

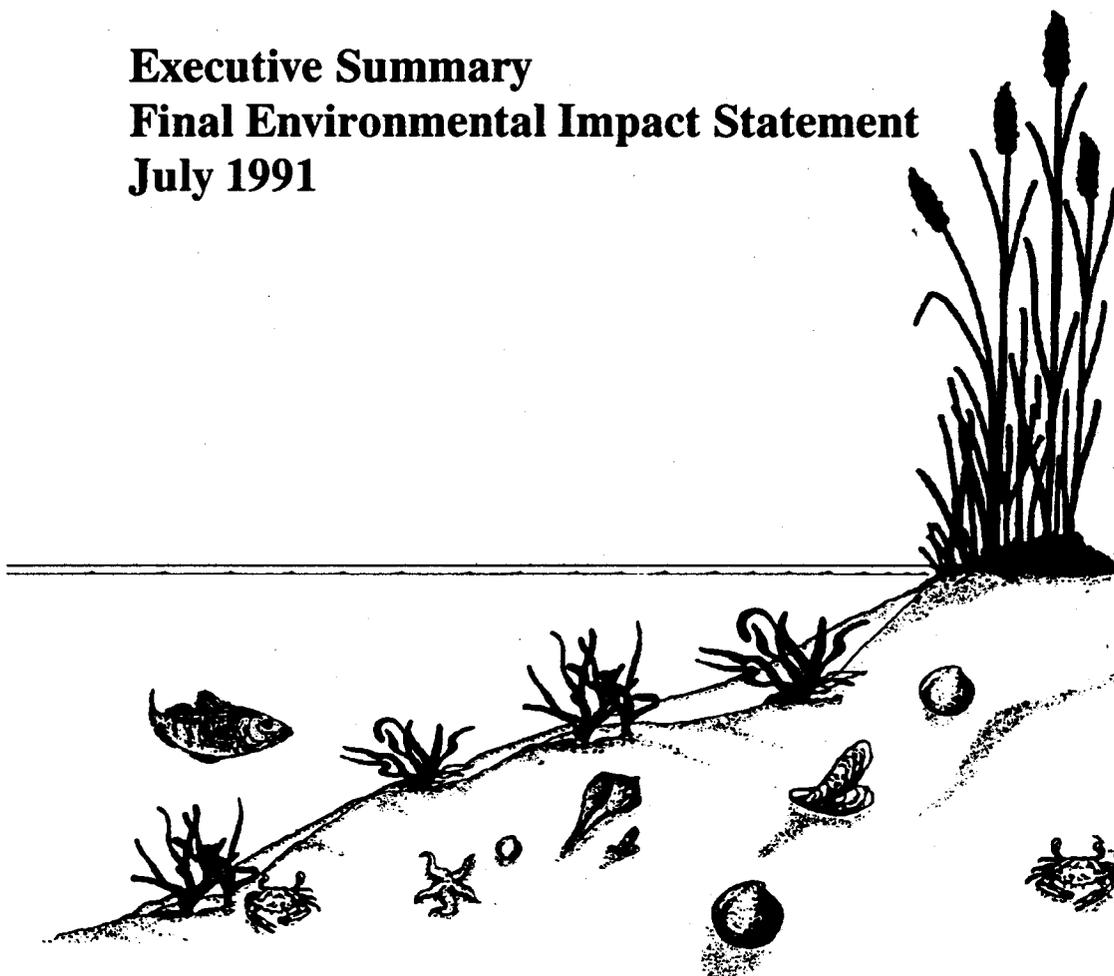


United States
Environmental Protection
Agency

Region I
JFK Federal Building
Boston, MA 02203

Wastewater Treatment Facilities for the City of New Bedford, MA

Executive Summary
Final Environmental Impact Statement
July 1991





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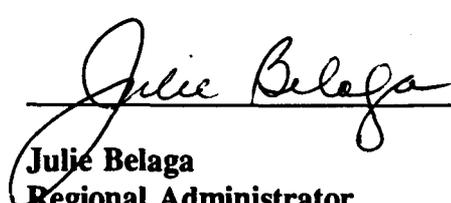
Wastewater Treatment Facilities for the City of New Bedford, MA

Prepared By:

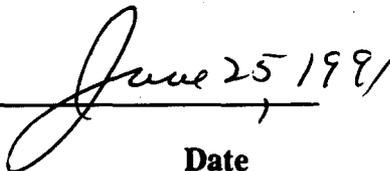
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Date



EXECUTIVE SUMMARY

Background and Purpose

This Final Environmental Impact Statement (Final EIS) is the second of two documents that constitute an analysis by the Environmental Protection Agency (EPA) of the City of New Bedford's (City's) proposed plan to construct secondary wastewater treatment facilities to bring the City into compliance with applicable state and federal wastewater treatment requirements. In 1987, the United States, the Commonwealth of Massachusetts, and the Conservation Law Foundation sued the City of New Bedford for violations of federal and state water pollution laws. In settlement of the suit, the City signed a consent decree that contains, among other provisions, a federal-court-enforceable schedule for the City to make interim improvements to its existing primary treatment facility, and to construct secondary wastewater treatment facilities to bring the City into compliance with the Clean Water Act. The purpose of both the first document of EPA's analysis, the Draft EIS, and this Final EIS is twofold: 1) to ensure compliance with the provisions of the National Environmental Policy Act (NEPA) and the Clean Water Act; and 2) to provide an independent review and assessment of all project information submitted by the City in its Secondary Wastewater Treatment Facilities Plan/Environmental Impact Report (FP/EIR).

The Draft EIS, which remains as a stand-alone document, focused on selecting suitable locations and appropriate technologies for the construction and operation of secondary wastewater treatment facilities and presenting the environmental impact information needed to evaluate potential alternatives for the facilities. The three components of the City's facilities plan are: 1) secondary wastewater treatment plant siting, construction, and operation, 2) sludge treatment and disposal, and 3) effluent discharge and outfall siting.

Several acceptable alternatives were presented in the Draft EIS, which was released in November, 1989. These included a WWTP at either Site 1A or 4A, use of chemically fixed sludge as cover material at the proposed Crapo Hill landfill with a five-year backup landfill at either Site 47 or Site 40 (the latter contingent upon overcoming site acquisition obstacles and the landfill layout avoiding the potential public water supply Zone II boundary), and the effluent outfall at the 301(h) site. The location of these sites is shown in Figure 1.

The City chose as its recommended plan a combination of secondary wastewater treatment at Site 1A, effluent discharge through the existing outfall pipe (after rehabilitation) at the existing outfall site, and sludge dewatering and chemical fixation at the WWTP site with use of the chemically fixed sludge as daily cover material at the proposed Crapo Hill landfill, with a backup initial-phase landfill at Site 47. The only component of the City's proposed plan that was not acceptable to EPA (assuming the recommended mitigation measures are taken) was the outfall site.

Issuance of the Draft EIS was followed by a period during which both government agencies and the general public were invited to comment on the document. A public hearing was also

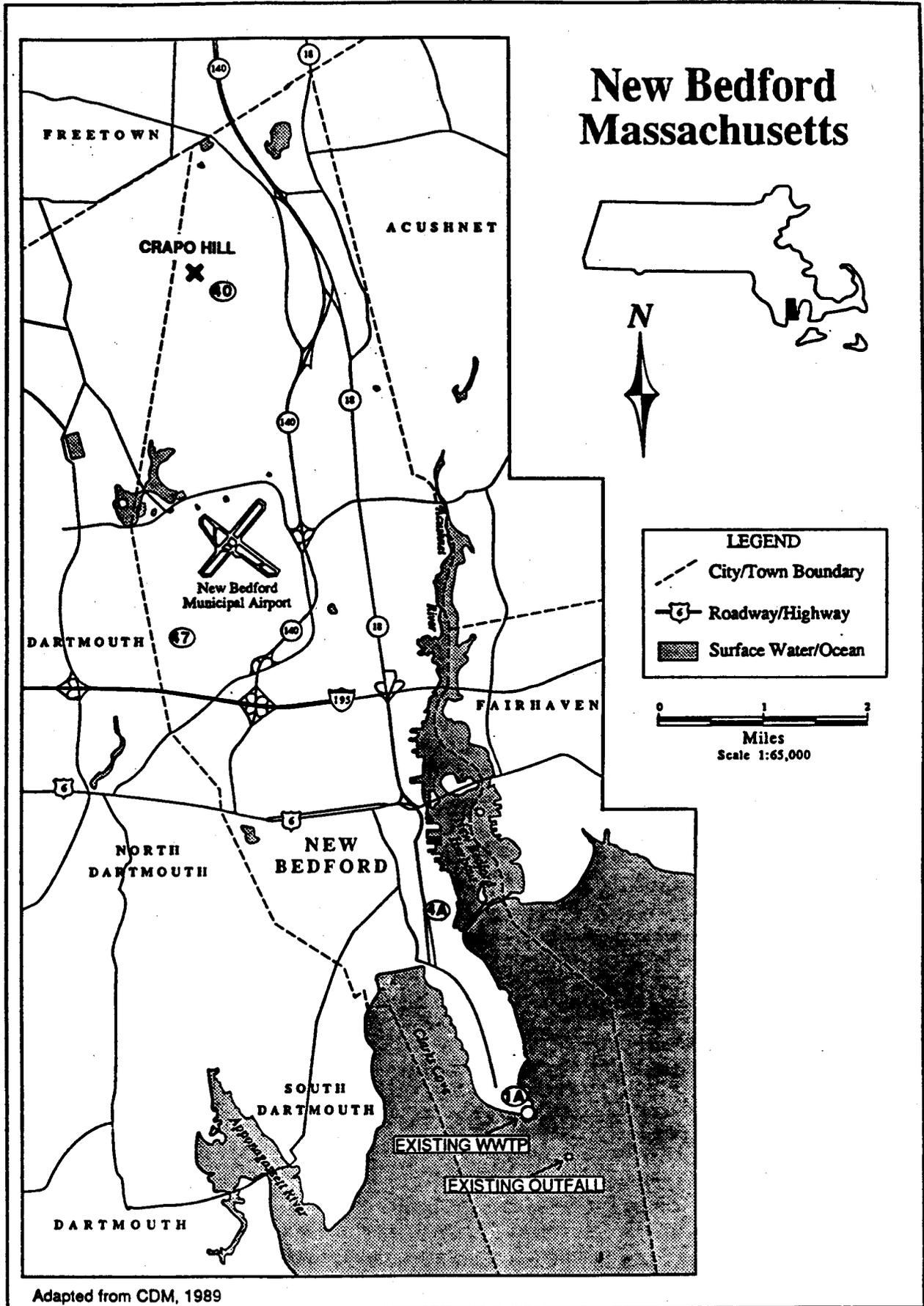


Figure 1. New Bedford Area Showing Sites 40, 47, 4A, 1A, and Crapo Hill

held during that period to solicit comments on the draft document. This Final EIS presents and responds to those comments; it also contains a review and evaluation of modifications to the City's recommended plan, and new information that has become available since the release of the Draft EIS. Additional analysis of the issues that were of greatest concern to EPA and the commentors has also been performed and the results are contained herein.

The Draft EIS is not reproduced in this document, but modifications of and additions to it are contained in the Final EIS as necessary. A reexamination of the conclusions and recommendations made by EPA in the Draft EIS is presented in this document, taking into account public and agency comments and the technical information and modification generated since the release of the Draft EIS. Additional recommendations and mitigation measures are proposed as necessary.

Modifications to the Proposed Action

The following discussion summarizes modifications to the City's original recommended plan and new information that has become available since the release of the Draft EIS. The modifications summarized herein are from the City's Supplemental Final FP/EIR (CDM, Volume VII, 1990). Supplemental facilities planning was undertaken by the City after revisions that were made to some of the recommendations from the Final FP/EIR were deemed unacceptable by EPA and other reviewing agencies and not in compliance with the Massachusetts Environmental Policy Act (MEPA) (March 5, 1990 MEPA certificate).

Secondary wastewater treatment plant

The space previously allocated for future use of a combined sewer overflow (CSO) treatment facility is no longer required. A Draft CSO Facilities Plan, completed on October 1, 1989, did not recommend a separate CSO treatment facility at Fort Rodman. The Draft CSO Facilities Plan recommended storing combined sewerage during storm events, and pumping the stored flow back to the plant as soon as the wet weather flows subside. The Final CSO Facilities Plan (CDM, 1991) recommends that only the CSOs in Clarks Cove (Groups 1 and 2) would be stored during storm events and pumped back to the plant as soon as the wet weather flows subside; the remainder of the CSOs (Groups 3 to 6) will be separated.

A series of cost-saving measures resulting from a value engineering analysis were recommended by the City in the Final FP/EIR, submitted after EPA's Draft EIS. Most of those measures were rejected by EPA and other reviewing agencies. As a result, the City restored the mitigation measures provided in the City's original recommended plan (i.e., Draft FP/EIR), with the exception that educational and day care programs which were originally to have been relocated to new facilities at the former "Poor Farm," will instead be moved to other suitable locations in the City in efforts to reduce the financial impact of relocating those programs.

Collection system modifications

Recommendations made in the Draft FP/EIR for the collection system were modified in the Final FP/EIR in January 1990. The modifications to the existing wastewater conveyance system can be divided into three categories:

- Site-specific modifications required to deliver wastewater and to convey treated effluent to specific WWTP sites
- Upgrades and replacements associated with the existing conveyance system that are needed regardless of WWTP site
- Extension to the existing conveyance system to serve unsewered areas of New Bedford

Sludge management strategy

Due to of uncertainties regarding the use of the Crapo Hill landfill for disposing of chemically fixed sludge as daily cover, the City has initiated supplemental sludge management facilities planning. The purpose of the Supplemental Sludge Management FP/EIR is to develop an alternative 20-year sludge management plan and identify alternative sites and technologies (including volume reduction and reuse options) that could meet the City's disposal requirements in the event that the recommended plan proves infeasible.

The precise wetlands delineations at Site 47 performed for the City by Normandeau Associates in July 1990, which was confirmed by the U.S. Army Corps of Engineers, indicated some potential wetlands areas along the proposed golf course access road. The western edge of the golf course, just beyond the fairways, is close to extensive areas of wetlands vegetation supported by poorly drained soil. The preferred alternative for accessing the site is to construct a pile-supported access road between Shawmut Avenue and the site. This alternative route would also parallel the railroad. The portion of the road located within wetlands (approximately 67 percent) would be constructed on timber pilings in order to avoid filling any wetland areas. To minimize construction impacts in the wetlands, the bridge would be constructed in stages, with the construction equipment for each stage located on the previously constructed bridge segment.

Expanded Technical Evaluations

Secondary effluent discharge

EPA and the Massachusetts Department of Environmental Protection (DEP) requested additional water quality monitoring in Buzzards Bay during the Summer of 1990 (July through September) in order to better predict the relative impacts of the two proposed outfall locations on dissolved oxygen and nutrient levels. EPA's assessment of the results of the 1990 monitoring is presented in Chapter Two of the Final EIS. As part of the evaluation of new data, EPA examined the issues of nitrogen saturation at the existing site, the contribution of biological oxygen demand and nitrogen from other sources, and possible double accounting of sources. Predicted "average" and "worse-case" conditions were used to model expected water column dissolved oxygen concentration depression under various effluent discharge scenarios. The technical evaluation in Chapter Two supports EPA's final recommendations presented in this Executive Summary.

Comments on the Draft EIS

After the release of the Draft EIS, EPA held a public hearing and distributed notice of the document's availability to an extensive mailing list, and provided copies to several public repositories in order to allow for public and agency review. A number of comment letters were received from federal and state agencies, local officials, and the general public. These comments addressed various aspects of the Draft EIS, including its technical scope and adequacy, the alternatives considered, the analyses conducted, the decision-making methodology, and the recommendations made. The majority of comments received concerned the following issues: air quality, odors, and noise; ecology; land-use conflicts; socioeconomic impacts; transportation and traffic impacts (particularly at Site 1A); adherence to state and federal policies and regulations; water quality and resources; proposed technology and design; and potential for impacts to cultural and historic resources. A list of issues was developed from the comment letters and each issue is addressed in the Final EIS.

Acceptability of the City's Recommended Plan

Final EIS recommendations for management options and mitigation measures

Table 1 summarizes EPA's recommendations for the three primary components of the facilities plan: 1) secondary wastewater treatment plant siting, construction, and operation, 2) sludge treatment and disposal, and 3) effluent discharge and outfall siting. A discussion of environmental impacts, recommended management options, and required mitigation measures is presented for each component of the plan.

Table 1. Acceptable Management Options

Secondary WWTP	Solid Disposal	Effluent Outfall
Site 1A*	Crapo Hill*	301(h) Site with Diffuser*
Site 4A	Site 47 (Initial Phase)* Site 40	Existing Site with Diffuser

* Indicates EPA's preferred alternative. For solids disposal, the preferred alternative is chemically fixed sludge to Crapo Hill Landfill, with backup landfill capacity at Site 47 for disposal of either chemically fixed or lime-stabilized sludge.

Secondary wastewater treatment plant

The recommended management option for WWTP siting is the Fort Rodman site, Site 1A. In the Draft EIS, EPA had deemed both Sites 1A and 4A (the Standard-Times Field site) as environmentally acceptable. Although EPA still considers Site 4A environmentally acceptable for WWTP siting, the New Bedford City Council voted (May 1990) to select Site 1A for locating the proposed WWTP. Because the City's preferred site, Site 1A, is environmentally acceptable to EPA, EPA's final recommendations and mitigation plans are presented for Site 1A only.

EPA has reviewed and concurs with the City's plan for WWTP construction at Site 1A as described in the Supplemental Final FP/EIR provided that the required mitigation measures are implemented. Mitigation includes efforts to preserve historical structures (through layout modification or relocation), or to record data from these structures. Because the site provides little opportunity for major changes to the plant layout, it is anticipated that the focus of the mitigation efforts will be on data recovery before the structures are removed. Overall, it is expected that Taber Park and the proposed enhancement of the existing historic district will be an improvement over current site conditions. The Taber Park design will incorporate historic uses to the fullest extent possible. Specific mitigation measures will be developed as part of the consultation process under Section 106 of the National Historic Preservation Act. Discussions regarding mitigation have been initiated between the Massachusetts Historical Commission (MHC), the City, EPA, and other regulatory agencies.

Sludge treatment and disposal

The recommended management option for sludge disposal is to reuse chemically fixed sludge as daily cover material at the proposed Crapo Hill landfill with a 5-year backup sludge-only landfill at Site 47. In the Draft EIS, EPA had deemed chemical fixation an acceptable sludge treatment technology and both Sites 47 and 40 environmentally acceptable sites for a 5-year backup landfill. Although EPA still considers Site 40 environmentally acceptable for landfill siting (contingent upon overcoming site acquisition obstacles and the landfill layout avoiding the potential public water supply Zone II boundary), because the City's preferred site, Site 47, is environmentally acceptable to EPA, EPA's final recommendations and mitigation plans are presented for Site 47 only.

EPA acknowledges that odor problems with chemically fixed sludge have been encountered in isolated instances using one of the patented processes (ChemFix™), and that these problems have been associated with conditions under which the sludge has been treated. However, it is expected that these problems can be readily addressed by standard mitigation measures. EPA's continued approval of this form of treatment is contingent upon implementation of any necessary mitigation to preclude detectable odors from the treated sludge. Should it be determined that mitigation is not possible, or not adequate to ensure the goal of no detectable odors, the City will have to address this issue in its Supplemental Sludge Management FP/EIR.

The City plans to construct a backup sludge-only landfill and access road (with a goal of no wetlands impact) at Site 47. In order to avoid impacting wetlands, the landfill option recommended for Site 47 is a 5-year, rather than a 20-year landfill. The 5-year capacity will provide an environmentally acceptable alternative for temporary use should the Crapo Hill landfill not obtain the Proposition 2-1/2 override required for its construction. EPA concurs with the City's sludge management strategy outlined previously in this Executive Summary. Should alternative management options for sludge disposal become necessary, EPA will review and assess the alternatives as appropriate under NEPA. If necessary under 40 CFR §1502.9(c), a Supplemental Final EIS addressing alternative sludge management options will be prepared.

The recommendation of Site 47 for a backup sludge-only landfill with a 5-year capacity includes some mitigation. The more precise wetlands delineations performed for the City by Normandeau Associates in July 1990, and confirmed by the U.S. Army Corps of Engineers, indicated some potential wetlands areas along the proposed golf course access road. The western edge of the golf course, just beyond the fairways, is close to extensive areas of wetlands vegetation supported by poorly drained soil. To address this problem, the City has recently proposed to construct an access bridge that would avoid impacts to existing wetlands. Although it adds to the cost of the facilities plan, EPA recommends this design as it is protective of existing wetlands at Site 47.

Construction of a landfill at Site 47 will avoid any areas within the 100-year floodplain. The delineation of this line was reconfirmed through further analyses of potential flooding within the local drainage basin. Potential groundwater contamination from the solids disposal landfill is considered a significant issue. Site 47 was selected in part because of lack of potential groundwater sources in the area, and hence, the low potential for impact of aquifer water supplies. The City's proposed landfill design (CDM, Volume V, 1990) incorporates a leachate collection system and surface water sediment control features that should protect adjacent wetlands from long-term hydrologic impacts, and groundwater from potential leaching. A leachate pumping station, consisting of a separate, prefabricated wet well and dry well, will be constructed. The dry well will contain two non-clog sewage pumps with appropriate controls. Leachate will be pumped to a gravity sewer that connects to a sewer along Shawmut Avenue. In order to control transport of eroded soils and solids, sedimentation basins will be constructed in exposed areas of the landfill. All site runoff will pass through a sedimentation basin prior to discharge to adjacent wetlands. In addition, the design of the landfill includes double liners and groundwater monitoring wells to further ensure that the landfill does not release contaminants to the groundwater.

Site 47 contains one small area of archaeological sensitivity and a Phase II detailed investigation was conducted to better define the significance of this area. The report concluded that Site 47 contains no archaeological resources potentially eligible for National Register listing and that no mitigation will be required. MHC has requested additional information from the Boston University Office of Public Archaeology (OPA) before completing its review. If MHC's conclusions are different from the finding of the report,

specific mitigation measures for any anticipated impacts at the proposed landfill site will be developed as part of the consultation process under Section 106 of the National Historic Preservation Act.

Secondary effluent outfall

The City's recommended management option for outfall siting is rehabilitation of the existing outfall at the existing site with no diffuser added. EPA's Draft EIS concluded, however, that the potential environmental impacts resulting from secondary effluent discharge at the existing site would be unacceptable and that only a new outfall and diffuser at the 301(h) site would be environmentally acceptable.

After an extensive technical analysis of supplemental water quality monitoring data collected in Buzzards Bay during the Summer of 1990 (presented in Chapter Two of this Final EIS), EPA still believes that the 301(h) site is the environmentally preferable outfall location, because of its greater dilution capabilities, its greater compliance with water quality criteria, and the potential improvement that would result in dissolved oxygen concentrations near the existing discharge. EPA acknowledges, however, that a discharge at the existing site with a diffuser would also be acceptable, but only if the City can satisfy the regulatory requirements that remain:

- Development of a Use Attainability Study for the purpose of downgrading some defined area of the waterbody from Class SA to Class SB. This would be done to more accurately reflect the uses associated with this waterbody. SA waterbodies have as uses open shellfishing and excellent habitat for marine biota. Neither of these uses will be met in the vicinity of the existing outfall, even with a diffuser.
- Development of an enforceable site-specific DO criterion for some area of water contiguous to the outfall. The current DO standard for SA waters is 6 mg/L; the current standard for SB waters is 5 mg/L. It is predicted that a secondary discharge at the existing site with a diffuser will violate the SA DO standard and the SB DO standard in the bottom waters under critical summer conditions. Under the new Massachusetts water quality standards, a site-specific DO criterion may be developed for bottom waters, provided that the criterion is protective of designated uses.
- Demonstrate a reduction in effluent toxicity such that toxicity will not be predicted to occur outside the mixing zone.

If the City chooses to pursue the alternative consisting of the existing site with a diffuser, EPA would require the City to satisfy the above requirements, to continue their Toxicity

Reduction Evaluation (TRE) and Pretreatment Programs, and to implement a comprehensive monitoring program as a condition of the permit.

In order to determine whether there are any resources (shipwrecks) potentially eligible for the National and State Register of Historic Places that could be affected by outfall renovations (i.e., construction at the 301(h) site or addition of a diffuser to the existing site), an underwater archaeological documentation survey was conducted in the Spring of 1989. The study did not include information on the identity, age, location, integrity, and potential significance of all of the shipwrecks in the area. Only three of the known wrecks in the study area were discussed in that report. Without complete data, MHC has been unable to determine whether or not these resources are potentially eligible for the National and State Register of Historic Places, and whether or not the outfall will affect these resources. If the outfall is moved to the 301(h) site, these resources could be impacted during construction of the new outfall pipe. It is less likely that use of the existing outfall with a diffuser would disturb any archaeological resources because diffuser construction would take place in a previously disturbed area. If the City opts to add a diffuser to the existing outfall rather than moving it to the 301(h) site, it is possible that no mitigation will be required. However, if MHC determines otherwise upon review of the requested supplemental information, mitigation measures will be taken to avoid or minimize any predicted impacts. Any additional action required of the City will be specified in the MOA.

In conclusion, EPA believes that the City of New Bedford, as the entity that will have to build and operate these facilities, should have the primary voice in determining which combination of sites and processes will most optimally serve its needs. Throughout the planning process EPA's role has been to evaluate the City's proposed program and alternatives to it in accordance with NEPA to ensure that the sites and technologies chosen are environmentally acceptable and will result in long term compliance with the Clean Water Act. While EPA continues to support the 301(h) site as the environmentally preferred management option, we find that a secondary discharge at the existing site with a diffuser would also be environmentally acceptable contingent upon the City's ability to satisfy the requirements outlined above.

Though EPA continues to recommend that the outfall be extended to the 301(h) site, we recognize that other wastewater projects will draw heavily upon the City's financial resources. The schedule for construction of the extended outfall (or for the addition of a diffuser to the existing outfall) will be negotiated by EPA, the State, and the City in the context of the federal/state enforcement action. During those negotiations, EPA will consider the City's ability to finance the outfall work in the context of the City's other obligations. Also relevant to the issue of scheduling is the possibility for coordination with Superfund cleanup activities in New Bedford Harbor. EPA's Superfund program had indicated a potential interest in remediating areas south of the hurricane barrier. The timing of any potential remediation plans that could affect outfall construction will be factored into EPA's future negotiations with the City.