Golledge Strategies & Solutions LLC

Cape Cod Water Protection Collaborative

Determining & Defining the Critical Regulatory Path for Enhanced Natural Attenuation for Nitrogen Removal

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1. Introduction

Through a series of discussions and meetings with key federal, state and county officials, Golledge Strategies & Solutions LLC (GSS) has explored and evaluated the existing regulatory framework for addressing impaired estuaries on Cape Cod, through an innovative and alternative approach – enhanced natural attenuation of nitrogen. The concept of enhanced natural attenuation of nitrogen was generally well received and viewed favorably, as part of a broader watershed/regional plan to control nutrient loading to coastal waters and tributaries thereto.

While viewed as potentially having a positive net impact on water quality, all agency staff indicated that project specific circumstances and designs would be critical in determining whether specific projects could be approved. However, all agencies indicated that “enhanced natural attenuation” projects could be approved under the existing policies, regulations and statutes. As such, the critical path to success will be to ensure that the first “enhanced natural attenuation” project(s) are well designed and are part of a comprehensive plan to reduce elevated nutrient levels.

Water quality has been a growing concern for many agencies and organizations for a number of years. A variety of local, state, and federal agencies and non-profit organizations have undertaken efforts to gather data and develop plans for addressing both inland and coastal water quality degradation across the state and specifically Cape Cod – Cape Cod Water Protection Collaborative, MassDEP, EOEEA, EPA, CZM, Cape Cod Commission, and Three Bays Preservation, to name a few. Cooperative efforts and funding have enabled data to be collected, models developed and a variety of options developed for moving forward to improve water quality – through a combination of reducing sources of nutrients, traditional wastewater infrastructure projects and enhanced natural attenuation.

Enhanced natural attenuation of nitrogen is discussed in the Massachusetts Estuaries Project (MEP) technical reports as an alternative to “traditional sewering” of a watershed. The most commonly discussed enhanced attenuation strategy is the altering of existing wetlands to enable natural processes to attenuate nitrogen. While effective in reducing overall nutrient loads to receiving water bodies, these projects may entail significant alterations to wetland resource areas. An important consideration for undertaking wetlands enhancement or

restoration projects are 1) the ability to secure permits, and 2) the timing/cost of moving through local, state and federal permitting.

Wetlands restoration and enhancement projects are feasible, worthwhile and an innovative approach to addressing water quality degradation. These projects can be accomplished through the existing regulatory framework if carefully screened and managed appropriately at the local, state, county and federal levels.

2. Enhanced Natural Attenuation/Wetlands Restoration – Project Types

In general terms, there are three types of enhancement/restoration projects that are being discussed and evaluated for this report:

1. Removal of sediment that has accumulated in an open water body or behind an impoundment/dam.
2. Improving the tidal exchange/hydraulic connection of coastal waters by increasing the size and/or depth of a channel or culvert.
3. Changing the physical characteristics of an existing wetland resource area (active, fallow or abandoned cranberry bog) and enhancing the water quality capabilities by creating a diverse wetland system (deep water, submerged and emergent wetland system(s)).

For the purposes of this review and analysis, altering “natural wetland systems” is not being considered. State and federal agency staff indicated that altering “natural wetland systems” would be extremely difficult to permit and would likely require regulatory changes and/or a long drawn out process, with low probability of success.

4. Regulatory Framework

Massachusetts' laws and regulations protecting wetlands are well established and among the most protective in the country. In evaluating the existing regulatory framework it is important to note the coordinating structure that has been established between local, county, state and federal resource protection agencies, is built on state law – specifically the Massachusetts Wetlands Protection Act (WPA) and the Massachusetts Environmental Policy Act (MEPA). Substantial efforts have been made to coordinate both jurisdictional boundaries of authority and performance standards for reviewing and permitting projects between and among the array of public agencies with primary responsibilities for review and protection of wetlands (see appendix A). This report contains a discussion of the existing regulatory framework for wetlands enhancement or restoration projects at the local, state and federal levels, with particular attention on three processes/programs – MEPA (301 CMR 1.00); WPA (310 CMR 10.00); and Section 404 of the Federal Clean Water Act (404 Program), with primary responsibility for administration delegated to the Army Corps of Engineers (Massachusetts Programmatic General Permit (PGP)).

Evidence of the coordination between and among different regulatory programs is evidenced by the Army Corps' PGP, which relies on MassDEP's longstanding review process and performance standards that are initially implemented by local Conservation Commissions. Additionally, the Cape Cod Commission's reliance on the MEPA regulations and process for reviewing certain types of projects, which include the range of enhancement and restoration activities being contemplated by the Cape Cod Water Protection Collaborative. Because of all the background work that has been accomplished to document the water quality problems in the estuaries and local receiving waters, combined with the well integrated programs that have jurisdiction over work that impacts wetlands, the current climate is favorable for reviewing and permitting enhancement/restoration projects under the existing regulatory framework. It is important to emphasize that, in order to be successful, enhancement/restoration projects must be part of a broader effort to address nutrient loading and the degradation of local water resources.

In virtually all of the discussions and meetings that have been held to introduce key agency decision makers to using enhanced/restored wetland systems to increase nitrogen attenuation, three key issues surfaced – 1) the importance of picking the "right" projects to advance the discussion and permitting reviews, 2) having the project proponent or sponsor to be a public entity and 3) defining the project purpose appropriately (e.g. wetlands restoration or enhancement to improve water quality) and ensure that enhancement/restoration is part of a broader approach to deal with water quality degradation and wastewater management.

Advancing the “right project(s)" goes to the larger issue of demonstrating the benefits of enhancement/restoration **and** avoiding a specific project that contains a “fatal flaw”. Examples of a project that could contain a “fatal flaw” are projects that would negatively impact an area with regional or statewide historical significance, or a project that resulted in negative impacts to plant or animal species contained on the Natural Heritage and Endangered Species Program (NHESP) list of Rare, Threatened or Endangered Species. Screening projects for “fatal flaws” will be an important step in determining which project(s) to advance.

State regulatory agencies have signaled that enhancement/restoration projects, that do not contain “fatal flaws”, would be eligible to be permitted, without regulatory or statutory changes. The underlying assumption being that these projects could be permitted under the “resource improvement” provisions in the WPA regulations, commonly referred to as “limited projects”, and the corollary provisions of the 401 Water quality Certification Program (314 CMR 9.00). Specifically “resource improvement” projects (310 CMR 10.53(4)):

> *(4) Notwithstanding the provisions of 310 CMR 10.54 through 10.58, the issuing authority may issue an Order of Conditions for projects which will improve the natural capacity of a resource area(s) to protect the interests identified in M.G.L. c. 131, § 40 (although no such project may be permitted which will have any adverse effect on specified wildlife habitat sites of rare vertebrate or invertebrate species as identified by procedures established under 310 CMR 10.59).Such projects include, but are not limited to, the removal of aquatic nuisance vegetation to retard pond and lake eutrophication and the thinning or planting of vegetation to improve habitat value.*

A. MEPA Process

The MEPA process can serve as the clearing house and focal point for reviewing and discussing large and/or complicated projects between and among all review agencies (local, county, state and federal). And other interested parties. Recently, MEPA has convened work groups and served to coordinate environmental reviews across jurisdictions. In recent discussions with MEPA, they have offered to play this role with enhancement/restoration projects. The MEPA regulations also allow the Secretary to establish a “Special Review Procedure” for certain types of projects, allowing the Secretary to tailor the review process and establish a Citizens Advisory Committee (CAC). Given the scope and breadth of water quality degradation and the purpose of the enhancement/restoration projects, the MEPA process can assist in bringing all interested parties, particularly the federal agencies, together in a timely fashion,

which would build support for these project(s). In part, the pertinent sections of the MEPA “Special Review Procedures” are:

Section 11.09: Special Review Procedures

(1) General.

With the consent of the Proponent, and after consulting with any Participating Agency, the Secretary may establish a Special Review Procedure for a Project, notwithstanding the other provisions of 301 CMR 11.00. Among other things, a Special Review Procedure may provide for: review documents other than ENFs and EIRs and other periodic reports to be filed and reviewed; shortened or extended review periods; review of a Project in phases; lapses of time between review documents not requiring a Notice of Project Change; coordination or consolidation of MEPA review with other environmental or development review and permitting processes; and establishment of a CAC. The final review document called for in a Special Review Procedure shall be considered a final EIR. A Special Review Procedure may be appropriate, for example, for reviewing a proposed program, regulations, policy, or other Project in which there is more than one Proponent or more than one Participating Agency with a significant role, or a Project that is undefined or is expected to evolve during MEPA review, or a Project that may benefit the environment if there is early Commencement of a portion of the Project. The Secretary may establish a Special Review Procedure for a Project regardless of its size or complexity.

(2) Establishment.

The Proponent shall ordinarily request a Special Review Procedure prior to or when filing the ENF. In the certificate establishing the Special Review Procedure, the Secretary shall find that a Special Review Procedure shall serve the purposes of MEPA, including providing meaningful opportunities for public review, analysis of alternatives, and consideration of cumulative environmental impacts. The Proponent may file a Notice of Project Change after the Secretary's decision on the ENF to request a Special Review Procedure or to modify a previously established Special Review Procedure. The Secretary shall publish notice in the Environmental Monitor of: the establishment of a Special Review Procedure; any modification of a Special Review Procedure; the establishment of a CAC; significant events in a Special Review Procedure including meetings of the CAC; and the availability of review documents called for in a Special Review Procedure.

(3) Citizens Advisory Committee.

When establishing or modifying a Special Review Procedure, the Secretary shall ordinarily (in the case of a Project undertaken by an Agency) or may (in the case of a Project undertaken by a Person) establish a CAC to assist in reviewing the Project.

- *(a) Membership of CAC. The CAC shall ordinarily consist of at least ten Persons appointed by the Secretary. The Secretary shall solicit nominations for the CAC when announcing its establishment or modification in the Environmental Monitor from those individuals and entities whose interests are affected by the Project, including any neighbor, neighborhood association, ad-hoc committee, business or non-profit organization, Agency, Federal, municipal, or regional governmental entity, or other organization. The Proponent shall be entitled to one representative on the CAC. The membership of the CAC shall be diverse in affiliation and experience and fairly represent a range of viewpoints.*
- *(b) Role of CAC During Special Review Procedure. The CAC shall ordinarily participate in the Special Review Procedure by advising in the Secretary's establishment of the Special Review Procedure and review of review documents called for in the Special Review Procedure, and in the Proponent's review of detailed scopes of service for the consultant and preliminary review of the consultant work product.*
- *(c) Meetings of CAC. The CAC shall establish its own schedule of meetings. The CAC may establish working groups on particular aspects of the Project or issues within the Scope. The CAC shall be entitled to meet monthly with the Proponent and its consultants and shall be kept informed of progress on any review document called for in the Special Review Procedure. The CAC may direct questions concerning the Special Review Procedure to the Proponent or the Secretary.*
- *(d) Staff for CAC. The Secretary may require the Proponent to provide staff support to the CAC such as secretarial services, keeping of minutes, mailings, and arrangement of meetings. In the case of a Project undertaken by an Agency, the Secretary may require the Proponent to transfer funds to assist the Secretary in maintaining the CAC.*
- *(e) Document Review by CAC. The Proponent shall ordinarily submit a draft of any review document called for in the Special Review Procedure to the CAC at least one month prior to filing the review document with the Secretary. The CAC may suggest changes or additions to the review document prior to the Proponent filing the review document with the Secretary. The CAC may file its comments with the Secretary prior to or when the Proponent files the review document with the Secretary. The CAC shall present a consensus in its comments to the extent to which its members have reached a consensus, although it may present the diverse views of its members when consensus has not or cannot be attained. The Proponent shall distribute any comments of the CAC or its members with the filed review document, provided that the CAC or its members file the comments with the Secretary prior to the Secretary publishing notice of the availability of the filed review document in the Environmental Monitor.*

- *(f) Role of CAC After Special Review Procedure. After the Proponent files the final review document called for in the Special Review Procedure, the CAC may consult with the Secretary and the Proponent to determine whether it shall have any role in any future actions on the Project.*

(4) Eligible Projects.

- *(a) Programmatic Review. The Secretary may establish a Special Review Procedure on the implementation of a program, the promulgation of new or revised regulations, or the development of a policy. Programmatic Review may be appropriate, for example, if the cumulative environmental impacts of Projects requiring individual Agency Actions taken in accordance with the program, regulations or policy may not otherwise be subject to adequate MEPA review or may have similar environmental impacts such that a common assessment may be necessary or appropriate. Programmatic Review shall be designed to assist an Agency in fulfilling its obligations in accordance with M.G.L. c. 30, section 61 and 301 CMR 11.12(1) to review periodically, to evaluate, and to determine the potential significant environmental impacts of its implementation of its programs, regulations, and policies.*
- *(b) Area-Wide Review. The Secretary may establish a Special Review Procedure if a Project may affect a large area or several sites. Area-Wide Review may be appropriate, for example, for master plan areas, watersheds and other ecosystems, roadway and utility corridors, redevelopment areas, major public facilities, or large developments to be constructed in phases. Area-Wide Review shall be designed to assist a Proponent in establishing a future baseline in relation to which a Project and its alternatives can be described and analyzed and its potential environmental impacts and mitigation measures can be assessed.*
- *(c) Coordinated Review. The Secretary may establish a Special Review Procedure for a Project to coordinate or consolidate MEPA review with other environmental or development review and permitting processes conducted by any Agency or Federal, municipal, or regional governmental entity. Coordinated Review may be appropriate, for example, if there is a comprehensive review or permitting process by a Federal, municipal, or regional governmental entity that provides meaningful opportunities for public review, analyzes alternatives, and considers cumulative impacts. Coordinated Review shall be designed to assist the Secretary in adopting scoping decisions by the Agency or entity, deferring to its scoping decisions, issuing joint scoping decisions or accepting a review document prepared in accordance with the statutes and regulations of the Agency or entity as the full or partial equivalent of an ENF, EIR, or other review document.*

- *(d) <u>Other Special Review.</u> The Secretary may establish a Special Review Procedure for any other Project.*

B. Federal Review - Army Corps of Engineers (Army Corps)

The Federal 404 Program will become more difficult if the Army Corps, in consultation with the cooperating resource agencies[1], determine that enhancement/restoration projects are not eligible for Category 2 screening pursuant to the PGP. The pertinent provisions of the PGP are:

Category 2 *- Aquatic habitat restoration, establishment, and enhancement of tidal wetlands and riparian areas provided those activities result in net increases in aquatic resource functions and services.9*

> ***9 Aquatic Habitat Restoration, Establishment and Enhancement:*** *The Corps will decide if a project qualifies and must determine in consultation with Federal and State agencies that the net effects are beneficial. The Corps may reference Nationwide Permit 27 published in the 3/12/07 Federal Register. Activities authorized here may include, but are not limited to: the removal of accumulated sediments; the installation, removal, and maintenance of small water control structures, dikes, and berms; the installation of current deflectors; the enhancement, restoration, or establishment of riffle and pool stream structure; the placement of in-stream habitat structures; modifications of the stream bed and/or banks to restore or establish stream meanders; the backfilling of artificial channels and drainage ditches; the removal of existing drainage structures; the construction of small nesting islands in inland waters**;** the construction of open water areas; the construction of native shellfish species habitat over unvegetated bottom for the purpose of habitat protection or restoration in tidal waters; shellfish seeding; activities needed to reestablish vegetation, including plowing or discing for seed bed preparation and the planting of appropriate wetland species; mechanized land clearing to remove non-native invasive, exotic, or nuisance vegetation; and other related activities. Only native plant species should be planted at the site.*

Enhancement/restoration projects that propose to remove accumulated sediment or increase tidal exchange (types 1 & 2 above) will clearly fall under the PGP

[1] EPA, US Fish & Wildlife Service, NRCS, NOAA

Category 2 provisions. However, if enhancing/restoring cranberry bog systems is considered to fall outside of the PGP Category provisions, an individual permit would be triggered, which would most likely trigger an individual Environmental Impact Statement (EIS), which is governed by the National Environmental Policy Act (NEPA). If an EIS is triggered, the project costs and timeframe would likely render the project(s) moot. Therefore, it is absolutely essential to work with all regulatory agencies proactively and to ensure that the project(s) are eligible for a Category 2 project under the PGP.

4. Options for Proceeding

Depending on the number, type and scope of proposed projects, the options for proceeding are many. Outlined below are a few of the likely scenarios for moving enhancement/restoration projects forward. There are three primary variables when considering the options for advancing the project(s) a) who the project proponent will be, b) the "type" of enhancement/restoration project, and c) whether projects are filed separately or combined as a group of projects. Outlined below are some potential options for initiating project reviews. For each of these options the project proponent could be 1) a municipality or municipalities, 2) an individual property owner, 3) the County, or 4) a state or federal agency as the project "sponsor".

- File each project as an individual project. Filing under MEPA either as a Special Project Review or through the routine MEPA process. Proceed with MEPA and individual permitting processes either sequentially or concurrently.
- Combine two or more projects and file under MEPA either as a Special Project Review or through the routine MEPA process. Proceed with MEPA and individual permitting processes either sequentially or concurrently.
- File two or more projects separately at the same time, moving through the MEPA and permit review processes concurrently.

5. Recommendations

Based on the merits of the proposed projects, the public and environmental benefits of enhancement/restoration, and discussions with county, state and federal officials, outlined below is the recommended pathway for proceeding with enhancement/restoration projects. In addition to the regulatory strategy, there are several other important options/actions to consider, advancing these projects and exploring funding options as part of a larger effort to reduce water quality impacts

and develop a comprehensive plan to address nutrient loading and wastewater management planning on Cape Cod.

- Either the County or a municipality should be the project proponent. The County and municipalities could also be co-applicants. It is important to have a regional and/or local public entity be leading the project.
- The project purpose should be carefully crafted to ensure eligibility with state and federal regulations, allowing agencies to exercise discretion to approve projects that restore or improve wetland functions and values.
- Carefully screen three projects, one from each enhancement/restoration type (sediment removal, improved tidal flushing and restoring cranberry bog system to an improved wetland system) and advance them as one project. Combine these three projects under one filing and request the Secretary to establish a Special Review Procedure under MEPA. Part of the request to the Secretary should be to reduce time periods and have MEPA serve as the focal coordination point for County, State and Federal review.
- During the project screening process, continue discussions and coordination with state and federal agencies to explore funding options for the project. State or federal funding assistance may be available through one or more sources including, MassDEP 604(3) (B) grant program, State Revolving Loan program for comprehensive wastewater planning and implementation.
- After a decision has been made on which projects to advance, filing the preliminary phase of the MEPA process (an ENF or an Expanded ENF) should be done as soon as possible. Because several municipalities could potentially be affected and benefit from the results of this process, the County would be a logical project facilitator and project proponent for this phase of the project.
- Barnstable County should be the sponsor and coordinating entity for the first phase of the MEPA process – establishing the “Special Review Process” and filing the ENF. This would assist towns by establishing the review procedures and by the Secretary establishing an EIR “scope” for individual projects. Thus, allowing individual towns to evaluate the benefits, timing and costs associated with individual EIRs.

6. Conclusion

Local, county, state and federal agencies are acutely aware of the land use, water quality and wastewater management challenges on Cape Cod. As a result of the documentation and modeling efforts that have been completed in recent

years, regulatory agencies are looking for innovating and creative ways to improve water quality. Enhancement/restoration of wetlands systems is a creative way to significantly improve water quality and as such the regulatory agencies are receptive to exercising flexibility to improve water quality conditions. Picking the “right projects” to advance this effort is essential.

Appendix A

Regulatory Matrix

Issue	Applicable Laws	Regulations	Agencies (see legend)
Federal Wetlands & Waters	Federal Clean Water Act, Section 404 Rivers & Harbors Act of 1899 Sections 9 & 10	33 CFR Parts 320-332, Massachusetts Programmatic Permit	Army Corps & Resource Agencies – EPA, USFWS, NOAA, NRCS
Areas of Critical Environmental Concern	MGL c. 21A s. 2(7); St. 1974, c. 806 s. 40(e)	301 CMR 12.00	DCR
Archeology	MGL c. 9 s. 26 to 27C	950 CMR 70.00	MHC
Coastal Development or Use	MGL c. 91; MGL c. 6A s. 2-7 MGL c. 21A, s. 4A	310 CMR 9.00; 301 CMR 20.00 to 24.00	DEP CZM
Dredging and Filling (Wetlands and Waterways)	MGL c. 21 s. 26-35	310 CMR 9.00	DEP
Endangered Species (Natural Heritage Program)	MGL c. 131 s. 23	321 CMR 10.00	DFG
Environmental Notification Forms/Impact Reports	MGL c. 30 s. 61-62H (Mass. Environmental Policy Act [MEPA])	301 CMR 11.00	EOEEA
Historic Preservation	MGL c. 9 s. 26-27C	950 CMR 71.00	MHC
Marine Fisheries	MGL c. 130 (many sections)	322 CMR 1.00 to 12.00	DFG
Water Pollution Control	MGL c. 21 s. 26-53 (Mass. Clean Waters Act)	257CMR 2.00 314 CMR 1.00 - 15.00 314 CMR 4.00 314 CMR 9.00	DEP

Waterways Licensing	MGL c. 91 (Public Waterfront Act)	310 CMR 9.00	DEP
Wetlands	MGL c. 131 s. 40 (Wetlands Protection Act) MGL c. 258, Acts of 1996 (Rivers Protection Act)	310 CMR 10.00 310 CMR 12.00 310 CMR 13.00 310 CMR 23.00	DEP, CC

Matrix Legend:
MGL= Massachusetts General Laws
St.= Statute of the Acts & Resolves
c.= Chapter
s.= Section
CMR= Code of Massachusetts Regulations
CC= Municipal Conservation Commission
CZM= Office of Coastal Zone Management
DAR= Department of Agricultural Resources
DCR= Department of Conservation & Recreation
DEP= Department of Environmental Protection
DFG= Department of Fish & Game
DPH= Department of Public Health
DPS= Department of Public Safety
EOEEA= Executive Office of Energy & Environmental Affairs
MHC= Massachusetts Historical Commission

Army Corps = Army Corps of Engineers

EPA = Environmental Protection Agency

USFWS = United States fish & Wildlife Service

NOAA = National Oceanic & Atmospheric Administration

NRCS = Natural Resource Conservation Service

Appendix B

Agency Contact Information

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