

---

Notice of Intent

# Minuteman Bikeway Extension, From Loomis Street to Concord Road

Bedford, MA

PREPARED FOR

---

Town of Bedford  
Department of Public Works  
314 Great Road  
Bedford, MA 01730

PREPARED BY

---



101 Walnut Street  
PO Box 9151  
Watertown, MA 02471  
617.924.1770

JANUARY 2022



January 26, 2022

Ref: 09393.01

Bedford Conservation Commission  
10 Mudge Way  
Bedford, MA 01730  
c/o Allan Wirth, Chair

**Re: Notice of Intent: Minuteman Bikeway Extension from Loomis Street to Concord Road  
Bedford, MA**

Dear Chairperson Wirth and Commission Members

On behalf of the Applicant, the Town of Bedford, VHB is submitting the attached Notice of Intent (NOI) for work associated with constructing an extension of the Minuteman Bikeway shared use path (the Project) in Bedford, MA (the Site).

The Applicant is proposing to extend the bikeway by making a 1,665-foot portion of Railroad Avenue accessible to bikes and constructing 8,800 feet of bikeway on the Reformatory Branch Trail, from Railroad Avenue to approximately 200 feet past Concord Road. As a part of the Railroad Avenue reconstruction, sidewalks, bike accommodations, new drainage, pavement markings and signs and defined curb cuts will be constructed. Other associated work includes installing erosion and sedimentation controls during construction and tree and vegetation removal along portions of the trail corridor.

Portions of the Project will occur within areas subject to jurisdiction under the WPA and the Bylaw, including: Bordering Vegetated Wetlands (BVW), Riverfront Area (RA), and the 100-foot buffer zone to BVW and Bank. Mitigation measures will be put in place to prevent erosion and sedimentation during construction. The Project will result in approximately 45% of the buffer zone in the Project Limits being impervious surface and will also require unavoidable work in the Buffer Strip and 50-foot Buffer Zone established by the Bylaw. The Project is necessary to accommodate an overriding community, regional, state, or national public interest. The purpose of the Project is to enhance bicycle and pedestrian access and safety along a proposed extension of the Minuteman Bikeway and is proposed as part of the Massachusetts Department of Transportation (MassDOT) FY 2023 Transportation Improvement Plan (TIP). Therefore, pursuant to Section 2.4 of the bylaw the Applicant is requesting that the Commission grant a variance from the standards established by the bylaw for Buffer Zone (2.2.2.1a and 2.2.2.1b), and Buffer Strip and 50-foot Buffer Zone (2.2.2.2).

Because the Applicant is a municipality, it is exempt from all filing fees established under the WPA and the Bylaw. In accordance with the WPA, abutters have been notified of the upcoming public hearing by certified return receipt mail. Please advertise this matter for public hearing at the Commission's next

101 Walnut Street  
PO Box 9151  
Watertown, Massachusetts 02471  
P 617.924.1770  
F 617.924.2286

**Engineers | Scientists | Planners | Designers**

Bedford Conservation Commission  
Ref: 09393.01  
January 26, 2022  
Page 2



scheduled meeting. Should you have any questions concerning this submittal, or require additional information, please contact me at 617.607.1019.

Regards,

A handwritten signature in black ink that reads "Dan Cannata".

Dan Cannata  
Environmental Scientist

cc: Town of Bedford Department of Public Works  
MassDOT  
MassDEP Northeast Regional Office



# Table of Contents

## **Notice of Intent Forms**

## **Notice of Intent Figures**

## **Attachment A - Notice of Intent Narrative**

Introduction.....	1
Site Description.....	2
Wetland Resource Areas.....	2
Work Description.....	9
Work in Wetland Resource Areas .....	10
Mitigation Measures .....	12
Regulatory Compliance.....	16
Summary.....	23

## **Attachment B Abutter Information**

## **Attachment C Field Data Forms**

## **Attachment D Wildlife Habitat Evaluation**

## **Attachment E Stormwater Management Memorandum**

## **Attachment F Project Plans**



---

## Notice of Intent Forms

- › WPA Form 3
- › NOI Wetland Fee Transmittal Form
- › Town of Bedford Notice of Intent Forms

**Massachusetts Department of Environmental Protection**

Bureau of Resource Protection - Wetlands

**WPA Form 3 - Notice of Intent**

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:  
MassDEP File #:  
eDEP Transaction #:1235110  
City/Town:BEDFORD

**A.General Information**

**1. Project Location:**

a. Street Address	REFORMATORY BRANCH TRAIL LAYOUT		
b. City/Town	BEDFORD	c. Zip Code	01730
d. Latitude	42.48422N	e. Longitude	71.29203W
f. Map/Plat #	N/A	g.Parcel/Lot #	N/A

**2. Applicant:**

Individual  Organization

a. First Name	JEANETTE	b.Last Name	REBECCHI		
c. Organization	TOWN OF BEDFORD DEPARTMENT OF PUBLIC WORKS				
d. Mailing Address	314 GREAT ROAD				
e. City/Town	BEDFORD	f. State	MA	g. Zip Code	01730
h. Phone Number	781-918-4274	i. Fax		j. Email	jrebecchi@bedfordma.gov

**3.Property Owner:**

more than one owner

a. First Name		b. Last Name			
c. Organization	TOWN OF BEDFORD				
d. Mailing Address	10 MUDGE WAY				
e. City/Town	BEDFORD	f.State	MA	g. Zip Code	01730
h. Phone Number	781-918-4274	i. Fax		j.Email	jrebecchi@bedfordma.gov

**4.Representative:**

a. First Name	DANIEL	b. Last Name	CANNATA		
c. Organization	VHB				
d. Mailing Address	101 WALNUT STREET				
e. City/Town	WATERTOWN	f. State	MA	g. Zip Code	02471
h.Phone Number	617-607-1019	i.Fax		j.Email	dcannata@vhb.com

**5.Total WPA Fee Paid (Automatically inserted from NOI Wetland Fee Transmittal Form):**

a.Total Fee Paid	0.00	b.State Fee Paid	0.00	c.City/Town Fee Paid	0.00
------------------	------	------------------	------	----------------------	------

**6.General Project Description:**

THE PROJECT PROPOSES TO EXTEND THE BIKEWAY BY MAKING A 1,665-FOOT PORTION OF RAILROAD AVENUE ACCESSIBLE TO BIKES AND CONSTRUCTING 8,800 FEET OF BIKEWAY ON THE REFORMATORY BRANCH TRAIL, FROM RAILROAD AVENUE TO APPROXIMATELY 200 FEET PAST CONCORD ROAD. AS A PART OF THE RAILROAD AVENUE RECONSTRUCTION, SIDEWALKS, BIKE ACCOMMODATIONS, NEW DRAINAGE, PAVEMENT MARKINGS AND SIGNS AND DEFINED CURB CUTS WILL BE CONSTRUCTED.

**7a.Project Type:**

- |   |   |
|---|---|
| 1. <input type="checkbox"/> Single Family Home                | 2. <input type="checkbox"/> Residential Subdivision |
| 3. <input type="checkbox"/> Limited Project Driveway Crossing | 4. <input type="checkbox"/> Commercial/Industrial   |
| 5. <input type="checkbox"/> Dock/Pier                         | 6. <input type="checkbox"/> Utilities               |



**Massachusetts Department of Environmental Protection**

Bureau of Resource Protection - Wetlands

**WPA Form 3 - Notice of Intent**

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:  
 MassDEP File #:  
 eDEP Transaction #:1235110  
 City/Town:BEDFORD

4. Proposed Alteration of the Riverfront Area:

18,779	13,318	5,461
a. total square feet	b. square feet within 100 ft.	c. square feet between 100 ft. and 200 ft.

5. Has an alternatives analysis been done and is it attached to this NOI?  Yes  No

6. Was the lot where the activity is proposed created prior to August 1, 1996?  Yes  No

3.Coastal Resource Areas: (See 310 CMR 10.25 - 10.35)

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
---------------	-----------------------------	-------------------------------

a. <input type="checkbox"/> Designated Port Areas	Indicate size under	Land under the ocean below,
---	---------------------	-----------------------------

b. <input type="checkbox"/> Land Under the Ocean	1. square feet	
--	----------------	--

	2. cubic yards dredged	
--	------------------------	--

c. <input type="checkbox"/> Barrier Beaches	Indicate size under Coastal Beaches and/or Coastal Dunes, below	
---	---	--

d. <input type="checkbox"/> Coastal Beaches	1. square feet	2. cubic yards beach nourishment
---	----------------	----------------------------------

e. <input type="checkbox"/> Coastal Dunes	1. square feet	2. cubic yards dune nourishment
---	----------------	---------------------------------

f. <input type="checkbox"/> Coastal Banks	1. linear feet	
---	----------------	--

g. <input type="checkbox"/> Rocky Intertidal Shores	1. square feet	
---	----------------	--

h. <input type="checkbox"/> Salt Marshes	1. square feet	2. sq ft restoration, rehab, crea.
--	----------------	------------------------------------

i. <input type="checkbox"/> Land Under Salt Ponds	1. square feet	
---	----------------	--

	2. cubic yards dredged	
--	------------------------	--

j. <input type="checkbox"/> Land Containing Shellfish	1. square feet	
---	----------------	--

k. <input type="checkbox"/> Fish Runs	Indicate size under Coastal Banks, Inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above	
---------------------------------------	---	--

	1. cubic yards dredged	
--	------------------------	--

l. <input type="checkbox"/> Land Subject to Coastal Storm Flowage	1. square feet	
---	----------------	--

4.Restoration/Enhancement

Restoration/Replacement

If the project is for the purpose of restoring or enhancing a wetland resource area in addition to the square footage that has been entered in Section B.2.b or B.3.h above, please entered the additional amount here.

□ **Massachusetts Department of Environmental Protection**

Bureau of Resource Protection - Wetlands

**WPA Form 3 - Notice of Intent**

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File #:

eDEP Transaction #:1235110

City/Town:BEDFORD

a. square feet of BVW

b. square feet of Salt Marsh

5. Projects Involves Stream Crossings

Project Involves Streams Crossings

If the project involves Stream Crossings, please enter the number of new stream crossings/number of replacement stream crossings.

a. number of new stream crossings

b. number of replacement stream crossings

**C. Other Applicable Standards and Requirements**

**Streamlined Massachusetts Endangered Species Act/Wetlands Protection Act Review**

1. Is any portion of the proposed project located in **Estimated Habitat of Rare Wildlife** as indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetland Wildlife published by the Natural Heritage of Endangered Species program (NHESP)?

a.  Yes  No

If yes, include proof of mailing or hand delivery of NOI to:

Natural Heritage and Endangered Species

Program

Division of Fisheries and Wildlife

1 Rabbit Hill Road

Westborough, MA 01581

b. Date of map: FROM MAP VIEWER

If yes, the project is also subject to Massachusetts Endangered Species Act (MESA) review (321 CMR 10.18)...

c. Submit Supplemental Information for Endangered Species Review \* (Check boxes as they apply)

1.  Percentage/acreage of property to be altered:

(a) within Wetland Resource Area

percentage/acreage

(b) outside Resource Area

percentage/acreage

2.  Assessor's Map or right-of-way plan of site

3.  Project plans for entire project site, including wetland resource areas and areas outside of wetland jurisdiction, showing existing and proposed conditions, existing and proposed tree/vegetation clearing line, and clearly demarcated limits of work \*\*

a.  Project description (including description of impacts outside of wetland resource area & buffer zone)

b.  Photographs representative of the site

c.  MESA filing fee (fee information available at: <http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/regulatory-review/mass-endangered-species-act-mesa/mesa-fee-schedule.html>)

Make check payable to "Natural Heritage & Endangered Species Fund" and **mail to NHESP** at above address

*Projects altering 10 or more acres of land, also submit:*

d.  Vegetation cover type map of site

e.  Project plans showing Priority & Estimated Habitat boundaries

d. OR Check One of the following

1.  Project is exempt from MESA review. Attach applicant letter indicating which MESA exemption applies. (See 321 CMR 10.14, <http://www.mass.gov/eea/agencies/dfg/dfw/laws-regulations/cmr/321-cmr-1000-massachusetts-endangered-species-act.html#10.14>; the NOI must still be sent to NHESP if the project is within estimated habitat pursuant to 310 CMR

□ **Massachusetts Department of Environmental Protection**

Bureau of Resource Protection - Wetlands

**WPA Form 3 - Notice of Intent**

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:  
MassDEP File #:  
eDEP Transaction #:1235110  
City/Town:BEDFORD

10.37 and 10.59.)

2.  Separate MESA review ongoing.

a. NHESP Tracking Number

b. Date submitted to NHESP

3.  Separate MESA review completed.

Include copy of NHESP "no Take" determination or valid Conservation & Management Permit with approved plan.

\* Some projects **not** in Estimated Habitat may be located in Priority Habitat, and require NHESP review...

2. For coastal projects only, is any portion of the proposed project located below the mean high waterline or in a fish run?

a.  Not applicable - project is in inland resource area only

b.  Yes  No

If yes, include proof of mailing or hand delivery of NOI to either:

South Shore - Cohasset to Rhode Island, and the Cape & Islands:

North Shore - Hull to New Hampshire:

Division of Marine Fisheries -  
Southeast Marine Fisheries Station  
Attn: Environmental Reviewer  
836 S. Rodney French Blvd  
New Bedford, MA 02744

Division of Marine Fisheries -  
North Shore Office  
Attn: Environmental Reviewer  
30 Emerson Avenue  
Gloucester, MA 01930

If yes, it may require a Chapter 91 license. For coastal towns in the Northeast Region, please contact MassDEP's Boston Office. For coastal towns in the Southeast Region, please contact MassDEP's Southeast Regional office.

3. Is any portion of the proposed project within an Area of Critical Environmental Concern (ACEC)?

a.  Yes  No

If yes, provide name of ACEC (see instructions to WPA Form 3 or DEP Website for ACEC locations). **Note:** electronic filers click on Website.

b. ACEC Name

4. Is any portion of the proposed project within an area designated as an Outstanding Resource Water (ORW) as designated in the Massachusetts Surface Water Quality Standards, 314 CMR 4.00?

a.  Yes  No

5. Is any portion of the site subject to a Wetlands Restriction Order under the Inland Wetlands Restriction Act (M.G.L.c. 131, § 40A) or the Coastal Wetlands Restriction Act (M.G.L.c. 130, § 105)?

a.  Yes  No

6. Is this project subject to provisions of the MassDEP Stormwater Management Standards?

a.  Yes, Attach a copy of the Stormwater Report as required by the Stormwater Management Standards per 310 CMR 10.05(6)(k)-(q) and check if:

1.  Applying for Low Impact Development (LID) site design credits (as described in Stormwater Management Handbook Vol.2, Chapter 3)

2.  A portion of the site constitutes redevelopment

3.  Proprietary BMPs are included in the Stormwater Management System

**Massachusetts Department of Environmental Protection**

Bureau of Resource Protection - Wetlands

**WPA Form 3 - Notice of Intent**

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:  
MassDEP File #:  
eDEP Transaction #:1235110  
City/Town:BEDFORD

b.  No, Explain why the project is exempt:

- 1.  Single Family Home
- 2.  Emergency Road Repair
- 3.  Small Residential Subdivision (less than or equal to 4 single-family houses or less than or equal to 4 units in multi-family housing project) with no discharge to Critical Areas.

**D. Additional Information**

Applicants must include the following with this Notice of Intent (NOI). See instructions for details.

**Online Users:** Attach the document transaction number (provided on your receipt page) for any of the following information you submit to the Department by regular mail delivery.

- 1. USGS or other map of the area (along with a narrative description, if necessary) containing sufficient information for the Conservation Commission and the Department to locate the site. (Electronic filers may omit this item.)
- 2. Plans identifying the location of proposed activities (including activities proposed to serve as a Bordering Vegetated Wetland [BVW] replication area or other mitigating measure) relative to the boundaries of each affected resource area.
- 3. Identify the method for BVW and other resource area boundary delineations (MassDEP BVW Field Data Form(s)).
- 4. Determination of Applicability, Order of Resource Area Delineation, etc.), and attach documentation of the methodology.
- 4. List the titles and dates for all plans and other materials submitted with this NOI.

**a. Plan Title:                      b. Plan Prepared By:      c. Plan Signed/Stamped By:      d. Revised Final Date:      e. Scale:**

PLAN AND PROFILE  
OF MINUTEMAN  
BIKEWAY  
EXTENSION IN THE  
TOWN OF BEDFORD  
MIDDLESEX  
COUNTY

VHB

JDT

1/14/2022

1:20

- 5. If there is more than one property owner, please attach a list of these property owners not listed on this form.
- 6. Attach proof of mailing for Natural Heritage and Endangered Species Program, if needed.
- 7. Attach proof of mailing for Massachusetts Division of Marine Fisheries, if needed.
- 8. Attach NOI Wetland Fee Transmittal Form.
- 9. Attach Stormwater Report, if needed.

**Massachusetts Department of Environmental Protection**

Bureau of Resource Protection - Wetlands

**WPA Form 3 - Notice of Intent**

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File #:

eDEP Transaction #:1235110

City/Town:BEDFORD

**E. Fees**

- 1. Fee Exempt: No filing fee shall be assessed for projects of any city, town, county, or district of the Commonwealth, federally recognized Indian tribe housing authority, municipal housing authority, or the Massachusetts Bay Transportation Authority.

Applicants must submit the following information (in addition to pages 1 and 2 of the NOI Wetland Fee Transmittal Form) to confirm fee payment:

N/A- Municipal Project- Fee Exempt

2. Municipal Check Number

3. Check date

4. State Check Number

5. Check date

6. Payer name on check: First Name

7. Payer name on check: Last Name

**F. Signatures and Submittal Requirements**

I hereby certify under the penalties of perjury that the foregoing Notice of Intent and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge. I understand that the Conservation Commission will place notification of this Notice in a local newspaper at the expense of the applicant in accordance with the wetlands regulations, 310 CMR 10.05(5)(a).

I further certify under penalties of perjury that all abutters were notified of this application, pursuant to the requirements of M.G.L. c. 131, § 40. Notice must be made by Certificate of Mailing or in writing by hand delivery or certified mail (return receipt requested) to all abutters within 100 feet of the property line of the project location.

  
1. Signature of Applicant

1/26/22  
2. Date

3. Signature of Property Owner(if different)

4. Date



1/24/2022

5. Signature of Representative (if any)

6. Date

**For Conservation Commission:**

Two copies of the completed Notice of Intent (Form 3), including supporting plans and documents, two copies of the NOI Wetland Fee Transmittal Form, and the city/town fee payment, to the Conservation Commission by certified mail or hand delivery.

**For MassDEP:**

One copy of the completed Notice of Intent (Form 3), including supporting plans and documents, one copy of the NOI Wetland Fee Transmittal Form, and a copy of the state fee payment to the MassDEP Regional Office (see Instructions) by certified mail or hand delivery.

**Other:**

If the applicant has checked the "yes" box in Section C, Items 1-3, above, refer to that section and the Instructions for additional submittal requirements.

The original and copies must be sent simultaneously. Failure by the applicant to send copies in a timely manner may result in dismissal of the Notice of Intent.

**Massachusetts Department of Environmental Protection**  
 Bureau of Resource Protection - Wetlands  
**WPA Form 3 - Notice of Wetland Fee Transmittal**  
**Form**  
 Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:  
 MassDEP File #:  
 eDEP Transaction #:1235110  
 City/Town:BEDFORD

**A. Applicant Information**

1. Applicant:

a. First Name	JEANETTE	b. Last Name	REBECCHI
c. Organization	TOWN OF BEDFORD DEPARTMENT OF PUBLIC WORKS		
d. Mailing Address	314 GREAT ROAD		
e. City/Town	BEDFORD	f. State	MA
g. Zip Code	01730		
h. Phone Number	7819184274	i. Fax	
j. Email	jrebecchi@bedfordma.gov		

2. Property Owner:(if different)

a. First Name		b. Last Name	
c. Organization	TOWN OF BEDFORD		
d. Mailing Address	10 MUDGE WAY		
e. City/Town	BEDFORD	f. State	MA
g. Zip Code	01730		
h. Phone Number	7819184274	i. Fax	
j. Email	jrebecchi@bedfordma.gov		

3. Project Location:

a. Street Address	REFORMATORY BRANCH TRAIL LAYOUT	b. City/Town	BEDFORD
-------------------	---------------------------------	--------------	---------

Are you exempted from Fee?  (YOU HAVE SELECTED 'YES')

**Note:** Fee will be exempted if you are one of the following:

- City/Town/County/District
- Municipal Housing Authority
- Indian Tribe Housing Authority
- MBTA

State agencies are only exempt if the fee is less than \$100

**B. Fees**

Activity Type	Activity Number	Activity Fee	RF Multiplier	Sub Total
		City/Town share of filing fee	State share of filing fee	Total Project Fee
		\$0.00	\$0.00	\$0.00



**LEGAL NOTICE AUTHORIZATION FORM**

**GATEHOUSE MEDIA NEW ENGLAND**  
**Community Newspaper Company**  
254 Second Avenue, Needham, MA 02494-2811

Date: 1/24/2022

I hereby acknowledge that the application I am submitting to the:

TOWN OF BEDFORD - BEDFORD CONSERVATION COMMISSION

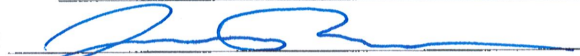
***\*The section below is to be filled out by the BEDFORD CONSERVATION COMMISSION STAFF:***

The application requires a legal notice of public hearing. Said hearing is to be held on \_\_\_\_\_ . Legal Notices are currently submitted to the BEDFORD MINUTEMAN for publication on the following date: \_\_\_\_\_ .

***\*The section below is to be filled out by the APPLICANT:***

I hereby AUTHORIZE that the required legal notice be billed directly to me by, GateHouse Media New England, d/b/a/, Community Newspaper Company, Inc.

Printed Name: Jeanette Rebecchi

Signature: 

Address: 514 Great Road

City: Bedford, State: MA, Zipcode: 01730

Phone: ( 781 ) 918-4274

AFFIDAVIT OF SERVICE

Under the Massachusetts Wetlands Protection Act

(To be submitted to the Massachusetts Department of  
Environmental Protection and the Conservation Commission  
when filing a Notice of Intent)

I, Daniel Cannata (Name of person making this affidavit) hereby  
certify under the pains and penalties of perjury that on 1/27/2022 (Date) I gave  
notification to abutters in compliance with the second paragraph of Massachusetts  
General Law Chapter 131, Section 49, and the DEP Guide to Abutter Notification dated  
April 8 1994, in connection with the following matter:

A Notice of Intent filed under the Massachusetts Wetlands Protection  
Act by The Town of Bedford (Name of applicant)  
with the Bedford Conservation Commission on 1/27/2022 (Date)  
for property located at Reformatory Branch Trail

\_\_\_\_\_  
(Address of land where work is proposed).

The form of the notification, and a list of the abutters to whom it  
was given and their addresses, are attached to this Affidavit of Service.

Daniel M Cannata

1/27/2022

Signed

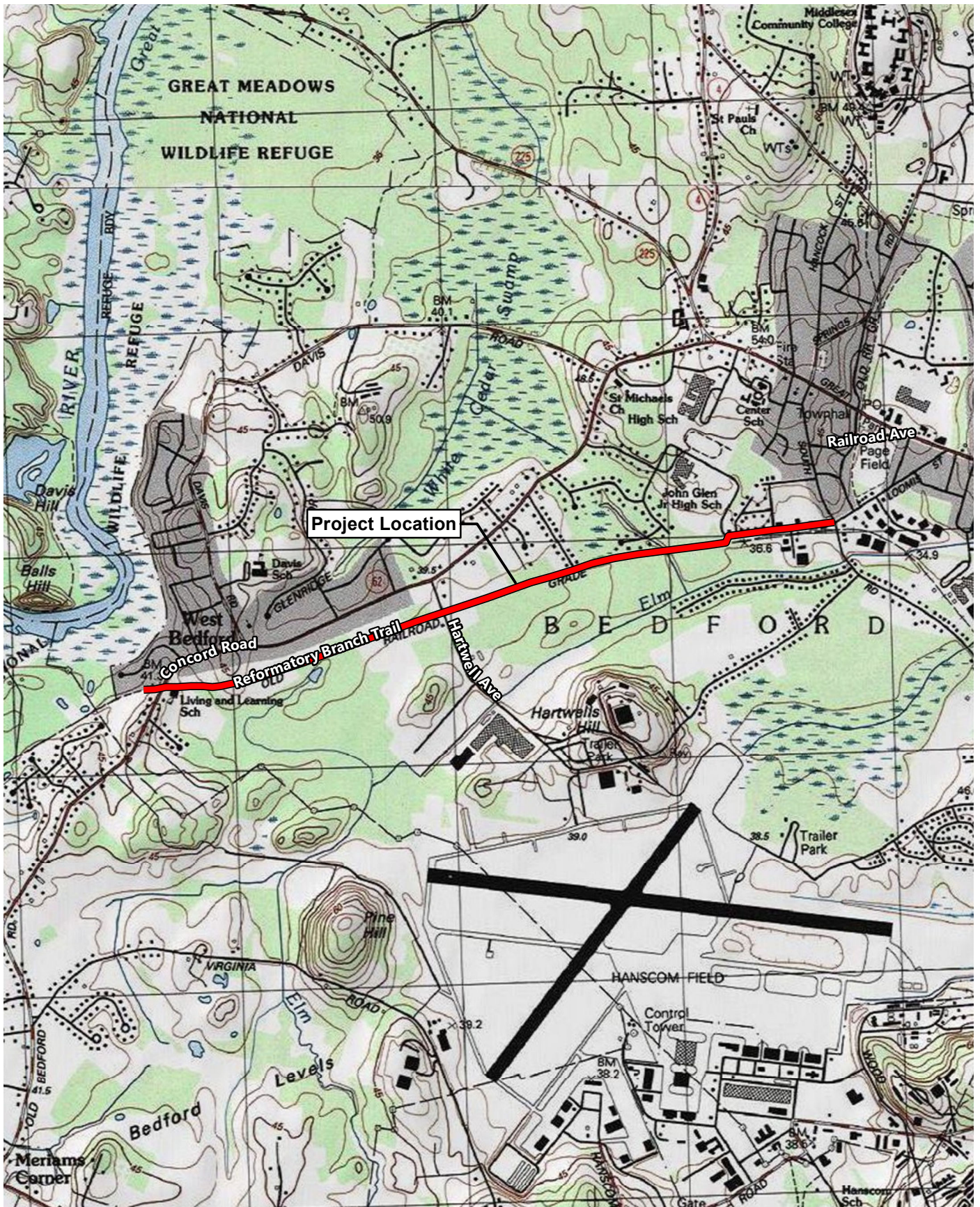
Date



---

## Notice of Intent Figures

- › Figure 1 – Site Location Map
- › Figure 2 – Aerial Map
- › Figure 3 – NHESP Map
- › Figure 4 – FEMA FIRM Map



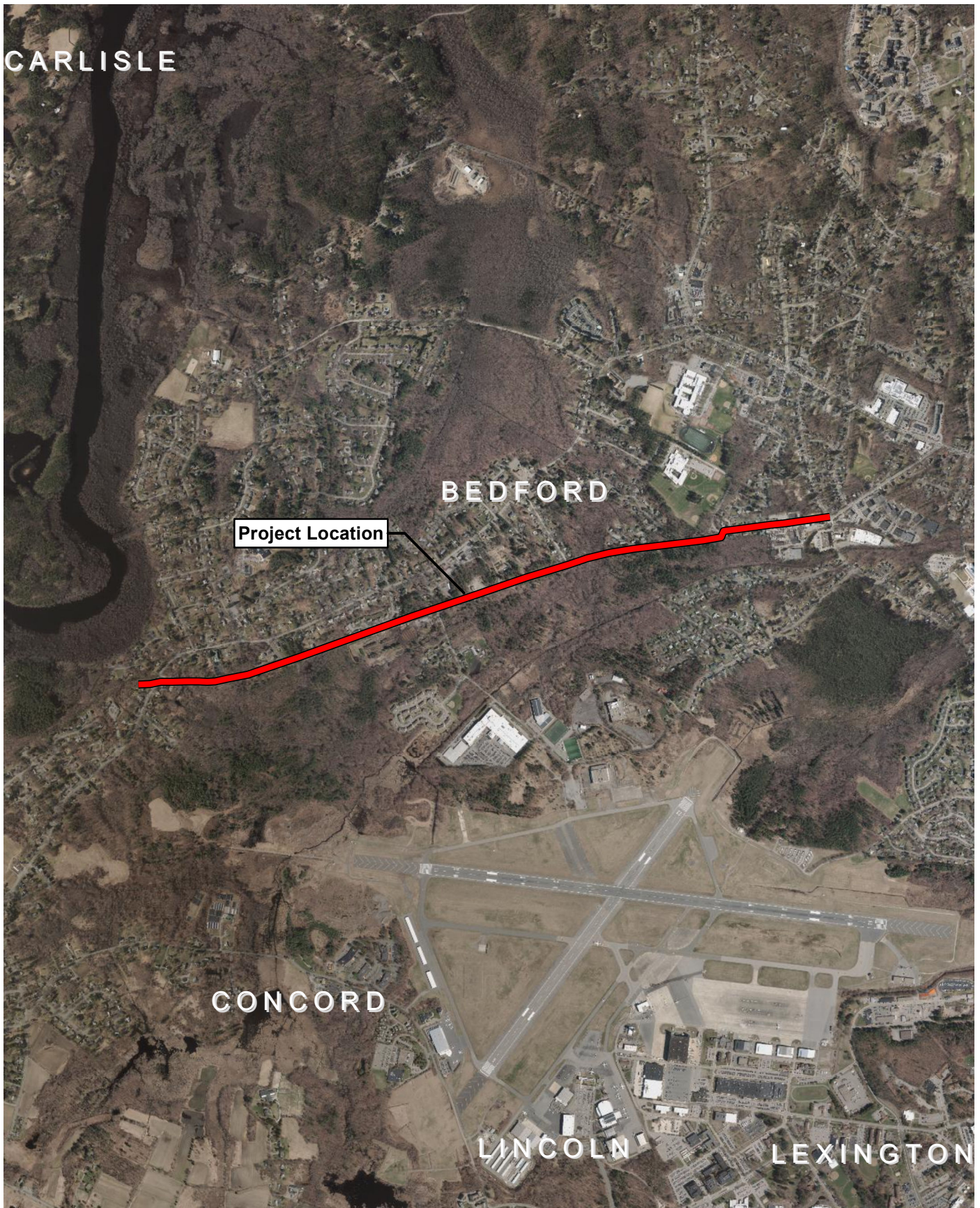
Project Location

Concord Road  
Reformatory Branch Trail  
Hartwell Ave

Minuteman Bikeway Extension Bedford, MA

Figure 1 - Project Site Locus  
Source Info: USGS

 Project Alignment

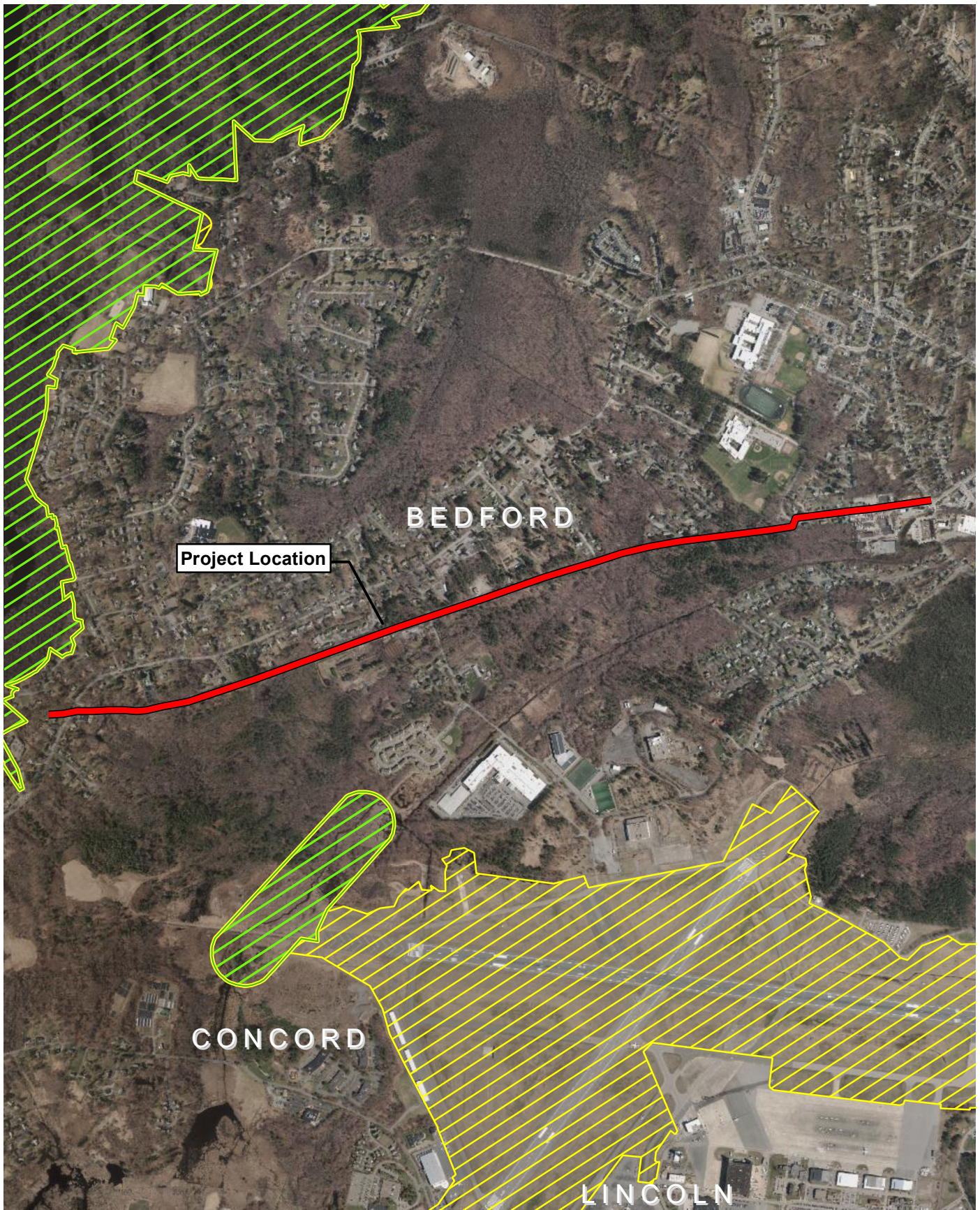


**Minuteman Bikeway Extension** Bedford, MA




 Project Alignment

**Figure 2 - Aerial Map**

Source Info: USGS

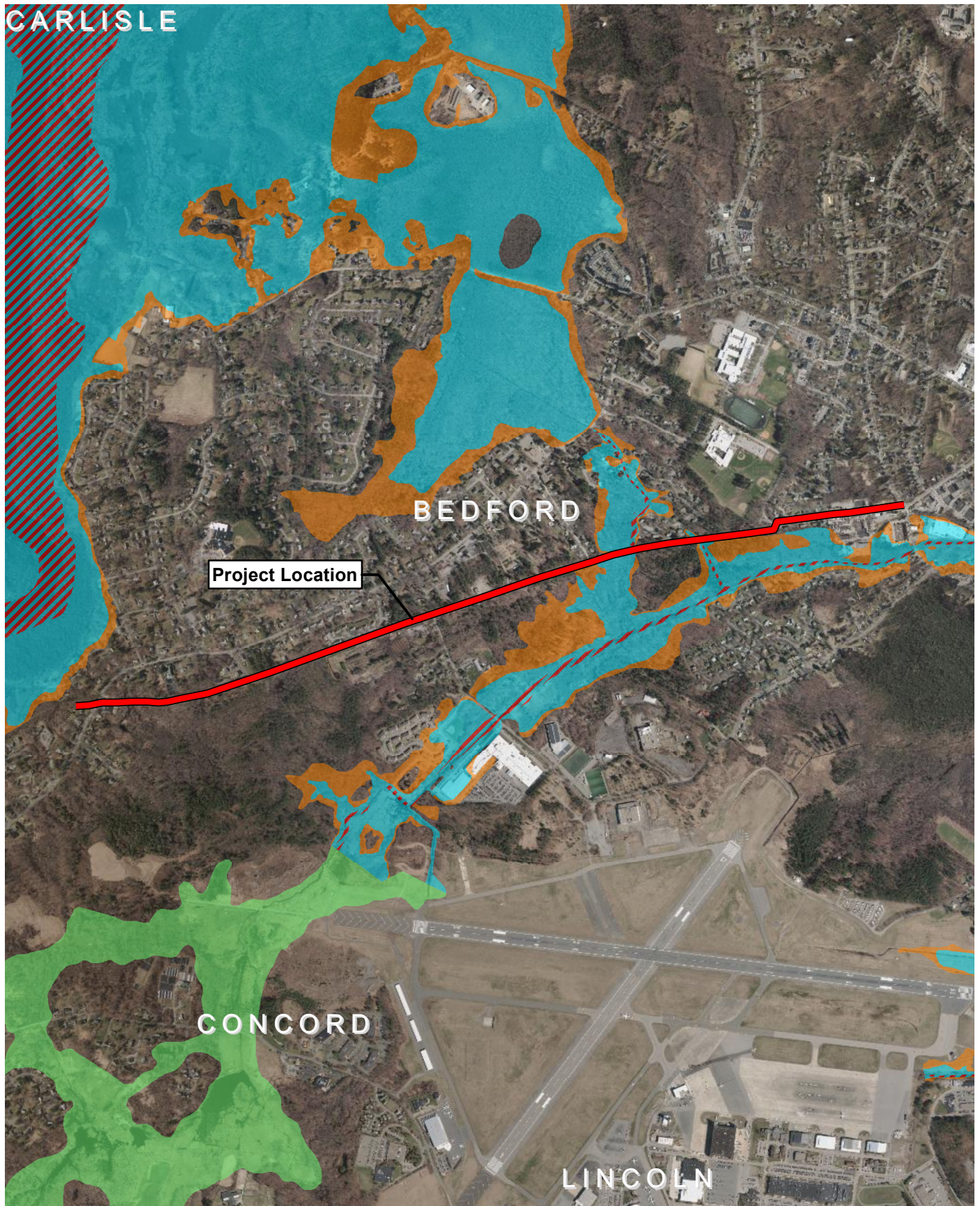


**Minuteman Bikeway Extension** Bedford, MA

-  Project Alignment
-  NHESP Estimated Habitats of Rare Wildlife
-  NHESP Priority Habitats of Rare Species

**Figure 3 - NHESP Map**

Source Info: USGS



Minuteman Bikeway Extension Bedford, MA

- Project Alignment
- AE: 1% Annual Chance of Flooding, with BFE
- AE: Regulatory Floodway
- A: 1% Annual Chance of Flooding, no BFE
- X: 0.2% Annual Chance of Flooding

Figure 4 - FEMA Map  
Source Info: USGS



---

# Attachment A

## Notice of Intent Narrative

- › Introduction
- › Site Description
- › Work Description
- › Mitigation Measures
- › Regulatory Compliance
- › Summary

# Attachment A - Notice of Intent Narrative

This Notice of Intent (NOI) is filed pursuant to the Massachusetts Wetlands Protection Act (MGL Chapter 131, Section 40) and its implementing regulations (310 CMR 10.00) and the Town of Bedford Wetlands Protection By-Law.

## Introduction

The Town of Bedford (the Applicant) is proposing to extend the Minuteman Bikeway by making a 1,665-foot portion of Railroad Avenue accessible to bikes and constructing 8,800 feet of bikeway (the Project) on the Reformatory Branch Trail, from Railroad Avenue to approximately 200 feet west of Concord Road (the Project Limits). As a part of the Railroad Avenue reconstruction, sidewalks, bike accommodations, new drainage, pavement markings and signs and defined curb cuts will be constructed. The project also includes a concrete box culvert at Concord Road to provide a grade-separated crossing under the road, and three small porous pavement parking lots to access the bikeway at Railroad Avenue, Lavender Lane, and Concord Road. Other associated work includes installing erosion and sedimentation controls during construction and tree and vegetation removal along portions of the trail corridor.

Portions of the Project will be required in areas subject to jurisdiction of the Massachusetts Wetlands Protection Act (WPA) and the Town of Bedford Wetlands Protection By-Law (the Bylaw). The Project requires unavoidable work within 25 feet of protected wetland resource areas and will result in more than 25% of the Buffer Zone being impervious surface. Therefore, the Applicant is requesting that the Commission grant a variance from the standards established by the Bylaw for Buffer Zone (2.2.2.1a and 2.2.2.1b), Buffer Strip and 50-foot Buffer Zone (2.2.2.2).

Wetland resource areas will be protected from impacts during construction through the implementation of an erosion and sedimentation control program. This program includes provisions to minimize areas of disturbance through phasing and sequencing, limit erosion through stabilization, and prevent sediment from leaving the site by installing structural controls. Runoff generated from the project will be collected and treated in accordance with design guidelines<sup>1</sup> developed by Department of Environmental Protection (DEP) and standards contained in the WPA Regulations. The Project will qualify for authorization under General Permit 10 pursuant to the Federal Clean Water Act.

---

<sup>1</sup> DEP, 2008. *Massachusetts Stormwater Handbook*.

## Site Description

The Reformatory Branch Trail is currently unpaved and does not provide safe crossings at Hartwell Avenue or Concord Road. In some portions, the trail is overgrown with vegetation, leaving only a narrow-beaten path. The width of Railroad Avenue varies between 20 and 27 feet, the pavement condition is poor, and although it's in close proximity to the Bedford High School, only provides intermittent sidewalk. A substandard curve near the entrance of the bike path requires speed advisory signs, substandard drainage causes ponding in several areas, and undefined curb cuts result in parking along the layout line. The existing Minuteman Bikeway is used as a transportation corridor for regional commuters as well as local residents. Extending the bikeway to Concord Road will provide on-road links along Railroad Avenue, and off-road links to Hartwell Road and Concord Road (Route 62) in addition to providing access to the schools and connecting the Mary Putnam Webber 20-acre wildlife preserve, the 19-acre Elm Brook Conservation Area and the 15-acre Dellovo Conservation Area. Existing trails through these conservation areas are part of a network of trails that also meander through MassPort properties near the Concord town line south of the trail extension.

According to the regional Natural Resources Conservation Service (NRCS) soil survey, the most dominant soil type within the Project limits is Deerfield loamy fine sand, with areas of Urban Land, Swansea muck, and Charlton-Hollis rock outcrop<sup>2</sup>. No portion of the Project limits will require work in mapped Priority or Estimated Habitat of Rare Species, or Wildlife as determined by the Massachusetts Natural Heritage and Endangered Species Program (NHESP)<sup>3</sup>. The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM)<sup>4</sup> produced for the Town of Bedford indicates that portions of the project area are located in the vicinity of an area of 100-year floodplain regulated as Bordering Land Subject to Flooding (Figure 4: FEMA Map). The Project is not located within an Outstanding Resource Water (ORW)<sup>5</sup> or Area of Critical Environmental Concern. The majority of the Project limits are located within a Zone II Wellhead Protection area.

Wetland resource areas on/near the site are described below.

## Wetland Resource Areas

Wetlands along the existing abandoned roadway embankment were initially delineated in August 2010 by environmental scientists with VHB, Inc. in accordance with methods developed by the DEP<sup>6</sup> and the U.S. Army Corps of Engineers<sup>7</sup>. Wetland resource areas along the Project Limits were revisited and wetland lines verified on August 6, 2020. The

---

2 USDA Natural Resources Conservation Service, 2019. *Web Soil Survey Middlesex County, Massachusetts*.

3 NHESP, 2021. *Massachusetts Natural Heritage Atlas, 15th Edition*.

4 Federal Emergency Management Agency, *Flood Insurance Rate Map, Town of Bedford, Massachusetts, Middlesex County*. Community Panel Numbers 25017C0381F, and 25017C0377F (effective 7/7/2014) and Panel Number 25017C0382F (effective 07/06/2016).

5 DEP, 1993. *Designated Outstanding Resource Waters of Massachusetts*.

6 DEP, 1995. *Delineating Bordering Vegetated Wetlands Under the Massachusetts Wetlands Protection Act*.

7 USACE, 2012. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, Version 2.0*.

following sections of this narrative describe the wetlands and identify resource areas that are regulated under the WPA Regulations (310 CMR 10.00). Documentation of conditions in and adjacent to wetlands are summarized in the data forms provided in Attachment C of this NOI.

The state-regulated wetland resource areas identified in the vicinity of the Project limits include Bank, Bordering Vegetated Wetland (BVW), Land Under Water Bodies and Waterways, Bordering Land Subject to Flooding, and Riverfront Area (Table 1). These resource areas are defined under the WPA Regulations (310 CMR 10.00). There are also several areas of Isolated Vegetated Wetland subject to the local wetlands protection Bylaw. Descriptions of the wetland resource areas are as follows:

- **Bank:** As defined at 310 CMR 10.54 (2), a Bank is the portion of the land surface, which normally abuts and confines a water body. The upper boundary of Bank is the first observable break in slope.
- **Bordering Vegetated Wetland (BVW):** As defined by 310 CMR 10.55(2)(a) and (c), BVWs are “freshwater wetlands that border on creeks, rivers, streams, ponds, and lakes.” The boundary of BVW is determined by the presence of 50 percent or more of wetland indicator plants and saturated or inundated conditions.
- **Land Under Waterbodies and Waterways (LUWW):** As defined at 310 CMR 10.56 (2), LUWW is “the bottom of, or land under, the surface of the ocean or any estuary, creek, river, stream, pond, or lake.”
- **Bordering Land Subject to Flooding (BLSF):** As defined at 310 CMR 10.57, Bordering Land Subject to Flooding (BLSF) is an area which floods from a rise in a bordering waterway or water body. The boundary of Bordering Land Subject to Flooding is the estimated maximum lateral extent of flood water which will theoretically result from the statistical 100-year frequency storm.
- **Riverfront Area (RFA):** As defined at 310 CMR 10.58 (a)(3), RFA is “the area of land between a river’s mean annual high-water line measured horizontally outward from the river and a parallel line located 200 feet away.”

Wetlands located along the Project Limits are summarized in Table 1 below and are described in more detail in the following sections of this attachment. Refer to the Project Plans for the wetland locations.

**Table 1 Wetland Resource Areas**

Wetland No.	Delineation Flag Numbers	Cover Type	Resource Type
Wetland WF1A	WF1A-100 to WF1A-105	PEM	IVW
Wetland 1	WF1-96 to WF1-110	PFO	BVW
Wetland 2	WF2-100 WF2-111	PFO	BVW
Wetland 3	WF3-88 to WF3-103	PSS/PEM	BVW
Wetland 4	WF4-100 to WF4-108	PFO	BVW
Wetland 5	WF5-100 to WF5-109 WF5-200 to WF-215	PFO/PSS	BVW
Wetland 6	WF6-400 to WF6-416 BF6-100 to BF6-105	PEM/PFO	BVW, Bank
Isolated Wetland 7	WFIW7-100 to WFIW7-103	PSS	IVW
Isolated Wetland 8	WFIW8-100 to WFIW8-109	PSS	IVW
Isolated Wetland 9	WFIW9-100 to WFIW9-106	PSS	IVW
Wetland 8	WF8-100 to WF8-107	PFO/PSS	BVW
Wetland 10	WF10-100 to WF10-110	PFO	BVW
Wetland 11	WF11-100 to WF11-116	PFO	BVW
Wetland 12	WF12-100 to WF12-110	PFO	BVW
Wetland 13	WF13-100 to WF13-107	PEM	BVW
Isolated Wetland 14	WFIW14-100 to WFIW14-107	PSS	IVW
Isolated Wetland 15	WFIW15-100 to WFIW15-109	PSS	IVW
Isolated Wetland 16	WF16-100 to WF16-107	PSS	IVW
Wetland 17	BF17-100 to BF17-103 BF17-200 to BF17-204	Intermittent Stream	Bank
WF1B1- Ditches	--	Drainage Ditches	Non-Jurisdictional Ditch
Mongo Brook	BF1-100 to BF1-103 BF1-200 to BF1-203	Perennial Waterway	Bank, LUWW, RFA
Elm Brook	BF7-106 to BF7-119 BF7-200 to BF7-206	Perennial Waterway	Bank, LUWW, RFA

Source: VHB, 2010 and 2020.

PFO- Palustrine Forested; PEM- Palustrine Emergent; PSS- Palustrine Scrub Shrub

### Wetland WF1A

Wetland WF1A is an isolated wetland located along Railroad Avenue across from the existing parking area to access the Reformatory Branch Trail (the Trail). The wetland is situated between the existing roadway layout and paved sections of the Bedford Circuit Trail. Dominant wetland vegetation within Wetland WF1A consists of common reed (*Phragmites australis*), American burnweed (*Erechtites hieracifolius*), purple loosestrife (*Lythrum salicaria*), spotted knapweed (*Centaurea stoebe*), smartweed (*Polygonum persicaria*), soft rush (*Juncus effusus*), and royal fern (*Osmunda regalis*). Adjacent upland

areas consist of areas within the layout of Railroad Avenue and associated sidewalks and are vegetated with Queen Anne's Lace (*Daucus carota*), Virginia creeper (*Parthenocissus quinquefolia*), smartweed and garlic mustard (*Alliaria petiolata*).

### Wetland 1

Wetland WF1-100 is located along the toe of the north side of the Trail embankment west of the gravel parking area on Railroad Avenue. The wetland is characterized as a mix of shrub (PSS) and forested (PFO) wetland vegetation communities. Dominant wetland vegetation within Wetland WF1-100 consists of American Elm (*Ulmus americana*), red maple (*Acer rubrum*), glossy buckthorn (*Frangula alnus*). Vegetation in adjacent upland areas along the Trail embankment include sugar maple (*Acer saccharum*), multiflora rose (*Rosa multiflora*), garlic mustard, and Japanese barberry (*Berberis thunbergii*).

### Wetland 2

Wetland WF2-100 is an area of forested/shrub (PFO/PSS) wetland at the toe of the slope on the south side of the trail embankment near the cul-de-sac of Richard Road. Dominant vegetation in Wetland W2-100 consists of red maple, glossy buckthorn, sweet pepperbush (*Clethra alnifolia*), sensitive fern (*Onoclea sensibilis*), Cinnamon fern (*Osmundastrum cinnamomeum*), interrupted fern (*Osmunda claytoniana*) and sphagnum moss (*Sphagnum* sp). Vegetation in the upland areas along the trail embankment include eastern white pine (*Pinus strobus*), northern red oak (*Quercus rubra*), scrub oak (*Quercus ilicifolia*), glossy buckthorn and multiflora rose.

### Wetland 3

Wetland 3 is an area of shrub (PSS) wetland at the toe of the slope on the south side of the Trail embankment that connects to a vegetated ditch which transitions to an area of emergent (PEM) vegetation on the edge of a partially mowed field. Hydrologic indicators within Wetland 3 include flow patterns and water-stained leaves. Dominant vegetation in Wetland 3 consists of red maple, glossy buckthorn, cinnamon fern, Japanese knotweed (*Fallopia japonica*), burning bush (*Euonymus alatus*), sensitive fern, and soft rush.

### Wetland 4

Wetland 4 is an area of forested (PFO) wetland located north of the access road at the water treatment facility located off of Hartwell Road. Dominant vegetation in Wetland 4 consists of red maple, glossy buckthorn, spicebush (*Lindera benzoin*), and sensitive fern. Upland areas between the access road and Wetland boundary consist of mowed lawn that extends to the tree line at the edge of the ROW.

### Wetland 5

Wetland 5 consists of a 5 to 8-foot wide vegetated ditch (WF5-100 series) that runs along the north side of the Trail before connecting to a large area of forested (PFO) wetland (WF5-200 series) underneath an existing footpath. Typical wetland vegetation in

Wetland 5 consists of red maple, glossy buckthorn, cinnamon fern. Vegetation in adjacent upland areas includes Japanese barberry, garlic mustard and Queen Anne's Lace.

### Wetland 6

Wetland 6 is a wetland complex on the south side of the Trail consisting of a vegetated ditch (BF6-100 series) that is hydrologically connected to a wet meadow (PEM) with forested (PFO) fringe (BF6-400 series) near the Railroad Avenue Parking Area. Vegetation within the ditch consists of royal fern, sensitive fern, glossy buckthorn and spotted-joe-pye weed, while vegetation in the wet meadow is dominated by wool grass (*Scirpus cyperinus*) and fringed sedge (*Carex crinita*). Adjacent uplands consist of the trail embankment and wooded areas containing northern red oak and eastern white pine.

### Isolated Wetland 7

Isolated Wetland 7 is a small isolated wetland that consists of a rectangular manmade depression surrounded by a wooded area east of Hartwell Avenue. Vegetation within Isolated Wetland 7 is sparse and consists of glossy buckthorn and poison ivy (*Toxicodendron radicans*).

### Isolated Wetland 8

Isolated Wetland 8 is an isolated ditch that consists of a rectangular manmade depression located on the north side of the Trail. Vegetation within Isolated Wetland 8 is sparse with some red maple and glossy buckthorn.

### Isolated Wetland 9

Isolated Wetland 9 is an isolated ditch that consists of a rectangular manmade depression located on the north side of the Trail, similar to Isolated Wetland 8. Vegetation within isolated Wetland 9 is sparse with some red maple and glossy buckthorn.

### Wetland 8

Wetland 8 is a forested (PFO) wetland located west of the developed properties on Commercial Avenue. The wetland contains significant signs of hydrology including buttressed roots and water stained leaves. Adjacent upland areas are primarily paved and separated from the wetland by a chain link fence. Dominant vegetation in Wetland 8 consists of red maple, American elm, glossy buckthorn, sensitive fern, poison ivy, cinnamon fern and royal fern.

### Wetland 10

Wetland 10 is a large forested (PFO) wetland along the toe of the slope on the north side of the trail embankment near the existing gravel parking area on Concord Road.

Wetland 10 exhibits several hydrologic indicators including water stained leaves, drainage patterns and hydric soils. Dominant vegetation in Wetland 10 consists of red maple, glossy buckthorn, American elm, multiflora rose, spotted jewelweed, and sensitive fern. Adjacent upland areas along the slope of the Trail embankment support sugar maple and multiflora rose.

### Wetland 11

Wetland 11 is an area of PFO/PSS wetland at the toe of the slope on the south side of the trail embankment directly across from Wetland 10. The area shows signs of inundation and water stained leaves. Dominant vegetation in Wetland 11 consists of red maple, American elm, glossy buckthorn, spicebush, highbush blueberry, northern arrowwood, oriental bittersweet, poison ivy, cinnamon fern and sensitive fern.

### Wetland 12

Wetland 12 is an area of PFO wetland at the toe of the slope on the south side of the trail embankment east of the Trail intersection with Lavender Lane. Indicators of hydrology within Wetland 12 include buttressing roots, water stained leaves and flow patterns. Dominant vegetation in Wetland 12 consists of red maple, American witch-hazel (*Hamamelis virginiana*), glossy buckthorn, highbush blueberry, and greenbriar (*Smilax rotundifolia*).

### Wetland 13

Wetland 13 is an area consisting of drainage feature on the New England Nurseries property. The feature receives drainage from an existing culvert near the edge of the Trail layout. Dominant vegetation in Wetland 13 is deer tongue (*Dichanthelium clandestinum*), soft rush (*Juncus effusus*), and purple loosestrife. Surrounding uplands areas are located above gradual slopes and contain primarily mowed grassy areas with some Queen Anne's lace and milkweed.

### Isolated Wetland 14

Isolated Wetland 14 is an isolated ditch along the south side of the Trail directly opposite of Isolated Wetland 9 and separated by a dirt path from Isolated Wetland 15 to the east. The ditch has well-defined manmade boundaries and ranges from three to five feet in width. Vegetation within Isolated Wetland 14 consists of glossy buckthorn and highbush blueberry.

### Isolated Wetland 15

Isolated Wetland 15 is an isolated ditch along the south side of the Trail at the base of a steep slope that separates the layout of the trail from the New England Nurseries property. The ditch ranges from three to five feet in width. Vegetation within Isolated Wetland 15 consists of glossy buckthorn and highbush blueberry.

## Isolated Wetland 16

Wetland 16 is a vegetated ditch along the south side of the Trail which is divided from Isolated Wetland 15 by a small area of upland dominated by Japanese knotweed. The ditch is bound by a steep slope on the south side and ranges in width from 5-10 feet. Vegetation within Wetland 16 includes Glossy buckthorn, poison ivy, quaking aspen (*Populus tremuloides*), and a ground cover dominated by ornamental pachysandra (*Pachysandra* sp).

## Stream 17

Stream 17 is an intermittent waterway that flows through an existing culvert structure underneath Concord Road (Route 62) that outlets near the Bonnievale Avenue intersection. The banks of Stream 17 are densely vegetated with multiflora rose, bittersweet nightshade (*Solanum dulcamara*), spotted jewelweed (*Impatiens capensis*), glossy buckthorn, red maple, willow (*Salix* sp.) with a dense stand of Japanese knotweed located near the intersection.

## WFIB1 and WFIB2 Ditches

Ditches near the Route 62 intersection with the Trail convey drainage along from the roadway and surrounding areas. These ditches are drainage features and are not jurisdictional under the WPA or the Bylaw.

## Mongo Brook

Mongo Brook is a perennial tributary to Elm Brook that flows south to north underneath the existing trail within the Project Limits. The existing crossing consists of a granite block headwall. The channel is defined by moderately steep slopes along the bank with some minor erosion at the base. Mongo Brook originates in White Cedar Swamp, north of Route 62, and receives drainage from the ditches along the trail. Vegetation within the Brook channel and along the bank consist of sweet pepperbush, jewelweed, sensitive fern, cinnamon fern and red maple.

## Elm Brook

Elm Brook is a perennial stream located south of the Project limits, flows to the east and is a tributary of the Shawsheen River. Portions of the brook were delineated near the southern terminus of Commercial Avenue. The banks of Elm Brook are gently sloped and experiencing some undercutting in places. Vegetation along the banks consists of eastern white pine, sweet pepperbush, highbush blueberry, eastern hemlock, white oak, and spotted jewelweed.

## Riverfront Area

A 200-foot Riverfront Area extends from the Mean Annual High-Water boundary of Mongo Brook and Elm Brook along the layout of the trail. The Riverfront Area in the

Project limits consists wooded areas, residential and commercial developed areas and the existing trail layout. The proposed path alignment will be above an existing sewer pipeline that was previously developed by the Town. The path will be installed on the sewer line embankment that is also currently a used as a walking path and off-road bicycle path. Development of the bike path within Riverfront Area qualifies for a limited project (310 CMR 10.53(6) which allows for an Order of Conditions to be issued for a Project consisting of :

*“construction, rehabilitation, and maintenance of footpaths, bike paths, and other pedestrian or non-motorized vehicle access to or along riverfront areas but outside other resource areas, provided that adverse impacts from the work are minimized and that the design specifications are commensurate with the projected use and are compatible with the character of the riverfront area”*

### Bordering Land Subject to Flooding

According to the most recent flood mapping for the Town of Bedford, portions of the Project limits are located in the vicinity of the limits of the 100-year floodplain associated with Elm Brook and Mongo Brook regulated as BLSF. Flood elevations near the project limits have been mapped between elev. 115.7 and 116.4. No work is proposed in BLSF.

### Buffer Zone

The WPA regulations (310 CMR 10.02(2)(b)) establish a 100-foot buffer zone from the limits of all BVW and Bank described above. The buffer zone within the Project limits consists of the previously disturbed railway embankment, adjacent residential and municipally owned properties and existing intersecting roadways.

### Locally Jurisdictional Areas

The Bylaw establishes that *a continuous Buffer Strip (at least 25 feet wide) of undisturbed, natural vegetation be maintained between the proposed activity and the resource area(s). The Commission may require that a buffer strip be created where none currently exists, due to previous activities. Additionally, the Commission shall expect new structures to be sited at least 50 feet from wetland resource area(s).* Areas within the 25-foot Buffer Strip and 50-foot Buffer Zone of resource areas consists of the previously disturbed railway embankment and active gravel pedestrian and bicycle path, existing roadways, and municipally owned and maintained properties.

Additionally, the Bylaw (Section 1.3.1) establishes a 100-foot buffer zone to BLSF. The 100-foot buffer zone to BLSF consists primarily of the existing trail layout and associated shoulders.

## Work Description

The Project will extend the Minuteman Commuter Bikeway from the termination of the existing bikeway at Bedford Depot for 1,700 feet west to meet with a newly constructed shared use path adjacent to Railroad Avenue. The path will then follow the Reformatory

Branch Trail to approximately 200 feet west of Concord Road. The proposed bikeway will be twelve feet wide with a marked centerline and 3-foot shoulders. Pedestrian improvements are proposed at the signalized intersection of South Road & Railroad Avenue, at Railroad Avenue to connect to existing sidewalks leading to the John Glenn Middle School and Bedford High School, the crossing at Hartwell Road, and finally Concord Road.

The proposed work associated with the project includes pavement micromilling, pavement overlay, full depth pavement, cement concrete wheelchair ramps, cement concrete sidewalk, water system modifications, drainage and utility modifications, unclassified excavation, granite curbing, highway guard, retaining wall(s), signal reconstruction, RRFB installation, culvert installation, as well as pavement markings, signage, loam & seed, and other incidental work. The proposed work is show in detail on the Project Plans (bound separately).

## Work in Wetland Resource Areas

Work in wetland resource areas and/or the 100-foot buffer zone is described below. This work fully complies with all applicable performance standards as demonstrated in the Regulatory Compliance section of this Narrative.

**Table 2 Work in Wetland Resource Areas**

Resource Area	Area of Work within Resource	Permanent Alteration	Temporary Alteration
Bank	300 linear feet	52 linear feet	248 linear feet
BVW	4,834 sq. ft	850 sq. ft	3,984 sq. ft
Riverfront Area	18,779 sq. ft	13,318 sq. ft	5,461 sq. ft

Source: VHB, 2022.

### Work on Bank

Work will be required on Bank within the Project limits to accommodate grading activities, installing erosion and sedimentation controls and modifying the existing drainage outfall to Elm Brook beyond the terminus of Commercial Avenue. The new outfall structure will consist of installing a tide gate and 30-inch high-density polyethylene (HDPE) pipe and a new manhole structure with a grate. Overall, the Project will result in a temporary alteration of 293 linear feet of Bank. Permanent alteration of bank will consist of 52 linear feet of impact at Elm Brook.

### Work in Bordering Vegetated Wetland

The Project will require work within BVW along the Project limits to accommodate for grading, installing erosion and sedimentation controls (See Sheet 89 of the accompanying Project Plans for details). Work will result in unavoidable temporary impact to 3,984 square feet of BVW and 850 square feet of permanent impacts to BVW within the Project limits. A suite of mitigation measures is proposed to restore temporary

and replace the permanent impacts to BVW and prevent additional incidental impacts to BVW and is described in the Mitigation Measures section below.

### Work in 200-Foot Riverfront Area

Portions of the Project limits lie within the 200-foot Riverfront Area associated with the Mongo Brook and Elm Brook. All work will be directly related to construction of the Minuteman Bikeway and consists of minor vegetation clearing, grading, filling, paving, drainage and structural upgrades and installing components of the Project’s erosion and sedimentation control plan. Work in the Riverfront Area associated with Elm Brook will also include minor rerouting of an existing footpath and installing native shrub plantings. In total, the Project will impact 18,779 square feet of land located within degraded Riverfront Area along the Trail embankment.

**Table 3 Work in Riverfront Area**

Resource	Temporary Alteration	Permanent Alteration	Total Work Proposed in RFA
RFA 0-100 feet	2,646 sq. ft.	7,823 sq. ft.	10,469 sq. ft.
RFA 100-200 feet	2,815 sq. ft.	5,495.0 sq. ft.	8,310 sq. ft.
<b>Total</b>	<b>5,461 sq. ft.</b>	<b>13,318 sq. ft.</b>	<b>18,779 sq. ft.</b>

Source: VHB, 2020

Work required for constructing will result in an increase in impervious surface in the RFA of approximately 12,022 square feet. Work within existing degraded RFA is allowed as a redevelopment Project under 310 CMR 10.58(5), which includes “improvement of existing roads”.

### Work in Buffer Zone

Work in the 100-foot Buffer Zone associated with the Project will consist of constructing the new paved shared-use path surface, tree and vegetation removal, grading, loam and seed, and installing erosion and sedimentation controls. 5.3 acres of the 9.7-acre area of the Project limit are within the buffer zone established by the WPA.

### Work in Locally Jurisdictional Areas

Work in the locally jurisdictional 25-foot Buffer Strip, 50-foot Buffer Zone, and 100-foot Buffer to BLSF also include constructing the new paved shared-use path surface, tree and vegetation removal, grading, loam and seed, and installing erosion and sedimentation controls adjacent to resource areas. Including the 100-foot Buffer to BLSF, a total of approximately 6.73 acres (293,375 square feet) are within Buffer Zone subject to the jurisdiction of the Bylaw.

The buffer zone within the Project limits currently consists of 27,225 square feet of impervious surface. At the completion of the proposed work, a total of 132,845 square feet of buffer zone will be impervious (approximately 45% of the buffer zone in the Project limits). As discussed in the regulatory compliance section of this NOI, the

Applicant is seeking a waiver of the performance standards established by the Bylaw for 25-foot Buffer Strip, 50-foot Buffer Zone, and 100-foot Buffer Zone.

## Mitigation Measures

A suite of mitigation measures is proposed to prevent short- and long-term impacts to wetland resource areas and compensate for direct disturbances. Mitigation measures proposed for the Project are described below.

### Mitigation for Temporary Impact to Bordering Vegetated Wetland

As described above, the Project will result in 3,984 square feet of temporary impact to BVW. BVW will be returned to its original grade and will be seeded with a New England native Wetland seed mix at a rate specified by its producer.

### Mitigation for Permanent Impact to Bordering Vegetated Wetland

The wetland replacement area will be constructed immediately to the east of the parking areas along Railroad Avenue. The replacement area will be created to offset the loss of 850 square feet of Wetland 5 and Wetland 6. The replacement area will connect to the existing wetland boundary of Wetland 1 between flags WF1-97 and WF1-100A and will be constructed at elevation 117.5 to 118.0 feet, matching the elevation of the adjacent wetland area.

The wetland replacement area will be constructed in accordance with standard MassDOT specifications (Item 755.35: Inland Wetland Replication Area)<sup>8</sup>. The area will be over excavated one foot and backfilled with 12 inches of a man-made wetland soil consisting of 50 percent topsoil and 50 percent compost. The surface of the replacement area shall be altered to create a mound and pool microtopography offset by 6 inches. Once the wetland soil has been spread and the surface texture created, the plants shall be randomly installed within the replacement area as shown on the Project Plans (Sheet 80). Within each planting hole, a small amount of 10-10-10 slow-release fertilizer will be placed to help the plants become established. Once the tree and shrubs are planted, the entire area will be seeded with 2 ounces of a wetland seed mixture.

### Riverfront Area

The Project will require work within the previously altered Riverfront Area associated with Elm Brook and Mongo Brook. To minimize the impact of the proposed Project, the majority of the work is proposed within the existing Trail. Upon completion of the work the areas around the path will be stabilized and reseeded to minimize erosion. Additionally, native shrub plantings are proposed along the limits of work near Elm

---

<sup>8</sup> MassDOT, 2022. *Landscape and Wetland Design Special Provisions* <https://www.mass.gov/info-details/landscape-and-wetland-design-special-provisions>

Brook. Plantings will consist of Chokeberry (*Aronia Melanocarpa*) and Sweet pepperbush (*Clethra alnifolia*) and are depicted on Sheet 15 of the Project plans.

## Erosion and Sediment Control

An erosion and sedimentation control program will be implemented to minimize temporary impacts to wetland resource areas during the construction phase of the project. The program incorporates Best Management Practices (BMPs) specified in guidelines developed by the DEP<sup>9</sup> and the U.S. Environmental Protection Agency (EPA)<sup>10</sup>.

Proper implementation of the erosion and sedimentation control program will:

- › minimize exposed soil areas through sequencing and temporary stabilization;
- › place structures to manage stormwater runoff and erosion; and
- › establish a permanent vegetative cover or other forms of stabilization as soon as practicable.

The following sections describe the controls that will be used and practices that will be followed during construction. These practices comply with criteria contained in the NPDES General Permit for Discharges from Large and Small Construction Activities issued by the EPA.

## Non-Structural Practices

Non-structural practices to be used during construction include temporary stabilization, temporary seeding, permanent seeding, and dust control. These practices will be initiated as soon as practicable in appropriate areas at the site.

### Temporary Stabilization

Any areas of exposed soil or stockpiles that will remain inactive for more than 14 days will be covered with a layer of straw mulch applied at a rate of 90 pounds per 1,000 square feet. The mulch will be anchored with a tacking coat (non-tar) applied by a hydroseeded. Steeper slopes (greater than 10 percent) will be covered with a bonded fiber matrix according to the recommendations provided by the manufacturer.

In the event that heavy rain is forecast (more than 2 inches over a 24-hour period), slopes that are not stabilized will be treated with a polyacrylamide (PAM) product such as Silt Stop® (or an equivalent product). PAM is a nontoxic substance that promotes soil bonding. The PAM shall be applied in powder or liquid form in accordance with the recommendations provided by the manufacturer. This practice is only needed for sites that are highly susceptible to erosion.

---

9 DEP, 1997. *Massachusetts Erosion and Sediment Control Guidelines for Urban and Suburban Areas: A Guide for Planners, Designers, and Municipal Officials*.

10 EPA, 2007. *Interim Developing Your Stormwater Pollution Prevention Plan: A Guide for Construction Sites*. Office of Water. Report EPA 833-R-060-04.

### **Temporary Seeding**

If conditions allow, a temporary vegetative cover will be established on areas of exposed soils (including stockpiles) that remain unstabilized for a period of more than 60 days. The seeded surfaces will be covered with a layer of straw mulch or bonded fiber matrix as described above. The seed mix shall include a blend of rapid germinating grasses that are indigenous to eastern Massachusetts.

### **Permanent Seeding**

Upon completion of final grading, any areas not covered by pavement, other forms of stabilization, or other methods of landscaping will be seeded with a Native wild plant seed mix that includes species found in Eastern Massachusetts. The mix will be applied at a rate specified by the manufacturer and will be covered with mulch or bonded fiber matrix as described above.

### **Pavement Sweeping**

The portions of intersecting roadways that connect to the Project limits shall be swept as needed during construction. The sweeping program will remove sediment and other contaminants directly from paved surfaces before their release into stormwater runoff. Pavement sweeping has been demonstrated to be an effective initial treatment for reducing pollutant loading into stormwater. A street sweeper shall be kept at the site or at a nearby location to facilitate this practice. Once construction has been completed, sweeping at the project site will occur as required under the Operation and Maintenance Plan.

### **Dust Control**

The erosion and sediment control program includes provisions to minimize the generation of dust during dry and windy conditions. The Contractor will comply with the provisions of the Massachusetts Department of Environmental Protection Code of Massachusetts Regulations (CMR) Regulations 310 CMR 7.09 "Dust, Odor, Construction and Demolition." The Contractor will be responsible for control of dust at all times, 24 hours per day, 7 days per week. When necessary, larger areas of exposed soil will be wetted to prevent wind borne transport of fine-grained sediment. Enough water shall be applied to wet the upper 0.5 inches of soil. The water will be applied as a fine spray to prevent erosion. A water truck will be kept on the property (or at a nearby location) to facilitate this practice.

### **Structural Practices**

Structural erosion and sedimentation controls to be used on the site include barriers, stabilized construction exits, temporary sediment basins, temporary diversion swales, temporary check dams, catch basin inlet protection and dewatering filters.

### **Erosion Control Barriers**

Prior to any ground disturbance, an approved erosion control barrier will be installed at the downgradient limit of work. As construction progresses, additional barriers will be installed around the base of stockpiles and other erosion prone areas. The barriers will be entrenched into the substrate to prevent underflow.

If sediment has accumulated to a depth which impairs proper functioning of the barrier, it will be removed by hand or by machinery operating upslope of the barriers. This material will be either reused at the Site or disposed of at a suitable offsite location. Any damaged sections of the barrier will be repaired or replaced immediately upon discovery.

### **Stabilized Construction Exits**

Stone anti-tracking pads will be installed at each access point to the work area to prevent the offsite transport of sediment by construction vehicles. The stabilized construction exits will be at least fifty feet long and will consist of a 4-inch thick layer of crushed stone (1.5 to 2.5 inches in diameter). The stone will be placed over a layer of non-woven filter fabric. The anti-tracking pads will remain in place until a binder coat of pavement has been established on paved surfaces.

### **Dewatering Filters**

If necessary, sediment laden water that collects in trenches or excavated areas will be pumped into straw bale basins or filter bags. The basins will consist of a ring of staked straw bales overlain by non-woven geotextile filter fabric and crushed stone. Discharge water will be pumped into the basin and allowed to drain through the fabric onto relatively flat stabilized surfaces. Dewatering filter bags may be used in place of straw bale basins. The bags will be placed on relatively flat terrain, free of brush and stumps, to avoid ruptures and punctures and not installed in a wetland area. A maximum of one six-inch discharge hose will be allowed per filter bag. To help prevent punctures, geotextile fabric will be placed beneath the filter bag when used in wooded locations. Unattended filter bags will be encircled with a straw bale and silt fence barrier.

All dewatering structures will be placed as far away from wetland resources as possible. Filter bags used during construction will be bundled and removed for proper disposal.

### **Stormwater Management**

The Project will result in an increase in impervious surface of approximately 3.4 acres (148,104 square feet) in the Project limits. The Project is considered a redevelopment and has been designed to comply with the Massachusetts Stormwater Standards to the maximum extent practicable. Compliance with the 10 Massachusetts Stormwater Management standards cited in Section 310 CMR 10.05(6)(k) is discussed in the Stormwater Management Memorandum (Attachment E).

## Regulatory Compliance

As demonstrated below, the proposed work fully complies with the WPA regulations related to, BVW, the 100-foot buffer zone, BLSF, and 200-foot Riverfront Areas. As described above, the Project will result in approximately 45% of the buffer zone in the Project Limits being impervious surface and will also require unavoidable work in the Buffer Strip and 50-foot Buffer Zone. Therefore, pursuant to Section 2.4 of the Bylaw regulations, the Applicant is seeking a waiver of these provisions of the Bylaw established in Sections 2.2.2.1a, 2.2.2.1b and 2.2.2.2. As described in the Mitigation Measures section of this narrative, the Project includes provisions to minimize short and long-term impacts to adjacent wetlands.

### Bank (310 CMR 10.54)

The Project will comply with all relevant performance standards for Bank. The regulations for Bank (310 CMR 10.54(4)(a)) list general performance standards which require that work on a Bank not impair any of the following:

1. *The physical stability of the Bank;*

The Project will maintain the existing physical stability of the affected Bank. Approximately 293 linear feet of existing Bank will be temporarily impacted during construction. Approximately 52 linear feet of Bank will be permanently altered to allow for modifications to the existing outfall to Elm Brook. Upon completion of work, areas of Bank will be stabilized. The proposed work will maintain the physical stability of the Bank.

2. *The water carrying capacity of the existing channel within the Bank;*

All work along Bank will not result in any alteration of the existing carrying capacity of the channels within the Project limits.

3. *Ground water and surface water quality;*

The Project will not alter water chemistry or groundwater or surface water quality. Erosion and sedimentation controls will be in place during all construction activities. A Stormwater Pollution Prevention Plan will be prepared by the contractor and reviewed and approved by MassDOT to protect groundwater and surface water quality.

4. *The capacity of the Bank to provide breeding habitat, escape and food cover for fisheries;*

Work on Bank associated with Mongo Brook is temporary in nature and erosion and sedimentation controls are proposed along the limits of work to minimize sediment discharge to adjacent stream channels. Minor permanent impact to Bank associated with Elm Brook will be required to replace an existing outfall. Bank in the vicinity of the outfall is primarily disturbed from its natural state. Therefore, the Project will not impact the Stream's capacity for providing fisheries habitat.

5. *The capacity of the Bank to provide important wildlife habitat functions.*

Due to existing use of the Project limits as the Reformatory Branch trail., the Bank on the Project Site is altered and degraded from its natural state. A Wildlife Habitat Assessment was performed that demonstrates that the affected Banks do not provide important habitat value (Attachment D).

6. *Work on a stream crossing shall be presumed to meet the performance standards set forth in 310 CMR 10.54(4)(a) provided the work is performed in compliance with the Massachusetts Stream Crossing Standards....*

The Project will cross Mongo Brook on an existing bridge structure. No alterations to the existing headwall or stream crossing structure are proposed. Therefore, no new stream crossings or alterations to any existing stream crossings are proposed as part of the Project.

310 CMR 10.54(4)(c) states that *"Notwithstanding the provisions of 310 CMR 10.54(4)(a) or (b), no project may be permitted which will have any adverse effect on specified habitat sites of rare vertebrate or invertebrate species, as identified by procedures established under 310 CMR 10.59."*

No portions of the Project limits are located within designated estimated habitat and priority habitat of rare species.

According to Section 2.2.2.3 of the Bylaw: *Where a proponent proposes altering a bank, the Commission shall presume that the bank is significant to all the wetland values of the Bylaw. This presumption is rebuttable and may be overcome upon the proponent proving by a preponderance of the credible evidence that the bank does not play a role in the protection of any of the wetland values. When the presumption is not overcome, activities affecting a bank shall comply with the performance standards identified in 310 Code of Massachusetts Regulations (CMR) 10.54 (4)(a) 1-5, and any amendments thereof.*

As described above, the Project complies with the WPA standards for Bank.

### **Bordering Vegetated Wetland (310 CMR 10.55)**

The regulations at 310 CMR 10.55(4)(b) establish performance standards for BVW. The Project, as described above, fully complies with these standards.

*(a) The issuing authority may issue an Order of Conditions permitting work which results in the loss of up to 5,000 square feet of BVW when said area is replaced in accordance with the following general conditions and any additional, specific conditions the issuing authority deems necessary to ensure that the replacement area would function in a manner similar to the area that would be lost;*

The Project will result in a temporary impact to 3,984 square feet of BVW and permanent impacts to 850 square feet of BVW. A 1,650 square foot wetland replacement area is proposed within the project limits.

*(b) The surface of the replacement area to be created shall be equal to that of the area that will be lost (the DEP has determined that Projects requiring a Variance should provide replacement wetland area at a 2:1 ratio);*

The proposed 1,650 square foot replication will provide wetland replacement at a ratio of greater than 1:1.

*According to Section 2.2.2.4 of the Bylaw: Where a proponent proposes altering a wetland, the Commission shall presume the wetland is significant to all the wetland values of the Bylaw. This presumption is rebuttable and can be overcome upon the applicant proving by a preponderance of the credible evidence that the wetland does not play a role in the protection of any of the wetland values. In the event the presumption is not overcome, no activity may alter a wetland area, except that, the Commission, at its discretion, may issue an Order of Conditions permitting any activity to alter a wetland when all of the following conditions are met:*

*a) the area to be altered is less than 5000 square feet;*

As described above, the total proposed temporary and permanent alteration of vegetated wetland will be 4,834 square feet.

*b) the proponent has provided the Commission with an evaluation of the reasonableness of any previously or currently available alternatives.*

An alternatives analysis for the Project has been conducted and a summary of evaluated alternatives is included in the Locally Jurisdiction Areas summary of this Regulatory Compliance Section of the NOI.

*c) every reasonable effort has been made to minimize the amount of wetland altered;*

The alignment chosen for the Project was determined to be the least impactful to wetland resource areas when evaluated against alternative designs.

*d) the replicated wetland shall be created in a non-wetland area located within the bounds of the proposed project on at least a one-to-one basis, shall comply with the performance standards identified in 310 CMR 10.55(4)(b) and any amendments thereof and shall protect the wetland values of the Bylaw;*

A 1,650 square foot wetland replication area is proposed in non-wetland area.

### **Work in 200-Foot Riverfront Area**

As identified in 310 CMR 10.58(2) of the WPA regulations, A Riverfront Area (RFA) is the area of land between a river's mean annual high-water line and a parallel line measured horizontally. The Riverfront area may include or overlap other resource areas or their buffer zones. Additionally, "The presence of natural vegetation within riverfront areas is critical to sustaining rivers as ecosystems."

*As identified in 310 CMR 10.58(2) of the WPA regulations, A Riverfront Area is the area of land between a river's mean annual high-water line and a parallel line measured horizontally. The Riverfront area may include or overlap other resource areas or their*

*buffer zones. Additionally, the presence of natural vegetation within riverfront areas is critical to sustaining rivers as ecosystems.*

Work will be conducted within the previously disturbed Riverfront Area within the existing Reformatory Branch Trail. Due to the current use of the Project limits as multi-use trail, the Riverfront Area on the Site is already degraded from its natural state and the Project will not result in any loss or reduction in the function of the Riverfront Area.

The Project has been designed to meet the performance standards for all resource areas located in the Riverfront Area including Bank and BVW. No portion of the Project limits is located in Estimated and Priority Habitat of Rare Wildlife or Species.

*310 CMR 10.58(5): Redevelopment Within Previously Developed Riverfront Areas; Restoration and Mitigation.*

*Notwithstanding the provisions of 310 CMR 10.58(4)(c) and (d), the issuing authority may allow work to redevelop a previously developed riverfront area, provided the proposed work improves existing conditions. Redevelopment means replacement, rehabilitation or expansion of existing structures, improvement of existing roads, or reuse of degraded or previously developed areas.*

*Work to redevelop previously developed riverfront areas shall conform to the following criteria:*

*(a) At a minimum, proposed work shall result in an improvement over existing conditions of the capacity of the riverfront area to protect the interests identified in M.G.L. c. 131 § 40. When a lot is previously developed but no portion of the riverfront area is degraded, the requirements of 310 CMR 10.58(4) shall be met.*

Portions of the Riverfront Area within the Project limits is already degraded by use as a popular walking path and off-road bicycle path. Six native shrub plantings are proposed in the Riverfront Area associated with Elm Brook to provide enhanced wildlife habitat within the Project limits.

*(b) Stormwater management is provided according to standards established by the Department.*

Stormwater management will be provided to the maximum extent practicable per 310 CMR 10.05(6)(m)6. A stormwater collection system will not be incorporated. The path will not be curbed so stormwater will be allowed to sheet flow of the paved surface to the adjacent vegetated shoulders and wooded areas. No catch basins, piping system, outfalls or stormwater management basins will be installed. By not collecting stormwater, management will be maintained as disconnected drainage, dispersing runoff from the paved path surface over a wide area.

*(c) Within 200-foot riverfront areas, proposed work shall not be located closer to the river than existing conditions or 100 feet, whichever is less, or not closer than existing conditions within 25-foot riverfront areas, except in accordance with 310 CMR 10.58(5)(f) or (g).*

The existing path crosses over Mongo Brook on a bridge structure. This will be used for the paved path as well. The proposed path will be right to the edge of the Riverfront Area as is the existing unpaved path.

*(d) Proposed work, including expansion of existing structures, shall be located outside the riverfront area or toward the riverfront area boundary and away from the river, except in accordance with 310 CMR 10.58(5)(f) or (g).*

By design and the position of the Mongo Brook that will be crossed by the path, the path will cross through the Riverfront Area.

*(e) The area of proposed work shall not exceed the amount of degraded area, provided that the proposed work may alter up to 10% if the degraded area is less than 10% of the riverfront area, except in accordance with 310 CMR 10.58(5)(f) or (g).*

The proposed degraded area will exceed 10% of the available Riverfront Area within the Project alignment. However, the existing 18,779 square feet of Riverfront is primarily degraded from its natural state and the Project qualifies as a Limited Project (310 CMR 10.53(6)).

*(f) When an applicant proposes restoration on-site of degraded riverfront area, alteration may be allowed notwithstanding the criteria of 310 CMR 10.58(5)(c), (d), and (e) at a ratio in square feet of at least 1:1 of restored area to area of alteration not conforming to the criteria. Areas immediately along the river shall be selected for restoration. Alteration not conforming to the criteria shall begin at the riverfront area boundary. Restoration shall include:*

- 1. removal of all debris, but retaining any trees or other mature vegetation;*
- 2. grading to a topography which reduces runoff and increases infiltration;*
- 3. coverage by topsoil at a depth consistent with natural conditions at the site; and*
- 4. seeding and planting with an erosion control seed mixture, followed by plantings of herbaceous and woody species appropriate to the site;*

Restoration of Riverfront Area is not proposed.

*(g) When an applicant proposes mitigation either on-site or in the riverfront area within the same general area of the river basin, alteration may be allowed notwithstanding the criteria of 310 CMR 10.58(5)(c), (d), or (e) at a ratio in square feet of at least 2:1 of mitigation area to area of alteration not conforming to the criteria or an equivalent level of environmental protection where square footage is not a relevant measure. Alteration not conforming to the criteria shall begin at the riverfront area boundary. Mitigation may include off-site restoration of riverfront areas, conservation restrictions under M.G.L. c. 184, §§ 31 to 33 to preserve undisturbed riverfront areas that could be otherwise altered under 310 CMR 10.00, the purchase of development rights within the riverfront area, the restoration of bordering vegetated wetland, projects to remedy an existing adverse impact on the interests identified in M.G.L. c. 131, § 40 for which the applicant is not legally responsible, or similar activities undertaken voluntarily by the applicant which will support a determination by the issuing authority of no significant adverse impact. Preference shall*

*be given to potential mitigation projects, if any, identified in a River Basin Plan approved by the Secretary of the Executive Office of Environmental Affairs.*

Mitigation for work in Riverfront Area is not proposed.

Due to previous development of the existing trail, the RFA is already degraded from its natural state in most areas within the Project Limits and the Project will not result in any loss or reduction in the function of the Riverfront Area. The proposed path alignment will be above an existing sewer pipeline that was previously developed by the Town. The path will be installed on the sewer line embankment that is also currently used as a walking path and off-road bike path. Development of the bike path within Riverfront Area qualifies for a limited project (310 CMR 10.53(6)). Wetland Replication is proposed in the Project limits, but not within the Riverfront Area.

### Buffer Zone

*As identified in 310 CMR 10.53(1) of the WPA regulations, "the issuing authority should consider the characteristics of the buffer zone, such as the presence of steep slopes, that may increase the potential for adverse impacts on resource areas. Conditions may include limitations on the scope and location of work in the buffer zone as necessary to avoid alteration of resource areas. The issuing authority may require erosion and sedimentation controls during construction, a clear limit of work, and the preservation of natural vegetation adjacent to the resource area and/or other measures commensurate with the scope and location of the work within the buffer zone to protect the interests of the Act."*

The proposed project has been designed to address these requirements. The Buffer Zone within the Project limits currently consists entirely of the disturbed Reformatory Branch trail embankment. As identified in the Mitigation Measures section of this attachment, an erosion and sedimentation control program will be implemented to prevent adverse impacts during construction.

### Locally Jurisdictional Areas

*According to the Bylaw (Section 2.4 a) the "Conservation Commission may waive the application of any regulations contained herein when it receives a written request for a variance from the proponent, and it determines that a variance is necessary to accommodate an overriding community, regional, state or national public interest. The proponent shall have the burden of demonstrating that there is no reasonable alternative design of the project that would minimize alteration of protected resource areas and that the activity serves an overriding public interest,"*

The Project will require unavoidable work within the 25-foot Buffer Strip, 50-foot Buffer Zone, and 100-foot Buffer Zone to BLSF. Work will also increase the amount of impervious area within the buffer zone resulting in approximately 45% of the buffer zone in the Project Limits being impervious surface. The Project is necessary to accommodate an overriding community, regional, state, or national public interest. The purpose of the Project is to enhance bicycle and pedestrian access and safety along a proposed extension of the Minuteman Bikeway and is proposed as part of the Massachusetts

Department of Transportation (MassDOT) FY 2023 Transportation Improvement Plan (TIP).

### **Alternatives Analysis**

Alternatives to the proposed design were evaluated and included the “*No-build Alternative*”, and the Preferred Alternative included below.

The proposed alignment of the Minuteman Bikeway Extension was developed following a detailed alternatives analysis process. Two primary alternatives were considered for the project. To determine a preferred alternative, the following impacts were considered:

- Right-of-way
- Tree removal
- Character
- Pedestrian accessibility
- Bicycle accommodation

#### *The “No-build Alternative”*

Alternatives for the Project included the “No-Build Alternative”. The Project involves constructing a new section of shared use path in Bedford to improve multimodal accessibility in the area. The No-Build Alternative would not result in any improvement to pedestrian or bicycle accommodations in the Project limits. There would be no pedestrian or bicycle accommodation improvements along Railroad Avenue and the existing gravel path would remain a gravel surface. Maintaining the existing gravel surface path would not be safe for bicycles with narrow tires, limited the benefit for all users. Therefore, the no-Build alternative does not meet the purpose and need requirements of the Project and was not selected as the preferred alternative.

#### *Alternate Alignments*

Constructing the path on an Alternate alignment would require the acquisition of significant amounts of right-of-way and impacts to abutting parcels. Realignment of the extension would lead to significantly more and new impacts to wetland resource areas and forested upland areas which abut the existing Reformatory Branch Trail alignment.

### *Preferred Alternative*

The *Preferred Alternative* for the Project provides partial sharing for bicycles and motor vehicles and provides separate accommodation for pedestrians along Railroad Avenue. The Project will construct a 12-foot wide, two-lane bikeway extension with 3-foot shoulders. The layout of the *Preferred Alternative* can generally fit into the existing right-of-way and has the smallest footprint of all evaluated design alternatives.

Improvements to the Reformatory Branch Trail will extend the Minuteman Bikeway, an important community and regional multimodal facility. This path extension also provides the potential for future path connections into the Town of Concord.

Based on the evaluation of suitable alternatives, the Applicant has determined that the *Preferred Alternative* for the Project will minimize impacts to environmental resources including trees and wetland resources while fulfilling its intended purpose and need and providing important community and regional benefits. Therefore, in accordance with Section 2.4 of the Bylaw, the Applicant is requesting that the Commission grant a variance from the standards established by the Bylaw for Buffer Zone (2.2.2.1a and 2.2.2.1b), and Buffer Strip and 50-foot Buffer Zone (2.2.2.2).

## Summary

The Town of Bedford is proposing to extend the Minuteman Bikeway by making a 1,665-foot portion of Railroad Avenue accessible to bikes and constructing 8,800 feet of bikeway (the Project) on the Reformatory Branch Trail, from Railroad Avenue to approximately 200 feet past Concord Road.

Work will result in temporary and permanent impacts to Bordering Vegetated Wetland and Riverfront Area as well as temporary and permanent impacts to Bank. Temporary impacts to 3,984 square feet of BVW will be mitigated by reseeding of affected areas with a Native New England Wetland Seed mix. To mitigate permanent impacts to 850 square feet of BVW, mitigation will be provided in the form of a 1,650 square foot replication area on site. Work within Riverfront Area will take place in previously degraded areas and will not result in loss of wetland function of the adjacent resources. Erosion and sedimentation controls will be employed throughout construction to prevent any additional impacts to resource areas.

The Applicant respectfully requests that the Bedford Conservation Commission find these measures adequately protective of the interests identified in the WPA and issue an Order of Conditions approving the work described in this NOI and shown on the accompanying plans. Pursuant to Section 2.4 of the Bylaw, the applicant is requesting that the Commission grant a variance from the standards established by the Bylaw for Buffer Zone (2.2.2.1a and 2.2.2.1b), and Buffer Strip and 50-foot Buffer Zone (2.2.2.2).

---

# Attachment B

## Abutter Information

- › Notice to Abutters
- › List of Abutters

## MASSACHUSETTS WETLANDS PROTECTION ACT

In accordance with the second paragraph of Massachusetts General Laws Chapter 131, section 40, you are hereby notified of the following:

- A. The name of the applicant is The Town of Bedford.
- B. The applicant has filed a Notice of Intent with the Conservation Commission for the municipality of **BEDFORD, MASSACHUSETTS**, seeking permission to remove, fill, dredge or alter an Area Subject to Protection under the Wetlands Protection Act (General Laws Chapter 131, section 40).
- C. The address of the lot where the activity is proposed is The Reformatory Branch Trail.
- D. Copies of the Notice of Intent may be examined at the **Code Enforcement/Conservation Office, Town Hall, 10 Mudge Way, Bedford, MA** between the hours of **8 am and 7 pm on Monday, 8 am – 4 pm Tuesday through Thursday, and 8 am -1 pm on Friday**. For more information, call **(781) 275-6211**.
- E. Copies of the Notice of Intent may be obtained from either the applicant , or the applicant's representative , by calling this telephone number (617) 607-1019 between the hours of and \_\_\_\_\_ on the following days of the week: Monday through Friday.
- F. Information regarding the date, time and place of the public hearing may be obtained from the **Bedford Conservation Office** by calling this telephone number **(781) 275-6211** between the hours of **8 am and 7 pm on Monday, 8 am – 4 pm Tuesday through Thursday, and 8 am – 1 pm on Friday**.

**NOTE:** Notice of the public hearing, including its date, time, and place, will be published at least five business days in advance in the **Bedford Minuteman**.

**NOTE:** Notice of the public hearing, including its date, time, and place, will be posted in the Bedford Town Hall or the Bedfordma.gov website not less than 48 hours in advance.

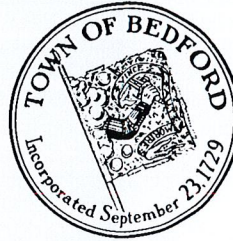
**NOTE:** You also may contact the Bedford Conservation Commission or the nearest Department of Environmental Protection Regional Office for more information about this application or the Wetlands Protection Act. To contact DEP, call: **Northeast Region: (978) 694-3200**



RECEIVED

JAN 12 2022

BEDFORD  
BOARD OF ASSESSORS



RECEIVED

JAN 12 REC'D

COLLECTOR'S OFFICE  
TOWN OF BEDFORD

**BOARD OF ASSESSORS**

TOWN HALL  
10 MUDGE WAY  
BEDFORD, MA 01730  
TEL. 781-275-0046  
FAX 781-275-1881

**Abutters List Request**

For Submission to the CONSERVATION COMM. for NOTICE OF INTENT APPLICATION  
(Board/Committee/Commission) (Special Permit/Sign/License etc.)

Date 1/12/2022

Applicant Name TOWN OF BEDFORD

Address 10 MUDGE WAY

Daytime Phone No. CONTACT DAN CANNATA AT VHB 617-607-1019

Property Location REFORMATORY BRANCH TRAIL LAYOUT AND ADJACENT AREAS (MAP ATTACHED)

Property Owner TOWN OF BEDFORD

Parcel I D: Map N/A Parcel N/A

Special Instructions:

RECENTLY, ORIGINAL CBST 10/26/2020

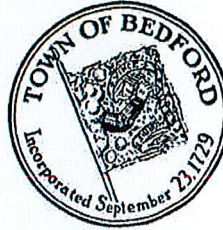
(\*) NOTE: CORRECTIONS/UPDATES MADE 1/12/2022 (\*)

Pursuant to Massachusetts General Law, I hereby certify that the names and addresses of the attached list of parcels are as they appear on the most recent applicable tax list.

Certified by: Matt Labri  
For the Board of Assessors

Fee : \$15  
Paid N/A  
Date

**BOARD OF ASSESSORS**



**RECEIVED**

**OCT 26 2020**

**BEDFORD  
BOARD OF ASSESSORS  
TOWN HALL  
10 MUDGE WAY  
BEDFORD, MA 01730  
TEL. 781-275-0046  
FAX 781-275-1881**

**Abutters List Request**

For Submission to the Conservation Commission for Notice of Intent Application  
(Board/Committee/Commission) (Special Permit/Sign/License etc.)

Date 10/27/2020

Applicant Name Town of Bedford

Address 10 Mudge Way

Daytime Phone No. Contact Dan Cannata at VHB- 617-607-1019

Property Location Reformatory Branch Trail layout and adjacent areas (see attached locus map)

Property Owner Town of Bedford

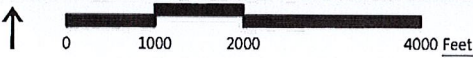
Parcel I D: Map N/A Parcel N/A

Special Instructions:

Pursuant to Massachusetts General Law, I hereby certify that the names and addresses of the attached list of parcels are as they appear on the most recent applicable tax list.

Certified by: *Carol Wilkie*  
For the Board of Assessors

Fee : \$15  
Paid N/A  
Date



**Minuteman Bikeway Extension** Bedford, MA

 Project Alignment

**Figure 2 - Aerial Map**  
Source Info: USGS

LYONS, PATRICK ✓  
10 BONNIEVALE RD  
BEDFORD, MA 01730

EGGERT, JAMES R & LORI ANN ✓  
12 BONNIEVALE DRIVE  
BEDFORD, MA 01730

MCINNIS, MARK & KELLY C ✓  
14 BONNIEVALE DR  
BEDFORD, MA 01730

KATTA, ANILKUMAR ✓  
16 BONNIEVALE DRIVE  
BEDFORD, MA 01730

*MANSE REALTY*  
~~ELDERBERRY LTD PNRSHIP IT~~ ✓  
110 GREAT ROAD  
BEDFORD, MA 01730

BROWN, NATHANIEL K TR ✓  
ELDERBERRY TRUST  
110 GREAT ROAD  
BEDFORD, MA 01730

LLOYD, EDWARD B TR ✓  
T & L NOMINEE TRUST  
2 COMMERCIAL AVENUE  
BEDFORD, MA 01730

BROWN, NATHANIEL K TR ✓  
POPLIN NOMINEE TRUST  
110 GREAT ROAD  
BEDFORD, MA 01730

CULLITY, TRS, JAMES H & KELLIE ✓  
JAMES H CULLITY TRUST  
264 CONCORD RD  
BEDFORD, MA 01730

KIMBALL, TR, JOY JEAN ✓  
THE KIMBALL FAMILY TRUST  
266A CONCORD ROAD  
BEDFORD, MA 01730

HIGSON, EVERETT F & CLAIRE M ✓  
TRUSTEES  
HIGSON CONCORD ROAD REAL ESTATE  
TRUST  
304 CONCORD ROAD  
BEDFORD, MA 01730

HARRIS, WILLIAM R & MARGIE ✓  
308 CONCORD ROAD  
BEDFORD, MA 01730

KIMMELL, DAVID & ADRIENNE ✓  
312 CONCORD RD  
BEDFORD, MA 01730

~~COADY, (LE) GERTRAUD  
COADY, TR, ALLAN R  
320 CONCORD ROAD  
BEDFORD, MA 01730~~

COADY, TR, ALLAN R ✓  
ALLAN R COADY REV TRUST  
320 CONCORD ROAD  
BEDFORD, MA 01730

*JOO-SEUNG LEE*

~~ZAID, HARRAS B & SAFDAR, NIDA  
324 CONCORD RD  
BEDFORD, MA 01730~~

LOVY, ELLIOT & KIM K ✓  
328 CONCORD ROAD  
BEDFORD, MA 01730

KOZLOV, YURI ✓  
83 BEETHOVAN AVE  
WABAN, MA 02468

HOGAN, CATHERINE C & ✓  
DROHAN, BRIAN  
336 CONCORD ROAD  
BEDFORD, MA 01730

TOWN OF BEDFORD ✓  
10 MUDGE WAY  
BEDFORD, MA 01730

TOWN OF BEDFORD ✓  
MARY PUTNAM WEBBER WILDLIFE  
PRESERVE  
10 MUDGE WAY  
BEDFORD, MA 01730

~~TOWN OF BEDFORD  
10 MUDGE WAY  
BEDFORD, MA 01730~~

WIRTH, ALLAN & ✓  
BRUNO, THERESA L  
358 CONCORD ROAD  
BEDFORD, MA 01730

EZEKIEL, TR, DAVID A ✓  
EZEKIEL, ELISE RICHMAN  
366 CONCORD ROAD  
BEDFORD, MA 01730

CARMICHAEL, G WAYNE & THERESA B ✓  
372 CONCORD ROAD  
BEDFORD, MA 01730

CULA LLC ✓  
158 MASSACHUSETTS AVE  
LEXINGTON, MA 02420-4016

FIELD, RACHEL ✓  
380 CONCORD ROAD  
BEDFORD, MA 01730

~~MANCINI, GUY & MICHAEL, TRS  
ESTHER V MANCINI TRUST  
PO BOX 46  
BEDFORD, MA 01730~~

CADOTTE, JOHN C & ELIZABETH J ✓  
392 CONCORD ROAD  
BEDFORD, MA 01730

KARPACHEV, ROMAN B ✓  
394 CONCORD ROAD  
BEDFORD, MA 01730

*m2 1/12/22*

TOWN OF BEDFORD  
10 MUDGE WAY  
BEDFORD, MA 01730

CALLAHAN, W J JR & J J TR  
MEADOWBROOK REALTY TRUST P O  
BOX 269  
BEDFORD, MA 01730

TOWN OF BEDFORD -  
DELLOVO CONS AREA 10 MUDGE WAY  
BEDFORD, MA 01730

BAIATAN, ARSEN  
421 CONCORD ROAD  
BEDFORD, MA 01730

SCHWARTZ, KARL D &  
ESTES, CAROL 423 CONCORD ROAD  
BEDFORD, MA 01730

PATEL, SANJAY D & SONAL P  
427 CONCORD RD  
BEDFORD, MA 01730

TURNER, JULIE MCCAY  
431 CONCORD ROAD  
BEDFORD, MA 01730

SMITH, CHRISTINE E &  
BRYAN, RUSSELL L  
433 CONCORD ROAD  
BEDFORD, MA 01730

GOLDENBERG, LORA J &  
MURPHY, ROBERT BRUCE  
435 CONCORD ROAD  
BEDFORD, MA 01730

U S OF AMERICA (FISH & WILDLIFE)  
OFFICE OF LAW ENFORCEMENT  
300 WESTGATE CENTER DRIVE  
HADLEY, MA 01035

U S OF AMERICA (FISH & WILDLIFE)  
OFFICE OF LAW ENFORCEMENT  
300 WESTGATE CENTER DRIVE  
HADLEY, MA 01035

WASKO, TR, STEVEN N  
WASKO, TR, MEREDITH L  
86 PINE HILL ROAD  
BEDFORD, MA 01730

STEPHEN MCLANE  
25 STECKNEY TERR  
BOX 321  
HAMPTON, NH 03843

BLANDO, GUSTAVO J &  
EVANGELISTI, MARIA C  
22 EVANS AVE  
BEDFORD, MA 01730

HARTWELL HILL LLC  
110 GREAT ROAD  
BEDFORD, MA 01730

TOWN OF BEDFORD  
WATER TREATMENT PLANT  
10 MUDGE WAY  
BEDFORD, MA 01730

TOWN OF BEDFORD -  
WATER TREATMENT PLANT 10 MUDGE  
WAY  
BEDFORD, MA 01730

BROWN, L K, J F JR & N K TR  
POPLIN REALTY TRUST 110 GREAT  
ROAD  
BEDFORD, MA 01730

NAWTHORN HOLDINGS LTD PNRSHIP  
110 GREAT ROAD  
BEDFORD, MA 01730

LIPPE, CATHLEEN  
2 LAVENDER LANE  
BEDFORD, MA 01730

TECCI, TR, MICHAEL A  
TECCI, TR, KATHERINE C 5 LAVENDER  
LANE  
BEDFORD, MA 01730

MELFI, JR, ANTHONY V & REGINA A  
7 LAVENDER LANE  
BEDFORD, MA 01730

TOWN OF BEDFORD  
BEDFORD DEPOT PARK 10 MUDGE WAY  
BEDFORD, MA 01730

TOWN OF BEDFORD  
JR & SR HIGH & CENTER  
10 MUDGE WAY  
BEDFORD, MA 01730

LARSON PROPERTIES, LLC  
79 PINE HILL ROAD  
BEDFORD, MA 01730

CAROLINE LARSON

MCGREGOR, THOMAS D & BONNIE L TR  
LAVONNA REALTY TRUST, THE 292  
RANGWAY ROAD  
BILLERICA, MA 01862

LLOYD, EDWARD B TR  
T & L NOMINEE TRUST 2 COMMERCIAL  
AVENUE  
BEDFORD, MA 01730

BEDFORD CHARTER SERVICE  
11 RAILROAD AVENUE  
BEDFORD, MA 01730

TOWN OF BEDFORD  
ELM BROOK CONS AREA  
10 MUDGE WAY  
BEDFORD, MA 01730

LLOYD, EDWARD B TR T & L NOMINEE  
TRUST  
2 COMMERCIAL AVENUE  
BEDFORD, MA 01730

KNOEDLER, ANDREW & AUDRA  
19 RAILROAD AVENUE  
BEDFORD, MA 01730

me 1/12/22

BEDFORD HOUSING AUTHORITY  
ASHBY PLACE  
BEDFORD, MA 01730 ✓

SILVER, MARK J & ANNEMARIE E ✓  
21 RAILROAD AVENUE  
BEDFORD, MA 01730

GOODMAN, LEONARD I ✓  
22 RAILROAD AVENUE  
BEDFORD, MA 01730

GREEN, GAIL C ✓  
23 RAILROAD AVENUE  
BEDFORD, MA 01730

YOUNG, WILLIAM Y & SHARON M ✓  
24 RAILROAD AVENUE  
BEDFORD, MA 01730

CARD JR, CLARENCE W & MARIE E ✓  
25 RAILROAD AVENUE  
BEDFORD, MA 01730

COLLINS, TRS, MATTHEW R & ANNA  
THE MATTHEW R COLLINS TRUST ✓  
26 RAILROAD AVENUE  
BEDFORD, MA 01730

COLLINS, ANNA V ✓  
26 RAILROAD AVENUE  
BEDFORD, MA 01730

PATEL, NIRAV NALKRISHNA &  
PATEL, MADHAVI CHIMANBHAI ✓  
29 RAILROAD AVE  
BEDFORD, MA 01730

RADLO, DAVID ✓  
2 RICHARD ROAD  
BEDFORD, MA 01730

PIETRASIK, JOHN P &  
GARITY, KATHLEEN ✓  
4 RICHARD ROAD  
BEDFORD, MA 01730

STUCKA, LADISLAV & LUDMILA ✓  
6 RICHARD ROAD  
BEDFORD, MA 01730

RUSSO, ANTHONY J & ANDREA J ✓  
8 RICHARD ROAD  
BEDFORD, MA 01730

LEONG, ROBERT K W & JOAN Y  
TRUSTEES ✓  
10 RICHARD ROAD REALTY TRUST  
10 RICHARD ROAD  
BEDFORD, MA 01730

TOWN OF BEDFORD ✓  
BEDFORD DEPOT PARK  
10 MUDGE WAY  
BEDFORD, MA 01730

LARSON, ~~KENNETH D~~ CAROLINE ✓  
79 PINE HILL ROAD  
BEDFORD, MA 01730

BOSTON & MAINE R R ✓  
HIGH STREET IRON HORSE PARK  
NORTH BILLERICA, MA 01862

LEARY, DONNA M TR ✓  
120 SOUTH ROAD RLTY TRUST  
SOUTH ROAD  
BEDFORD, MA 01730

~~HAWTHORN HOLDINGS LTD PNRSHIP~~  
~~110 GREAT ROAD~~  
~~BEDFORD, MA 01730~~

BROWN, NATHANIEL K TR ✓  
ELDERBERRY TRUST  
110 GREAT ROAD  
BEDFORD, MA 01730

TOWN OF BEDFORD ✓  
BEDFORD VILLAGE PRESERVATION  
40 COURT ST SUITE 700  
BOSTON, MA 02108

TOWN OF BEDFORD ✓  
10 MUDGE WAY  
BEDFORD, MA 01730

*OK 1/12/22*



---

# Attachment C

## Field Data Forms and Documentation

- › BVW Field Data Forms
- › Photographic Log

## DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Town of Bedford

Prepared by: VHB, Inc.

Project location: Reformatory Branch Trail Bedford

DEP File #: \_\_\_\_\_

- Check all that apply:  Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only  
 Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II  
 Method other than dominance test used (attach additional information)

**Section I. Vegetation**      Observation Plot Number: **WF1-102**      Transect Number: **Downgradient**      Date of Delineation: **6-Aug-20**

Sample Layer and Plant Species	Scientific name	% Cover	% Dominance	Dominant Plant (yes or no)	Wetland Indicator Category*
--------------------------------	-----------------	---------	-------------	----------------------------	-----------------------------

**Tree Layer**

red maple	<i>Acer rubrum</i>	51.0%	57.3%	yes	FAC*
American elm	<i>Ulmus americana</i>	38.0%	42.7%	yes	FACW*

**Sapling/Shrub Layer**

glossy buckthorn	<i>Rhamnus frangula</i>	63.0%	100.0%	yes	FAC*
------------------	-------------------------	-------	--------	-----	------

**Climbing Woody Vine**

**Ground Cover**

poison ivy	<i>Toxicodendron radicans</i>	38.0%	32.5%	yes	FAC*
skunk cabbage	<i>Symplocarpus foetidus</i>	38.0%	32.5%	yes	OBL*
stinging nettle	<i>Urtica dioica</i>	38.0%	32.5%	yes	FACU
cardinal flower	<i>Lobelia cardinalis</i>	3.0%	2.6%	no	FACW*

Remarks: \_\_\_\_\_

Morphological Adaptations: 0

Description: \_\_\_\_\_

\* An asterisk after indicator status denotes wetlands plants: plants listed in the Wetlands Protection Act (MGL c.131, s.40); plants in the genus Sphagnum; or plants listed as FAC, FAC+, FACW-, FACW, FACW+, or OBL.

**Vegetation conclusion:**

**Number of dominant wetland indicator plants: 5**

**Number of dominant non-wetland indicator plants: 1**

**Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants? yes**

*If vegetation alone is presumed adequate to delineate the BVW boundary, submit this form with the Request for Determination of Applicability or Notice of Intent.*

**Section II. Indicators of Hydrology**

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site?  yes  no  
 title/date: Interim Soil Survey of Middlesex County  
 map number: MA017  
 soil type mapped: 256A Deerfield loamy fine sand  
 hydric soil inclusions: \_\_\_\_\_

Are field observations consistent with soil survey?  yes  no  
 Remarks: Soils are disturbed from railroad embankment  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

2. Soil Description

<u>Depth (inches)</u>	<u>Matrix Color</u>	<u>Mottles Color or Texture</u>
0-4	10YR 2/1	fine sandy loam
4+	10 YR 7/1	fine to coarse silty sand

Remarks: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

3. Other: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Conclusion: Is soil hydric?  yes  no

Other Indicators of Hydrology: (check all that apply and describe)

- Site inundated: \_\_\_\_\_
- Depth to free water in observation hole: \_\_\_\_\_
- Depth to soil saturation in observation hole: \_\_\_\_\_
- Water marks: \_\_\_\_\_
- Drift Lines: \_\_\_\_\_
- Sediment deposits: \_\_\_\_\_
- Drainage patterns in BVW: \_\_\_\_\_
- Oxidized rhizospheres: \_\_\_\_\_
- Water-stained leaves: \_\_\_\_\_
- Recorded data (stream, lake, or tidal gauge; aerial photo; other): \_\_\_\_\_
- Other: \_\_\_\_\_

<b>Vegetation and Hydrology Conclusion for Downgradient of WF1-102</b>		
	<u>yes</u>	<u>no</u>
<b>Number of wetland indicator plants</b>		
<b>&gt;= number of non-wetland plants</b>	<b>X</b>	
<b>Wetland hydrology present:</b>		
hydric soils present	<b>X</b>	
other indicators of hydrology present		<b>X</b>
<b>Sample location is in a BVW</b>	<b>X</b>	

*Submit this form with the Request for Determination of Applicability or Notice of Intent*



**Section II. Indicators of Hydrology**

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site?  yes  no

title/date: Interim Soil Survey of Middlesex County - 1991 (Maps - 1989)

map number: MA017

soil type mapped: 256A Deerfield loamy fine sand

hydric soil inclusions: \_\_\_\_\_

Are field observations consistent with soil survey?  yes  no

Remarks: Upland soil plot not collected. Trail embankment/fill

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

2. Soil Description

Depth (inches)      Matrix Color      Mottles Color or Texture

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Remarks: \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_

3. Other: \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_

Conclusion: Is soil hydric?  yes  no

Other Indicators of Hydrology: (check all that apply and describe)

- Site inundated: \_\_\_\_\_
- Depth to free water in observation hole: \_\_\_\_\_
- Depth to soil saturation in observation hole: \_\_\_\_\_
- Water marks: \_\_\_\_\_
- Drift Lines: \_\_\_\_\_
- Sediment deposits: \_\_\_\_\_
- Drainage patterns in BVW: \_\_\_\_\_
- Oxidized rhizospheres: \_\_\_\_\_
- Water-stained leaves: \_\_\_\_\_
- Recorded data (stream, lake, or tidal gauge; aerial photo; other): \_\_\_\_\_
- Other: \_\_\_\_\_

<b>Vegetation and Hydrology Conclusion for Upgradient of WF1-102</b>		
	<u>yes</u>	<u>no</u>
<b>Number of wetland indicator plants</b>		
<b>&gt;= number of non-wetland plants</b>		<b>X</b>
<b>Wetland hydrology present:</b>		
hydric soils present		
other indicators of hydrology present		<b>X</b>
<b>Sample location is in a BVW</b>		<b>X</b>

*Submit this form with the Request for Determination of Applicability or Notice of Intent*

## DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Town of Bedford

Prepared by: VHB, Inc.

Project location: Reformatory Branch Trail Bedford

DEP File #: \_\_\_\_\_

- Check all that apply:  Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only  
 Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II  
 Method other than dominance test used (attach additional information)

**Section I. Vegetation**      Observation Plot Number: **WF1B1-100**      Transect Number: **Downgradient**      Date of Delineation: **6-Aug-20**

Sample Layer and Plant Species	Scientific name	% Cover	% Dominance	Dominant Plant (yes or no)	Wetland Indicator Category*
--------------------------------	-----------------	---------	-------------	----------------------------	-----------------------------

**Tree Layer**

red maple	<i>Acer rubrum</i>	51.0%	68.5%	yes	FAC*
American elm	<i>Ulmus americana</i>	20.5%	27.5%	yes	FACW*
eastern white pine	<i>Pinus strobus</i>	3.0%	4.0%	no	FACU

**Sapling/Shrub Layer**

glossy buckthorn	<i>Rhamnus frangula</i>	20.0%	66.7%	yes	FAC*
highbush blueberry	<i>Vaccinium corymbosum</i>	10.0%	33.3%	yes	FACW*

**Climbing Woody Vine**

**Ground Cover**

jewelweed	<i>Impatiens capensis</i>	20.0%	13.9%	no	FACW*
skunk cabbage	<i>Symplocarpus foetidus</i>	63.0%	43.8%	yes	OBL*
cinnamon fern	<i>Osmunda cinnamomea</i>	51.0%	35.4%	yes	FACW*
poison ivy	<i>Toxicodendron radicans</i>	10.0%	6.9%	no	FAC*

Remarks: \_\_\_\_\_

Morphological Adaptations: 0

Description: \_\_\_\_\_

\* An asterisk after indicator status denotes wetlands plants: plants listed in the Wetlands Protection Act (MGL c.131, s.40); plants in the genus Sphagnum; or plants listed as FAC, FAC+, FACW-, FACW, FACW+, or OBL.

**Vegetation conclusion:**

**Number of dominant wetland indicator plants: 6**

**Number of dominant non-wetland indicator plants: 0**

**Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants? yes**

*If vegetation alone is presumed adequate to delineate the BVW boundary, submit this form with the Request for Determination of Applicability or Notice of Intent.*

**Section II. Indicators of Hydrology**

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site?  yes  no  
 title/date: Interim Soil Survey of Middlesex County  
 map number: MA017  
 soil type mapped: 256A Deerfield loamy fine sand  
 hydric soil inclusions: \_\_\_\_\_

Are field observations consistent with soil survey?  yes  no  
 Remarks: Soils are disturbed from railroad embankment  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

2. Soil Description

<u>Depth (inches)</u>	<u>Matrix Color</u>	<u>Mottles Color or Texture</u>
0-12	10YR 2/1	fine sandy loam
12+	10Y 6/1	Gley- fine to coarse sand

Remarks: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

3. Other: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Conclusion: Is soil hydric?  yes  no

Other Indicators of Hydrology: (check all that apply and describe)

- Site inundated: \_\_\_\_\_
- Depth to free water in observation hole: \_\_\_\_\_
- Depth to soil saturation in observation hole: \_\_\_\_\_
- Water marks: \_\_\_\_\_
- Drift Lines: \_\_\_\_\_
- Sediment deposits: \_\_\_\_\_
- Drainage patterns in BVW: \_\_\_\_\_
- Oxidized rhizospheres: \_\_\_\_\_
- Water-stained leaves: \_\_\_\_\_
- Recorded data (stream, lake, or tidal gauge; aerial photo; other): \_\_\_\_\_
- Other: cattail marsh

<b>Vegetation and Hydrology Conclusion for Downgradient of WF1B1-100</b>		
	<u>yes</u>	<u>no</u>
<b>Number of wetland indicator plants</b>		
<b>&gt;= number of non-wetland plants</b>	<b>X</b>	
<b>Wetland hydrology present:</b>		
hydric soils present	<b>X</b>	
other indicators of hydrology present		<b>X</b>
<b>Sample location is in a BVW</b>	<b>X</b>	

*Submit this form with the Request for Determination of Applicability or Notice of Intent*



**Section II. Indicators of Hydrology**

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site?  yes  no

title/date: Interim Soil Survey of Middlesex County - 1991 (Maps - 1989)

map number: MA017

soil type mapped: 256A Deerfield loamy fine sand

hydric soil inclusions: \_\_\_\_\_

Are field observations consistent with soil survey?  yes  no

Remarks: Plot not collected. Trail embankment

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

2. Soil Description

Depth (inches)    Matrix Color    Mottles Color or Texture

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Remarks: \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

3. Other: \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_

Conclusion: Is soil hydric?  yes  no

Other Indicators of Hydrology: (check all that apply and describe)

- Site inundated: \_\_\_\_\_
- Depth to free water in observation hole: \_\_\_\_\_
- Depth to soil saturation in observation hole: \_\_\_\_\_
- Water marks: \_\_\_\_\_
- Drift Lines: \_\_\_\_\_
- Sediment deposits: \_\_\_\_\_
- Drainage patterns in BVW: \_\_\_\_\_
- Oxidized rhizospheres: \_\_\_\_\_
- Water-stained leaves: \_\_\_\_\_
- Recorded data (stream, lake, or tidal gauge; aerial photo; other): \_\_\_\_\_
- Other: \_\_\_\_\_

Vegetation and Hydrology Conclusion for Upgradient of WF1B1-100		
	<u>yes</u>	<u>no</u>
Number of wetland indicator plants >= number of non-wetland plants	<b>X</b>	
Wetland hydrology present:		
hydric soils present		
other indicators of hydrology present		<b>X</b>
Sample location is in a BVW		<b>X</b>

*Submit this form with the Request for Determination of Applicability or Notice of Intent*



**Section II. Indicators of Hydrology**

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site?  yes  no  
 title/date: Interim Soil Survey of Middlesex County  
 map number: MA017  
 soil type mapped: 256A Deerfield loamy fine sand  
 hydric soil inclusions: \_\_\_\_\_

Are field observations consistent with soil survey?  yes  no  
 Remarks: Soils are disturbed from railroad embankment  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

2. Soil Description

<u>Depth (inches)</u>	<u>Matrix Color</u>	<u>Mottles Color or Texture</u>
0-6	10YR 2/1	fine sandy loam, 20% depleted matrix 10YR 5/1
6-12in	2.5YR 3/4	fine sandy loam mottles to 10 inches 15%
14+		peaty layer, organic throughout

Remarks: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

3. Other: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Conclusion: Is soil hydric?  yes  no

Other Indicators of Hydrology: (check all that apply and describe)

- Site inundated: \_\_\_\_\_
- Depth to free water in observation hole: \_\_\_\_\_
- Depth to soil saturation in observation hole: \_\_\_\_\_
- Water marks: \_\_\_\_\_
- Drift Lines: \_\_\_\_\_
- Sediment deposits: \_\_\_\_\_
- Drainage patterns in BVW: \_\_\_\_\_
- Oxidized rhizospheres: \_\_\_\_\_
- Water-stained leaves: \_\_\_\_\_
- Recorded data (stream, lake, or tidal gauge; aerial photo; other): \_\_\_\_\_
- Other: \_\_\_\_\_

<b>Vegetation and Hydrology Conclusion for Downgradient of WF6-400</b>		
	<u>yes</u>	<u>no</u>
<b>Number of wetland indicator plants</b>		
<b>&gt;= number of non-wetland plants</b>	<b>X</b>	
<b>Wetland hydrology present:</b>		
hydric soils present	<b>X</b>	
other indicators of hydrology present		<b>X</b>
<b>Sample location is in a BVW</b>	<b>X</b>	

*Submit this form with the Request for Determination of Applicability or Notice of Intent*

## DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Town of Bedford

Prepared by: VHB, Inc.

Project location: Reformatory Branch Trail Bedford

DEP File #: \_\_\_\_\_

- Check all that apply:  Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only  
 Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II  
 Method other than dominance test used (attach additional information)

**Section I. Vegetation**      Observation Plot Number: **WF6-400**      Transect Number: **Upgradient**      Date of Delineation: **6-Aug-20**

Sample Layer and Plant Species	Scientific name	% Cover	% Dominance	Dominant Plant (yes or no)	Wetland Indicator Category*
<i><u>Tree Layer</u></i>					
eastern white pine	<i>Pinus strobus</i>	38.0%	55.9%	yes	FACU
red oak	<i>Quercus rubra</i>	20.0%	29.4%	yes	FACU
scrub oak	<i>Quercus ilicifolia</i>	10.0%	14.7%	no	UPL
<i><u>Sapling/Shrub Layer</u></i>					
glossy buckthorn	<i>Rhamnus frangula</i>	38.0%	50.0%	yes	FAC*
multiflora rose	<i>Rosa multiflora</i>	38.0%	50.0%	yes	FACU
<i><u>Climbing Woody Vine</u></i>					
<i><u>Ground Cover</u></i>					
canada mayflower	<i>Maianthemum canadense</i>	20.0%	100.0%	yes	FAC*

Remarks: \_\_\_\_\_

Morphological Adaptations: 0

Description: \_\_\_\_\_

\* An asterisk after indicator status denotes wetlands plants: plants listed in the Wetlands Protection Act (MGL c.131, s.40); plants in the genus Sphagnum; or plants listed as FAC, FAC+, FACW-, FACW, FACW+, or OBL.

**Vegetation conclusion:**

**Number of dominant wetland indicator plants: 2**

**Number of dominant non-wetland indicator plants: 3**

**Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants? no**

*If vegetation alone is presumed adequate to delineate the BVW boundary, submit this form with the Request for Determination of Applicability or Notice of Intent.*

**Section II. Indicators of Hydrology**

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site?  yes  no

title/date: Interim Soil Survey of Middlesex County - 1991 (Maps - 1989)

map number: MA017

soil type mapped: 256A Deerfield loamy fine sand

hydric soil inclusions: \_\_\_\_\_

Are field observations consistent with soil survey?  yes  no

Remarks: Plot not collected. Trail embankment

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

2. Soil Description

Depth (inches)    Matrix Color    Mottles Color or Texture

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Remarks: \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

3. Other: \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_

Conclusion: Is soil hydric?  yes  no

Other Indicators of Hydrology: (check all that apply and describe)

- Site inundated: \_\_\_\_\_
- Depth to free water in observation hole: \_\_\_\_\_
- Depth to soil saturation in observation hole: \_\_\_\_\_
- Water marks: \_\_\_\_\_
- Drift Lines: \_\_\_\_\_
- Sediment deposits: \_\_\_\_\_
- Drainage patterns in BVW: \_\_\_\_\_
- Oxidized rhizospheres: \_\_\_\_\_
- Water-stained leaves: \_\_\_\_\_
- Recorded data (stream, lake, or tidal gauge; aerial photo; other): \_\_\_\_\_
- Other: \_\_\_\_\_

<b>Vegetation and Hydrology Conclusion for Upgradient of WF6-400</b>		
	<u>yes</u>	<u>no</u>
<b>Number of wetland indicator plants</b>		
<b>&gt;= number of non-wetland plants</b>		<b>X</b>
<b>Wetland hydrology present:</b>		
hydric soils present		<b>X</b>
other indicators of hydrology present		<b>X</b>
<b>Sample location is in a BVW</b>		<b>X</b>

*Submit this form with the Request for Determination of Applicability or Notice of Intent*

## DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Town of Bedford

Prepared by: VHB, Inc.

Project location: Reformatory Branch Trail Bedford

DEP File #: \_\_\_\_\_

- Check all that apply:  Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only  
 Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II  
 Method other than dominance test used (attach additional information)

**Section I. Vegetation**      Observation Plot Number: **WF3-89**      Transect Number: **Downgradient**      Date of Delineation: **6-Aug-20**

Sample Layer and Plant Species	Scientific name	% Cover	% Dominance	Dominant Plant (yes or no)	Wetland Indicator Category*
--------------------------------	-----------------	---------	-------------	----------------------------	-----------------------------

Tree Layer

red maple	<i>Acer rubrum</i>	38.0%	100.0%	yes	FAC*
-----------	--------------------	-------	--------	-----	------

Sapling/Shrub Layer

Climbing Woody Vine

Ground Cover

sensitive fern	<i>Onoclea sensibilis</i>	38.0%	50.0%	yes	FACW*
soft rush	<i>Juncus effusus</i>	38.0%	50.0%	yes	FACW*

Remarks: \_\_\_\_\_

Morphological Adaptations: 0

Description: \_\_\_\_\_

\* An asterisk after indicator status denotes wetlands plants: plants listed in the Wetlands Protection Act (MGL c.131, s.40); plants in the genus Sphagnum; or plants listed as FAC, FAC+, FACW-, FACW, FACW+, or OBL.

**Vegetation conclusion:**

**Number of dominant wetland indicator plants: 3**

**Number of dominant non-wetland indicator plants: 0**

**Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants? yes**

*If vegetation alone is presumed adequate to delineate the BVW boundary, submit this form with the Request for Determination of Applicability or Notice of Intent.*

**Section II. Indicators of Hydrology**

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site?  yes  no  
 title/date: Interim Soil Survey of Middlesex County  
 map number: MA017  
 soil type mapped: 256A Deerfield loamy fine sand  
 hydric soil inclusions: \_\_\_\_\_

Are field observations consistent with soil survey?  yes  no  
 Remarks: Soils are disturbed from railroad embankment  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

2. Soil Description

<u>Depth (inches)</u>	<u>Matrix Color</u>	<u>Mottles Color or Texture</u>
0-8	10YR 2/1	fine sandy loam, 10% mottles 2.5YR 3/4
8-16.	10 YR 2/1	fine sand
16+		coarse sand

Remarks: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

3. Other: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Conclusion: Is soil hydric?  yes  no

Other Indicators of Hydrology: (check all that apply and describe)

- Site inundated: \_\_\_\_\_
- Depth to free water in observation hole: \_\_\_\_\_
- Depth to soil saturation in observation hole: \_\_\_\_\_
- Water marks: \_\_\_\_\_
- Drift Lines: \_\_\_\_\_
- Sediment deposits: \_\_\_\_\_
- Drainage patterns in BVW: \_\_\_\_\_
- Oxidized rhizospheres: \_\_\_\_\_
- Water-stained leaves: \_\_\_\_\_
- Recorded data (stream, lake, or tidal gauge; aerial photo; other): \_\_\_\_\_
- Other: \_\_\_\_\_

<b>Vegetation and Hydrology Conclusion for Downgradient of WF3-89</b>		
	<u>yes</u>	<u>no</u>
<b>Number of wetland indicator plants</b>		
<b>&gt;= number of non-wetland plants</b>	<b>X</b>	
<b>Wetland hydrology present:</b>		
hydric soils present	<b>X</b>	
other indicators of hydrology present	<b>X</b>	
<b>Sample location is in a BVW</b>	<b>X</b>	

*Submit this form with the Request for Determination of Applicability or Notice of Intent*



**Section II. Indicators of Hydrology**

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site?  yes  no

title/date: Interim Soil Survey of Middlesex County - 1991 (Maps - 1989)

map number: MA017

soil type mapped: 256A Deerfield loamy fine sand

hydric soil inclusions: \_\_\_\_\_

Are field observations consistent with soil survey?  yes  no

Remarks: Plot not collected. Trail embankment

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

2. Soil Description

Depth (inches)      Matrix Color      Mottles Color or Texture

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Remarks: \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

3. Other: \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_

Conclusion: Is soil hydric?  yes  no

Other Indicators of Hydrology: (check all that apply and describe)

- Site inundated: \_\_\_\_\_
- Depth to free water in observation hole: \_\_\_\_\_
- Depth to soil saturation in observation hole: \_\_\_\_\_
- Water marks: \_\_\_\_\_
- Drift Lines: \_\_\_\_\_
- Sediment deposits: \_\_\_\_\_
- Drainage patterns in BVW: \_\_\_\_\_
- Oxidized rhizospheres: \_\_\_\_\_
- Water-stained leaves: \_\_\_\_\_
- Recorded data (stream, lake, or tidal gauge; aerial photo; other): \_\_\_\_\_
- Other: \_\_\_\_\_

<b>Vegetation and Hydrology Conclusion for Upgradient of WF3-89</b>		
	<u>yes</u>	<u>no</u>
<b>Number of wetland indicator plants</b>		
<b>&gt;= number of non-wetland plants</b>	<b>X</b>	
<b>Wetland hydrology present:</b>		
hydric soils present		
other indicators of hydrology present		<b>X</b>
<b>Sample location is in a BVW</b>		<b>X</b>

*Submit this form with the Request for Determination of Applicability or Notice of Intent*

## DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Town of Bedford

Prepared by: VHB, Inc.

Project location: Reformatory Branch Trail Bedford

DEP File #: \_\_\_\_\_

- Check all that apply:  Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only  
 Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II  
 Method other than dominance test used (attach additional information)

**Section I. Vegetation**      Observation Plot Number: **WF4-103**      Transect Number: **Downgradient**      Date of Delineation: **6-Aug-20**

Sample Layer and Plant Species	Scientific name	% Cover	% Dominance	Dominant Plant (yes or no)	Wetland Indicator Category*
--------------------------------	-----------------	---------	-------------	----------------------------	-----------------------------

Tree Layer

red maple	<i>Acer rubrum</i>	51.0%	100.0%	yes	FAC*
-----------	--------------------	-------	--------	-----	------

Sapling/Shrub Layer

glossy buckthorn	<i>Rhamnus frangula</i>	63.0%	62.4%	yes	FAC*
spicebush	<i>Lindera benzoin</i>	38.0%	37.6%	yes	FACW*

Climbing Woody Vine

Ground Cover

sensitive fern	<i>Onoclea sensibilis</i>	38.0%	100.0%	yes <del>yes</del>	FACW*
----------------	---------------------------	-------	--------	-----------------------	-------

Remarks: \_\_\_\_\_

Morphological Adaptations: 0

Description: \_\_\_\_\_

\* An asterisk after indicator status denotes wetlands plants: plants listed in the Wetlands Protection Act (MGL c.131, s.40); plants in the genus Sphagnum; or plants listed as FAC, FAC+, FACW-, FACW, FACW+, or OBL.

**Vegetation conclusion:**

**Number of dominant wetland indicator plants: 4**

**Number of dominant non-wetland indicator plants: 0**

**Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants? yes**

*If vegetation alone is presumed adequate to delineate the BVW boundary, submit this form with the Request for Determination of Applicability or Notice of Intent.*

**Section II. Indicators of Hydrology**

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site?  yes  no  
 title/date: Interim Soil Survey of Middlesex County  
 map number: MA017  
 soil type mapped: 256A Deerfield loamy fine sand  
 hydric soil inclusions: \_\_\_\_\_

Are field observations consistent with soil survey?  yes  no  
 Remarks: Soils are disturbed from railroad embankment  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

2. Soil Description

<u>Depth (inches)</u>	<u>Matrix Color</u>	<u>Mottles Color or Texture</u>
0-8	10YR 2/2	fine sandy loam
8-12.	10 YR 4/3	fine sandy loam
12-14.	10 YR 4/3	mottles 10YR 5/8

Remarks: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

3. Other: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Conclusion: Is soil hydric?  yes  no

Other Indicators of Hydrology: (check all that apply and describe)

- Site inundated: \_\_\_\_\_
- Depth to free water in observation hole: \_\_\_\_\_
- Depth to soil saturation in observation hole: \_\_\_\_\_
- Water marks: \_\_\_\_\_
- Drift Lines: \_\_\_\_\_
- Sediment deposits: \_\_\_\_\_
- Drainage patterns in BVW: \_\_\_\_\_
- Oxidized rhizospheres: \_\_\_\_\_
- Water-stained leaves: \_\_\_\_\_
- Recorded data (stream, lake, or tidal gauge; aerial photo; other): \_\_\_\_\_
- Other: \_\_\_\_\_

<b>Vegetation and Hydrology Conclusion for Downgradient of WF4-103</b>		
	<u>yes</u>	<u>no</u>
<b>Number of wetland indicator plants</b>		
<b>&gt;= number of non-wetland plants</b>	<b>X</b>	
<b>Wetland hydrology present:</b>		
hydric soils present	<b>X</b>	
other indicators of hydrology present		<b>X</b>
<b>Sample location is in a BVW</b>	<b>X</b>	

*Submit this form with the Request for Determination of Applicability or Notice of Intent*



**Section II. Indicators of Hydrology**

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site?  yes  no

title/date: Interim Soil Survey of Middlesex County - 1991 (Maps - 1989)

map number: MA017

soil type mapped: 256A Deerfield loamy fine sand

hydric soil inclusions: \_\_\_\_\_

Are field observations consistent with soil survey?  yes  no

Remarks: Plot not collected. Trail embankment

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

2. Soil Description

Depth (inches)      Matrix Color      Mottles Color or Texture

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Remarks: \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

3. Other: \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_

Conclusion: Is soil hydric?  yes  no

Other Indicators of Hydrology: (check all that apply and describe)

- Site inundated: \_\_\_\_\_
- Depth to free water in observation hole: \_\_\_\_\_
- Depth to soil saturation in observation hole: \_\_\_\_\_
- Water marks: \_\_\_\_\_
- Drift Lines: \_\_\_\_\_
- Sediment deposits: \_\_\_\_\_
- Drainage patterns in BVW: \_\_\_\_\_
- Oxidized rhizospheres: \_\_\_\_\_
- Water-stained leaves: \_\_\_\_\_
- Recorded data (stream, lake, or tidal gauge; aerial photo; other): \_\_\_\_\_
- Other: \_\_\_\_\_

<b>Vegetation and Hydrology Conclusion for Upgradient of WF4-103</b>		
	<u>yes</u>	<u>no</u>
<b>Number of wetland indicator plants</b>		
<b>&gt;= number of non-wetland plants</b>	<b>X</b>	
<b>Wetland hydrology present:</b>		
hydric soils present		
other indicators of hydrology present		<b>X</b>
<b>Sample location is in a BVW</b>		<b>X</b>

*Submit this form with the Request for Determination of Applicability or Notice of Intent*

## DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Town of Bedford

Prepared by: VHB, Inc.

Project location: Reformatory Branch Trail Bedford

DEP File #: \_\_\_\_\_

- Check all that apply:  Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only  
 Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II  
 Method other than dominance test used (attach additional information)

**Section I. Vegetation**      Observation Plot Number: **WF5-205**      Transect Number: **Downgradient**      Date of Delineation: **6-Aug-20**

Sample Layer and Plant Species	Scientific name	% Cover	% Dominance	Dominant Plant (yes or no)	Wetland Indicator Category*
--------------------------------	-----------------	---------	-------------	----------------------------	-----------------------------

**Tree Layer**

red maple	<i>Acer rubrum</i>	85.0%	100.0%	yes	FAC*
-----------	--------------------	-------	--------	-----	------

**Sapling/Shrub Layer**

highbush blueberry	<i>Vaccinium corymbosum</i>	20.0%	50.0%	yes	FACW*
glossy buckthorn	<i>Rhamnus frangula</i>	10.0%	25.0%	yes	FAC*
silky dogwood	<i>Cornus amomum</i>	10.0%	25.0%	yes	FACW*

**Climbing Woody Vine**

**Ground Cover**

virginia creeper	<i>Parthenocissus quinquefolia</i>	51.0%	42.9%	yes	FACU
cinnamon fern	<i>Osmunda cinnamomea</i>	38.0%	31.9%	no	FACW*
jewelweed	<i>Impatiens capensis</i>	10.0%	8.4%	yes	FACW*
garlic mustard	<i>Alliaria petiolata</i>	20.0%	16.8%	no	FACU

Remarks: \_\_\_\_\_

Morphological Adaptations: 0

Description: \_\_\_\_\_

\* An asterisk after indicator status denotes wetlands plants: plants listed in the Wetlands Protection Act (MGL c.131, s.40); plants in the genus Sphagnum; or plants listed as FAC, FAC+, FACW-, FACW, FACW+, or OBL.

**Vegetation conclusion:**

**Number of dominant wetland indicator plants: 5**

**Number of dominant non-wetland indicator plants: 1**

**Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants? yes**

*If vegetation alone is presumed adequate to delineate the BVW boundary, submit this form with the Request for Determination of Applicability or Notice of Intent.*

**Section II. Indicators of Hydrology**

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site?  yes  no  
 title/date: Interim Soil Survey of Middlesex County  
 map number: MA017  
 soil type mapped: 256A Deerfield loamy fine sand  
 hydric soil inclusions: \_\_\_\_\_

Are field observations consistent with soil survey?  yes  no  
 Remarks: Soils are disturbed from railroad embankment  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

2. Soil Description

<u>Depth (inches)</u>	<u>Matrix Color</u>	<u>Mottles Color or Texture</u>
0-12	10YR 2/1	fine sandy loam with clay
12-15.	10 YR 7/1	fine to coarse silty sand, 30% 10YR 3/8
15+	7.5 YR 3/4	coarse sand

Remarks: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

3. Other: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Conclusion: Is soil hydric?  yes  no

Other Indicators of Hydrology: (check all that apply and describe)

- Site inundated: \_\_\_\_\_
- Depth to free water in observation hole: \_\_\_\_\_
- Depth to soil saturation in observation hole: \_\_\_\_\_
- Water marks: \_\_\_\_\_
- Drift Lines: \_\_\_\_\_
- Sediment deposits: \_\_\_\_\_
- Drainage patterns in BVW: \_\_\_\_\_
- Oxidized rhizospheres: \_\_\_\_\_
- Water-stained leaves: \_\_\_\_\_
- Recorded data (stream, lake, or tidal gauge; aerial photo; other): \_\_\_\_\_
- Other: \_\_\_\_\_

<b>Vegetation and Hydrology Conclusion for Downgradient of WF5-205</b>		
	<u>yes</u>	<u>no</u>
<b>Number of wetland indicator plants</b>		
<b>&gt;= number of non-wetland plants</b>	<b>X</b>	
<b>Wetland hydrology present:</b>		
hydric soils present	<b>X</b>	
other indicators of hydrology present		<b>X</b>
<b>Sample location is in a BVW</b>	<b>X</b>	

*Submit this form with the Request for Determination of Applicability or Notice of Intent*



**Section II. Indicators of Hydrology**

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site?  yes  no

title/date: Interim Soil Survey of Middlesex County - 1991 (Maps - 1989)

map number: MA017

soil type mapped: 256A Deerfield loamy fine sand

hydric soil inclusions: \_\_\_\_\_

Are field observations consistent with soil survey?  yes  no

Remarks: Plot not collected. Trail embankment

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

2. Soil Description

Depth (inches)      Matrix Color      Mottles Color or Texture

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Remarks: \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_

3. Other: \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_

Conclusion: Is soil hydric?  yes  no

Other Indicators of Hydrology: (check all that apply and describe)

- Site inundated: \_\_\_\_\_
- Depth to free water in observation hole: \_\_\_\_\_
- Depth to soil saturation in observation hole: \_\_\_\_\_
- Water marks: \_\_\_\_\_
- Drift Lines: \_\_\_\_\_
- Sediment deposits: \_\_\_\_\_
- Drainage patterns in BVW: \_\_\_\_\_
- Oxidized rhizospheres: \_\_\_\_\_
- Water-stained leaves: \_\_\_\_\_
- Recorded data (stream, lake, or tidal gauge; aerial photo; other):  
 \_\_\_\_\_
- Other: \_\_\_\_\_

<b>Vegetation and Hydrology Conclusion for Upgradient of WF5-205</b>		
	<u>yes</u>	<u>no</u>
<b>Number of wetland indicator plants</b>		
<b>&gt;= number of non-wetland plants</b>		<b>X</b>
<b>Wetland hydrology present:</b>		
hydric soils present		
other indicators of hydrology present		<b>X</b>
<b>Sample location is in a BVW</b>		<b>X</b>

*Submit this form with the Request for Determination of Applicability or Notice of Intent*



**Section II. Indicators of Hydrology**

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site?  yes  no  
 title/date: Interim Soil Survey of Middlesex County  
 map number: MA017  
 soil type mapped: 256A Deerfield loamy fine sand  
 hydric soil inclusions: \_\_\_\_\_

Are field observations consistent with soil survey?  yes  no  
 Remarks: Soils are disturbed from railroad embankment  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

2. Soil Description

<u>Depth (inches)</u>	<u>Matrix Color</u>	<u>Mottles Color or Texture</u>
0-8	10YR 2/1	fine sandy loam, 5% mottles 10YR 5/6
8+	10 YR 4/4	coarse sand

Remarks: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

3. Other: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Conclusion: Is soil hydric?  yes  no

Other Indicators of Hydrology: (check all that apply and describe)

- Site inundated: \_\_\_\_\_
- Depth to free water in observation hole: \_\_\_\_\_
- Depth to soil saturation in observation hole: \_\_\_\_\_
- Water marks: \_\_\_\_\_
- Drift Lines: \_\_\_\_\_
- Sediment deposits: \_\_\_\_\_
- Drainage patterns in BVW: \_\_\_\_\_
- Oxidized rhizospheres: \_\_\_\_\_
- Water-stained leaves: \_\_\_\_\_
- Recorded data (stream, lake, or tidal gauge; aerial photo; other): \_\_\_\_\_
- Other: \_\_\_\_\_

<b>Vegetation and Hydrology Conclusion for Downgradient of WF6-400</b>		
	<u>yes</u>	<u>no</u>
<b>Number of wetland indicator plants</b>		
<b>&gt;= number of non-wetland plants</b>	<b>X</b>	
<b>Wetland hydrology present:</b>		
hydric soils present	<b>X</b>	
other indicators of hydrology present		<b>X</b>
<b>Sample location is in a BVW</b>	<b>X</b>	

*Submit this form with the Request for Determination of Applicability or Notice of Intent*

## DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Town of Bedford

Prepared by: VHB, Inc.

Project location: Reformatory Branch Trail Bedford

DEP File #: \_\_\_\_\_

- Check all that apply:  Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only  
 Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II  
 Method other than dominance test used (attach additional information)

**Section I. Vegetation** Observation Plot Number: **WF6-400** Transect Number: **Upgradient** Date of Delineation: **6-Aug-20**

Sample Layer and Plant Species	Scientific name	% Cover	% Dominance	Dominant Plant (yes or no)	Wetland Indicator Category*
--------------------------------	-----------------	---------	-------------	----------------------------	-----------------------------

Tree Layer

white oak	<i>Quercus alba</i>	20.0%	33.3%	yes	FACU
red oak	<i>Quercus rubra</i>	20.0%	33.3%	yes	FACU
eastern white pine	<i>Pinus strobus</i>	20.0%	33.3%	yes	FACU

Sapling/Shrub Layer

eastern white pine	<i>Pinus strobus</i>	20.0%	50.0%	yes	FACU
glossy buckthorn	<i>Rhamnus frangula</i>	20.0%	50.0%	yes	FAC*

Climbing Woody Vine

Ground Cover

poison ivy	<i>Toxicodendron radicans</i>	20.0%	100.0%	yes	
------------	-------------------------------	-------	--------	-----	--

Remarks: \_\_\_\_\_

Morphological Adaptations: 0 Description: \_\_\_\_\_

\* An asterisk after indicator status denotes wetlands plants: plants listed in the Wetlands Protection Act (MGL c.131, s.40); plants in the genus Sphagnum; or plants listed as FAC, FAC+, FACW-, FACW, FACW+, or OBL.

**Vegetation conclusion:**

**Number of dominant wetland indicator plants: 1** **Number of dominant non-wetland indicator plants: 4**

**Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants? no**

**Section II. Indicators of Hydrology**

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site?  yes  no

title/date: Interim Soil Survey of Middlesex County - 1991 (Maps - 1989)

map number: MA017

soil type mapped: 256A Deerfield loamy fine sand

hydric soil inclusions: \_\_\_\_\_

Are field observations consistent with soil survey?  yes  no

Remarks: Plot not collected. Trail embankment

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

2. Soil Description

Depth (inches)      Matrix Color      Mottles Color or Texture

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Remarks: \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_

3. Other: \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_

Conclusion: Is soil hydric?  yes  no

Other Indicators of Hydrology: (check all that apply and describe)

- Site inundated: \_\_\_\_\_
- Depth to free water in observation hole: \_\_\_\_\_
- Depth to soil saturation in observation hole: \_\_\_\_\_
- Water marks: \_\_\_\_\_
- Drift Lines: \_\_\_\_\_
- Sediment deposits: \_\_\_\_\_
- Drainage patterns in BVW: \_\_\_\_\_
- Oxidized rhizospheres: \_\_\_\_\_
- Water-stained leaves: \_\_\_\_\_
- Recorded data (stream, lake, or tidal gauge; aerial photo; other): \_\_\_\_\_
- Other: \_\_\_\_\_

<b>Vegetation and Hydrology Conclusion for Upgradient of WF6-400</b>		
	<u>yes</u>	<u>no</u>
<b>Number of wetland indicator plants</b>		
<b>&gt;= number of non-wetland plants</b>		<b>X</b>
<b>Wetland hydrology present:</b>		
hydric soils present		
other indicators of hydrology present		<b>X</b>
<b>Sample location is in a BVW</b>		<b>X</b>

*Submit this form with the Request for Determination of Applicability or Notice of Intent*

## DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Town of Bedford

Prepared by: VHB, Inc.

Project location: Reformatory Branch Trail Bedford

DEP File #: \_\_\_\_\_

- Check all that apply:  Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only  
 Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II  
 Method other than dominance test used (attach additional information)

**Section I. Vegetation**      Observation Plot Number: **WF8-100**      Transect Number: **Downgradient**      Date of Delineation: **6-Aug-20**

Sample Layer and Plant Species	Scientific name	% Cover	% Dominance	Dominant Plant (yes or no)	Wetland Indicator Category*
--------------------------------	-----------------	---------	-------------	----------------------------	-----------------------------

**Tree Layer**

red maple	<i>Acer rubrum</i>	85.0%	81.0%	yes	FAC*
American elm	<i>Ulmus americana</i>	20.0%	19.0%	no	FACW*

**Sapling/Shrub Layer**

glossy buckthorn	<i>Rhamnus frangula</i>	51.0%	100.0%	yes	FAC*
------------------	-------------------------	-------	--------	-----	------

**Climbing Woody Vine**

**Ground Cover**

sensitive fern	<i>Onoclea sensibilis</i>	51.0%	45.9%	yes	FACW*
glossy buckthorn	<i>Rhamnus frangula</i>	20.0%	18.0%	no	FAC*
poison ivy	<i>Toxicodendron radicans</i>	20.0%	18.0%	no	FAC*
cinnamon fern	<i>Osmunda cinnamomea</i>	10.0%	9.0%	no	FACW*
royal fern	<i>Osmunda regalis</i>	10.0%	9.0%		OBL*

Remarks: \_\_\_\_\_

Morphological Adaptations: 0      Description: \_\_\_\_\_

\* An asterisk after indicator status denotes wetlands plants: plants listed in the Wetlands Protection Act (MGL c.131, s.40); plants in the genus Sphagnum; or plants listed as FAC, FAC+, FACW-, FACW, FACW+, or OBL.

**Vegetation conclusion:**

**Number of dominant wetland indicator plants: 3**      **Number of dominant non-wetland indicator plants: 0**

**Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants? yes**

*If vegetation alone is presumed adequate to delineate the BVW boundary, submit this form with the Request for Determination of Applicability or Notice of Intent.*

**Section II. Indicators of Hydrology**

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site?  yes  no  
 title/date: Interim Soil Survey of Middlesex County  
 map number: MA017  
 soil type mapped: 51A Swansea muck  
 hydric soil inclusions: yes

Are field observations consistent with soil survey?  yes  no  
 Remarks: Soils are disturbed from railroad embankment  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

2. Soil Description

<u>Depth (inches)</u>	<u>Matrix Color</u>	<u>Mottles Color or Texture</u>
0-12	10YR 2/1	fine sandy loam
12+	10 YR 6/3	silty sand, 10% mottles 10 YR 5/6

Remarks: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

3. Other: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Conclusion: Is soil hydric?  yes  no

Other Indicators of Hydrology: (check all that apply and describe)

- Site inundated: \_\_\_\_\_
- Depth to free water in observation hole: \_\_\_\_\_
- Depth to soil saturation in observation hole: \_\_\_\_\_
- Water marks: \_\_\_\_\_
- Drift Lines: \_\_\_\_\_
- Sediment deposits: \_\_\_\_\_
- Drainage patterns in BVW: \_\_\_\_\_
- Oxidized rhizospheres: \_\_\_\_\_
- Water-stained leaves: \_\_\_\_\_
- Recorded data (stream, lake, or tidal gauge; aerial photo; other): \_\_\_\_\_
- Other: Buttressed roots

<b>Vegetation and Hydrology Conclusion for Downgradient of WF8-100</b>		
	<u>yes</u>	<u>no</u>
<b>Number of wetland indicator plants</b>		
<b>&gt;= number of non-wetland plants</b>	<b>X</b>	
<b>Wetland hydrology present:</b>		
hydric soils present	<b>X</b>	
other indicators of hydrology present	<b>X</b>	
<b>Sample location is in a BVW</b>	<b>X</b>	

*Submit this form with the Request for Determination of Applicability or Notice of Intent*



**Section II. Indicators of Hydrology**

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site?  yes  no  
title/date: Interim Soil Survey of Middlesex County  
map number: MA017  
soil type mapped: 256A Deerfield loamy fine sand  
hydric soil inclusions: \_\_\_\_\_

Are field observations consistent with soil survey?  yes  no  
Remarks: Soils are disturbed from railroad embankment  
\_\_\_\_\_  
\_\_\_\_\_

2. Soil Description

<u>Depth (inches)</u>	<u>Matrix Color</u>	<u>Mottles Color or Texture</u>
0-22	10YR 2/1	fine sandy loam Histosol
_____	_____	_____
_____	_____	_____
_____	_____	_____

Remarks: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. Other: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Conclusion: Is soil hydric?  yes  no

Other Indicators of Hydrology: (check all that apply and describe)

- Site inundated: \_\_\_\_\_
- Depth to free water in observation hole: \_\_\_\_\_
- Depth to soil saturation in observation hole: \_\_\_\_\_
- Water marks: \_\_\_\_\_
- Drift Lines: \_\_\_\_\_
- Sediment deposits: \_\_\_\_\_
- Drainage patterns in BVW: \_\_\_\_\_
- Oxidized rhizospheres: \_\_\_\_\_
- Water-stained leaves: \_\_\_\_\_
- Recorded data (stream, lake, or tidal gauge; aerial photo; other): \_\_\_\_\_
- Other: \_\_\_\_\_

<b>Vegetation and Hydrology Conclusion for Downgradient of WF10-100</b>		
	<u>yes</u>	<u>no</u>
<b>Number of wetland indicator plants</b>		
<b>&gt;= number of non-wetland plants</b>	<b>X</b>	
<b>Wetland hydrology present:</b>		
hydric soils present	<b>X</b>	
other indicators of hydrology present	<b>X</b>	
<b>Sample location is in a BVW</b>	<b>X</b>	

*Submit this form with the Request for Determination of Applicability or Notice of Intent*

## DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Town of Bedford

Prepared by: VHB, Inc.

Project location: Reformatory Branch Trail Bedford

DEP File #: \_\_\_\_\_

- Check all that apply:  Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only  
 Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II  
 Method other than dominance test used (attach additional information)

**Section I. Vegetation**      Observation Plot Number: **WF11-100**      Transect Number: **Downgradient**      Date of Delineation: **6-Aug-20**

Sample Layer and Plant Species	Scientific name	% Cover	% Dominance	Dominant Plant (yes or no)	Wetland Indicator Category*
--------------------------------	-----------------	---------	-------------	-------------------------------	--------------------------------

**Tree Layer**

red maple	<i>Acer rubrum</i>	85.0%	81.0%	yes	FAC*
American elm	<i>Ulmus americana</i>	20.0%	19.0%	no	FACW*

**Sapling/Shrub Layer**

glossy buckthorn	<i>Rhamnus frangula</i>	63.0%	52.1%	yes	FAC*
highbush blueberry	<i>Vaccinium corymbosum</i>	10.0%	8.3%	no	FACW*
spicebush	<i>Lindera benzoin</i>	38.0%	31.4%	yes	FACW*
northern arrowwood	<i>Viburnum recognitum</i>	10.0%	8.3%	no	FACW*

**Climbing Woody Vine**

**Ground Cover**

sensitive fern	<i>Onoclea sensibilis</i>	20.0%	25.0%	yes	FACW*
cinnamon fern	<i>Osmunda cinnamomea</i>	20.0%	25.0%	yes	FACW*
poison ivy	<i>Toxicodendron radicans</i>	20.0%	25.0%	yes	FAC*
oriental bittersweet	<i>Celastrus orbiculata</i>	20.0%	25.0%	yes	FACU

Remarks: \_\_\_\_\_

Morphological Adaptations: 0

Description: \_\_\_\_\_

\* An asterisk after indicator status denotes wetlands plants: plants listed in the Wetlands Protection Act (MGL c.131, s.40); plants in the genus Sphagnum; or plants listed as FAC, FAC+, FACW-, FACW, FACW+, or OBL.

**Vegetation conclusion:**

**Number of dominant wetland indicator plants: 6**

**Number of dominant non-wetland indicator plants: 1**

**Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants? yes**

*If vegetation alone is presumed adequate to delineate the BVW boundary, submit this form with the Request for Determination of Applicability or Notice of Intent.*

**Section II. Indicators of Hydrology**

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site?  yes  no  
 title/date: Interim Soil Survey of Middlesex County  
 map number: MA017  
 soil type mapped: 256A Deerfield loamy fine sand  
 hydric soil inclusions: \_\_\_\_\_

Are field observations consistent with soil survey?  yes  no  
 Remarks: Soils are disturbed from railroad embankment  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

2. Soil Description

<u>Depth (inches)</u>	<u>Matrix Color</u>	<u>Mottles Color or Texture</u>
0-6	10YR 2/1	fine to coarse sandy loam
6+	10 YR 4/4	40% redox 10 YR 5/3

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Remarks: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

3. Other: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Conclusion: Is soil hydric?  yes  no

Other Indicators of Hydrology: (check all that apply and describe)

- Site inundated: \_\_\_\_\_
- Depth to free water in observation hole: \_\_\_\_\_
- Depth to soil saturation in observation hole: \_\_\_\_\_
- Water marks: \_\_\_\_\_
- Drift Lines: \_\_\_\_\_
- Sediment deposits: \_\_\_\_\_
- Drainage patterns in BVW: \_\_\_\_\_
- Oxidized rhizospheres: \_\_\_\_\_
- Water-stained leaves: \_\_\_\_\_
- Recorded data (stream, lake, or tidal gauge; aerial photo; other): \_\_\_\_\_
- Other: \_\_\_\_\_

<b>Vegetation and Hydrology Conclusion for Downgradient of WF11-100</b>		
	<u>yes</u>	<u>no</u>
<b>Number of wetland indicator plants</b>		
<b>&gt;= number of non-wetland plants</b>	<b>X</b>	
<b>Wetland hydrology present:</b>		
hydric soils present	<b>X</b>	
other indicators of hydrology present	<b>X</b>	
<b>Sample location is in a BVW</b>	<b>X</b>	

*Submit this form with the Request for Determination of Applicability or Notice of Intent*

## DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Town of Bedford

Prepared by: VHB, Inc.

Project location: Reformatory Branch Trail Bedford

DEP File #: \_\_\_\_\_

- Check all that apply:  Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only  
 Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II  
 Method other than dominance test used (attach additional information)

**Section I. Vegetation**      Observation Plot Number: **WF12-100**      Transect Number: **Downgradient**      Date of Delineation: **6-Aug-20**

Sample Layer and Plant Species	Scientific name	% Cover	% Dominance	Dominant Plant (yes or no)	Wetland Indicator Category*
--------------------------------	-----------------	---------	-------------	-------------------------------	--------------------------------

**Tree Layer**

red maple	<i>Acer rubrum</i>	85.0%	89.5%	yes	FAC*
witch hazel	<i>Hamamelis virginiana</i>	10.0%	10.5%	no	FAC*

**Sapling/Shrub Layer**

glossy buckthorn	<i>Rhamnus frangula</i>	38.0%	39.6%	yes	FAC*
highbush blueberry	<i>Vaccinium corymbosum</i>	20.0%	20.8%	yes	FACW*
sweet pepperbush	<i>Clethra alnifolia</i>	38.0%	39.6%	yes	FAC*

**Climbing Woody Vine**

**Ground Cover**

glossy buckthorn	<i>Rhamnus frangula</i>	20.0%	50.0%	yes	FAC*
greenbrier	<i>Smilax rotundifolia</i>	20.0%	50.0%	yes	FAC*

Remarks: \_\_\_\_\_

Morphological Adaptations: 0

Description: \_\_\_\_\_

\* An asterisk after indicator status denotes wetlands plants: plants listed in the Wetlands Protection Act (MGL c.131, s.40); plants in the genus Sphagnum; or plants listed as FAC, FAC+, FACW-, FACW, FACW+, or OBL.

**Vegetation conclusion:**

**Number of dominant wetland indicator plants: 6**

**Number of dominant non-wetland indicator plants: 0**

**Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants? yes**

*If vegetation alone is presumed adequate to delineate the BVW boundary, submit this form with the Request for Determination of Applicability or Notice of Intent.*

**Section II. Indicators of Hydrology**

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site?  yes  no  
 title/date: Interim Soil Survey of Middlesex County  
 map number: MA017  
 soil type mapped: 256A Deerfield loamy fine sand  
 hydric soil inclusions: \_\_\_\_\_

Are field observations consistent with soil survey?  yes  no  
 Remarks: Soils are disturbed from railroad embankment  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

2. Soil Description

<u>Depth (inches)</u>	<u>Matrix Color</u>	<u>Mottles Color or Texture</u>
0-6	10YR 2/1	fine to coarse sandy loam
6-10.	10 YR 4/4	fine to coarse sandy loam
10+	2.5 YR 6/4	coarse to fine sand

Remarks: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

3. Other: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Conclusion: Is soil hydric?  yes  no

Other Indicators of Hydrology: (check all that apply and describe)

- Site inundated: \_\_\_\_\_
- Depth to free water in observation hole: \_\_\_\_\_
- Depth to soil saturation in observation hole: \_\_\_\_\_
- Water marks: \_\_\_\_\_
- Drift Lines: \_\_\_\_\_
- Sediment deposits: \_\_\_\_\_
- Drainage patterns in BVW: \_\_\_\_\_
- Oxidized rhizospheres: \_\_\_\_\_
- Water-stained leaves: \_\_\_\_\_
- Recorded data (stream, lake, or tidal gauge; aerial photo; other): \_\_\_\_\_
- Other: buttressed roots, flow patterns

<b>Vegetation and Hydrology Conclusion for Downgradient of WF12-100</b>		
	<u>yes</u>	<u>no</u>
<b>Number of wetland indicator plants</b>		
<b>&gt;= number of non-wetland plants</b>	<b>X</b>	
<b>Wetland hydrology present:</b>		
hydric soils present	<b>X</b>	
other indicators of hydrology present	<b>X</b>	
<b>Sample location is in a BVW</b>	<b>X</b>	

*Submit this form with the Request for Determination of Applicability or Notice of Intent*

© VHB

---

# Photography Log

## PROJECT NUMBER

09393.01

## CLIENT

Town of Bedford

Department of Public Works

314 Great Road

## LOCATION

Reformatory Branch Trail Layout

Bedford, MA





NO. 1 / 8.25.2021 9:14 AM

DESCRIPTION

Wetland 1-A near Railroad Ave



NO. 2 / 8.13.2020 10:42 AM

DESCRIPTION

View of the existing culvert and headwall at Mongo Brook. The trail alignment runs along the top of this structure



NO. 3 / 8.6.2020 12:32 PM

DESCRIPTION

General view of the existing Reformatory Branch Trail alignment



Base & Height: 100' 0" (30.480 m) (100)  
Position: 42° 58' 11" N, 70° 5' 22" W  
Altitude: 1220'  
Datum: WGS 84  
Azimuth: Bearing: 198° (200°) (150 m) (100)  
Zoom: 1X  
Minuteman Bikeway  
Bedford, MA  
WFS400

NO. 4 / 8.6.2020 9:54 AM

DESCRIPTION

View looking east at Wetland 6 on the south side of the trail alignment.



NO. 5 / 8.6.2020 9:58 AM

**DESCRIPTION**

View of intermittent channel (BF6-100 series) located along the south side of the trail alignment.



NO. 6 / 8.6.2020 2:50 PM

**DESCRIPTION**

View near existing outfall at Elm Brook.

---

# **Attachment D**

## **Wildlife Habitat Evaluation**

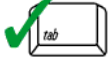


# Wildlife Habitat Protection Guidance

## Appendix A: Simplified Wildlife Habitat Evaluation

### Project Information

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



Reformatory Branch Trail and areas off of Commercial Avenue, Bedford, MA

Project Location (from NOI)

Daniel Cannata

Name of Person Completing Form

10/29/2020

Date

### Important Habitat Features

Note: None noted

Direct alterations to the following important habitat features in resource areas may be permitted only if they will have no adverse effect (refer to Section V).

- Habitat for state-listed animal species (receipt of a positive opinion or permit from MNHESP shall be presumed to be correct. Do not refer to Section V).
- Sphagnum hummocks and pools suitable to serve as nesting habitat for four-toed salamanders
- Trees with large cavities ( $\geq 18$ " tree diameter at cavity entrance)
- Existing beaver, mink or otter dens
- Areas within 100 feet of existing beaver, mink or otter dens (if significant disturbance)
- Existing nest trees for birds that traditionally reuse nests (bald eagle, osprey, great blue heron)
- Land containing freshwater mussel beds
- Wetlands and waterbodies known to contain open water in winter with the capacity to serve as waterfowl winter habitat
- Turtle nesting areas
- Vertical sandy banks (bank swallows, rough-winged swallows or kingfishers)

The following habitat characteristics when not commonly encountered in the surrounding area:

- Stream bed riffle zones (e.g. in eastern MA)
- Springs
- Gravel stream bottoms (trout and salmon nesting substrate)
- Plunge pools (deep holes) in rivers or streams
- Medium to large, flat rock substrates in streams



# Wildlife Habitat Protection Guidance

## Appendix A: Simplified Wildlife Habitat Evaluation

---

### Activities

When any one of the following activities is proposed within resource areas, applicants should complete a Detailed Wildlife Habitat Evaluation (refer to Appendix B).

- Activities located in mapped “Habitat of Potential Regional or Statewide Importance”
- Activities affecting certified or documented vernal pool habitat, including habitat within 100’ of a certified or documented vernal pool when within a resource area
- Activities in bank, land under water, bordering land subject to flooding (presumed significant) where alterations are more than twice the size of thresholds
- Activities affecting vegetated wetlands >5000 sq. ft. occurring in resource areas other than Bordering Vegetated Wetland
- Activities affecting the sole connector between habitats >50 acres in size
- Installation of structures that prevent animal movement
- Activities for the purpose of bank stabilization using hard structure solutions that significantly affect ability of stream channel to shift and meander, or disrupt continuity in cover that would inhibit animal passage
- Dredging (greater than 5,000 sf)

---

# Attachment E

## Stormwater Management Memorandum

› Bound Separately

---

# Attachment F

## Project Plans

› Bound Separately