are standard EDMs which apply to the building systems and loads as distinct from those related to the treatment process. As such the DOER urges the proponent to revise the categorization of these measures from "to be considered in the final design" to "will be incorporated in the final design", and include them in the section 61 mitigation measures. The DOER also urges the proponent to add the following building system EDMs to that list and include them in the section 61 mitigation measures in the FEIR:

- Increase roof and wall insulation to meet or exceed compliance with the Mass. Stretch energy code.
- Include energy recovery ventilation for heated building areas.

### **S6. These items will be considered in Final Design.**

#### Process Measures

Process Optimization: Mitigation of the negative impact on the life-cycle efficiency and emissions of the WWTF treatment process due to the impact of equipment operating for a large fraction of the life-cycle at partial loads is critical to achieving the lowest practical level of consumption and emissions. For this reason the DOER urges the proponent to revise the categorization of these measures from "to be considered in the final design" to "will be incorporated in the final design", and include this measure in the Section 61 mitigation measures in the FEIR.

### **S7. These items will be considered in Final Design.**

Draft Section 61 Findings and Mitigation Measures:

Section 6.6.2.1 - states that GHG evaluations will included in Section 61 findings, however this information is missing in Chapter 8.

An energy and GHG reduction section should be added to this chapter in the FEIR and should include a discussion use of the ESPM WWTF rank of 50 as a baseline commitment and the following specific information:

- A commitment that the final design for the as-proposed WWTF will achieve a ESPM WWTF ranking of not less than 50, and the corresponding site kBTU/gpd.
- A list of the EDMs that will be included to some degree in the final design.

### **S8. We discussed these items with DOER in our meeting of June 10, 2013 identified in Chapter 4, Section 4.6.12. No WWTF expansion is currently planned though an increase in flow is planned.**



***Future facility expansions should be designed to meet a rating of 50 or more and this commitment has been added to Chapter 8***

T. COMMENTS FROM EARLE BARNHART DATED NOVEMBER 1, 2012

The draft plan focuses too narrowly on nitrogen (N), with no plan to manage many other existing wastewater nutrients (phosphorus, etc.) and contaminants (antibiotics, pharmaceuticals, etc.).

***T1. Planning to meet the nitrogen TMDLs in the defined planning area has been the focus of this project. The sewerage of the Lower Little Pond Watershed and proper treatment and recharge of the treated water will also remediate impacts to Little Pond from other wastewater parameters.***

The draft plan focuses too narrowly on only a few coastal ponds, without addressing water pollution problems in Falmouth's other coastal ponds, or water pollution problems existing in many of Falmouth's freshwater ponds. It does not offer a strategy or schedule for wastewater management in other parts of Falmouth.

***T2. The project planning area and scope has been clearly defined. At the time when the project was developed (2006), many of Falmouth's estuaries were still awaiting their MEP evaluations. Also, many non-traditional technologies are being evaluated through demonstration projects to test their feasibility for long-term municipal wastewater management. The focus of the plan has moved to the Little Pond Watershed as the Demonstration Projects proceed. These strategies, if they work out, may be applied to other parts of Town.***

Falmouth's public water supply. The draft plan does not address or analyze the implications of permanent, wide-scale sewerage on Falmouth's public water supply capacity and costs. It should include the actual total cost of providing Town water, and the financial impacts of using & wasting large amounts publicly-provided pure drinking water for flushing toilets. Permanent widespread use of flush-toilets and sewer-based technologies will continue to consume and waste large amounts of increasingly expensive water.

***T3. These evaluations are part of the Eco-Toilet Demonstration Project.***

The Proposed Plan Wastes Nutrients Instead of Recovering & Recycling Nutrients. The draft plan focuses on technologies that dispose of N as fast as possible, using sewers, clustered mini-sewers, PRB's [reactive barriers], and denitrifying septic systems. These processes convert organic nitrogen into nitrogen gas (N<sub>2</sub>) that is lost into the air.

Nitrogen fertilizer is made using large amounts of fossil fuel, and thus has a very high embodied-energy value, which is wasted when organic nitrogen is lost as gas. Organic nitrogen in wastewater has a high fertilizer value if recycled to plants, and is also wasted. Nutrient-recovery processes and technologies (such as eco-toilets and composting of residuals) would conserve the embodied energy and recycle the fertilizer nutrients.

***T4. The reuse of sludge (biosolids) at a regional facility can meet that goal, and some regional facilities provide that option. The Town is open to that option. The Eco-toilet Demonstration Project is being designed and implemented to verify its feasibility for long-term municipal wastewater management including reuse of the collected urine and/or composted fecal material in an environmentally acceptable manner.***



Incomplete & Inadequate Energy Analysis. The draft plan does not address the long-term sustainability of central sewer plants (which consume large amounts of energy) if energy becomes much more expensive or less available in the future. On a global scale, burning fossil fuel produces CO<sub>2</sub> that gradually increases global temperatures. If energy use and related global warming continues at current trends, average global temperatures will become unlivable even if fossil fuels are still available to keep using. It is irresponsible to adopt technology that contributes to and speeds environmental damage.

***T5. The energy analysis may be completed as the Demonstration Projects are evaluated for inclusion in the CWMP as part of adaptive management.***

Incomplete Economic Analysis. The draft plan does not include all costs and benefits when comparing different wastewater treatment technologies, particularly the avoided costs resulting from water conservation, employment impacts, and the value of recovered & recycled nutrients. The proposed solution cannot be considered 'least cost' without such an economic analysis.

***T6. These evaluations may be completed as the Demonstration Projects are evaluated for inclusion in the CWMP as part of adaptive management.***

Waste, Environmental Damage and Uncertainties Re: Sludge Disposal. 20% of the N entering a sewer leaves the sewer as 'sludge' material, which is trucked away and disposed off-Cape to incineration or landfill. No attention is given to risks such as stricter regulations or higher future disposal costs due to environmental damage caused by sludge wherever it is disposed.

***T7. Some regional facilities compost the sludge so it can be reused as a soil conditioner. The Town is open to this option. There is no indication that sludge disposal/reuse capacity at regional facilities will not be available into the future. Sludge management, disposal, and reuse were evaluated in the Alternative Screenings Analysis Report.***

Proposed sewerage in the plan will take too long to improve even the targeted coastal ponds. Sewerage implemented over 10-40 years will result in many more years of conditions worse than they are now in most of Falmouth's coastal ponds. Emphasis and action should be focused on "quickest" solutions, not decades-long solutions. The CWMP predicts that even if proposed sewerage is built, it will not remove enough N entering some of ponds to meet target N TMDLs. Falmouth will not find out until 40+ years and several hundred million \$ have been spent. Sewerage only a few coastal ponds over 40 years will have no impact on improving water quality in all other estuaries or in freshwater ponds.

***T8. Several years are still needed to evaluate the feasibility of the non-traditional technologies through the Demonstration Projects. The sewer extension to the Lower Little Pond Watershed should demonstrate results in less than ten years.***



The Draft Plan prioritizes sewer infrastructure which is wasteful of resources, financially unsustainable, and not resilient to future change. The draft plan is based on models and methodology that maximizes the size and cost of any sewer infrastructure (ie. maximum build-out, maximum residents, and maximum summer population). A recent Massachusetts report on wastewater infrastructure found that infrastructure costs were unsustainable for most communities that currently depend on them. Permanent central sewer infrastructure also offers minimum flexibility to future change.

***T9. The plan prioritizes evaluation of demonstration projects and only recommends sewerage in limited areas.***

Nutrients & Pollutants from Proposed Treatment Plan will enter (freshwater) Crocker Pond. The proposed disposal of treated wastewater effluent to Sites 7 and 10 will put excess nutrients and endocrine disrupter chemicals (ED C) into Crocker Pond (a freshwater pond), Wing Pond, Herring Brook and West Falmouth Harbor. Crocker Pond has not been considered or even mentioned to date in any analyses (including the DCWMP and the DEIR)

***T10. Evaluations of Crocker Pond have been added to the CWMP-FEIR. Evaluations of these other water bodies have been updated in the CWMP-FEIR.***

Insufficient Public Education and Public Input During the Development of the Plan. During the creation of the draft plan, there has been insufficient public education efforts by Falmouth that would allow citizens to develop informed opinions and inputs in the development of the plan.

a) public outreach Falmouth's planning committee made a minimal public education effort; their "public outreach" was to simply present a completed plan for the public to see, instead of earlier, continuous public education about the issues and implications of the potential solutions.

b) public education This includes providing the public with detailed factual & conceptual information in a continuing process, in advance of having to make a decision. It takes time for people to learn, consider, and come to informed conclusions. The WQMC did not have regular public forums for wide-ranging discussion and debate on the technical, social and financial issues. In the development of this CWMP, I and others repeatedly requested that public education be given top priority. But no Public Education sub-committee was created, the several sub-committees that were formed did little public education, and the WQMC did not support any proposals for public education meetings. Televised WQMC meetings do not result in the sufficient public education.

c) public participation An efficient planning process would bring the combined experience and expertise of the widest possible group of interested citizens to bear on a problem. In the process of developing this CWMP, the public was initially told that citizens would be members of sub-committees of the WQMC to work on parts of the plan. Subsequently, however, the WQMC decided not to have members of the public on the sub-committees. The opportunity for very limited public comment at WQMC meetings is not as effective as continuous public participation during the development of the plan.

***T11. The WQMC has provided multiple opportunities for public education and public input in a variety of forums. The commenter has been a regular contributor at those meetings.***



There was no opportunity for public comment on the 'draft CWMP' prior to its approval by the Falmouth Board of Selectmen. 7/29/12

***T12. There were opportunities for public comment as detailed in the CWMP-FEIR.***

The Cape Cod Commission reviewed and approved the 'draft CWMP' on 10/4/12 before hearing any public comment.

***T13. The CCC received public comment at a hearing on October 4, 2012 as part of their joint review process.***

Public comment at the Cape Cod Commission's hearing on 10/4/12 was the first opportunity for citizens to formally and publicly comment on the draft CWMP, and was limited to only 3 minutes per speaker. Citizens were allowed only 3 minutes per person to comment on an incredibly large, complex document that took years to make and might cost the public many millions of dollars to implement. Also the CCCommission used slides to illustrate their presentation, but the public was not allowed to use any visuals during their 3 minutes comment period.

***T14. The Cape Cod Commission hearing format was determined by them, not the Town or WQMC***

A final opportunity for public comment was scheduled to occur far from Falmouth, at an inconvenient place and time, and was subsequently cancelled but not rescheduled. Because of public discontent with only a 3 minute comment at the Cape Cod Commission's hearing on 10/4/12, the CCC scheduled another hearing, but to be held at 10am on a Monday morning in Barnstable. Working people cannot participate during those hours or have to lose income to attend. Also, a hearing in Barnstable prevents most Falmouth citizens and officials from hearing the public comments.

***T15. It is regrettable that a second hearing was not in Falmouth at a convenient time. Also, see response T14***

In summary, public comment on the draft CWMP at the Town and CC Commission levels has been limited to a total of 3 minutes from any citizen. These events and decisions show disrespect and complete disregard for public input, and is a slap in the face to the process of civic engagement.

***T16. Again, The WQMC has endeavored to provide opportunities for public input and will continue to do so. See also T-14.***

U. COMMENTS FROM JANET KLUEVER DATED NOVEMBER 5, 2012

Climate Change Considerations

Hurricanes Sandy and Katrina vividly demonstrated to us the folly of shoreline development and problems of sewer infrastructure in these areas. Storm surges and sea level rise will only increase over time and sewered areas that are flooded will create severe public health hazards and result in huge repair costs, WE SHOULD NOT BE DEVELOPING COASTAL AREAS AND ESPECIALLY NOT SEWERING EXISTING DEVELOPMENT IN THESE AREAS. Better solutions such as eco-toilets must be considered.

***U1. Eco-toilets are being considered as part of a Demonstration project. The area proposed to be sewered in the Lower Little Pond Watershed is currently developed and is nearly at build-out. The sewer extension is planned to serve these properties in the most environmentally***



***acceptable manner. The system will be designed to allow sections to be isolated at times of hurricanes and flooding. The impacts of flooded basements and eco-toilets are yet to be evaluated for mitigation efforts.***

#### Water Resources Wasted

Wasting clean water for flushing toilets is totally unacceptable. Clean water is a limited resource and the 30 percent used in each household for flushing toilets is not sustainable. Eco-toilets use no water and will conserve our limited water resources.

#### ***U2. True.***

#### Contaminants of Concern

The CWMP is not taking into account the problems created by pharmaceuticals, chemicals and personal care products that enter our watershed. I see this as a huge problem not only to humans, but also to the environment. We cannot continue to use our land and sea as dumping grounds. Eco-toilets and eco-drum composting systems have shown to be effective in breaking down many of these contaminants, while simultaneously recovering the valuable nutrients from human waste and providing a means of resource recovery. Moreover, it has been found from studies in England that 80% of endocrine disrupter chemicals enter the environment from treated sewage effluent that have serious impacts on the physiology of fishes. The treated effluent disposal sites - Sites 7 and 10 - are directly upstream of a number of fresh surface waters, including the closest one, Crocker Pond about 1200 feet downstream from Site 7, that was not even mentioned in the DCWMP or the DEIR let alone assessed for potential impacts. New dangerous chemicals in conjunction with already existing pharmaceutical and home care products are being developed everyday that are discharged to the environment via wastewater systems. Other affected waters would be Wings Pond, Herring Brook, West Falmouth Harbor (it's estimated watershed boundary is just 30 feet from Site 7) and others.

***U3. Evaluations of Crocker Pond have been added to the CWMP/FEIR as well as evaluations of groundwater flows to the West Falmouth Harbor.***

#### Freshwater Ponds

The CWMP gives no consideration to remediation of our fresh water ponds, many of which are in various stages of eutrophication. These ponds are part of our watershed system and ultimately contribute to the nitrogen problem in our estuaries. This is already a problem in Falmouth, particularly Ashumet Pond next to where I live. Every year the Town of Falmouth has to treat Ashumet Pond with alum to control the excessive nitrogen load that enters the groundwater from the wastewater treatment plant on the MMR. Similarly at risk are at least are Crocker and Wings Ponds downstream of the panned effluent disposal sites - Sites 7 and 10. It is not responsible to restore the water quality in one part of our town - e.g. the south coast estuaries only to degrade surface waters in other parts of town such as West and North Falmouth. Our CWMP needs to address the health of our freshwater ponds as well.

***U4. Please read Response A3 with respect to evaluations of all freshwater ponds. Ashumet Pond is treated with alum as needed [not every year]. Alum is used to sequester phosphorus, not nitrogen.***





### Resource Recovery

Instead of spending millions of dollars trying to get rid of our waste, we should be recovering the nutrients from it. Nitrogen is a valuable fertilizer that can be recovered from composting. Phosphorus can be recovered from urine diverting toilets. More emphasis needs to be placed on nutrient recovery systems rather than disposal.

***U5. The Eco-toilet Demonstration Project recommended by the CWMP/FEIR is designed to evaluate this type of resource recovery.***

### Wasted Energy

Sewers use large amounts of energy to pump water to and from homes and in the operation of the waste treatment plant. Eco-toilets use only an insignificant amount of energy for a ventilation fan and are not dependent on a town-operated system.

***U6. We agree.***

### Public Education and Input

The sheer volume and technical complexity of the text of the CWMP is unintelligible to the average citizen. No effort has been made by the town to educate the public on the basics of the CWMP. The only real input the taxpayer has is to vote on the basis of cost without the benefit of comprehension. The town needs to engage the public in this important issue and present options so that the citizenry can reach an informed decision.

***U7. The WQMC will continue to educate the public.***

### Social and Financial Injustice

The cost of the proposed CWMP is going to put a severe strain on the economic welfare of the average citizen. At a cost per household of \$30,000+ for sewers, this will force many people out of their homes, especially the low income population, including the elderly living on fixed incomes.

***U8. The cost to individual homeowners has not yet been estimated by the Town, and will be estimated as part of cost-distribution evaluations in the future.***

V. COMMENTS FROM HILDE MAINGAY

### Foreward

- June broke 3215 high temperature records in the USA.
- 327<sup>th</sup> consecutive month in which temperatures of the entire globe exceeded 20<sup>th</sup> century average.
- nearly 97% of the arctic ice sheet melted in 4 days this July - unprecedented.
- global temperatures have risen 0.8 degrees
- if we stopped increasing CO<sub>2</sub> emission now, the temperatures would still increase by another 0.8 degrees, due to previously released carbon.
- scientists believe that a 2 degree Celsius (3.6 F) rise would result in long term disaster.



- there is international agreement that temperatures should stay below the 2 degree rise
- Co2 emissions have been growing by about 3% per year.
- At this rate global temperatures will reach the 2 degree Celsius rise in 16 years
- -There is enough fossil fuels in reserve at this moment that at this rate of global emissions, with the existing reserves, global temperatures could increase by 6 degrees Celsius or 11 degrees F.

**V1. No response necessary.**

Introduction

- Consider the plan
- Understand the consequences
- Have the courage to vote NO and ask for modifications in the plan to better address C02 emissions, climate change and the ecological, economic and social environment as a whole, not only the nitrogen issue.

It is better to get a plan that can address the pollution issues on a broader scale, in shorter time span and on a smaller budget, than a plan that is completed on a self imposed artificial deadline based on an artificial financial schedule that does not reflect either the ecological urgency nor the economic, social or climate change realities.

The Falmouth Enterprise considers my views of energy and water conservation and resource recovery to be ahead of our times. Unfortunately, my views are at least 30 years behind the times and the present approach of the CWMP adds another 30 - 50 years of ecological non-sustainable solutions.

Unfortunately, the ecosystems we all rely on cannot wait that long. It is our moral obligation to revisit the plan and make it a truly comprehensive nutrient recovering, energy and water conserving plan.

**V2. No response necessary.**

The draft CWMP is based on:

The MEP model and data that are 6 years old.

*concern: We do not know if and by how much the water quality in the ponds have improved or degraded in the past 6 years.*

*solution: update the data and the model before any money is allocated for further engineering and planning.*

**V3. Citizens that have been to Little Pond have seen the ongoing impact to the water quality. Additional water quality monitoring and model input is recommended in the CWMP-FEIR.**



Scenarios based on build-out, not existing, watershed nitrogen loading in the watershed.

*concern: These scenarios lead to overbuilding of sewer treatment plants and other systems.*

*solution: create regulations for new construction to be built with Eco-toilets or systems with similar N reducing capacity. That way we can do our planning based on present N loads, not future hypothetical loads.*

**V4. The Eco-toilet Demonstration Project will evaluate that technology as a long-term municipal wastewater management solution. The Town is developing flow-neutral regulations. Future conditions must be part of the plan because current (existing) conditions will change.**

The assumption that certain areas of town HAVE TO be sewerred.

concern:

1. several members of the WQMC have stated that the DEP requires sewerred to be part of a CWMP. This is not true. I have asked DEP and EPA regulators and they all confirmed, in a public setting, that sewerred is not a requirement.

2. several members of the WQMC have stated that the DEP would not take a CWMP serious unless it has sewerred as part of the solution. This is not true- see above.

**V5. There are many components of the CWMP-FEIR that do not include sewerred (see Response A1). The WQMC has recommended that the Lower Little Pond area be sewerred for several reasons that are well documented. Many WQMC members have met with the DEP and EPA regulators and were in the public setting referenced.**

The assumption that sewerred is the best and most cost effective solution for Little Pond.

concerns:

1. Sewerred is promoted in certain areas around Little Pond only because it is near existing sewer infra structure and it is densely populated, not because it has been demonstrated to be the best solution on an environmental, economic or social basis.

2. Sewerred the proposed areas will NOT result in meeting the TMDL for Little Pond, according to the draft CWMP. This means a lot of money will be spent, while not achieving the goal and wasting precious time and resources.

*solution: Delete sewerred from the plan.*

*Sewer treatment systems contribute greatly to CO2 emissions, pollution in the air, on land and in groundwater and waste of water and natural resources in the form of large infra-structures and loss of human 'waste' resources. The narrow focus on removing some Nitrogen out of one watershed, while polluting other watersheds, as well as air, land or even the ocean is unconscionable. This system was created in times when populations were smaller, the consequences of our 'modern' human support systems not considered or known yet, such as the damage caused by greenhouse gases, the acidification of the ocean, the depletion of clean drinking water and of phosphorus to name just a few. We know better now.*



Our CWMP should reflect this knowledge and abandon any plan that contributes to global warming and further degradation of our ecosystem as a whole.

**V6. The Commenter has expressed these views as part of the public education and outreach process and the WQMC has appreciated and considered the input.**

Getting rid of Nitrogen only

concerns:

1. Nitrogen is a valuable resource that should be recovered.
2. There are many additional valuable nutrients in human waste that should be recovered such as Phosphorus. Phosphorus is a non-renewable resource essential for food production, which is being depleted globally at an alarming rate. The USA only has 20 years of high quality, economically minable phosphorus left and is already importing 10% of its need.
3. There are many pollutants from pharmaceuticals and contaminants of emerging concerns (cecs) that play a major role in the deterioration of our water bodies. The CWMP is not addressing these concerns.

solutions: The CWMP should focus primarily on resource recovery and on site treatment, combined with a community composting system in Eco-Orums that eliminate pathogen and have shown great potential in breaking down contaminants such as pharmaceuticals in human waste residuals from Eco-Toilets.

**V7. See Response V6. The Eco-Toilet Demonstration Project is exploring this.**

Using fresh drinking water as a way to transport the waste

concern:

1. fossil fuels and chemicals used to purify water to levels considered safe for drinking.
2. fossil fuels used to transport the water
3. fossil fuels used to transport waste and water.

solution: Reduce demand of fresh water use by implementing water reducing or waterless toilets. Where water is needed for flushing, use treated gray-water. These technologies are available and should be included in this plan.

**V8. The Eco-Toilet Demonstration Project is exploring this.**

Burning fossil fuels to separate waste from water, burn off nitrogen, transport sludge, burn sludge and transport/dispose the ashes on land as toxic waste.

concerns: the plan proposes systems that are completely dependant on fossil fuels, are energy and technology intensive, are non-resilient or adaptive to climate, population and economic dynamics ,and are polluting as well as resource and nutrient wasting.

solution: only design systems that have low to no energy requirements, on site nutrient recovery and inherent resilience and adaptability to changes in climate, population and economic dynamics.

**V9. See Responses V6 and V8.**



#### Alternative energy strategies

*concern: Alternative energies such as windmills and solar collectors do not justify energy and resource wasting systems. They are only effective and sustainable in combination with intense energy and resource conserving systems. Just because there are 2 windmills near the plant and provide power for the town, does not mean the sewer treatment plant is a net zero energy system.*

*solution: remove the statement that our sewer treatment facilities are net zero. Focus instead on comprehensive water, energy and resource conserving systems.*

**V10. See Responses V6 and V8.**

The draft CWMP does not or not adequately address:

#### CLIMATE CHANGE

The CWMP states that:

- Climate change is already happening and will continue;
- Climate change impacts are wide-ranging and affect many sectors of society;
- The cost of impacts will be high;
- Current and accurate information improves decision-making;
- Integrating mitigation and adaptation strategies provides double benefits;
- Adaptive management and forward-thinking goals should be built into current actions;
- Actions addressing climate change may present opportunities [for growth/advancement].

*concern: the CWMP does not follow the Falmouth Climate Protection Action Plan and is not showing urgency of the environmental and planetary demise*

*solution: revisit the plan and consider CO2 emissions in each decision, realizing the enormous threat our planet faces due to the way we live and have designed our human support services such as sewer plants.*

**V11. See Response V6.**

#### SEA-LEVEL RISE

Wetlands play a significant role in mitigating greenhouse gases.

The CWMP assumes that the natural inland progression of wetlands, in increasing rates due to effects of climate change and associated sea-level rise of 2-3 feet this century and the increased intensity of storm surges, is not a viable option due to the extend of human development and manmade structures in the affected areas.

*environmental justice concerns: do we let the coastal wetlands drown, because we prioritize human development?*



*economic and social justice concerns: Who is going to pay for fighting back these forces in order to save the human habitats, development and unnatural structures in the present and future flood zones? the CWMP does not provide an answer.*

**V12. See Response V6.**

#### STORMWATER MANAGEMENT

The CWMP states that existing infrastructure is undersized and unable to manage the increased storm-water load each spring due to climate change.

*concern: The CWMP demo project only identifies and evaluates possible solutions, does not commit to implementation of any solutions such as rain gardens or vegetative biologically active retention areas.*

*solution: Add implementation of storm-water demo project(s).*

**V13. A Stormwater Demonstration Project has been recommended (see Response A1).**

#### FERTILIZER AND PESTICIDE MANAGEMENT.

Falmouth has 14 estuaries and over 100 freshwater ponds and most people live near or on one of those water-bodies and all fertilizers/pesticides contribute to the groundwater and one or more water bodies.

*concern: the suggested town bylaw is not extensive enough in scope and areas. The manufacturing of fertilizers and pesticides is energy intensive and contributes to air, water and land pollution. The application of these man-made amendments also contribute to air, water and land pollution.*

*solution: Adoption of a Town Bylaw to ban lawn/turf fertilizer use for the whole town, not just for town-owned properties and/or the so-called specific Nitrogen sensitive areas. Ban also pesticides known to be harmful to human and animal life on land and in water.*

*solution: Implement the use of slow-release fertilizers made from compost produced by combining landscape debris, food wastes and residuals from Eco-Toilets.*

**V14. The Town has adopted the Nitrogen Control Bylaw and is taking steps to address these concerns.**

#### THE BOTTOM OF THE PONDS

*concern: it seems unlikely that we can restore the ecosystem of a pond, without addressing the thick layer of muck from dead algae and other organic depositions on the bottom of the ponds.*

*solution: add dredging to the mix of alternative options.*

**V15. The WQMC is concerned about layers of muck in the coastal ponds. Dredging will be considered.**

#### ALL THE OTHER, ALSO POLLUTED ESTUARIES AND FRESH WATER PONDS

*concern: what good does it do at a broad environmental scale to make an attempt to clean up one estuary partially, while not addressing all the other water-bodies in Falmouth?*



*solution: Adopt a commitment to manage nutrients, in the entire town of Falmouth based on ecological principles of conservation and resource recovery and reuse. Adopt a commitment to solve our pollutions problems in a timeframe dictated by environmental needs, not when 'free' money is available through debt exclusion tax manipulations and associated deceptive propaganda stating that we can clean our waters without raising taxes.*

**V16. See Response V6.**

#### DISCHARGE OF WASTEWATER NUTRIENTS

*concern: discharge of wastewater nutrients in proposed sites 7 & 10 might have adverse affects on groundwater, vernal pools, neighboring fresh water ponds such as Crocker Pond, Wing Pond, and Herring Brook and possibly W. Falmouth harbor.*

*solution: conduct studies to determine the nutrient loads in the above water bodies due to increased discharge of wastewater nutrients.*

**V17. These completed studies are documented in the CWMP/FEIR.**

#### Conclusion

It is our moral obligation to find new solutions required for the new world we live in now.

It is our moral obligation to stop the increase of C02 emissions now.

Waste can never be part of a sustainable solution. As long as there is waste and there is pollution as part of the solution, we will not achieve social and economic justice nor a future for the next seven generations.

**V18. See Response V6.**

W. COMMENTS FROM GHD DATED OCTOBER 31, 2012

These comments provided additional information on all of the treated-water recharge sites that were evaluated as part of the CWMP Project. No response is needed.