Stamski and McNary, Inc.
Engineering - Planning – Surveying
1000 Main Street Acton, MA 01720 (978) 263-8585
www.stamskiandmcnary.com

Abbreviated Notice of Resource Area Delineation

Under the Massachusetts Wetland Protection Act, M.G.L. c. 131, s. 40 and the Town of Acton Wetlands Protection Bylaw – Chapter F

for

Map J-3, Parcel 45
12 Powder Mill Road
Acton, MA 01720

Applicant: Joseph Maillet
150 Powder Mill Road
Maynard, MA 01754

Date: August 6, 2015

SM-4886

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  - *Assabet River, Massachusetts Sediment and Dam Removal Feasibility Study by US Army Corps of Engineers New England District dated September 2010*
  - *Dams on the Assabet River excerpt from Organization for the Assabet River dated June 2008*
  - *Historic Photographs of Ripple Pond Obtained from Google Earth*
  - *U.S.G.S. Locus Map*
  - *Resource Area Delineation Plan by Stamski and McNary, Inc. dated August 6, 2015*
  - *Aerial GIS of Resource Area Delineation Plan by Stamski and McNary, Inc. dated August 6, 2015*

Narrative

The site is located at 12 Powder Mill Road in Acton and consist of an existing dwelling with approximately 1.6 acres of land. The site is located about six-hundred feet upstream of Powdermill Dam which is the second largest dam along the Assabet River. The result of this impoundment has been the creation of Ripple Pond which extends up along and past the rear of this site. Based upon the enclosed Army Corps study and historic aerial photography, it is well documented that Ripple Pond is subject to fluctuations in high water level by the outlet control structure within Powdermill Dam.

The edge of Bank (Flags #1A & #1 - #8) has been delineated by B & C Associates and located by field survey. The edge of Bank is located approximately 35-50 feet from the rear property line, and projects a 100' Buffer Zone onto the property.

The purpose of this Abbreviated Notice of Resource Delineation is to confirm the location of the edge of Bank which borders on Ripple Pond along with confirmation that the mean annual high water line of the Assabet River is located greater than two-hundred feet from the referenced site.

Based upon the existence of the impoundment along the Assabet River in close proximity to this site and the aerial photographs which depict the low-level of Ripple Pond, we also seek confirmation from the Approving Authority that the Riverfront Area associated with the Assabet River is not located within the referenced site.
We believe that an interpretation can be made by the Approving Authority in two ways to confirm that the riverfront area is located offsite.

1. 310 CMR 10.58(2)(a)1.e.

The Approving Authority could make a determination that the mean annual high-water line of the Assabet River is located at the low level of Ripple Pond. As stated in 310 CMR 10.58(2)(a)1.e., *rivers include the entire length and width to the mean annual high-water line of the major Rivers (Assabet).* Upon review of the information within the Army Corps Report and OARS letter, the mean annual high-water line based upon the historic photographs from 2004-2008 clearly illustrate that the Riverfront Area is located offsite.

2. 310 CMR 10.58(2)(a)1.h.

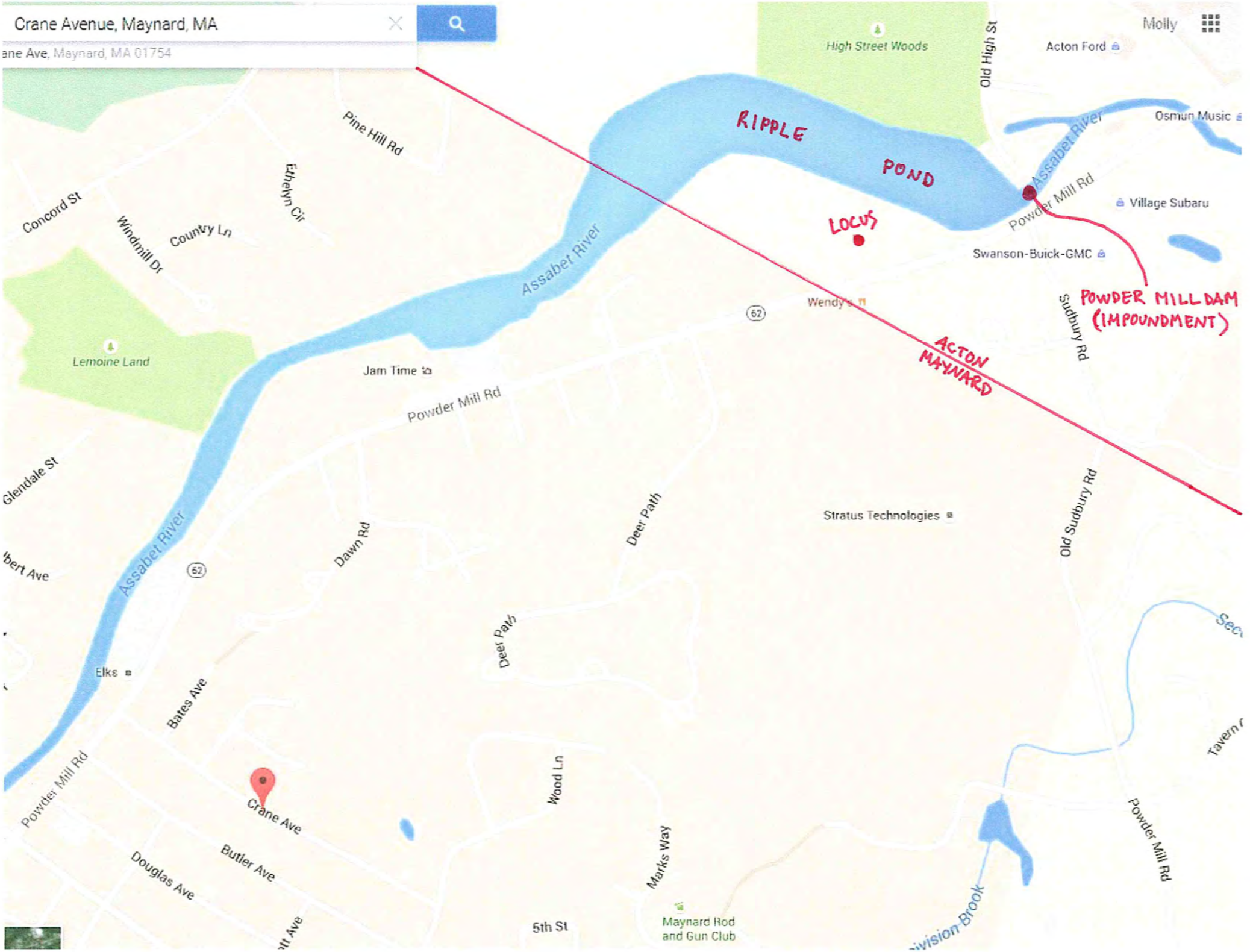
The Approving Authority could make a determination that the mean annual high-water line of the Assabet River stops at the inlet to Ripple Pond near Crane Road in Maynard (See Army Corps page 32) and begins again following Powdermill Dam. As stated in 310 CMR 10.58(2)(a)1.h., *Where rivers flow through lakes or ponds, the riverfront area stops at the inlet and begins again at the outlet.*

Powdermill Dam is one of nine dams located along the Assabet River. The second-largest impoundment, Ripple Pond, is created by the Powdermill Dam along the north side of Route 62 in Acton. It is an earthen dam with a spillway of stone masonry and a concrete crest and a wooden flashboard structure to raise the impoundment level for hydro-power production. By definition a Pond can be man-made by impoundment (*310 CMR 10.04 Pond (inland)*).

According to OARS (page 3), the Powdermill impoundment was drawn down back in 2004 when a sinkhole formed at the floodgate, which allowed the impoundment, Ripple Pond, to remain low to allow for dam repair. Our office has included historic aerial photograph information of Ripple Pond at its high elevations prior to 2004 for hydro-power production and also at its low-level elevations for dam repair (2004-2007).

Utilizing Google Earth we were able to create a history of Ripple Pond from December 30, 2001 to September 27, 2014. This Table illustrates the fluctuations of the water level of Ripple Pond which was drawdown to make repairs to the impoundment in 2004. The table below shows a breakdown of various years and the water level at the time:

Date	**Ripple Pond Water Level**
December 30, 2001	High
April 26, 2003	High
August 18, 2003	High-Medium
December 30, 2004	Low
April 29, 2005	Medium
September 10, 2006	Low
July 28, 2007	Low
February 11, 2008	Low
April 17, 2008	Medium
July 15, 2008	Medium-Low
June 18, 2010	Medium
December 30, 2010	Low
August 24, 2013	High
September 27, 2014	High


Crane Avenue, Maynard, MA
ane Ave, Maynard, MA 01754
Molly
High Street Woods
Old High St
Acton Ford
RIPPLE
POND
Assabet River
Osmun Music
Pine Hill Rd
Ethelyn Cir
Concord St
Windmill Dr
Country Ln
LOCUS
Powder Mill Rd
Village Subaru
Swanson-Buick-GMC
POWDER MILL DAM
(IMPOUNDMENT)
Assabet River
Wendy's
62
Sudbury Rd
ACTON
MAYNARD
Lemoine Land
Jam Time
Powder Mill Rd
Glendale St
Stratus Technologies
Dawn Rd
Deer Path
Old Sudbury Rd
Assabet River
62
Elks
Bates Ave
Deer Path
Powder Mill Rd
Crane Ave
Wood Ln
Butler Ave
Douglas Ave
Marks Way
Powder Mill Rd
5th St
Maynard Rod
and Gun Club

WPA Form 4A (Abbreviated Notice of Resource Area Delineation)

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 4A – Abbreviated Notice of Resource Area Delineation

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

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Acton
City/Town

A. General Information

1. Project Location (**Note:** electronic filers will click on button for GIS locator):

12 Powder Mill Road
a. Street Address

Acton
b. City/Town

01720
c. Zip Code

Latitude and Longitude:

042°26'20.4"N
d. Latitude

071°26'08.6"W
e. Longitude

Map J-3
f. Assessors Map/Plat Number

Parcel 45
g. Parcel /Lot Number

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

2. Applicant:

Joseph
a. First Name

Maillet
b. Last Name

c. Organization

150 Powder Mill Road
d. Mailing Address

Maynard
e. City/Town

MA
f. State

01754
g. Zip Code

(978) 758-6182
h. Phone Number

i. Fax Number

mailletjoe@gmail.com
j. Email Address

3. Property owner (if different from applicant):

☐ Check if more than one owner (attach additional sheet with names and contact information)

Monique
a. First Name

Mooney, Trustee
b. Last Name

Gatehouse Realty Trust
c. Organization

150 Powder Mill Road
d. Mailing Address

Maynard
e. City/Town

MA
f. State

10754
g. Zip Code

h. Phone Number

i. Fax Number

j. Email Address

Note: Before completing this form consult your local Conservation Commission regarding any municipal bylaw or ordinance.

4. Representative (if any):

Richard J.
a. Contact Person First Name

Harrington
b. Contact Person Last Name

Stamski and McNary, Inc.
c. Organization

1000 Main Street
d. Mailing Address

Acton
e. City/Town

MA
f. State

01720
g. Zip Code

(978) 263-8585
h. Phone Number

i. Fax Number

rjh@stamskiandmcnary.com
j. Email Address

Fees will be calculated for online users.

5. Total WPA Fee Paid (from attached ANRAD Wetland Fee Transmittal Form):

$748.00
a. Total Fee Paid

$361.50
b. State Fee Paid

$386.50
c. City/Town Fee Paid

B. Area(s) Delineated

1. Bordering Vegetated Wetland (BVW) — Linear Feet of Boundary Delineated

2. Check all methods used to delineate the Bordering Vegetated Wetland (BVW) boundary:

   a. ☐ MassDEP BVW Field Data Form (attached)

   b. ☐ Other Methods for Determining the BVW boundary (attach documentation):

      1. ☐ 50% or more wetland indicator plants
      2. ☐ Saturated/inundated conditions exist
      3. ☐ Groundwater indicators
      4. ☐ Direct observation
      5. ☐ Hydric soil indicators
      6. ☐ Credible evidence of conditions prior to disturbance

3. Indicate any other resource area boundaries that are delineated:

Bank of Ripple Pond associated with Powder Mill Dam (not mean annual high water line of The Assabet River) — a. 374 +/- b. Linear Feet Delineated

c. Resource Area — d. Linear Feet Delineated

C. Additional Information

Applicants must include the following plans with this Abbreviated Notice of Resource Area Delineation. 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.

1. ☒ ANRAD (Delineation Plans only)
2. ☒ 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.)
3. ☒ Plans identifying the boundaries of the Bordering Vegetated Wetlands (BVW) (and/or other resource areas, if applicable).
4. ☒ List the titles and final revision dates for all plans and other materials submitted with this Abbreviated Notice of Resource Area Delineation.

D. Fees

The fees for work proposed under each Abbreviated Notice of Resource Area Delineation must be calculated and submitted to the Conservation Commission and the Department (see Instructions and Wetland Fee Transmittal Form).

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 the attached Wetland Fee Transmittal Form) to confirm fee payment:

111 2. Municipal Check Number	8/5/15 3. Check date
110 4. State Check Number	8/5/15 5. Check date
Joseph A. 6. Payor name on check: First Name	Maillet 7. Payor name on check: Last Name

E. Signatures

I certify under the penalties of perjury that the foregoing Abbreviated Notice of Resource Area Delineation 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 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.

I hereby grant permission, to the Agent or member of the Conservation Commission and the Department of Environmental Protection, to enter and inspect the area subject to this Notice at reasonable hours to evaluate the wetland resource boundaries subject to this Notice, and to require the submittal of any data deemed necessary by the Conservation Commission or Department for that evaluation.

I acknowledge that failure to comply with these certification requirements is grounds for the Conservation Commission or the Department to take enforcement action.

OWNER: Monique Money, Trustee Gatehouse Realty Trust — 1. Signature of Applicant — 2. Date 8/4/15

APPLICANT: — 3. Signature — 4. Date 8/5/15

5. Signature of Representative (if any) — 6. Date 8/5/15

For Conservation Commission:
Two copies of the completed Abbreviated Notice of Resource Area Delineation (Form 4A), including supporting plans and documents; two copies of the ANRAD Wetland Fee Transmittal Form; and the city/town fee payment must be sent to the Conservation Commission by certified mail or hand delivery.

For MassDEP:
One copy of the completed Abbreviated Notice of Resource Area Delineation (Form 4A), including supporting plans and documents; one copy of the ANRAD Wetland Fee Transmittal Form; and a copy of the state fee payment must be sent to the MassDEP Regional Office (see Instructions) by certified mail or hand delivery. (E-filers may submit these electronically.)

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.

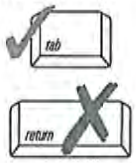
WPA Form 4A (ANRAD Wetland Fee Transmittal Form)

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

ANRAD Wetland Fee Transmittal Form

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

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



A. Applicant Information

1. Location of Project:

12 Powder Mill Road	Acton
a. Street Address	b. City/Town
$361.50	
c. Fee amount	d. Check number

2. Applicant:

Joseph	Maillet	
a. First Name	b. Last Name	c. Company
150 Powder Mill Road		
d. Mailing Address		
Maynard	MA	01754
e. City/Town	f. State	g. Zip Code
(978) 758-6182		
h. Phone Number		

3. Property Owner (if different):

Monique	Mooney, Trustee	Gatehouse Realty Trust
a. First Name	b. Last Name	c. Company
150 Powder Mill Road		
d. Mailing Address		
Maynard	MA	01754
e. City/Town	f. State	g. Zip Code
h. Phone Number		

B. Fees

The fee is calculated as follows for each Resource Area Delineation included in the ANRAD (check applicable project type). The maximum fee for each ANRAD, regardless of the number of Resource Area Delineations, is $200 activities associated with a single-family house and $2,000 for any other activity.

☐ **Online users:** check box if fee exempt.

Bordering Vegetated Wetland Delineation Fee:

1. ☐	single family house project	a. feet of BVW	x $2.00 =	b. Fee for BVW
2. ☐	all other projects	a. feet of BVW	x $2.00 =	b. Fee for BVW

Other Resource Area (e.g., bank, riverfront area, etc.):

3. ☐	single family house project	a. linear feet	x $2.00 =	b. Fee
4. ☒	all other projects	374 a. linear feet	x $2.00 =	$748.00 b. Fee

Total Fee for all Resource Areas:	$748.00 Fee
State share of filing fee:	$361.50 5. 1/2 of total fee **less** $12.50
City/Town share of filing fee:	$386.50 6. 1/2 of total fee **plus** $12.50

C. Submittal Requirements

a.) Send a copy of this form, with a check or money order for the state share of the fee, payable to the Commonwealth of Massachusetts, to:

Department of Environmental Protection
Box 4062
Boston, MA 02211

b.) **To the Conservation Commission:** Send the Abbreviated Notice of Resource Area Delineation; a **copy** of this form; and the city/town fee payment.

c.) **To DEP Regional Office**: Send one copy of the Abbreviated Notice of Resource Area Delineation (and any additional documentation required as part of a Simplified Review Buffer Zone Project); a **copy** of this form; and a **copy** of the state fee payment. (E-filers of Notices of Intent may submit these electronically.)

Joseph A. Maillet
150 Powder Mill Rd
Maynard MA 01754

110
53-7122/2113

Date 8-5-15

Pay to the order of The Commonwealth of Massachusetts $ 361.50

Three hundred sixty one 50/100 Dollars

Middlesex Savings Bank

MEMO ANRAD

SIGNED

Joseph A. Maillet
150 Powder Mill Rd
Maynard MA 01754

111
53-7122/2113

Date 8-15-15

Pay to the order of The Town of Acton $ 396.50

Three hundred ninety six 50/100 Dollars

Middlesex Savings Bank

MEMO ANRAD

SIGNED

⑆211371227⑆ 1640275361⑈ 0111

Certified List of Abutters

472 Main Street
Acton, MA 01720
Telephone (978) 929-6621
Fax (978) 929-6340

Brian McMullen
Principal Assessor

Locus 12 Powder Mill Rd
Parcel ID: J3-45

Parcel ID	Location	Owner	Co-Owner	Mailing Address	City
J3-39	2 POWDER MILL RD REAR	MILLSTONE REALTY TRUST	C/O BARRY STEINBERG	64 HOLMES ST	MARION, MA 02738
J3-44	4 POWDER MILL RD	STONEMILL REALTY TRUST	C/O BARRY STEINBERG	64 HOLMES ST	MARION, MA 02738
J3-48	18 POWDER MILL RD	PIRO LEO P	PIRO ROSALYN J	45 RYEFIELD ROAD	FITCHBURG, MA 01420
J3-51	7 POWDER MILL RD	WENDYS OLD FASHIONED HAMBURGER OF NY	ATTN: PROPERTY TAX	1155 PERIMETER CENTER WEST	ATLANTA, GA 30338
J3-53	25 POWDER MILL RD	PAPALIA JAMES D		25 POWDER MILL RD	ACTON, MA 01720

The owner of sharing a common boundary or corner with the site of the proposed activity (100 feet)
in any direction, including land located directly across a street, way, creek, river, stream, brook or canal
The above are as they appear on the most recent applicable taxes.

Marty Abbott

Marty Abbott
Acton Assessors Office

28-Jul-15

BOARD OF ASSESSORS
195 MAIN STREET
MAYNARD, MA 01754
978-897-1304 ~ FAX 978-897-1013

TO: Permit Granting Authority
FROM: Board of Assessors
RE: Parties in Interest to:
12 Powder Mill Rd, Town of Acton

Requested Parcels within the Town of Maynard as follows:

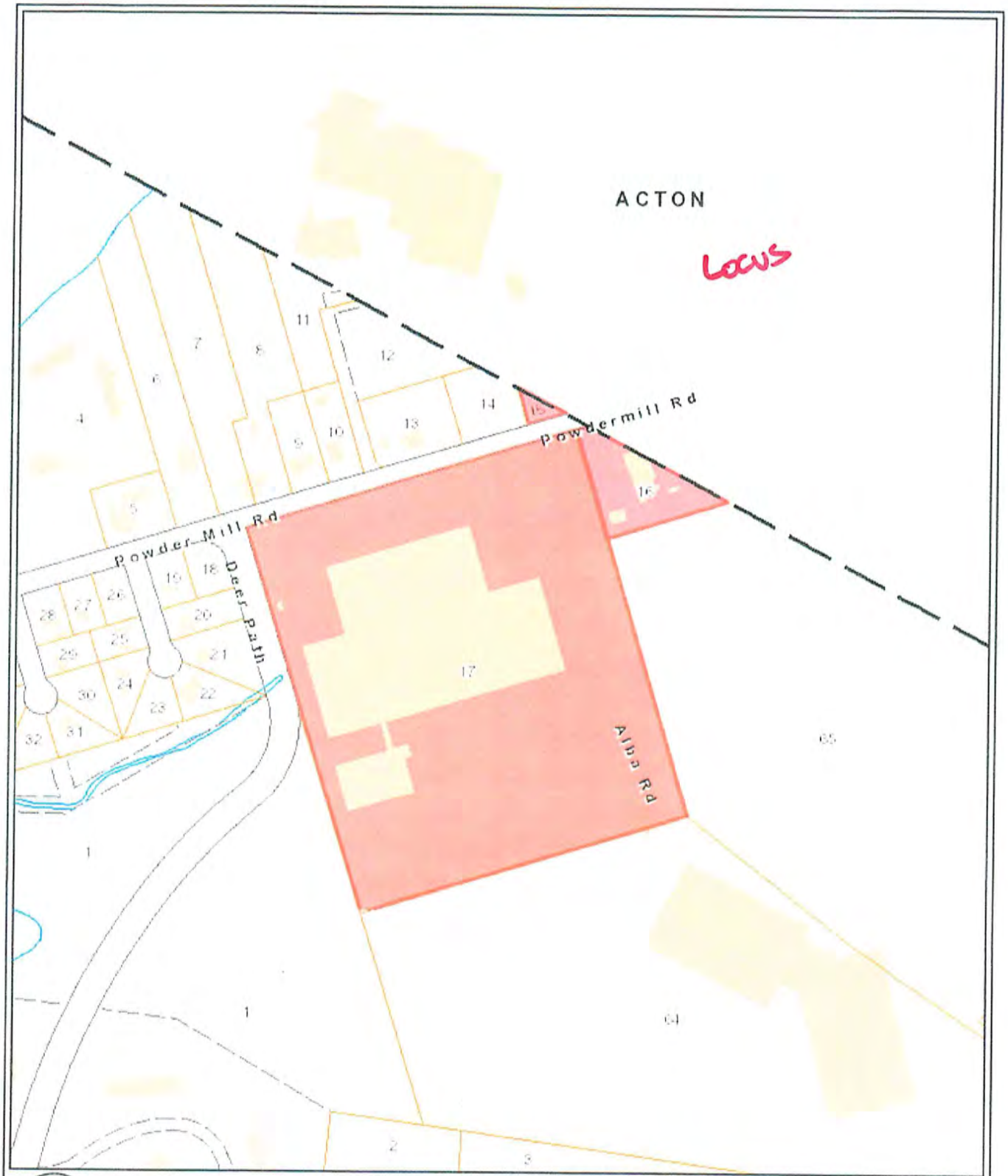
011.0-0000-0015.0
011.0-0000-0016.0
011.0-0000-0017.0

USE of LIST: Town of Acton Conservation Commission

DATE: AUGUST 4, 2015

We hereby certify that the attached list, taken from our Real Estate Property Lists, includes the names and addresses of all parties in interest under Massachusetts General Laws Chapter 40A, Section 11, as amended in 1979, to the best of our knowledge and belief.

Board of Assessors



Map 11 Parcels 15, 16, 17
Maynard, MA
1 Inch = 234 Feet
August 04, 2015

Data shown on this map is provided for planning and informational purposes only. The municipality and CAI Technologies are not responsible for any use for other purposes or misuse or misrepresentation of this map.

www.cai-tech.com
CAI Technologies

Parties in Interest to:

12 POWDER MILL RD, ACTON

Requested Parcels and Owners
within the Town of Maynard as follows:

011.0-0000-0015.0

OWNER UNKNOWN

011.0-0000-0016.0

WENDY'S
ATTN: PROPERTY TAX
ONE DAVE THOMAS BLVD
DUBLIN OH 43017

011.0-0000-0017.0

KAILEYBOO LLC
PO BOX 147
WELLS ME 04090

Affidavit of Services

AFFIDAVIT OF SERVICES
Under the Massachusetts Wetlands Protection Act
(to be submitted to the Massachusetts Department of Environmental Protection and the Department of Natural Resources
when filing an Abbreviated Notice of Resource Area Delineation)

I, Molly Obendorf, hereby certify under the pains and penalties of perjury that on 8/6/15 I gave notification to abutters in compliance with the second paragraph of Massachusetts General Laws Chapter 131, Section 40, and the DEP Guide to Abutter Notification dated April 8, 1994, in connection with the following matter:

> An Abbreviated Notice of Resource Area Delineation filed under the Massachusetts Wetlands Protection Act by Joseph Maillet with the Acton Conservation Commission for property located at 12 Powder Mill Road, Assessor's Map J-3, Parcel 45.

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.

Name: Date: 8/6/15

Notification to Abutters

NOTIFICATION TO ABUTTERS
UNDER THE MASSACHUSETTS WETLANDS PROTECTION ACT AND THE TOWN OF ACTON WETLANDS BYLAW

In accordance with the second paragraph of Massachusetts General Laws Chapter 131, Section 40 and the Town of Acton Bylaws, you are hereby notified of the following:

The Applicant: Joseph Maillet

Address: 150 Powder Mill Road, Maynard, MA 01754 Phone: (978) 758-6182

has filed a Notice of Intent with the Acton Conservation Commission seeking permission to remove, fill, dredge or alter an Area Subject to Protection under the Wetlands Protection Act .

Applicant's Representative: Stamski and McNary, Inc.

Address 1000 Main Street, Acton, MA 01720 Phone: (978) 263-8585

The address of the property where the activity is proposed: 12 Powder Mill Road

Town Atlas Plate/Map J-3 Parcel/Lot 45

Project Description: Confirmation of bank of Ripple Pond associated with Powder Mill Dam behind #12 Powder Mill Road.

Copies of the Notice of Intent may be examined at the Conservation Office, Acton Town Hall, 472 Main Street, Acton. Between the hours of 8:00 A.M. and 4:30 P.M. Monday through Friday. For more information please call the Conservation Office at 978-264-9631.

A Public Hearing will be held at the Acton Town Hall, 472 Main Street, on Wednesday,

August 19 at 7:45 P.M.

The notice of the public hearing, will be published at least five (5) days in advance in the *Beacon* newspaper or *Metrowest Daily News*.

NOTE: You may also contact your local conservation commission or the nearest Department of Environmental Protection Regional Office for the information about this application or, the Wetlands Protection Act. Acton is in the Central Region. To contact DEP, call:

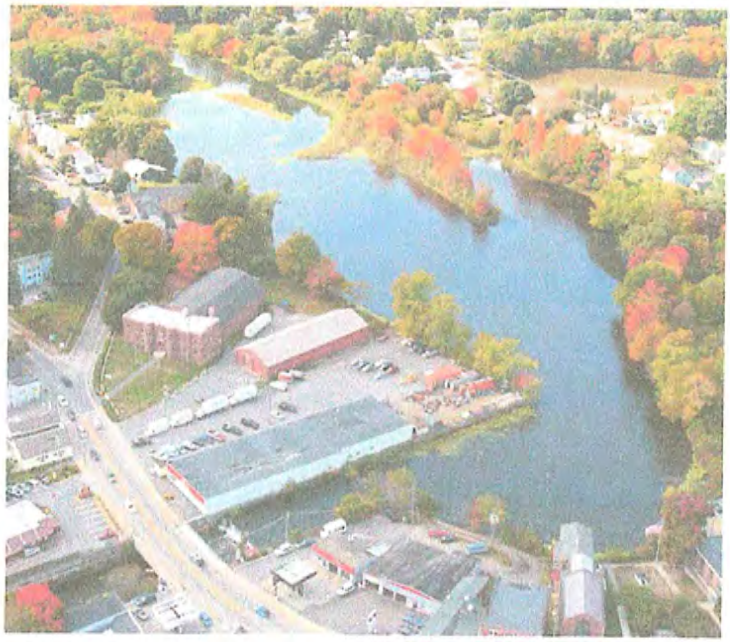
***Central Region: 508-792-7650**	Northeast Region: 978-694-3200
Southeast Region: 508-946-2700	Western Region: 413-784-1100

Excerpts from
Assabet River, Massachusetts Sediment and Dam Removal Feasibility Study

- *Cover*
- *Figure 1A pg. ES-11*
- *Powder Mill Dam pgs. 32-36*
- *Figure 9 Powder Mill Impoundment 2007*

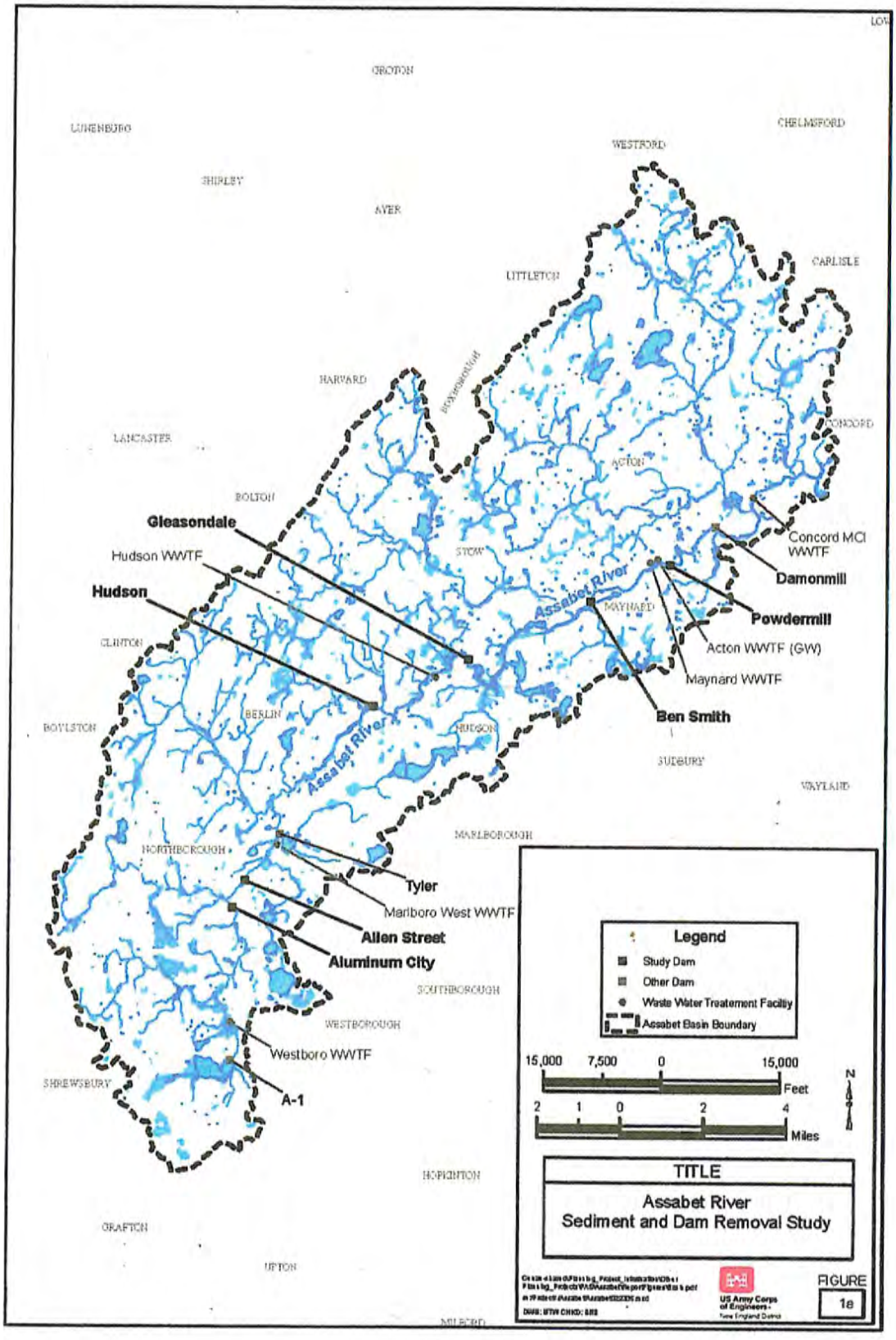
Planning Assistance to States

Assabet River, Massachusetts
Sediment and Dam Removal Feasibility Study



September 2010

US Army Corps
of Engineers
New England District


GROTON
LUNENBURG
CHELMSFORD
WESTFORD
SHIRLEY
AYER
CARLISLE
LITTLETON
HARVARD
CONCORD
LANCASTER
ACTON
BOLTON
Gleasondale
Hudson WWTF
Hudson
Concord MCI WWTF
Damonmill
Powdermill
Acton WWTF (GW)
Maynard WWTF
Ben Smith
Assabet River
STOW
MAYNARD
CLINTON
BERLIN
BOYLSTON
HUDSON
SUDBURY
WAYLAND
MARLBOROUGH
NORTHBOROUGH
Tyler
Marlboro West WWTF
Allen Street
Aluminum City
SOUTHBOROUGH
WESTBOROUGH
Westboro WWTF
SHREWSBURY
A-1
HOPKINTON
GRAFTON
UPTON
MILFORD
Legend
Study Dam
Other Dam
Waste Water Treatement Facility
Assabet Basin Boundary
15,000 7,500 0 15,000
Feet
2 1 0 2 4
Miles
N
TITLE
Assabet River
Sediment and Dam Removal Study
US Army Corps of Engineers
New England District
FIGURE
1e

protection of newly exposed riparian areas and transitional upland areas is especially important in the Ben Smith area to maintain the integrity of existing open space and conservation areas.

POWDERMILL DAM

Existing Wetland and Riparian Habitat and Vegetation

The Powdermill Dam is a stone and timber-crib dam built in the early 1920's. The dam is located in Acton. The impoundment, sometimes known as Ripple Pond, stretches into Maynard.

The impoundment has a surface area of 27 acres and extends about 1 mile to Crane Avenue in Maynard. The dam and spillway are in disrepair and the impoundment is currently drawn-down to a channel. A bridge open to only foot traffic spans the dam.

The dam's purpose is to create sufficient head to run a small hydroelectric facility at the site. In April of 2004, during high flows, a sink hole developed at the outlet work compromising the dam. As a result the impoundment is drawn-down. Currently, under high flow conditions some water is retained in the impoundment. Under low flow conditions most of the flow passes through the open outlet works.

Based on the growth of emergent vegetation and other field indicators the present influence of the impoundment is typically about 0.2 miles. Discharge from the Maynard Wastewater Treatment Plant and an unnamed tributary flow into the existing impoundment from the north. Numerous groundwater seeps on the north side of Powdermill impoundment also discharge into the Assabet River.

The width of the impoundment ranged from about 40 feet near Crane Avenue/Warren Street to about 500 feet near the dam. Route 62 parallels the south side of the impoundment and there is moderate to heavy development between Crane Avenue and the dam.

The north side of the impoundment is largely undeveloped, with about 2/3 thirds of the shoreline between the dam and Warren Street in public ownership. Upstream of Crane Avenue/Warren Street the river is about 40 feet wide.
The riparian corridor downstream of the dam is largely undeveloped and there is generally at least a 50 foot wooded buffer along the sides of the river to the Assabet River-Sudbury River confluence.

Prior to its lowering, the impoundment was primarily open water, with a minor amount of scrub-shrub wetland and fringing emergent vegetation. In 1999 and 2000, before the impoundment was lowered, open water areas were densely vegetated with submerged aquatic vegetation and floating vegetation (ENSR, 2001). Predominant species included coontail, elodea, fanwort, floating plants, and filamentous green algae.

By 2005 vegetation within the former impoundment had changed markedly in response to the new hydrologic regime. Areas that are open water or riverine habitat are primarily un-vegetated except for some elodea growing in open water areas near the dam.

The very soft, flocculent like, sediments in the residual open water area likely inhibits growth of other submerged aquatic plants. Areas that are more frequently flooded by the residual impoundment are mudflat with only scattered growth of emergents. The remaining area (approximately 1/3 thirds of the former impoundment) is vegetated primarily by herbaceous vegetation, with scattered pioneer shrubs (mostly black willow with some European buckthorn at higher elevations) and tree seedlings or saplings (mostly red maple, with some aspen and silver maple). Red maple saplings were up to three feet tall at higher elevations. Dominant species in the emergent community were purple loosestrife, smartweed, and common forget-me-not at lower elevations. Other species present include sedges, spike rush, treefoil, softrush, pickerel weed, yellowflag, reed canary grass, pale impatiens, and duckweed.

Riparian and Habitat and Vegetation After Dam Removal

The existing wetlands have changed in response to the drawdown of the impoundment, so it was not possible to provide the with and without dam analysis for this site comparable to the other dam sites.

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Impoundment depictions were developed from a flyover of the area in 2007. At the time of the flyover the Powdermill dam was lowered and a photograph is included below in Figure 9. These photographs are included as depictions for Powdermill dam were not developed during this study. These aerials illustrate an actual observed lower pool condition behind Powdermill dam.

Figure 9. Powdermill Impoundment, 2007

Dams on the Assabet River
Excerpt from Organization for the Assabet River dated June 2008

Organization for the Assabet River

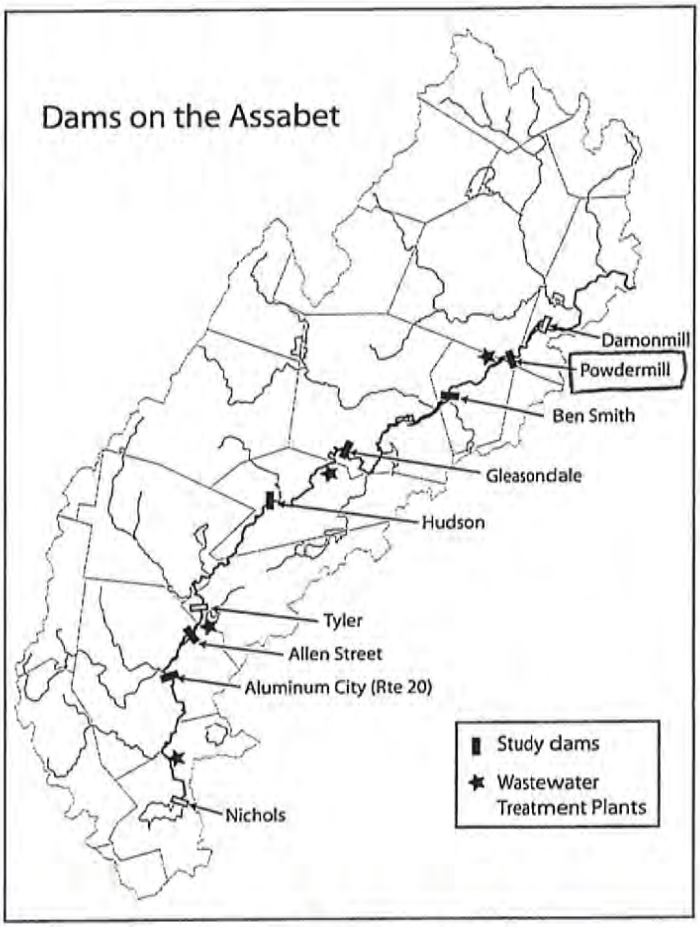
Dams on the Assabet: a guided tour

Alison Field-Juma
June 2008

Did you know there are nine dams on the Assabet River? If you've ever tried paddling from the headwaters in Westborough to Egg Rock in Concord, you certainly do! Two of the dams were built after Hurricane Diane of 1955 for flood control. The remaining seven are old mill dams, some rebuilt many times over on the same site. In this first of several articles about the nine Assabet dams, we will take you on a virtual canoe trip down stream to visit each one. In the second article, we will report on the U. S. Army Corps of Engineers' (Corps) "Assabet River Sediment and Dam Removal Study," which should be completed by June .

Grab your map and climb into your canoe! We begin our trip at the headwaters of the Assabet, where you can paddle, fish and enjoy the wildlife of the 310-acre impoundment created behind the **Nichols Dam** in Westborough. This dam was built by the U.S. Department of Agriculture's Soil Conservation Service for flood control and fish and wildlife development in 1968. It creates the A-1 Impoundment, also know as Stump or Mill Pond, and the dam's discharge marks the beginning of the Assabet River. As well as holding back flood waters, it can be managed to release water during dry periods to maintain a minimum flow in the river.

Heading downstream you leave Westborough and enter Northborough. The first mill dam is the **Aluminum City Dam** or **Old Sawmill Dam** just upstream of Route 20. Built in 1925 of stone masonry and granite block, this dam spans a narrow channel. According to visual inspection by the Corps, the dam is in very poor condition, with top masonry rows missing, as are the abutment walls downstream. The dam is relatively small, being 8.5 feet high with a crest width of 60 feet. It is owned by 86-88 Main St., LLC of Southborough and has no hazard rating (see box on page 7) due to its small size.



Next you will come to the **Allen Street Dam** also known as the **Assabet River** or **Woodside Dam**, which creates the impoundment spanned by the Wachusett Aqueduct just upstream. Built in 1900 of stone masonry and granite block, the dam is part of an old mill complex. The complex has been converted to condos, some of which span the river. According to visual inspection by the Corps, the dam and its left abutment are in poor condition.

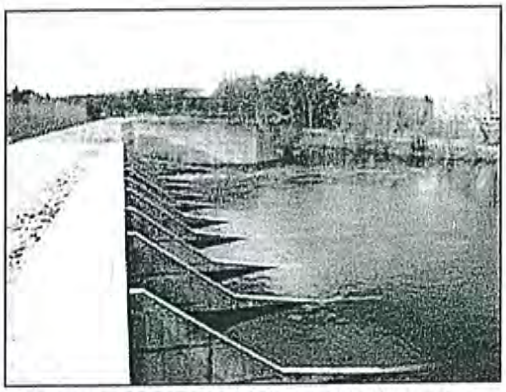
Dams, *page 2*

Aluminum City Dam (left) and Allan Street Dam (right), both in Northborough. Photos courtesy of the Army Corps of Engineers.

Dams, *page 1*

The outlet appears to be in very poor condition and its channel overgrown with vegetation. The dam is relatively small, being 12 feet high with a crest width of 95 feet. It is owned by Montrose Northborough LLC of Allston and has a "significant hazard potential" rating.

As the river becomes flanked by a broad wetland area, we come upon the **Tyler Dam,** built by the Soil Conservation Service in 1965 in Marlborough. It is a flood control dam, so the river passes under it, not over it, except during floods. The centerpiece of the Sudbury, Assabet, and Concord flood control system, rising water floods a valley preserved for that purpose, holding back a large volume of water and releasing it slowly.



Tyler Dam, a flood control dam in Marlborough

Paddling further downstream we encounter **Hudson Dam** located just upstream of Washington Street/Rte. 85 in the center of town. Built of stone masonry in a narrow river channel, the dam was constructed in 1860. According to the Corps, the dam is in fair condition. It is 15 feet high with a crest width around 67 feet, and is owned by the Town of Hudson. It has a "significant hazard potential" rating.

Hudson Dam. Photo courtesy of the Army Corps of Engineers

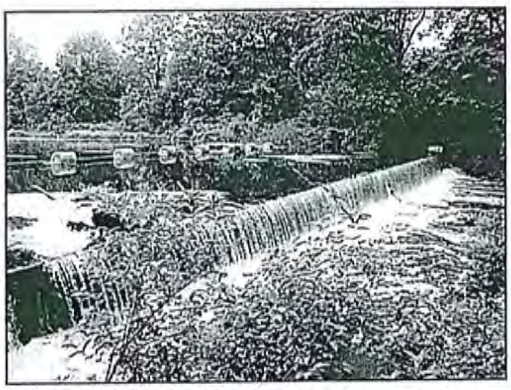
After rounding the Orchard Hill drumlin, the river becomes deeper and slower leading down to **Gleasondale Dam** in Stow. The first dam on this site was built around 1735 to power a saw mill. The current dam was built in the 1920's to power the subsequent woolens mill. Built of stone, it spans a narrow river channel and has masonry abutments. Visual inspection by the Corps showed that the dam and abutments are in overall good condition, although the sluice gate is in poor condition. Flow is diverted through and under the adjacent mill building. The dam is 12 feet high with a crest width of 95 feet. It is owned by FLB Inc. of Stow and has a "low hazard potential" rating. Water in the impoundment serves fire protection needs of the mill buildings.

A paddle through the slow-moving 5-mile-long impoundment passing between the Stow Town Forest and the Assabet River National Wildlife Refuge ends at the largest dam on the river, the **Ben Smith Dam** in Maynard. On the southerly side of Route 117, the dam was built in 1870 to power the woolen mill constructed in the late 1840's by Amory Maynard. It is built of granite blocks on a sloping ledge. The dam is about 9 feet high on the left bank and 3 feet on the right bank, with a crest fully 170 feet wide. Visual inspection by the Corps showed that the dam is in fair condition. It has a "significant hazard potential" rating. The Ben Smith Dam is owned by Wellesley/Rosewood/Maynard Mills, L.P. of Maynard, the owners of Clock Tower Place (CTP), the nearby mill complex of Amory Maynard.

A 1600-foot long canal diverts water from the impoundment, ending at a gatehouse which controls the flow into two mill ponds at CTP. Water flows under the CTP buildings and discharges back to the Assabet off Walnut Street. The ponds serve

Dams, *page 3*

Gleasondale Dam



Ben Smith Dam

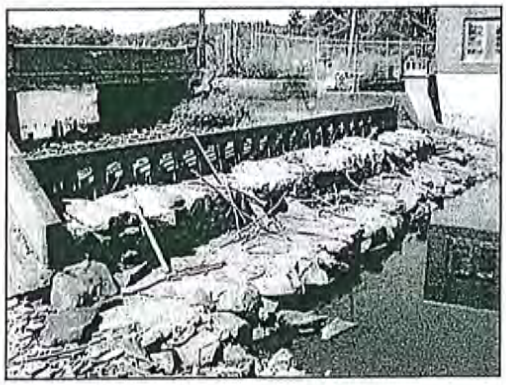
Dams, *page 2*

as a back-up water source for firefighting at the mill buildings and reflects the mill buildings on its placid surface.

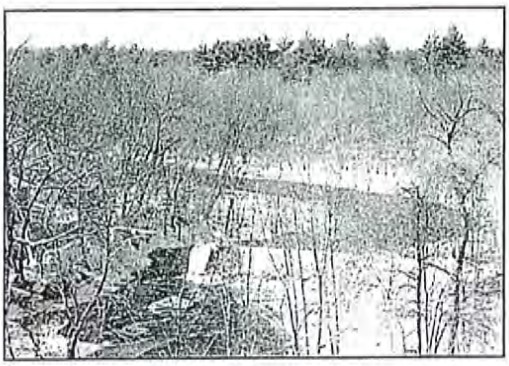
Water began to be used to power the woolen mill in the late 1800's. The existing hydroelectric turbine was installed around 1917. In 1983, the federal agency responsible for permitting hydroelectric power, the Federal Energy Regulatory Commission (FERC), authorized the Digital Equipment Corporation (DEC), the successor to the 1950 owners of the mill, to generate hydroelectricity. However, a feasibility study for DEC showed the original equipment to be in unreliable condition. This authorization automatically passed on to successor owners of the mill. Subsequently, an application to surrender this authorization was initiated by Wellesley/Rosewood in 2002. This surrender was accepted by FERC in 2004, subject to flow management and monitoring conditions.

Under the terms of DEC's original authorization and the surrender, mill owners must not divert river water into the mill ponds if river flow drops to 39 cubic feet per second (cfs) or less. Under these conditions, the gates controlling flow from the river into the mill ponds must remain closed. Wellesley/Rosewood recently replaced these gates because the old gates leaked and were difficult to operate. They have also installed flow monitoring gages in the river and canal (go to www. bensmithdam.com), as required. Maintaining a minimum flow in the river during low flow periods, as part of a natural flow regime, protects fish habitat, water quality, and recreational and permitted commercial uses by downstream businesses.

Although Wellesley/Rosewood surrendered DEC's authorization to generate power in 2004, they have recently decided to re-evaluate the production of hydropower at the mill. In 2007 Wellesley/Rosewood received a $500,000 grant from the Massachusetts Renewable Energy Trust to study, design, and construct a hydropower system. Operating such a system will require a new authorization by FERC. FERC's review process provides for public review and comment.



Powdermill Dam.



Damonmill Dam

Back in our canoe, the second-largest impoundment, Ripple Pond, is created by the **Powdermill Dam** along the north side of Route 62 in Acton. According to its owner, Acton Hydro Company of Northborough, the current dam was built in 1835 on the site of multiple dams and small black powder mills known for at least eleven explosions. It is an earthen dam with a spillway of stone masonry and a concrete crest and a wooden flashboard structure to raise the impoundment level for hydropower production. The dam rises 16 feet above the downstream river bed and is 420 feet long, including the spillway. The spillway crest, on the right bank, is 7 ½ feet above the downstream river bed and is 77 feet long. The dam has a "significant hazard potential" rating.

Hydroelectric generating equipment was installed in 1923 and operated until 1964. It was then used only periodically until 2000. Michael Coates purchased the dam and small hydroelectric facility several years ago and, when repairs are completed, plans to sell the electricity to Concord Municipal Light Plant. The hydro facility is "run-of-river," which means that it does not manipulate the flow of the river nor divert the river's water. Hence the plant's electricity output is in direct proportion to the flow of the river and it typically shuts down during low-flow summer and fall months.

The Powdermill impoundment has been drawn down since 2004 when a sinkhole formed at the flood gate due to the poor condition of a buried steel conduit. The impoundment has remained low to allow for dam repair. The repairs should be completed by fall 2008, which will include completing modifications to the spillway to pass more flow and installing a slot for a fish ladder when and if fish passage becomes necessary. Currently fish passage is not required because there are no migrating fish reaching that location.

The last dam on the Assabet is the **Damonmill Dam** in West Concord. The dam site dates from a bog iron works established in 1658, and later a cotton and woolens mill operated by the Damon family. Although the dam is breached, it does back up water during floods.

The Wild & Scenic River section of the Assabet starts 1,000 feet below the Damonmill Dam. No more portages!

Dams, *page 4*

Dams, *page 3*

OAR will be working with the watershed communities to fully understand the sediment and dam study, its conclusions, and the full range of alternatives that could succeed in cleaning up the river. This series of articles is one small piece of that process. We hope you find it interesting, thought-provoking, and useful. Please let us know if you have any questions that we could include!

OAR will also be holding workshops with communities with dams or impoundments this fall where residents can come and learn and share their thoughts. Stay tuned for more details.❖

Sources: Assabet River, Massachusetts, Sediment and Dam Removal Study (draft), Army Corps of Engineers, Jan. 2007; Concord Magazine, Spring 2002 (www/concordma/com/magazine); "Suasco projects take shape in area", Worcester Telegram-Evening Gazette, March 25, 1965, reprinted by Northeastern Worcester and Middlesex Conservation Districts. Thanks to Joe Mullin, Wellesley/Rosewood, and Michael Coates, Acton Hydro, for their input.

Hazard ratings

Everyone has heard terrifying tales of dams bursting during floods and washing away people and property. The Hazard Potential Classification is designed to predict how likely it is that a break in a dam would damage property or take lives. The classification is made by the Office of Dam Safety in the Mass. Department of Conservation and Recreation (DCR). It does not indicate how likely a dam is to fail, which is determined by the condition of the dam. Dam owners are responsible for registering, inspecting, and reporting inspection results to the Office of Dam Safety and maintaining their dams in good operating condition.

High Hazard Potential refers to dams located where failure will likely cause loss of life and serious damage to homes, industrial or commercial facilities, important public utilities, main highways or railroads. None of the Assabet Watershed dams are rated High Hazard.

Significant Hazard Potential refers to dams located where failure may cause loss of life and damage homes, industrial or commercial facilities, secondary highways or railroads, or interrupt the use or service of relatively important facilities. Four Assabet River dams in the study are rated Significant Hazard: Allen Street, Hudson, Ben Smith, and Powdermill.

Low Hazard Potential refers to dams located where failure may cause minimal property damage to others. Loss of life is not expected. The Gleasondale Dam is rated Low Hazard.

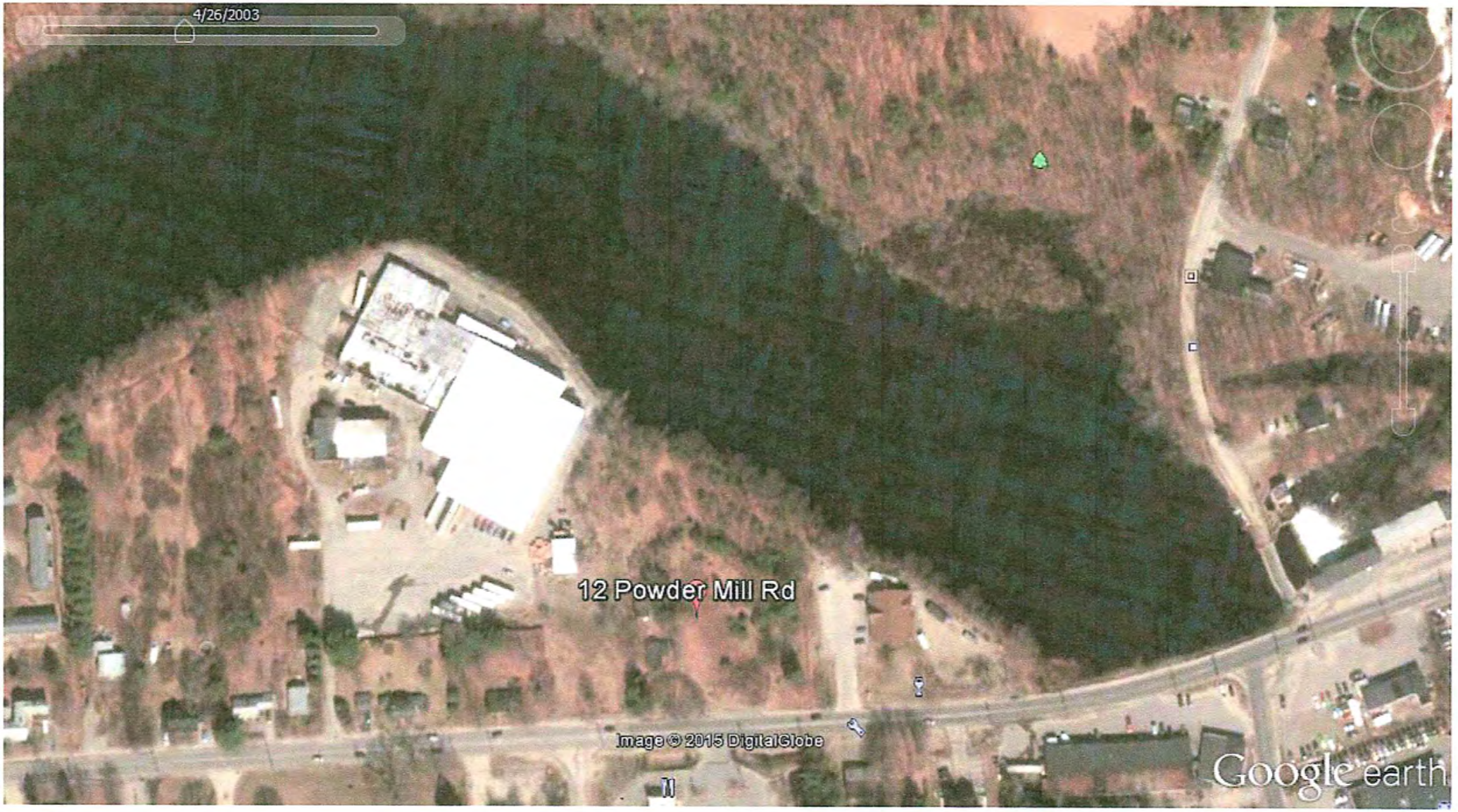
The Aluminum City Dam in Northborough is considered "non-jurisdictional," falling below size thresholds for rating.

Sources: ACOE, DCR Office of Dam Safety

Please note: this article is a reprint from OAR's June 2008 newsletter.

Historic Photographs of Ripple Pond
(Powder Mill Impoundment)
Obtained from Google Earth

12/30/2001
12 Powder Mill Rd
Image MassGIS, Commonwealth of Massachusetts EOEA
Google earth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12 Powder Mill Rd
Image © 2015 DigitalGlobe
Google earth

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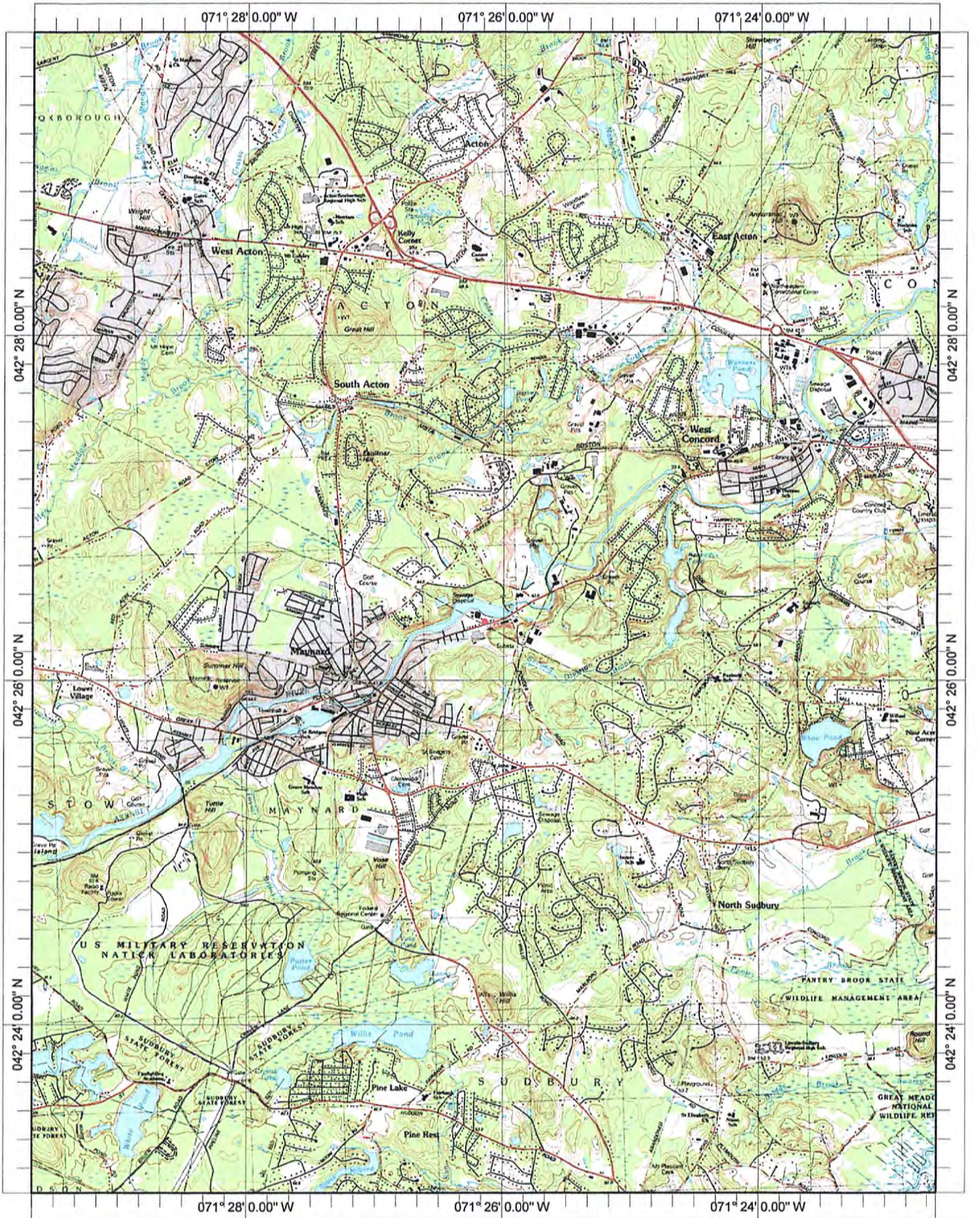

<Default> - 1 Markers, Length = 0 feet

LOCUS - 042° 26' 20.4" N, 071° 26' 08.6" W

Copyright (C) 1997, Maptech, Inc.

Resource Area Delineation Plan by
Stamski and McNary, Inc.

Aerial GIS of Resource Area Delineation Plan by Stamski and McNary, Inc.