

November 15, 2006

Gary Moran
Regional Director
MA Department of Environmental Protection
20 Riverside Drive
Lakeville, MA 02347

Dear Mr. Moran:

BlueWave Capital LLC ("BlueWave") is pleased to submit an application for Water Quality Certification under Section 401 of the Federal Clean Water Act for the proposed Taunton River Watershed Pilot Wetlands Mitigation Bank. The Project is subject to the Water Quality Certification because it will result in the discharge of dredged and fill material and requires a permit under Section 404 of the Federal Clean Water Act. An application for a Section 404 Permit was filed with the U.S. Army Corps of Engineers on November 9, 2006.

Massachusetts Acts Chapter 291, enacted on August 10, 2004, directed the Executive Office of Environmental Affairs to establish a pilot wetlands mitigation bank in the Taunton River Watershed for the purpose of mitigating the wetlands impacts of transportation, other public works projects and projects requiring variances and Orders of Conditions within the Taunton River Watershed. If properly implemented, the wetlands mitigation bank will have numerous benefits including: substantially improved wetlands restoration quality; accelerated bridge replacement and road repair in Southeastern Massachusetts; significant contribution to meeting wetlands permitting requirements for large, public purpose infrastructure projects; enhanced wetlands enforcement activity; and more certain, cost-effective and timely wetlands permitting.

BlueWave hereby consents to any extension of the comment period for this Certification necessary to ensure that the public comment periods on all relevant environmental applications run concurrently. Along with the Section 404 Permit application, an Expanded Environmental Notification Form was filed with MEPA on November 15, 2006 and a Notice of Intent under the Wetlands Protection Act will be filed with the Hanson Conservation Commission on November 27, 2006. A joint public hearing under Section 404 and MEPA will be held on December 14, 2006 at 7 pm at the Hanson Town Hall.

Should you have any questions about this application, please call me at 617-266-0505 ext.205.

Sincerely,



Stephen B. Barrett
Director

Cc: Janine Delaney, Hanson Conservation Commission

Application for a Section 401
Water Quality Certification
Under the Federal Clean Water Act

Pilot Wetlands Mitigation Bank
Taunton River Watershed

Submitted to:
MA Department of Environmental Protection
20 Riverside Drive
Lakeville, MA 02347

Prepared by:
BlueWave Strategies, LLC
137 Newbury Street, 7th floor
Boston, MA 02116

November 15, 2006



Enter your transmittal number

W102852

Transmittal Number

Your unique Transmittal Number can be accessed online: <http://www.mass.gov/dep/counter/trasmfrm.shtml> or call DEP's InfoLine at 617-338-2255 or 800-462-0444 (from 508, 781, and 978 area codes).

Massachusetts Department of Environmental Protection Transmittal Form for Permit Application and Payment

1. Please type or print. A separate Transmittal Form must be completed for each permit application.

2. Make your check payable to the Commonwealth of Massachusetts and mail it with a copy of this form to: DEP, P.O. Box 4062, Boston, MA 02211.

3. Three copies of this form will be needed.

Copy 1 - the original must accompany your permit application. **Copy 2** must accompany your fee payment. **Copy 3** should be retained for your records

4. Both fee-paying and exempt applicants must mail a copy of this transmittal form to:

DEP
P.O. Box 4062
Boston, MA
02211

*** Note:**
For BWSC Permits, enter the LSP.

A. Permit Information

BRP WW 10

1. Permit Code: 7 or 8 character code from permit instructions

Major Project Certification

3. Type of Project or Activity

401 Water Quality Certification for fill and excavation in waters and wetlands

B. Applicant Information – Firm or Individual

BlueWave Capital, LLC

1. Name of Firm - Or, if party needing this approval is an individual enter name below:

2. Last Name of Individual

137 Newbury Street, 7th floor

5. Street Address

Boston

6. City/Town

Stephen Barrett

11. Contact Person

3. First Name of Individual

MA

7. State

02116

8. Zip Code

617-266-0505

9. Telephone #

4. MI

205

10. Ext. #

12. e-mail address (optional)

C. Facility, Site or Individual Requiring Approval

Taunton River Pilot Wetlands Mitigation Bank

1. Name of Facility, Site Or Individual

Off Hawks Avenue

2. Street Address

Hanson

3. City/Town

MA

4. State

02341

5. Zip Code

6. Telephone #

7. Ext. #

8. DEP Facility Number (if Known)

9. Federal I.D. Number (if Known)

10. BWSC Tracking # (if Known)

D. Application Prepared by (if different from Section B)*

1. Name of Firm Or Individual

2. Address

3. City/Town

4. State

5. Zip Code

6. Telephone #

7. Ext. #

8. Contact Person

9. LSP Number (BWSC Permits only)

E. Permit - Project Coordination

1. Is this project subject to MEPA review? yes no
If yes, enter the project's EOE file number - assigned when an Environmental Notification Form is submitted to the MEPA unit:

EOEA File Number

F. Amount Due

DEP Use Only

Permit No:

Rec'd Date:

Reviewer:

Special Provisions:

1. Fee Exempt (city, town or municipal housing authority)(state agency if fee is \$100 or less).
There are no fee exemptions for BWSC permits, regardless of applicant status.
2. Hardship Request - payment extensions according to 310 CMR 4.04(3)(c).
3. Alternative Schedule Project (according to 310 CMR 4.05 and 4.10).
4. Homeowner (according to 310 CMR 4.02).

2910

Check Number

\$400

Dollar Amount

11/15/06

Date

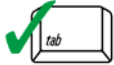


Massachusetts Department of Environmental Protection
 Bureau of Resource Protection – Wetlands and Waterways
BRP WW 10 Major Project Certification
BRP WW 11 Minor Project Certification
 401 water Quality Certification for Fill and excavation
 Projects in waters and Wetlands

W102852
 Transmittal Number #

A. Applicant Information

Important:
 When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



1. Which permit category are you applying for?

BRP WW 10 BRP WW 11

2. Applicant/Owner:

BlueWave Capital, LLC

Name

137 Newbury Street, 7th floor

Address

Boston

City/Town

MA

State

02116

Zip Code

Stephen Barrett

Contact Person

Telephone (home)

617-266-0505 x205

(work)

3. Authorized Agent

Name

Address

City/Town

State

Zip Code

Contact Person

Telephone (home)

(work)



Massachusetts Department of Environmental Protection
 Bureau of Resource Protection – Wetlands and Waterways
BRP WW 10 Major Project Certification
BRP WW 11 Minor Project Certification
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 Projects in waters and Wetlands

W102852
 Transmittal Number #

B. Project Information

1. Project Location:

Hawks Avenue

Address

Hanson

City/Town

MA

State

02341

Zip Code

Burrage Pond

Nearest or Adjacent Waterbody

2. Project Name (if any):

Taunton River Pilot Wetlands Mitigation Bank

3. a. Describe project purpose:

The purpose of the project is to mitigate the wetlands impacts of transportation and other public infrastructure projects and projects requiring wetlands variances and orders of conditions within the Taunton River watershed.

b. Is the project

water-dependent

non water-dependent



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 Transmittal Number #

B. Project Information (cont.)

4. a. provide a brief description of the proposed project (See Application Instructions and include a copy of the Notice of intent, if any.):

Working with the Mitigation Banking Review Team, BlueWave Capital selected the degraded cranberry bogs at the MA Division of Fisheries and Wildlife's 1,700-acre Burrage Pond Wildlife Management Area as the site for the pilot bank. Based on a detailed evaluation of existing site conditions, the pilot bank will enhance 16 acres of disturbed wetlands and create 9 acres of new wetlands from existing upland areas. The Project Team has identified areas for wetland enhancement and creation and has specified wetland type to be mitigated.

b. Notice of Intent File number (if any): _____

5. Identify the loss in square feet of each type of resource area (see Application Instructions for additional information.):

a. Bordering vegetated wetland:	700,700
	square feet
b. Isolated vegetated wetland:	_____
	square feet
c. Land under water:	_____
	square feet
d. Total cumulative loss of a. + b. + c.:	700,700
	square feet
e. Salt marsh:	_____
	square feet

6. a. Will the proposed project occur in any wetlands or waters designated as "Outstanding Resource Waters"?

Yes No

If yes has public notice been published in the Environmental Monitor?

Yes No

11/22/06

Date of Publication

- | | |
|--|---|
| b. Is this project a subdivision or any part of a subdivision? | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| c. Is the project categorically subject to MEPA? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| If yes, has final action been taken? | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |

If yes, please include copy of MEPA certificate.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection – Wetlands and Waterways
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B. Project information (cont.)

7. Alternatives Analysis:

As related to the project purpose, attach a detailed description of alternatives to the proposed project that were considered and why none are available that avoid adverse impacts to wetlands and waters.

If no alternatives are available, describe how the activity will minimize or mitigate the adverse impacts to wetlands and waters.

See application instructions for information required. Attach required documentation.

C. Additional Information

1. Is any of your proposed work exempt from the Massachusetts Wetlands Protection Act or taking place in a federal non-state wetland?

Yes No

If yes, see Application Instructions for additional information needed.

2. Public notice to a newspaper of general circulation within the area of the proposed activity must be published within 10 days of the date of this application. Is proof of public notice submitted?

Yes No

(See Application Instructions for additional information)

D. Certification

Application is hereby made for water quality certification.

"I certify that I am familiar with the work proposed and that to the best of my knowledge and belief the information contained in this application is true, complete, and accurate"

Applicant's Signature

Stephen Barrett

Print name

Agent's Signature

Print Name

11/15/06

Date

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1.0 INTRODUCTION

1.1 Project Purpose

Massachusetts Acts Chapter 291, enacted on August 10, 2004, directed the Executive Office of Environmental Affairs to establish a pilot wetlands mitigation bank in the Taunton River watershed for the purpose of mitigating the wetlands impacts of transportation, other public works projects and projects requiring wetlands variances and orders of conditions within the Taunton River watershed. If properly implemented, the wetlands mitigation bank will have numerous benefits including: substantially improved wetlands restoration quality; accelerated bridge replacement and road repair in Southeastern Massachusetts; significant contribution to meeting wetlands permitting requirements for large, public purpose infrastructure projects; enhanced wetlands enforcement activity; and more certain, cost-effective and timely wetlands permitting.

In spring 2005, the Executive Office of Environmental Affairs selected BlueWave Capital, LLC as the bank's sponsor to assist in the selection of a bank site and to undertake design, permitting, restoration, management, and long-term monitoring of the Taunton River Pilot Bank. Working with the Mitigation Banking Review Team, consisting of federal, state, and local agency and stakeholder representatives, BlueWave Capital selected the degraded cranberry bogs at the MA Division of Fisheries and Wildlife's 1,700-acre Burrage Pond Wildlife Management Area as the site for the pilot bank (see Figure 1). Based on a detailed evaluation of existing site conditions, the pilot bank will enhance 16.2 acres of disturbed wetlands and create 9.3 acres of new wetlands from existing upland areas. While the Project will result in the alteration of 16.2 acres of existing wetland resource area, the work will enhance the natural functions and values of these wetlands that have been degraded through their conversion to cranberry production purposes. The Project will also create 9.3 acres of new wetlands at Burrage Pond, significantly improving the wildlife habitat aspects of the property. The Project Team has identified areas for wetland enhancement and creation and has specified wetland type to be mitigated.

Several regulatory applications are being filed simultaneously to allow for a coordinated public review of the Project. It is being filed with the Massachusetts Secretary of Environmental Affairs under the Massachusetts Environmental Policy Act (MEPA) as an Expanded Environmental Notification Form with a Request for a Special Review Procedure. While the area of alteration triggers a mandatory MEPA Environmental Impact Report (EIR) threshold of 1 acre, the purpose of the work is to enhance those wetlands and it is expected that the Special Review Procedure will allow for the filing of a Single EIR in January 2007 and completion of the MEPA process in February. In addition, the applicant is filing an application for Water Quality Certification with the MA Department of Environmental Protection (DEP) and a Notice of Intent with the Hanson Conservation Commission and DEP under the Massachusetts Wetlands Protection Act.

Figure 1

Project Locus

1.2 Regulatory Jurisdiction

Section 401 of the Federal Clean Water Act provides states with the authority to certify that actions permitted by federal agencies are consistent with an individual State's water quality standards. In practice, this means that applicants for permits from the US Army Corps of Engineers for discharge of dredged and fill material must also obtain state approval for the action.

The Wetlands Bank is proposing to discharge dredged and fill material as a fundamental part of meeting the Project's wetland enhancement goals. The dredging and placement of fill must protect Massachusetts Water Quality Standards (314 CMR 4.00). The amount of discharge of dredged and fill material is 700,700 square feet of bordering vegetated wetland exceeds the threshold for a Major Fill/Excavation Project Certification and therefore DEP Form BRP WW 10 is being filed.

The project is not an "Outstanding Resource Water" as defined by 314 CMR 4.04(3) and as listed in 314 CMR 9.06(3)(a), and is therefore not subject to relevant restrictions associated with these areas.

A Notice of Intent for the Project has yet to be submitted to the Hanson Conservation Commission. When it is, a copy will be forwarded to DEP Division of Wetlands.

An Expanded Environmental Notification Form was filed with the MEPA Unit on November 15, 2006. The applicant understands that DEP cannot issue a Water Quality Certification until the Project has completed the MEPA process.

A public notice for this application will appear in the Brockton Enterprise and a copy of the public notice will be forwarded to DEP.

2.0 PROJECT DESCRIPTION

The Project will convert approximately 9.3 acres of disturbed upland to wetland, and enhance 16.2 acres of cranberry bog (classified as an existing wetland) to natural wetlands. These created and enhanced wetlands will function as the first Wetlands Bank in Massachusetts.

2.1 Project Locus

The Project is located in the Town of Hanson within the boundaries of the Burrage Pond Wildlife Management Area (WMA) owned and managed by the MA Division of Fish and Game (DFG). The Burrage Pond WMA encompasses approximately 1,700 acres of land and water around Burrage Pond and the Great Cedar Swamp in Hanson and Halifax. Segments of the swamp and pond margin have been managed as cranberry bogs as recently as 2002 when the DFG acquired the property from Northland Cranberry Company. The proposed Pilot Wetland Mitigation Bank is proposed for areas of cranberry bog and adjacent disturbed uplands in the northeastern corner of Burrage Pond. Restoration and creation activities are proposed in three contiguous areas referred to as Areas A, B, and C.

2.2 Existing Conditions

The Project area includes historic cranberry bogs and adjacent disturbed uplands areas along the northeastern margins of Burrage Pond. The commuter rail line and Hawks Avenue are located to the north; forested wetlands to the east, and cranberry bogs to the south and west.

The project site contains scarified, sparsely vegetated uplands, manmade channels and marginal wetlands (i.e., abandoned bog with minimal hydrology and/or colonized by invasive species) as well as more valuable emergent and wooded wetlands that will not be disturbed by the proposed work. In some areas, the on-site cranberry bogs appear to be transitioning to an upland condition, despite some remnant wetland vegetation. Because the bogs and associated wetland vegetation had been artificially maintained by water pumping practices associated with cranberry propagation which has ceased for several years, these areas are now reverting back to upland vegetation. With the exception of some spoil mounds remaining from the site's cranberry harvesting use, the topography of the area is generally flat due to its geologic history of being a glacial lake basin.

Data on the vegetation, soils, and hydrology in the project area were collected on US Army Corps of Engineers' delineation forms. These are provided in Attachment E. The following is an overview of the information collected

2.2.1 Vegetation

The wetlands on the site can be defined according to the Cowardin Classification system as Palustrine wetlands. The subclasses represented include aquatic bed, emergent wetland, scrub-shrub wetland, and forested wetlands.

Aquatic bed is primarily associated with the unvegetated soil at the bottom of the intermittent stream bed. Emergent wetlands are distinguished by cattail. Scrub-shrub wetlands include sweet pepperbush and northern arrowwood. Forested wetlands are dominated by red maples with some yellow birch mixed in. The species identified for each plot is provided on the wetland delineation forms in Attachment E.

2.2.2 Hydrology

Data collected on the hydrology in the project area included general observations of field hydrology such as standing water and saturated soils as well as specific wetland hydrology indicators like water marks and drainage patterns. Due to the clear delineation of wetland and upland in the area, the plots provided specific information supporting wetland and upland characteristics.

The floodwater storage capacity of the site has not been determined quantitatively, as proposed work will result in an overall increase in on-site flood storage capacity by the simple fact that 9.3 acres of upland that has little flood storage capacity at present will be converted to wetland. Additionally, the project area was chosen, in part, due to its location at the northern end of the Burrage Pond Wildlife Management Area property and the fact that it does not influence, and is not influenced by, the remainder of the property. Therefore, creation of the wetland bank can be undertaken with confidence that it will not fail due to, nor will it affect, future management activities undertaken by the Division of Fish and Game for the overall property.

2.2.3 Soils

The upland portions of Areas A, B, and C include soils of the Windsor, Hinckley and Deerfield Series. The wetlands and bogs within Areas A and C consist of poorly drained soils including the Au Gres Series, Sanded Muck, and Peat.

The Windsor Series are excessively drained loamy sands. Likewise, Hinckley soils are also well drained. The surface layer is about 25-percent gravel by volume, which contributes to the high drainage capacity of the soil. The Deerfield series is a group of moderately drained soils. They exist in low-lying areas of outwash plains and are underlain by deep deposits of sand. During late winter and spring the soil is saturated within two feet of the surface.

By contrast, the Au Gres Series is characterized as poorly drained loamy sands. It is underlain by sand or gravelly sand. The water table is at or near the surface 7 to 8

months of the year. Sanded Muck consists of muck and poorly drained mineral soils. Peat also consists of poorly drained soils, which are saturated for most of the year. These soils are an accumulation of degraded organic material, which fill many low-lying areas. All of these soils are typical of this type of site with wetlands and cranberry bog operations.

Test pits excavated on-site demonstrated that upland areas appear to have been stripped of their topsoil and subsoil layers (A & B horizons). The elevated upland near the center of Area B was historically flattened out to the east and west, resulting in the removal of topsoil and subsoil from this central area, and the filling of depressed areas to the east and west.

Buried hydric wetland soils were observed at test pits adjacent to existing wetlands east of Area B. These soils were buried beneath approximately 2 to 4 feet of loamy sand fill. Estimated depth to seasonal high groundwater appeared to be near the elevation of the existing wetland east of these test pits. Based on these findings, it appears that hydric wetland soils may have been historically moved and buried along the eastern property line.

In the former cranberry bogs, organic soils are located below a layer of imported agricultural sand. The thickness of the agricultural sand layer varies from approximately 2 feet within Area A, to approximately 4 feet within Area C.

2.3 Proposed Activity

The proposed work entails the creation and enhancement of wetland areas. There are three contiguous project areas where work is proposed: Areas A, B, and C. Areas A and C are former cranberry bogs, where existing wetlands will be enhanced to a more natural condition. Area B is a disturbed upland area that will be converted to wetland. In addition, existing upland sand track roads that occupy the perimeter of Area C will be removed to create new wetlands.

Generally, wetland creation/enhancement in the non-bog upland portion of the site will be accomplished via excavation and re-grading, installation of appropriate wetlands substrate, and planting. The wetland enhancement within the Area C bog will be accomplished by stripping the sand layer and planting. Any usable organics that are encountered will be left in place. Similarly, the bog in Area A will be excavated to elevations similar to adjacent wetlands and planted; subsurface data indicate that a suitable organic substrate exists below the sand layer of this bog.

Upon completion of the work, the hydrology within the bog areas will be enhanced such that emergent marshes exhibiting a diverse assemblage of herbaceous wetland species will be present in Area A, along with planted forested areas in Areas A and C. A stream channel is also proposed within Area A.

A portion of Area C will be planted as an Atlantic white cedar swamp in order to recreate the historic wetlands previously present within this locale. Work may be phased such that, within Area C, the white cedar area is created first. Plantings in Area C will be undertaken to avoid shading impacts to cedar saplings (i.e., red maple and proposed shrub plantings may not be planted during the same season as the cedar; this will afford the latter a “head start” so that the cedar saplings will be less likely to suffer mortality due to shading by the more vigorous growing species). Additionally, micro (pit and mound) topography as well as larger somewhat elevated “islands” will be incorporated into the grading in order to further mimic natural white cedar wetlands.

Work within Area B will result in a mix of forested, scrub-shrub shallow emergent, and deep emergent wetlands, including a stream channel. The substrate if this stream may be comprised of rocks and gravel where feasible, in order to increase the diversity of habitat available on-site. The creation of these wetland areas will also enhance currently degraded wetland areas located within this upland area. In all cases, elevations for new or enhanced wetlands areas will be such that they will be fed by groundwater. However, water within the intermittent stream running through the central part of the site will be redirected to a new stream channel established through the approximate center of the site in order to supplement groundwater inputs. Tables 1 and 3 below provide species lists proposed as appropriate for each wetland type. Refer to the plans for specific locations and densities of proposed planting, as well as for proposed elevations.

Table 1. Plant species proposed for various wetland types within Area A. F=Forested, SE=Shallow Emergent, and DE=Deep Emergent. Note that the proposed marsh areas will be allowed to revegetate naturally, in order to study the potential for natural re-vegetation in bog areas that have been excavated to appropriate wetland grades.

Location	Common Name	Latin Name
Forested	Red Maple	<i>Acer rubrum</i>
Forested	Tupelo	<i>Nyssa sylvatica</i>
Forested	Eastern Hemlock	<i>Tsuga canadensis</i>
Forested	High bush Blueberry	<i>Vaccinium corymbosum</i>
Forested	Winterberry	<i>Illex verticillata</i>
Forested	Inkberry	<i>Illex glabra</i>
Forested	Cinnamon Fern	<i>Osmunda cinnamomea</i>
Shallow Emergent	Natural Revegetation	

Deep Emergent	Natural Revegetation
---------------	----------------------

Table 2. Plant species proposed for various wetland types within Area B. F=Forested, SS=Scrub Shrub, SE=Shallow Emergent, and DE=Deep Emergent.

Location	Common Name	Latin Name
Forested	Red Maple	<i>Acer rubrum</i>
Forested	Tupelo	<i>Nyssa sylvatica</i>
Forested	Eastern Hemlock	<i>Tsuga canadensis</i>
Forested	High bush Blueberry	<i>Vaccinium corymbosum</i>
Forested	Winterberry	<i>Illex verticillata</i>
Forested	Inkberry	<i>Illex glabra</i>
Forested	Cinnamon Fern	<i>Osmunda cinnamomea</i>
Scrub Shrub	Black Willow	<i>Salix nigra</i>
Scrub Shrub	Speckled Alder	<i>Alnus rugosa</i>
Scrub Shrub	Southern Arrowwood	<i>Viburnum dentatum</i>
Scrub Shrub	Swamp Azalea	<i>Rhododendren viscosum</i>
Scrub Shrub	Red-osier Dogwood	<i>Cornus stolonifera</i>
Scrub Shrub	Silky Dogwood	<i>Cornus amomum</i>
Scrub Shrub	High bush Blueberry	<i>Vaccinium corymbosum</i>
Scrub Shrub	Winterberry	<i>Illex verticillata</i>
Scrub Shrub	Inkberry	<i>Illex glabra</i>
Scrub Shrub	Cinnamon Fern	<i>Osmunda cinnamomea</i>
Shallow Emergent	Fox Sedge	<i>Carex vulpinoidea</i>
Shallow Emergent	Wool Grass	<i>Scirpus cyperinus</i>
Shallow Emergent	Soft Rush	<i>Juncus effuses</i>
Shallow Emergent	Green Bulrush	<i>Scirpus artrovirens</i>
Shallow Emergent	Cardinal Flower	<i>Lobelia cardinalis</i>

Shallow Emergent	Marsh Marigold	<i>Caltha palustris</i>
Shallow Emergent	Bearded Sedge	<i>Carex comosa</i>
Shallow Emergent	Soft-stem Bulrush	<i>Scirpus validus</i>

Table 2 (continued)

Shallow Emergent	Hard-stem Bulrush	<i>Scirpus acutus</i>
Shallow Emergent	Boneset	<i>Eupatorium perfoliatum</i>
Deep Emergent	Water Plantain	<i>Alisma plantago-aquatica</i>
Deep Emergent	Sweet Flag	<i>Acorus calamus</i>
Deep Emergent	Buttonbush	<i>Cephalanthus occidentalis</i>
Deep Emergent	Broadleaf Arrowhead	<i>Sagittaria latifolia</i>
Deep Emergent	Arrow Arum	<i>Peltandra virginica</i>
Deep Emergent	Blue Flag Iris	<i>Iris versicolor</i>

Table 3. Plant species proposed for the Forested wetland within Area C.

Location	Common Name	Latin Name
Forested	White Cedar	<i>Chamaecyparis thyoides</i>
Forested	Red Maple	<i>Acer rubrum</i>
Forested	Gray Birch	<i>Betula populifolia</i>
Forested	Green Ash	<i>Fraxinus pennsylvanica</i>
Forested	Tupelo	<i>Nyssa sylvatica</i>
Forested	Swamp White Oak	<i>Quercus bicolor</i>
Forested	Speckled Alder	<i>Alnus rugosa</i>
Scrub Shrub	Silky Dogwood	<i>Cornus amomum</i>
Forested	High bush Blueberry	<i>Vaccinium corymbosum</i>
Forested	Jack-in-the-Pulpit	<i>Arisaema triphyllum</i>
Forested	Boneset	<i>Eupatorium perfoliatum</i>
Forested	Royal Fern	<i>Osmunda regallis</i>

Existing stockpiles within Area B will be left in place, and in some cases supplemented with sand, in order to maintain or provide turtle breeding habitat. Additionally, because Burrage Pond Wildlife Management Area is subject to frequent recreational use, a large elevated viewing area is proposed for the western portion of the site. A path will lead from the entrance of the site to the top of the hill, and will facilitate wildlife observation

across the entire property due to the open vista. The sand track road currently leading from the parking area to the Environmental Police Headquarters will remain in place in order to maintain access to the remainder of the property.

A general work sequence for each work area is outlined below:

Area A

- Strip sand using track-mounted excavators
- Move excavated sand to elevated viewing area or stockpile areas using dump trucks
- Rough grade exposed organic soils
- Fine grade exposed organic soils
- Plant species as indicated on plans

Area B

- Grub work area
- Excavate to sub-grade with bulldozers
- Transport excavated upland soils to stockpile areas
- Place organic material
- Fine grade to create microtopography
- Plant species as indicated on plans

Area C

- Strip sand using track mounted excavators
- Move sand excavate to elevated viewing area or stockpile areas using dump trucks
- Leave any organics encountered within the bog area in place
- Remove sand track road and rough grade
- Add suitable organic material to creation areas as indicated on plans
- Fine grade to create microtopography

- Plant species as indicated on plans

In all cases, areas depicted as proposed wetlands on the attached plans either (1) occur within \pm 1 foot of the high groundwater present during the growing season as ascertained through monitoring wells; and/or (2) are existing wetlands whose hydrology will be enhanced by lowering their elevation.

Table 4 lists the proposed impacts to wetlands. As previously mentioned, although portions of the proposed work will occur within wetlands, the Project will result in a net improvement over existing conditions within on-site wetlands.

Table 4. Summary of existing and proposed conditions.

Area	Existing Conditions	Area to be impacted	Area to be Enhanced	Area to be Created	Total Area Upon Completion
A	292,060	292,060	292,060	30	292,090
B	84,110	84,110	84,110	321,250	405,360
C	324,530	324,530	324,530	83,470	408,000
TOTAL	700,700	700,700	700,700	404,750	1,105,450

3.0 ALTERNATIVES ANALYSIS

The following is a review of alternatives to the proposed Project.

3.1 No-Build

The “no build” alternative would forego construction of a pilot wetlands bank. This is not a feasible alternative as the Massachusetts Legislature has specifically directed the MA Executive Office of Environmental Affairs to develop a pilot bank for the Taunton River watershed to replace beneficial wetland functions that will be unavoidably lost as a result of activities authorized by permit from the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act and/or activities authorized by under the Massachusetts Wetlands Protection Act, Massachusetts General Laws chapter 131, section 40 permit, or activities that are the subject of an enforcement action by the Massachusetts Department of Environmental Protection. By enacting such legislation, it has been recognized that a wetland bank may be a positive approach to mitigating for unavoidable wetland impacts.

3.2 Off-Site Alternatives

The site solicitation process was formulated with input from the Mitigation Banking Review Team and the public. The Bank Sponsors created a candidate site nomination sheet summarizing the purpose of a pilot wetlands bank and site eligibility requirements and requesting nominations for potential properties suitable for locating the bank. This information was mailed to 1) the Conservation Commissions, Planning Boards, and Boards of Selectmen of towns located within the Taunton River watershed; 2) various regulatory agencies; and 3) numerous statewide and watershed-based environmental organizations. A notice publicizing the search for a pilot wetlands banking site and information explaining how to nominate a site were published in the July 9, 2005 issue of the Environmental Monitor. Additionally, the Sponsors created a web page with information about the pilot wetlands bank and site nomination process. Several nominated sites underwent a preliminary review where they were evaluated for size, site context, known/suspected contamination, timeline/availability for restoration, Article 97 status, restoration, creation, or enhancement potential, and other criteria. The Burrage Pond Wildlife Management Area was the area chosen as most consistent with the intent of the wetlands banking legislation and preliminary review criteria.

3.3 On-site Project Modifications to Avoid and Minimize Wetland Impacts

For all work areas, erosion control barriers consisting of staked hay bales, silt fencing, and hay bale check dams (as necessary) will be installed around the perimeter of work or as otherwise indicated on the plans. Excavation will be accomplished such that equipment will be working from the center of the creation/enhancement areas outward, in order to minimize or eliminate the need for stabilizing mats. Pit and mound

topography will be incorporated into the grading of each area, and will be determined by the wetland specialist/environmental engineer based upon field observations during construction. Haul routes will consist of the existing sand track roads throughout the site, and stockpiles of excavated organic material that is to be reused will be covered and kept moist if not immediately re-spread.

3.4 Compensatory Mitigation

No mitigation for the impacts described above is proposed, as work, where it directly impacts wetlands, will result in the enhancement of those wetlands. The vegetated wetlands, banks, and streams have been historically altered to a significant degree. Many of the cranberry bog wetlands have been created during the site's previous agricultural use. The streams proposed within Areas A and C will provide a more "natural" channel than the existing manmade irrigation canals and disturbed intermittent stream currently provide, resulting in bank and stream bed with better functions and values. Specifically, the substrate of the streams will be varied in order to increase structural diversity, and the channels will generally be more sinuous than those that presently exist. Additionally, proposed plantings will mimic natural stream channels, in that deep emergent species will be planted within the stream, with areas of open flowing water also present. Shallow emergent plants will fringe portions of the channels, and a scrub-shrub wetland fringe will also border the stream in Area B.

The addition of native wetland plantings, the enhancement of hydrology proposed by lowering wetland elevations, and the creation of two stream channels with the addition of organic soils in created wetland areas will ensure the long-term vigor of the created and enhanced wetlands. Overall, the Project will result in enhanced and created wetlands that will significantly improve the wetland functions and values in the area.

Attachment A

Draft Restoration Plan

Attachment B

Draft Monitoring Plan

Attachment C

Pilot Bank Summary

Attachment D

Wetland Delineation Forms

Attachment E

Wetlands Protection Act

Notice of Intent Application