Form 4A – Abbreviated Notice of Resource Area Delineation

Massachusetts Wetlands Protection Act (M.G.L. c.131 s.40)

The Town of Nantucket Bylaw Wetlands

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Wetland Delineation for Nantucket
Madaket Wind Turbine Project

Submitted to:
NANTUCKET CONSERVATION
COMMISSION
37 Washington Street
Nantucket, MA 02554

DEP SERO
20 Riverside Drive
Lakeville, MA 02347

November 10, 2010

Prepared for:
The Town of Nantucket
16 Broad Street
Nantucket, MA 02554

Submitted by:
Epsilon Associates, Inc.
3 Clock Tower Place, Suite 250
Maynard, MA 01754
November 10, 2010

Nantucket Conservation Commission
37 Washington Street
Nantucket, MA 02554

Subject: Form 4A – Abbreviated Notice of Resource Area Delineation Application, Nantucket Municipal Landfill Site, Nantucket, MA.

Dear Commission Members and Staff:

Enclosed please find two (2) copies of the above referenced Abbreviated Notice of Resource Area Delineation ("ANRAD") application filed in accordance with the Massachusetts Wetlands Protection Act ("WPA") (M.G.L. c. 131 § 40), the implementing regulations (310 CMR 10.00) and the Town of Nantucket Wetland Protection Regulations.

The Town of Nantucket (the "Applicant") is requesting that the Nantucket Conservation Commission issue an Order of Resource Area Delineation ("ORAD") approving the boundary of delineated wetland resource areas located within the Town of Nantucket Municipal Landfill property. Jurisdictional wetland resource areas delineated within the Study Area include Bordering Vegetated Wetland. No activities are proposed under this ANRAD filing. This ANRAD is being filed to support planning activities associated with a proposed wind turbine project at the Town Landfill site.

This ANRAD is being submitted for the Commission’s review at the December 1, 2010 public hearing. If you have any questions regarding this application please do not hesitate to contact me at 978.461.6256 or via email at shale@epsilonassociates.com. Thank you.

Sincerely,

EPSILON ASSOCIATES, INC.

Sean D. Hale, PWS
Project Scientist

Encl.

CC: DEP SERO
    Town of Nantucket
Abbreviated Notice of Resource Area Delineation

Massachusetts Wetlands Protection Act (M.G.L. c.131 §.40)
The Town of Nantucket Bylaw for Wetlands

Applicant:
The Town of Nantucket
16 Broad Street
Nantucket, MA 02554

Prepared By:
Epsilon Associates, Inc.
3 Clock Tower Place, Suite 250
Maynard, MA 01754

In Association With:
Emack Surveying

November 10, 2010
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A. General Information

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

<table>
<thead>
<tr>
<th>Street Address</th>
<th>City/Town</th>
<th>Zip Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>188 Madaket</td>
<td>Nantucket</td>
<td>02554</td>
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</tbody>
</table>

Latitude and Longitude:

<table>
<thead>
<tr>
<th>Latitude</th>
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<tbody>
<tr>
<td>70°10'8.11&quot;</td>
<td>41°16'50.57&quot;</td>
</tr>
</tbody>
</table>

f. Assessors Map/Plat Number

2. Applicant:

<table>
<thead>
<tr>
<th>First Name</th>
<th>Last Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gregg</td>
<td>Tivnan</td>
</tr>
</tbody>
</table>

Town of Nantucket

16 Broad Street, 1st Floor

Nantucket

e. City/Town

b. State

f. State

02554

508 228-7255

h. Phone Number

i. Fax Number

g. Zip Code

gtivnan@nantucket-ma.gov

j. Email Address

3. Property owner (if different from applicant):

a. First Name

b. Last Name

Town of Nantucket

c. Organization

d. Mailing Address

Nantucket

e. City/Town

b. State

f. State

02554

508 228-7255

h. Phone Number

i. Fax Number

g. Zip Code

4. Representative (if any):

<table>
<thead>
<tr>
<th>First Name</th>
<th>Last Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sean</td>
<td>Hale</td>
</tr>
</tbody>
</table>

Epsilon Associates, Inc.

c. Organization

d. Mailing Address

3 Clock Tower Place, Suite 250

e. City/Town

b. State

f. State

01754

978 461-6256

h. Phone Number

i. Fax Number

j. Email Address

shale@epsilonassociates.com

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

a. Total Fee Paid

b. State Fee Paid

c. City/Town Fee Paid

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

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

Fees will be calculated for online users.
B. Area(s) Delineated

1. Bordering Vegetated Wetland (BVW) 3,155 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:
   a. Resource Area
   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:

- 2. Municipal Check Number
- 3. Check date
- 4. State Check Number
- 5. Check date
- 6. Payor name on check: First Name
- 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 expenses 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.

1. Signature of Applicant

2. Date

3. Signature of Property Owner (if different)

4. Date

5. Signature of Representative (if any)

5. Date

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.
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.

1. Signature of Applicant
   
2. Date: 11/4/10

3. Signature of Property Owner (if different)

4. Date

5. Signature of Representative (if any)

6. Date

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.
ATTACHMENT A – PROJECT NARRATIVE

1.0 Introduction

On behalf of the Town of Nantucket ("the Town" or the "Applicant"), Epsilon Associates, Inc. ("Epsilon") is pleased to submit this Abbreviated Notice of Resource Area Delineation ("ANRAD") to the Nantucket Conservation Commission ("NCC"). This ANRAD has been prepared in accordance with the Massachusetts Wetland Protection Act (MGL c.131 s.40) and implementing Regulations (310 CMR 10.00) (the "Act") and the Town of Nantucket Bylaw for Wetlands and implementing Regulations.

The Applicant is requesting that the NCC issue an Order of Resource Area Delineation ("ORAD") approving the boundary of state and local wetland resource areas delineated by Epsilon in the vicinity of the Town of Nantucket Madaket Landfill (the "Study Area"). More specifically, the Applicant is requesting that the NCC confirm stretches of Bordering Vegetated Wetland ("BVW") delineated by Flag Series A1 to A63, B1 to B21 and C1 to C5 within the Study Area. The approved wetland resource area delineation will be relied upon by the Town and others to evaluate conceptual design and layout alternatives associated with a proposed wind turbine project as well as the potential impacts of the project. Jurisdictional wetland resource areas delineated within the Study Area are limited to Bordering Vegetated Wetland ("BVW"). Land Subject to Coastal Storm Flowage is also present in the Study Area. No work is proposed at this time.

2.0 Existing Conditions

The Study Area consists of a parcel of land located adjacent to the Town of Nantucket Municipal Landfill. More specifically, the Study Area includes vegetated areas bordering on Long Pond at the western extent of the Landfill operation and south of the existing Department of Public Works ("DPW") office at 188 Madaket Road. The Study Area contains the site of a former communication tower, which is also the site of a proposed wind turbine project (see Figures 1 & 2 in Attachment B). The topography of the Study Area is varied, generally decreasing in elevation as one approaches Long Pond to the west.

According to the applicable Federal Emergency Management Agency - Flood Insurance Rate Map ("FEMA-FIRM"), Community Panel Number # 250230 0015 E, Revision Date November 6, 1996, there is Zone AE (EL 8), an area inundated by 100-year flooding, within the Study Area (see Figure 5 – Floodplain Map & Figure 6 – FEMA FIRMette Map).

1 For the purposes of this report, Bordering Vegetated Wetland ("BVW") under the Act refers to the same wetland resource area as Freshwater Wetlands under the Town of Nantucket Wetland Protection Regulations.
2.1 Soils

Natural Resource Conservation Service ("NRCS")\(^2\) mapped soil units within the Study Area include the following:

- Medisaprist, 0 to 1 percent slopes
- Ridgebury Variant silty clay loam, 0 to 3 percent slopes
- Tisbury very fine sandy loam, 0 to 3 percent slopes
- Evesboro sand, 3 to 8 percent slopes
- Kleg and Pompton soils, 0 to 3 percent slopes
- Water, saline
- Dumps

Of these, Medisaprist, Ridgebury Variant, Kleg and Pompton soils are poorly drained or wetter and considered hydric (wetland) soils. Please see the soil report in Attachment F for additional soil series descriptions.

2.2 Natural Heritage Atlas

According to the 2008 Natural Heritage Atlas, parts of the Study Area overlap with areas mapped as priority habitat of rare species and estimated habitat of rare wetlands wildlife. The Study Area does not contain any certified or potential vernal pools (Figure 4 in Attachment B).

3.0 Jurisdictional Wetland Resource Areas

3.1 Wetland Delineation Methodology

On October 26, 2010, a wetland scientist from Epsilon delineated wetland resource areas in the Study Area. Vegetated wetlands were delineated in accordance with the U.S. Army Corps of Engineers Wetland Delineation Manual (USACE, 1987); the Massachusetts Department of Environmental Protection’s handbook, Delineating Bordering Vegetated Wetlands Under the Massachusetts Wetlands Protection Act (MADEP, 1995); and the Town of Nantucket Wetland Protection Regulations. The federal and state delineation methodologies generally prescribe a three parameter approach where hydrophytic vegetation, hydric soils, and hydrology are reviewed in conjunction with one another when delineating a wetland edge. The Town delineation methodology prescribes a similar delineation approach utilizing indicators of hydrology, depth to groundwater (i.e. groundwater within 18 inches of the ground surface) and plant communities.

\(^2\) Soil Survey Area: Nantucket County, Massachusetts; Survey Area Data: Version 9, February 24, 2010
### 3.2 Bordering Vegetated Wetland

BVW is defined at 310 CMR 10.55 and Freshwater Wetlands\(^3\) are defined at Section 1.02 of the Town of Nantucket Wetland Protection Regulations. According to the state regulations, BVW’s are freshwater wetlands that border on creeks, rivers, streams, ponds and lakes. The types of freshwater wetlands are wet meadows, marshes, swamps and bogs. BVW’s are areas where the soils are saturated and/or inundated such that they support a predominance of wetland indicator plants. The ground and surface water regime and the plant community that occur in each type of freshwater wetland are specified in the Act. The boundary of BVW is the line within which 50 percent or more of the plant community consists of wetland indicator plants and saturated and inundated conditions exist.

Two areas of BVW are described in this ANRAD filing (see Wetland Series A, B & C on the attached site plans). These areas were characterized as BVW because they support a predominance of wetland indicator plants and there was evidence of saturated or inundated conditions (e.g., characteristics of hydric soils, observation of prolonged or frequent flowing or standing surface water, groundwater within a major portion of the root zone). The edge of these wetlands were marked in the field using brightly colored pink wetland delineation flagging, and are described as follows:

**Wetland Series A & B (Flags A1 to A63 & B1 to B21)**

This wetland series consists of a large scrub-shrub BVW system associated with Long Pond and adjacent lower elevation areas. This wetland complex also contains patches of forested and emergent marsh wetlands with pockets of standing water. Dominant woody vegetation includes sweet pepperbush (*Clethra alnifolia*), winterberry (*Ilex verticillata*), highbush blueberry (*Vaccinium corymbosum*), arrowwood (*Viburnum dentatum*), willow (*Salix sp.*), dogwoods (*Cornus spp.*), bayberry (*Myrica pensylvanica*), black tupelo (*Nyssa sylvatica*) and oaks (*Quercus spp.*). Common herbaceous vegetation includes blue vervain (*Verbena hastata*), goldenrods (*Solidago spp.*), cinnamon fern (*Osmunda cinnamomea*), poison ivy (*Toxicodendron radicans*), greenbriar (*Smilax spp.*), soft rush (*Juncus effusus*) and patches of phragmites (*Phragmites australis*).

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\(^3\) The Town of Nantucket Wetland Regulations define Freshwater Wetlands as “a wet meadow, freshwater marsh, swamp, bog, pond, lake, creek, or stream; an area of low topography where groundwater, flowing water, standing surface water, or ice provides a significant part of the supporting substrate for a plant community for at least five months of the year; characterized by emergent and submersed plant communities in inland waters; and/or where depth to high groundwater is within 18 inches of the ground surface, and/or exhibits hydric soil characteristics and includes that portion of any inland bank which touches any freshwater wetland. Freshwater wetlands are not defined to include drainage facilities constructed to include wetland vegetation as treatment for stormwater runoff.”
**Wetland Series C (Flags C1 to C5)**

This wetland series consists of a strip of sloped, fringe BVW immediately adjacent to Long Pond at the northern extent of the Study Area. Dominant wetland vegetation includes winterberry, arrowwood, bayberry, and dogwoods. Phragmites becomes dominant as one moves closer to the pond edge.

### 3.3 Land Subject to Coastal Storm Flowage

Land Subject to Coastal Storm Flowage\(^4\) (“LSCSF”) as defined in 310 CMR 10.04, is “land subject to any inundation caused by coastal storms up to and including that caused by the 100-year storm, surge of record or storm of record, whichever is greater”. LSCSF does not have a 100 foot Buffer Zone.

According to the applicable Federal Emergency Management Agency - Flood Insurance Rate Map (“FEMA-FIRM”), Community Panel Number # 250230 0015 E, Revision Date November 6, 1996, there is Zone AE (EL 8), an area inundated by 100-year flooding, within the Study Area (see Figure 5 – Floodplain Map & Figure 6 – FEMA FIRMette Map).

### 4.0 Conclusions

The Applicant respectfully requests that the NCC issue an ORAD confirming that the wetland resource area boundaries depicted on the attached plans and as described in this ANRAD are accurately delineated in accordance with the Act and implementing regulations (310 CMR 10.00) and the Town of Nantucket Bylaw for Wetlands and implementing Regulations. More specifically, the Applicant is requesting that the NCC confirm stretches of Bordering Vegetated Wetland and Freshwater Wetlands delineated by Flag Series A1 to A63, B1 to B21 and C1 to C5 within the Study Area.

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\(^4\) The Town of Nantucket Wetland Protection Regulations uses the same definition of LSCSF.
Madaket Wind Turbine Project  Nantucket, Massachusetts

Figure 1
USGS Locus Map
Figure 2
Project Area

Madaket Wind Turbine Project     Nantucket, Massachusetts
Figure 3

Wetlands

LEGEND

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<th>Color</th>
<th>Description</th>
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<td>Hydrologic Connection</td>
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<td>Wetlands (2005, MassGIS)</td>
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<td>Open Water</td>
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Basemap: 2009 Orthophotography, MassGIS

Scale 1:6,000
1 inch = 500 feet

Madaket Wind Turbine Project   Nantucket, Massachusetts
LEGEND

- NHESP Potential Vernal Pools: NOT equivalent to Certified Vernal Pools
- NHESP 2008 Massachusetts Certified Vernal Pools
- NHESP 2008 Priority Habitats for State-Protected Rare Species
- NHESP 2008 Estimated Habitats for Rare Wildlife: For Use with the MA Wetlands Protection Act Regulations (310 CMR 10)

Basemap: 2009 Orthophotography, MassGIS

Scale 1:6,000
1 inch = 500 feet

0 125 250 500 Feet

Project Site

Figure 4

NHESP
Attachment C – Site Photographs
Photo 1: View of Wetland Series A proximate to wetland flag A-15

Photo 2: View of Wetland Series B proximate to wetland flag B-4
Photo 3: View of Wetland Series C proximate to wetland flag C-3

Photo 4: View of former communication tower site, Wetland Series A in background
MEMO

Inquirer & Millroy

Thirty and 00/100

$30.00

11/3/2010

233516

MAYNARD, MA 01754
STF 250
3 CLOCK TOWER PL
EPILOG ASSOCIATES, INC.
Attachment E – Abutter Notification Information
Affidavit Of Service
Under The Massachusetts Wetlands Protection Act

I, Sean D. Hale, hereby certify under the pains and penalties of perjury that on
November 10, 2010, Epsilon Associates, Inc. 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 Wetland Protection Act and the Town of Nantucket Bylaw for
Wetlands by The Town of Nantucket, on November 10, 2010 for property
located at 188 Madaket Road – The Town of Nantucket Municipal Landfill

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

Sean D. Hale, PWS
Project Scientist

Nantucket 10, 2010
DATE
Notification to Abutters
Under The Massachusetts Wetland Protection Act

In accordance with the second paragraph of Massachusetts General Laws Chapter 131, Section 40, and the Nantucket Bylaw for Wetlands you are hereby notified of the following:

a) The name of the applicant is: The Town of Nantucket.

b) The applicant has filed an Abbreviated Notice of Resource Area Delineation ("ANRAD") with the Nantucket Conservation Commission seeking an Order of Resource Area Delineation ("ORAD") confirming the boundaries of wetland resource areas subject to protection under the Massachusetts Wetland Protection Act and the Nantucket Bylaw for Wetlands.

c) The wetland areas included in the ANRAD application are located at the Town of Nantucket Municipal Landfill Site, Map 58, Parcel 01.

d) Copies of the ANRAD and site plans may be examined or obtained for a fee from either the:

   1) Nantucket Conservation Commission, 37 Washington Street, Nantucket, MA 02554, (508) 228-7230 between the hours of 8:00 a.m. and 3:00 p.m. Monday through Friday. Please call the Conservation Commission office beforehand to verify arrangements. Copies may be available for a fee.


e) Information regarding the date, time and place of the public hearing may be obtained from the Nantucket Conservation Commission by calling (508) 228-7230 between the hours of 8:00 a.m. and 3:00 p.m. Monday through Friday. It is anticipated that a hearing will be held on Wednesday, December 1, 2010 at the Town Annex Conference Room, 37 Washington Street, beginning at 4:00 pm. However, please call the Conservation Commission office to confirm the meeting time and place.

NOTE: Notice of the public hearing, including its date, time and place, will be published at least five (5) days in advance in the Inquirer & Mirror.

NOTE: Notice of the public hearing, including its date, time and place, will be posted in Town Hall at least forty-eight (48) hours in advance.

NOTE: You also may contact the MA Department of Environmental Protection for more information about this application or the Wetlands Protection Act. To contact the MA Department of Environmental Protection Office, Southeast Region, call 508-946-2700.
LIST OF PARTIES IN INTEREST IN THE MATTER OF THE PETITION OF:

PROPERTY OWNER.......................................................... Town of Nantucket
MAILING ADDRESS......................................................... 16 Broad Street
PROPERTY LOCATION...................................................... Massachusetts Bridge Road
ASSESSOR MAP/PARCEL...................................................... 58/1
SUBMITTED BY............................................................. Emooney

SEE ATTACHED PAGES

I certify the foregoing is a list of persons who are owners of land directly abutting the property on which the proposed activity will occur (the locus), owners of land separated a distance of one hundred feet or less from the locus by a public or private street or way or stream and owners of land separated a distance of three hundred feet or less from the locus by a body of water, all as they appear on the most recent applicable tax list.

Nov 8, 2010

DATE

Patricia A. Hiles
ASSSESSOR'S OFFICE
TOWN OF NANTUCKET
<table>
<thead>
<tr>
<th>Map</th>
<th>Lot</th>
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<th>Co Owner/s Name</th>
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<td>02554</td>
<td>308 MASSASOIT RD</td>
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<td>WALSH MICHAEL F</td>
<td></td>
<td>PO BOX 2891</td>
<td></td>
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<td></td>
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Custom Soil Resource Report for
Nantucket County, Massachusetts

November 5, 2010
Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://soils.usda.gov/sqi/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (http://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://soils.usda.gov/contact/state_offices/).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Soil Data Mart Web site or the NRCS Web Soil Survey. The Soil Data Mart is the data storage site for the official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the
individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.
Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.
Custom Soil Resource Report

**MAP LEGEND**

- **Area of Interest (AOI)**
- **Soils**
  - Area of Interest (AOI)
  - Soil Map Units
- **Special Point Features**
  - Blowout
  - Borrow Pit
  - Clay Spot
  - Closed Depression
  - Gravel Pit
  - Gravelly Spot
  - Landfill
  - Lava Flow
  - Marsh or swamp
  - Mine or Quarry
  - Miscellaneous Water
  - Perennial Water
  - Rock Outcrop
  - Saline Spot
  - Sandy Spot
  - Severely Eroded Spot
  - Sinkhole
  - Slide or Slip
  - Sodic Spot
  - Spoil Area
  - Stony Spot
- **Very Stony Spot**
- **Wet Spot**
- **Other**
- **Special Line Features**
  - Gully
  - Short Steep Slope
  - Other
- **Political Features**
  - Cities
- **Water Features**
  - Oceans
  - Streams and Canals
- **Transportation**
  - Interstate Highways
  - US Routes
  - Major Roads
  - Local Roads

**MAP INFORMATION**

Map Scale: 1:3,310 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:20,000.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service


Coordinate System: UTM Zone 19N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Nantucket County, Massachusetts

Survey Area Data: Version 9, Feb 24, 2010

Date(s) aerial images were photographed: 7/26/2003

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.
Map Unit Legend

<table>
<thead>
<tr>
<th>Map Unit Symbol</th>
<th>Map Unit Name</th>
<th>Acres in AOI</th>
<th>Percent of AOI</th>
</tr>
</thead>
<tbody>
<tr>
<td>52A</td>
<td>Medisaprists, 0 to 1 percent slopes</td>
<td>14.0</td>
<td>28.6%</td>
</tr>
<tr>
<td>87A</td>
<td>Ridgebury Variant silty clay loam, 0 to 3 percent slopes</td>
<td>7.3</td>
<td>14.9%</td>
</tr>
<tr>
<td>261A</td>
<td>Tisbury very fine sandy loam, 0 to 3 percent slopes</td>
<td>8.8</td>
<td>18.0%</td>
</tr>
<tr>
<td>294B</td>
<td>Evesboro sand, 3 to 8 percent slopes</td>
<td>9.6</td>
<td>19.7%</td>
</tr>
<tr>
<td>295A</td>
<td>Klej and Pompton soils, 0 to 3 percent slopes</td>
<td>0.0</td>
<td>0.0%</td>
</tr>
<tr>
<td>607</td>
<td>Water, saline</td>
<td>4.4</td>
<td>9.0%</td>
</tr>
<tr>
<td>652</td>
<td>Dumps</td>
<td>4.8</td>
<td>9.8%</td>
</tr>
<tr>
<td><strong>Totals for Area of Interest</strong></td>
<td></td>
<td><strong>48.8</strong></td>
<td><strong>100.0%</strong></td>
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</tbody>
</table>

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.
The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a soil series. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into soil phases. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A complex consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An association is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An undifferentiated group is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include miscellaneous areas. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.
Nantucket County, Massachusetts

52A—Medisaprists, 0 to 1 percent slopes

Map Unit Setting

Mean annual precipitation: 41 to 48 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 175 to 240 days

Map Unit Composition

Medisaprists and similar soils: 85 percent
Minor components: 15 percent

Description of Medisaprists

Setting

Landform: Bogs
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Highly-decomposed herbaceous organic material

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 6.00 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Available water capacity: Very high (about 23.9 inches)

Interpretive groups

Land capability (nonirrigated): 4w

Typical profile

0 to 60 inches: Muck

Minor Components

Berryland variant
Percent of map unit: 15 percent
Landform: Terraces

87A—Ridgebury Variant silty clay loam, 0 to 3 percent slopes

Map Unit Setting

Mean annual precipitation: 41 to 48 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 175 to 240 days

Map Unit Composition
Ridgebury variant and similar soils: 85 percent
Minor components: 15 percent

Description of Ridgebury Variant

Setting
Landform: Depressions
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Dense clayey lodgment till

Properties and qualities
Slope: 0 to 3 percent
Depth to restrictive feature: 20 to 30 inches to dense material
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: About 0 to 18 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Available water capacity: Low (about 3.3 inches)

Interpretive groups
Land capability (nonirrigated): 4w

Typical profile
0 to 7 inches: Silty clay loam
7 to 11 inches: Silty clay
11 to 60 inches: Clay

Minor Components
Woodbridge variant
Percent of map unit: 10 percent

Freetown
Percent of map unit: 5 percent
Landform: Bogs

261A—Tisbury very fine sandy loam, 0 to 3 percent slopes

Map Unit Setting
Mean annual precipitation: 41 to 48 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 175 to 240 days
Map Unit Composition

*Tisbury and similar soils*: 95 percent  
*Minor components*: 5 percent

Description of Tisbury

Setting

*Landform*: Outwash plains  
*Landform position (two-dimensional)*: Footslope  
*Landform position (three-dimensional)*: Tread  
*Down-slope shape*: Concave  
*Across-slope shape*: Concave  
*Parent material*: Friable coarse-silty eolian deposits over loose sandy and gravelly glaciofluvial deposits

Properties and qualities

*Slope*: 0 to 3 percent  
*Depth to restrictive feature*: 17 to 40 inches to strongly contrasting textural stratification  
*Drainage class*: Moderately well drained  
*Capacity of the most limiting layer to transmit water (Ksat)*: Moderately high to high (0.60 to 2.00 in/hr)  
*Depth to water table*: About 18 to 30 inches  
*Frequency of flooding*: None  
*Frequency of ponding*: None  
*Available water capacity*: Low (about 4.8 inches)

Interpretive groups

*Land capability (nonirrigated)*: 2w

Typical profile

0 to 10 inches: Very fine sandy loam
10 to 20 inches: Very fine sandy loam
20 to 60 inches: Very gravelly sand

Minor Components

*Enfield*

*Percent of map unit*: 5 percent

294B—Evesboro sand, 3 to 8 percent slopes

Map Unit Setting

*Elevation*: 10 to 450 feet  
*Mean annual precipitation*: 41 to 48 inches  
*Mean annual air temperature*: 50 to 54 degrees F  
*Frost-free period*: 175 to 240 days

Map Unit Composition

*Evesboro and similar soils*: 85 percent
Minor components: 15 percent

Description of Evesboro

Setting
- Landform: Outwash plains
- Landform position (two-dimensional): Shoulder
- Landform position (three-dimensional): Riser
- Down-slope shape: Convex
- Across-slope shape: Convex
- Parent material: Loose sandy glaciofluvial deposits

Properties and qualities
- Slope: 3 to 8 percent
- Depth to restrictive feature: More than 80 inches
- Drainage class: Excessively drained
- Capacity of the most limiting layer to transmit water (Ksat): High to very high (2.00 to 20.00 in/hr)
- Depth to water table: More than 80 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Available water capacity: Low (about 4.5 inches)

Interpretive groups
- Land capability (nonirrigated): 7s

Typical profile
- 0 to 6 inches: Sand
- 6 to 26 inches: Loamy sand
- 26 to 60 inches: Stratified sand to sandy loam

Minor Components

Klej
- Percent of map unit: 5 percent

Riverhead
- Percent of map unit: 5 percent

Udipsammments
- Percent of map unit: 5 percent

295A—Klej and Pompton soils, 0 to 3 percent slopes

Map Unit Setting
- Elevation: 10 to 120 feet
- Mean annual precipitation: 41 to 48 inches
- Mean annual air temperature: 50 to 54 degrees F
- Frost-free period: 175 to 240 days

Map Unit Composition
- Klej and similar soils: 46 percent
Pompton and similar soils: 40 percent
Minor components: 14 percent

Description of Klej

Setting
- **Landform:** Outwash plains
- **Landform position (two-dimensional):** Footslope
- **Landform position (three-dimensional):** Tread
- **Down-slope shape:** Concave
- **Across-slope shape:** Concave

**Parent material:** Loose sandy glaciofluvial deposits derived from granite and gneiss and/or firm fine-loamy lacustrine deposits and/or firm fine-loamy marine deposits

Properties and qualities
- **Slope:** 0 to 3 percent
- **Depth to restrictive feature:** More than 80 inches
- **Drainage class:** Poorly drained
- **Capacity of the most limiting layer to transmit water (Ksat):** Very low to high (0.00 to 2.00 in/hr)
- **Depth to water table:** About 12 to 31 inches
- **Frequency of flooding:** None
- **Frequency of ponding:** None
- **Available water capacity:** Low (about 5.3 inches)

Interpretive groups
- **Land capability (nonirrigated):** 3w

Typical profile
- 0 to 26 inches: Loamy sand
- 26 to 52 inches: Sand
- 52 to 60 inches: Sandy clay loam

Description of Pompton

Setting
- **Landform:** Terraces
- **Landform position (two-dimensional):** Footslope
- **Landform position (three-dimensional):** Tread
- **Down-slope shape:** Concave
- **Across-slope shape:** Concave

**Parent material:** Friable coarse-loamy eolian deposits over loose sandy and gravelly glaciofluvial deposits derived from granite and gneiss

Properties and qualities
- **Slope:** 0 to 3 percent
- **Depth to restrictive feature:** More than 80 inches
- **Drainage class:** Poorly drained
- **Capacity of the most limiting layer to transmit water (Ksat):** Moderately high to high (0.60 to 6.00 in/hr)
- **Depth to water table:** About 6 to 24 inches
- **Frequency of flooding:** Rare
- **Frequency of ponding:** None
- **Available water capacity:** Moderate (about 6.8 inches)

Interpretive groups
- **Land capability (nonirrigated):** 2w
Typical profile
0 to 10 inches: Fine sandy loam
10 to 30 inches: Sandy loam
30 to 60 inches: Stratified gravelly loamy sand to sand

Minor Components

Berryland variant
Percent of map unit: 4 percent
Landform: Terraces

Evesboro
Percent of map unit: 4 percent

Riverhead
Percent of map unit: 4 percent

Plymouth
Percent of map unit: 2 percent

607—Water, saline

Map Unit Setting
Frost-free period: 180 to 220 days

Map Unit Composition
Water, saline: 100 percent

652—Dumps

Map Unit Setting
Mean annual precipitation: 40 to 45 inches
Mean annual air temperature: 50 to 55 degrees F
Frost-free period: 180 to 220 days

Map Unit Composition
Dumps: 100 percent

Description of Dumps

Setting
Parent material: Loamy excavated and filled material over refuse

Interpretive groups
Land capability (nonirrigated): 8s

Typical profile
0 to 65 inches: Variable
References


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

Applicant: TOWN OF NANTUCKET  Prepared by: EPSILON ASSOC  Project location: TOWN MUNICIPAL LANDFILL DEP File #: MAP 58, PARCEL 1

Check all that apply:

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

Section I. Vegetation

<table>
<thead>
<tr>
<th>Observation Plot Number: 1</th>
<th>Transect Number: 1</th>
<th>Date of Delineation: 10-26-10</th>
</tr>
</thead>
</table>

A. Sample Layer and Plant Species (by common/scientific name)

<table>
<thead>
<tr>
<th>Plant Name</th>
<th>Percent Cover (or basal area)</th>
<th>Percent Dominance</th>
<th>Dominant Plant (yes or no)</th>
<th>Wetland Indicator Category*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highbush Blueberry</td>
<td>30</td>
<td>37.5</td>
<td>Y</td>
<td>FACW</td>
</tr>
<tr>
<td>Sassafras</td>
<td>20</td>
<td>25</td>
<td>Y</td>
<td>FACW</td>
</tr>
<tr>
<td>Arrowwood</td>
<td>2.0</td>
<td>25</td>
<td>Y</td>
<td>FACW</td>
</tr>
<tr>
<td>Wintersweet</td>
<td>1.0</td>
<td>12.5</td>
<td>N</td>
<td>FACW</td>
</tr>
<tr>
<td>Swamp Chestnut</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New York Fern</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bristly Dewberry</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poison Ivy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Use an asterisk to mark wetland indicator plants: plant species listed in the Wetlands Protection Act (MGL c.131, s.40); plants in the genus Sphagnum; plants listed as FAC, FAC+, FACW, FACW+, or GHL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

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  [ ] no

If vegetation alone is presumed adequate to delineate the BW 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: NANTUCKET COUNTY, MASSACHUSETTS
Map Number: VOLUME 9, 2/24/2010
Soil Type Mapped: Multiple Types
Hydric Soil Inclusions: yes

Are field observations consistent with soil survey? [ ] yes [ ] no

Remarks:

2. Soil Description

<table>
<thead>
<tr>
<th>Horizon</th>
<th>Depth</th>
<th>Matrix Color</th>
<th>Mottles Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>0 - 6 INCHES</td>
<td>10 YR 2/1</td>
<td>5 YR 4/6</td>
</tr>
<tr>
<td>B (+)</td>
<td>6 - 10 INCHES</td>
<td>10 YR 4/4</td>
<td>Organic Staining</td>
</tr>
<tr>
<td>B (+)</td>
<td>10 - 20 INCHES</td>
<td>10 YR 5/4</td>
<td></td>
</tr>
</tbody>
</table>

Remarks: SOIL SATURATED, MOTTLED W/10 WET TOOLS

3. Other:

Conclusion: Is soil hydric? [ ] yes [ ] no

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

- Site inundated: [ ] Yes [ ] No
- Depth to water in observation hole:
- Depth to soil saturation in observation hole: 0"
- Water marks:
- Drainage patterns in BVW:
- Oxidized rhizospheres:
- Water-stained leaves:
- Recorded data (stream, lake, or tidal gauge; aerial photo; other):
- Other:

Vegetation and Hydrology Conclusion

Number of wetland indicator plants [ ] Yes [ ] No

≥ number of non-wetland indicator plants

Wetland hydrology present:
  - hydric soil present: [ ] Yes [ ] No
  - other indicators of hydrology present: [ ] Yes [ ] No

Sample location is in a BVW: [ ] Yes [ ] No

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 or Name]  Prepared by: [Name]
Project location: [Town Name], Lot # [Lot #]
DEP File #: ______________

MAP 58, PARCEL 1

Check all that apply:

☐ Vegetation alone presumed adequate to delineate SW boundary: fill out Section I only
☐ Vegetation and other indicators of hydrology used to delineate SW boundary: fill out Sections I and II
☐ Method other than dominance test used (attach additional information)

Section I. Vegetation

Observation Plot Number: 2  Transect Number: 1  Date of Delineation: 5-26-10

A. Sample Layer and Plant Species (by common/scientific name)

<table>
<thead>
<tr>
<th>Species</th>
<th>% Cover (or basal area)</th>
<th>% Dominance</th>
<th>Dominant Plant (yes or no)</th>
<th>Wetland Indicator Category*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black Cherry (Prunus serotina)</td>
<td>25</td>
<td>100</td>
<td>Y</td>
<td>FAC V</td>
</tr>
<tr>
<td>Sapling 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shrub</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Barberry (Alyssum pensylvanicum)</td>
<td>20</td>
<td>28.5</td>
<td>Y</td>
<td>FAC</td>
</tr>
<tr>
<td>Gray Dogwood (Cornus racemosa)</td>
<td>20</td>
<td>28.5</td>
<td>Y</td>
<td>FAC -</td>
</tr>
<tr>
<td>Black Cherry (Prunus serotina)</td>
<td>10</td>
<td>14.5</td>
<td>N</td>
<td>FAC V</td>
</tr>
<tr>
<td>Arrow Wood (Vicia Imperialis)</td>
<td>30</td>
<td>55</td>
<td>Y</td>
<td>FAC V</td>
</tr>
<tr>
<td>Subject Plant (P dodonata)</td>
<td>25</td>
<td>45</td>
<td>Y</td>
<td>FAC V</td>
</tr>
<tr>
<td>Snail Shell</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Vegetation conclusion:

Number of dominant wetland indicator plants: 3  Number of dominant non-wetland indicator plants: 5

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

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

MA DEP: 3/95
Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

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

title: NANTUCKET COUNTY

map number: 1952, 1959

soil type mapped: multiple types

hydric soil inclusions: ☑ yes

Are field observations consistent with soil survey? ☑ yes  ☐ no

Remarks:

2. Soil Description

<table>
<thead>
<tr>
<th>Horizon</th>
<th>Depth</th>
<th>Matrix Color</th>
<th>Mottles Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>0-5 m</td>
<td>10 yr 2/2</td>
<td>none</td>
</tr>
<tr>
<td>B</td>
<td>5-20 m</td>
<td>10 yr 4/4</td>
<td>none</td>
</tr>
</tbody>
</table>

Remarks: soil dry, not saturated

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 BWV: ____________________________

☐ Oxidized rhizospheres: ____________________________

☐ Water-stained leaves: ____________________________

☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): ____________________________

☐ Other: ____________________________

Vegetation and Hydrology Conclusion

Number of wetland indicator plants ☑ yes  ☐ no

> number of non-wetland indicator plants ☑ yes  ☐ no

Wetland hydrology present:

☐ hydric soil present

☐ other indicators of hydrology present

Sample location is in a BWV ☑ yes  ☐ no

Submit this form with the Request for Determination of Applicability or Notice of Intent.
Attachment H – ANRAD Plans (attached separately)