COMPENSATORY WETLAND ENHANCEMENT SITES MONITORING REPORT 2015

Maurice Rose Armed Forces Reserve Center
Boardman Lane Wetland Mitigation Site
Middletown, Connecticut

Headquarters, 99th Regional Support Command
5231 South Scott Plaza
Fort Dix, New Jersey 08640-5062

December 2015

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1.0 PROJECT OVERVIEW

This report presents the findings of wetland monitoring at two 99th Regional Support Command (RSC) wetland mitigation sites located in Middletown, Connecticut. The U.S. Army Corps of Engineers (USACE), Baltimore District conducted monitoring in May and September 2015 on behalf of the 99th RSC.

Both sites are currently out of compliance with the conditions of the permit. Invasive species control has not been conducted at either site and as a result, invasive species are beginning to spread throughout the Boardman Lane site and stands of common reed are expanding at the Smith Street site. Pursuant to the two options outlined in the USACE New England Regulatory Division correspondence to address the failure of the 4-acre Boardman Lane planting site, the option to make an In-lieu fee payment of $88,241.02 was made to the Connecticut Chapter of the National Audubon Society on October 15, 2015.

The 99th RSC constructed the Maurice Rose Armed Forces Reserve Center (AFRC) and accompanying support facilities in accordance with the Defense Base Realignment and Closure (BRAC) Act of 1990 (Public Law 101-510) and ("BRAC Commission") recommendations. Portions of the Maurice Rose AFRC impacted non-tidal wetlands on the 40-acre Cucia Park property located on Smith Street in Middletown, Connecticut. The USACE, New England District, Regulatory Branch issued a Department of the Army Individual Permit (NAE-2008-2372) to USACE, Louisville District in care of the 99th RSC. The permit was issued for impacts to 1.5 acres of non-tidal wetlands. The permit is contingent upon compensatory wetlands mitigation to replace the lost functions and values of the impacted wetlands at the project site. This mitigation will be in the form of enhancement and invasive species control at both on-site and off-site locations (Appendix A, Figure 1).

The on-site mitigation project is identified as "Smith Street" and involves 0.75 acres of wetland and upland buffer enhancement plantings located adjacent to the impact areas. It also includes invasive vegetation species control and management within a 20-acre area neighboring Sawmill Brook (Appendix A, Figure 2). The off-site mitigation project, which is owned by the Middlesex Land Trust, but remains the responsibility of the 99th RSC, is identified as "Boardman Lane" and involves enhancement plantings and invasive species control within a 4-acre riparian area. It includes invasive species control and Box Turtle Habitat Management within a 10-acre area. Both sections of the off-site area are identified as grazed wet meadow (Appendix A, Figure 3).

The permit contains special conditions in the form of a wetland monitoring plan. This plan requires that both sites be routinely evaluated for a minimum of five years to ensure that the mitigation planting measures are successful and a minimum of 10 years to ensure the successful control of invasive species. The conditions further state that periodic monitoring reports are to be prepared which contain information indicating an inventory of the health of the surviving planted enhancement species. The reports will include a percent aerial coverage to show if invasive species are being successfully controlled. The reports will also include representative photographs of the sites, with the locations and orientation of each photograph, and a written plan to correct any deficiencies identified during the monitoring phase.

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2.0 REQUIREMENTS

The goal of the on-site and off-site mitigation projects is to replace the lost functions and values of the impacted wetlands. This mitigation includes enhancement and protection of wildlife habitat, groundwater discharge, and water quality through plantings and invasive species control at the Smith Street and Boardman Lane locations.

SMITH STREET (CUCIA PARK)

Compensatory mitigation measures at the Smith Street site include 0.75 acres of wetland and upland buffer enhancement plantings and 20 acres of invasive vegetation species control and management. The planting plan includes a variety of native woody species and native herbaceous seed mixes, in accordance with the enclosed planting plan prepared by AECOM, entitled: *Overview On-Site Mitigation Cucia Park, drawing number 4 of 6*, dated December 2009 (Appendix A, Figure 4), which is included in the mitigation plan, entitled: *Integrated Wetland Resource Stewardship Plan, Armed Forces Reserve Center Project, On-site Mitigation Area, 375 Smith Street, Middletown, CT*, dated January 28, 2011. Planted shrub species range in height from 18 to 24 inches and sapling species range in height from 4 to 6 feet.

BOARDMAN LANE

Compensatory mitigation measures at the Boardman Lane site include permanent preservation of a 40-acre area consisting of 17 acres of wetland and 23 acres of upland. Within the 40-acre area, 14-acres of grazed wet meadow and 4-acres of riparian zone are being enhanced with native woody plantings and invasive species control. Ten acres of the grazed wet meadow are being managed for Box Turtle and Squarrose Sedge Habitat. The habitat management involves not only invasive species control, but also mowing restrictions to provide optimal conditions for box turtle habitat.

AECOM prepared a planting plan which includes a variety of native woody species and native herbaceous seed mixes. The plan is entitled: *Planting Plan, Off-Site Mitigation, Boardman Lane, drawing number 2 of 6*, dated December 2009, which is included in the mitigation plan, entitled: *Integrated Wetland Resource Stewardship Plan, Armed Forces Reserve Center Project, Boardman Lane Off-site Mitigation Area, 218 Boardman Lane, Middletown, CT*, dated January 28, 2011 (Appendix A, Figure 5). The planted shrub species are approximately 18 inches in height and the sapling species range in height from 18 to 24 inches.

Invasive species control and management at both sites involves the removal of existing invasive species, as well as control of newly observed species during successive monitoring years. The invasive species include, but are not limited to, common reed (*Phragmites australis*), purple loosestrife (*Lythrum salicaria*), autumn olive (*Elaegnus umbellata*), multiflora rose (*Rosa multiflora*), Oriental bittersweet (*Celastrus orbiculatus*), honeysuckle (*Lonicera sp.*), reed canary-grass (*Phalaris arundinacea*), Japanese knotweed (*Fallopia japonica*), Russian olive (*Elaeagnus angustifolia*), and smooth and common buckthorns (*Frangula alnus* and *Rhamnus frangula*).

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3.0 SUMMARY DATA

GENERAL SITE CONDITIONS

SMITH STREET (CUCIA PARK)

The Smith Street mitigation site is owned and operated by the 99th RSC. At this location, the Army has recently constructed the Maurice Rose AFRC and accompanying support facilities. The AFRC consists of a five-story training facility, covering approximately 164,000 square-feet, an Organizational Maintenance Shop, covering approximately 34,979-square feet, and a storage building, covering approximately 3,886-square feet. The combined facilities support approximately 900 personnel, including reservists and civilians. The site is located on Smith Street in Middletown, Connecticut. Interstate 91 borders the site to the east and Sawmill Brook and its associated floodplain boarder the site to the west. The surrounding area is characterized by mixed land use, including commercial and industrial businesses, agricultural land, and residential properties. The site was selected due to the preference for on-site mitigation when possible.

BOARDMAN LANE

The Boardman Lane site is approximately 40-acres in size and is located north of Boardman Lane in Middletown, Connecticut. The site lies within the Lower Connecticut River Watershed and encompasses reaches of Richards Brook and Sawmill Brook and their associated floodplain. The majority of the site has soils that exhibit hydric indicators (which is consistent with the mapped Wilbraham silt loam complex associated with the floodplains of Sawmill and Richards Brooks). Wetlands extend over the eastern portion of the site. The western portion of the site rises slightly and is upland meadow. Forested uplands are found off-site to the west and north; forested and residential property off-site to the east and residential property to the south bordering Boardman Lane.

Although the 99th RSC is the responsible party for the Section 404 permit, the Boardman Lane site is owned by the Middlesex Land Trust, which has a Cooperative Agreement with the 99th RSC allowing site access for installation of the mitigation plantings and biannual monitoring. The site is used by a diverse mix of wildlife typical to upland forest, forested wetlands and agricultural fields in this region. Upland habitats on the site are comprised of mixed hardwood/coniferous forests, scrub/shrub areas, old agricultural fields, and pastureland. This site was selected because it offered the most preferred conditions of the alternatives investigated, and it is within the same watershed as the project site. Sufficient acreage exists at this site to achieve the mitigation ratios in accordance with USACE guidance.

Site visits were conducted on 20-22 May and 22-24 September 2015. Temperatures ranged from 55 to 60 degrees Fahrenheit with partly sunny conditions, during both visits. Precipitation events prior to the site visits were normal and typical for the season.

SITE VISIT FINDINGS

SMITH STREET (CUCIA PARK)

VEGETATION

The findings of the Spring and Fall 2015 site visit are summarized in Table 3-1. Species counts were the same, as were site conditions, during both surveys. Overall, the plantings appeared healthy with the exception of the mountain laurel (*Kalmia latifolia).* All the planted mountain laurel was dead or in very poor condition. Some of the plant material was installed improperly (too high above grade) although, most of the individuals in this condition appear to be surviving. Very little mulch was observed in the planting areas.

Multiple volunteer tree species (seedling and sapling) were found in and around the mitigation plantings. The volunteer species observed were red maple (*Acer rubrum*), sugar maple (*Acer saccharum*), slippery elm (*Ulmus rubra*), green ash (*Fraxinus pennsylvanica*), American sycamore (*Platanus occidentalis*), and cottonwood (*Populus deltoides*). The presence of these volunteers indicates favorable conditions within the site and the probable success of the site in the future.

Table 3-1: Plantings and Observations at Smith Street

Cover Type	*Scientific Name*	Common Name	Plantings (Per Plan)	Observed (Good Health)	Survival Rate (%)
Trees	*Pinus strobus*	White pine	68	72	106
	Juniperus virginiana	Red cedar	39	44	113
Shrub	*Kalmia latifolia*	Mountain laurel	90	0	0
	Ilex verticillata	Winterberry holly	15	57	380
	Viburnum dentatum	Arrowwood	60	25	41
	Vaccinium corymbnosum	Highbush blueberry	105	45	43
	Clethra alnifolia	Sweet pepperbush	75	53	71
Seed Mix	New England Conservation Wildlife Mix				
	New England Wetmix (Wetland Seed Mix)				

Based on the observed number of surviving mitigation plantings (assuming the deviations from the planting schedule are acceptable) the combined survival rate is currently at 107 percent. This is well above the required greater than 75 percent survival and does not take into account the native woody volunteers, which further increases the success of this site.

Invasive species observed within the planting areas included multiflora rose, common reed, autumn olive, reed canary-grass, Oriental bittersweet, bush honeysuckle, Chinese privet (*Ligustrum sinense*), and buckthorn. These species are currently scattered and sparse, but if not properly controlled, are likely to overrun the planting areas.

Herbaceous species from the two seed mixes, New England Conservation Wildlife Mix and New England Wetmix, appeared to be doing well with approximately 80 percent coverage in the respective areas.

Soils and hydrology at the site are consistent with previous monitoring years. The details of this investigation are documented on the enclosed Data Forms for sample locations S1 and S2 (Appendix B), and the location is indicated on the location map (Appendix C, Figure 1). Since no treatments have been performed within the 20-acre area of invasive species control, the areas mentioned in the previous reports still require treatment. Several areas of common reed observed in 2013 and 2014 have slightly increased in size, but no additional areas were observed.

The stormwater management facility is functioning properly, but requires some minor repairs as stated in the letter dated 19 June 2015 from the New England District USACE (Appendix A). It is anticipated that the minor repairs to the stormwater management system will be made shortly after a contractor is retained by the 99th RSC.

FISH and WILDLIFE

Wildlife species observed during spring and fall efforts included northern oriole (*Icterus galbula*), northern flicker (*Colaptes auratus*), blue jay (*Cyanocitta cristata*), American robin (*Turdus migratorius*), tufted titmouse (*Baeolophus bicolor*), grey catbird (*Dumetella carolinensis*), common grackle (*Quiscalus quiscula*), great crested flycatcher (*Myiarchus crinitus*), common yellowthroat (*Geothlypis trichas*), green frog (*Rana clamitans*), meadow vole (*Microtus pennsylvanicus*), and white-tailed deer (*Odocoileus virginianus*). Additionally, the tracks of raccoon (*Procyon lotor*) and opossum (*Didelphimorphia* sp.) were observed near Sawmill Brook. The majority of these species are permanent residents of this area except the northern oriole, great crested flycatcher, common yellowthroat and possibly the common grackle, which are migratory.

BOARDMAN LANE

VEGETATION

The 4-acre planting area was mowed prior to the Fall 2013 monitoring visit. The findings of the Spring and Fall 2015 site visit are summarized in Table 3-2. A few trees from the original planting remain, but the majority of the site is currently meadow. Swamp white oak (*Quercus bicolor*), silky dogwood (*Cornus amomum*), speckled alder (*Alnus rugosa*), multiple re-sprouts from the stumps of mowed pin oak (*Quercus palustris*), and common elderberry (*Sambucus canadensis*) can be found sporadically through the site. Common herbaceous species include goldenrod (*Solidago* spp.), common milkweed (*Asclepias syriaca*), curly dock (*Rumex crispis*), wild madder (*Gallium mollugo*), scouring rush (*Equisetum arvense*), virgins bower (*Clematis virginiana*), small-flowered agrimony (*Agrimonia parviflora*), and red clover (*Trifolium pratense*). Herbaceous ground cover was between 95-100 percent. Consistent with the planting plan (Appendix A, Figure 5) the table also breaks out Type I and II planting clusters.

Invasive species observed in the 4-acre planting area and the hedgerow include multiflora rose, common buckthorn, purple loosestrife, brown knapweed, Canada thistle, Oriental bittersweet, reed canary-grass, common reed, autumn olive, and bush honeysuckle. Cover by invasive species was approximately 40-45 percent.

Soil samples were taken at two locations, B1 and B2. Soil color and texture were consistent with previous monitoring events. Soils at B1 did not have hydric characteristics nor was wetland hydrology present. The details of this investigation are documented on the enclosed Data Forms for sample locations B1 and B2 (Appendix B), and the location is indicated the location map (Appendix C, Figure 2).

Table 3-2: Plantings and Observations at Boardman Lane

Area	Cover Type	*Scientific Name*	Common Name	Plantings (Per Plan)	Observed
Wet Meadow	Shrub	*Viburnum dentatum*	Arrowwood	55	10
		Clethra alnifolia	Sweet pepperbush	60	0
		Vaccinium corybosum	Highbush blueberry	75	0
		Cornus amomum	Silky dogwood	60	25
		Salix discolor	Pussy willow	95	0
		Alnus rugosa	Speckled alder	60	2
		Sambucus canadensis	Elderberry	55	5
PFO	Canopy	*Quercus palustris*	Pin oak	180	Multiple re-sprouts
		Acer rubrum	Red maple	660	2
		Populus deltoides	Cottonwood	400	0
		Acer saccharinum	Silver maple	240	0
		Quercus bicolor	Swamp white oak	120	20
PFO Planting Cluster		***Scientific Name***	**Common Name**	**Plantings (Per Plan)**	**Observed**
Type I		*Quercus palustris*	Pin oak	30	Identified Above
		Acer rubrum	Red maple	50	
		Populus deltoides	Cottonwood	20	
		Acer saccharinum	Silver maple	40	
		Quercus bicolor	Swamp white oak	20	
Type II		*Acer rubrum*	Red maple	90	
		Populus deltoides	Cottonwood	70	

The 10-acre area designated as Box Turtle and Squarrose Sedge Habitat had not been mowed recently. Herbaceous cover was approximately 100 percent with native species including woolgrass (*Scirpus cyperinus*), Joe Pye weed (*Eutrochium purpureum*), common milkweed, common boneset (*Eupatorium perfoliatum*), and narrow-leaved mountain mint (*Pycnanthemum tenuifolium*).

Moderate invasive species cover was identified within this area. Reed canary-grass and purple loosestrife are common in all wetland areas.

FISH and WILDLIFE

Observations during Spring and Fall efforts included American robin, song sparrow (*Melospiza melodia*), European starling (*Sturnus vulgaris*), red-winged blackbird (*Agelaius phoeniceus*), common yellowthroat, barn swallow (*Hirundo rustica*), mourning dove (*Zenaida macroura*), blue jay, northern oriole, yellow warbler (*Setophaga petechia*), red-bellied woodpecker (*Melanerpes carolinus*), tree swallow (*Tachycineta bicolor*), great crested flycatcher, orchard oriole (*Icterus spurious*), chimney swift (*Chaetura pelagic*), common grackle, northern cardinal (*Cardinalis cardinalis*), green frog, pickerel frog (*Lithobates palustris*), Eastern ribbon snake (*Thamnophis sauritus sauritus*), northern watersnake (*Nerodia sipedon*), white-tailed deer, tiger swallowtail butterfly (*Papilio glaucus*), and common whitetail dragonfly (*Plathemis lydia*).

4.0 CONCLUSIONS

SMITH STREET (CUCIA PARK)

The majority of the on-site mitigation project appears to be in compliance with the compensatory mitigation planting plan except for the lack of invasive species management. All plantings, except mountain laurel, appear healthy. The exact numbers of planting for some species do not match the planting schedule, but the number of surviving plants is greater than 75 percent, which meets the standard for success. Additionally, there are multiple volunteer native woody species.

Invasive species observed within the planting areas include multiflora rose, common reed, autumn olive, reed canary-grass, Oriental bittersweet, bush honeysuckle, Chinese privet, and buckthorn. Invasive species are not currently taking over the planting areas. There are three stands of common reed located within the invasive species management area, on the fringes of the mitigation planting areas.

Recommended actions include:

1. Coordinate herbicide application to coincide with Spring 2016 monitoring effort.
2. Eradicate the three stands of common reed located on the fringes of the buffer plantings area, as indicated on the enclosed map (Appendix C, Figure 1). The stands can be seen in the photos taken at the site identified as Photos 6, 7 and 8.
3. Eliminate the invasive species identified within and adjacent to the buffer plantings.
4. Continue regular monitoring to ensure removal of invasive species and survival of buffer plantings.
5. Do not replant mountain laurel. This species is not normally found in this habitat, and as such, it is recommended that it not be replanted.

BOARDMAN LANE

The off-site mitigation site is not in compliance with the compensatory mitigation planting plan and invasive species management. The majority of the planting had been mowed prior to the Fall 2013 site visit, due to mortality.

The 10-acre invasive species control and mowing management area is not in accordance with the compensatory mitigation plan. No mowing had occurred, which is consistent with the mitigation plan. However, invasive species cover is increasing in this area, especially in the wetlands.

Recommended actions include:

1. Pursuant to correspondence from the NE District Regulatory Division dated 19 June 2015, the two options were available to address the non-compliance:
   a. Replant the 4-acre mitigation site.
   b. Make a payment to the Connecticut In-Lieu Fee Program instead of replanting.

Option "b" was selected and an In-lieu fee payment of $88,241.02 was made to the Connecticut Chapter of the National Audubon Society on October 15, 2015.

2. Coordinate herbicide application to coincide with Spring 2016 monitoring effort.
3. Eradicate the invasive species identified within the planting areas and the habitat management areas.
4. Continue to mow the habitat management area per the mitigation plan.
5. Monitor the site on a regular basis to ensure control of invasive species is working.

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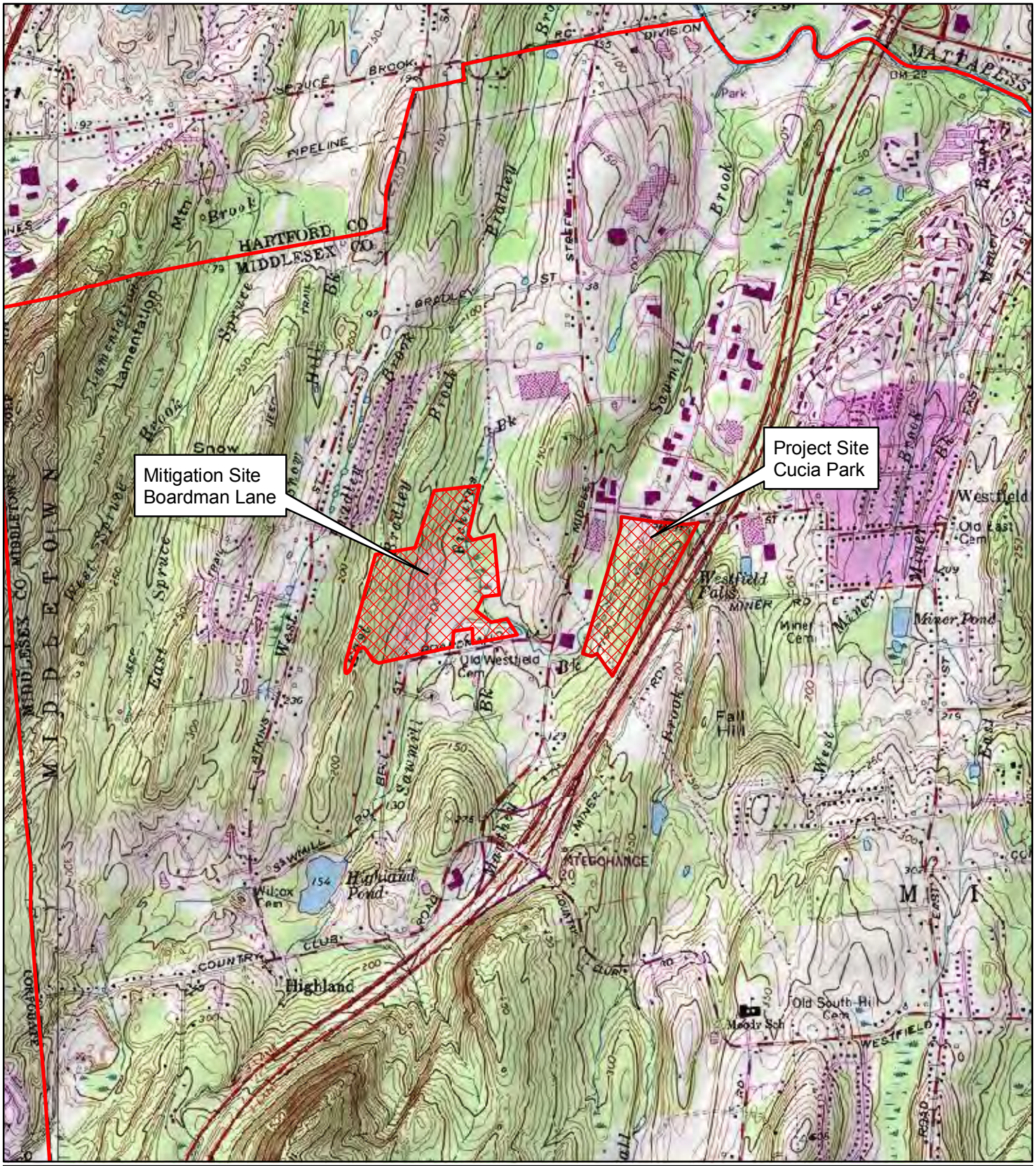
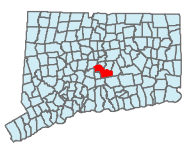
Appendix A

Maps





Source: USGS Quadrangle Middletown CT

Coordinate System: NAD 1983,
State Plane Connecticut
FIPS 0600 Feet

N

1 inch = 2,000 feet

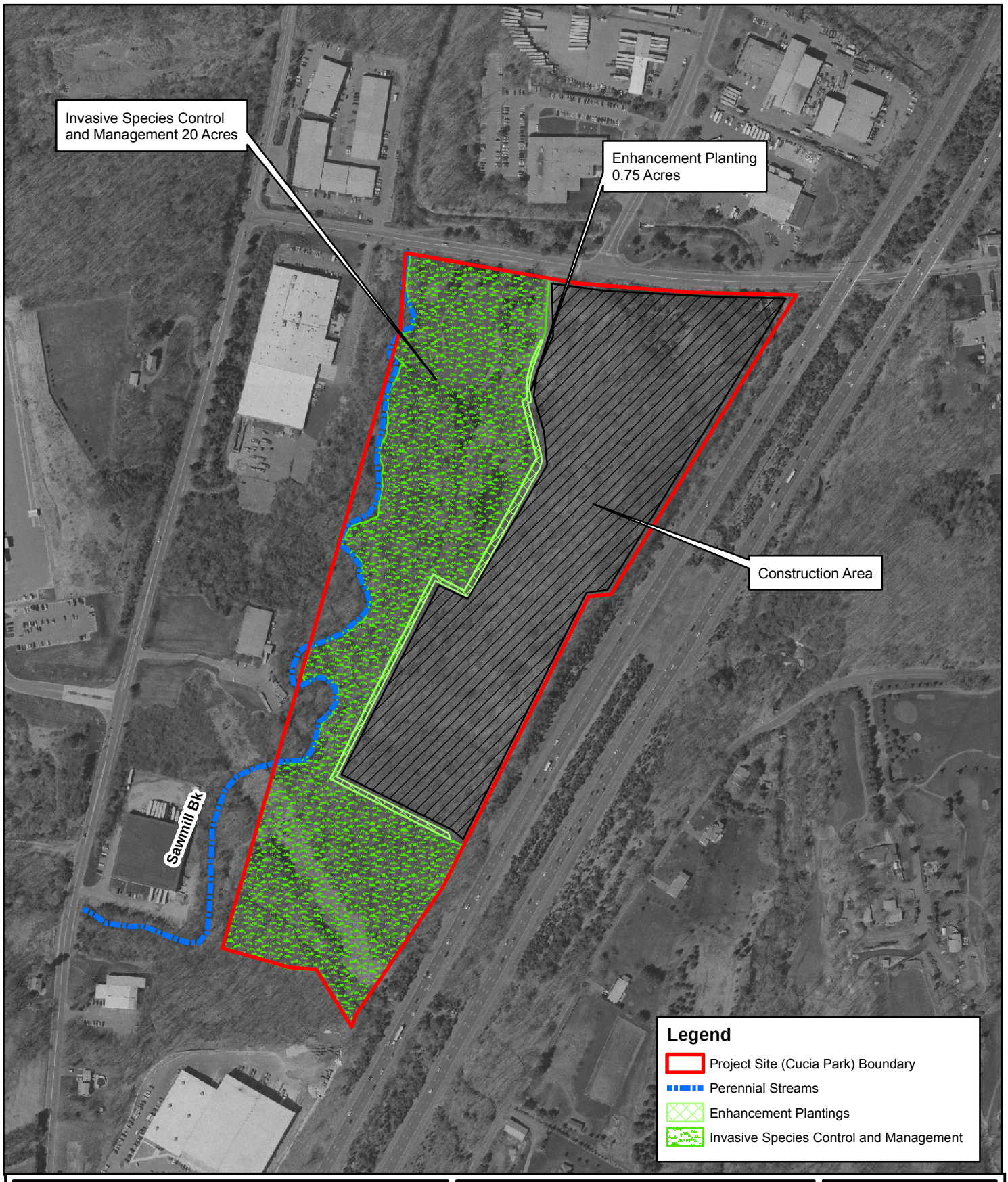
Site Locus
BRAC Realignment
Middletown, CT

SCALE	DATE	PROJECT NO.
1:3,600	12/09	60140125

AECOM

Figure Number

1



Source: CT Ortho Photograhp

Coordinate System: NAD 1927, State Plane Connecticut FIPS 0600 Feet

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1 inch = 400 feet

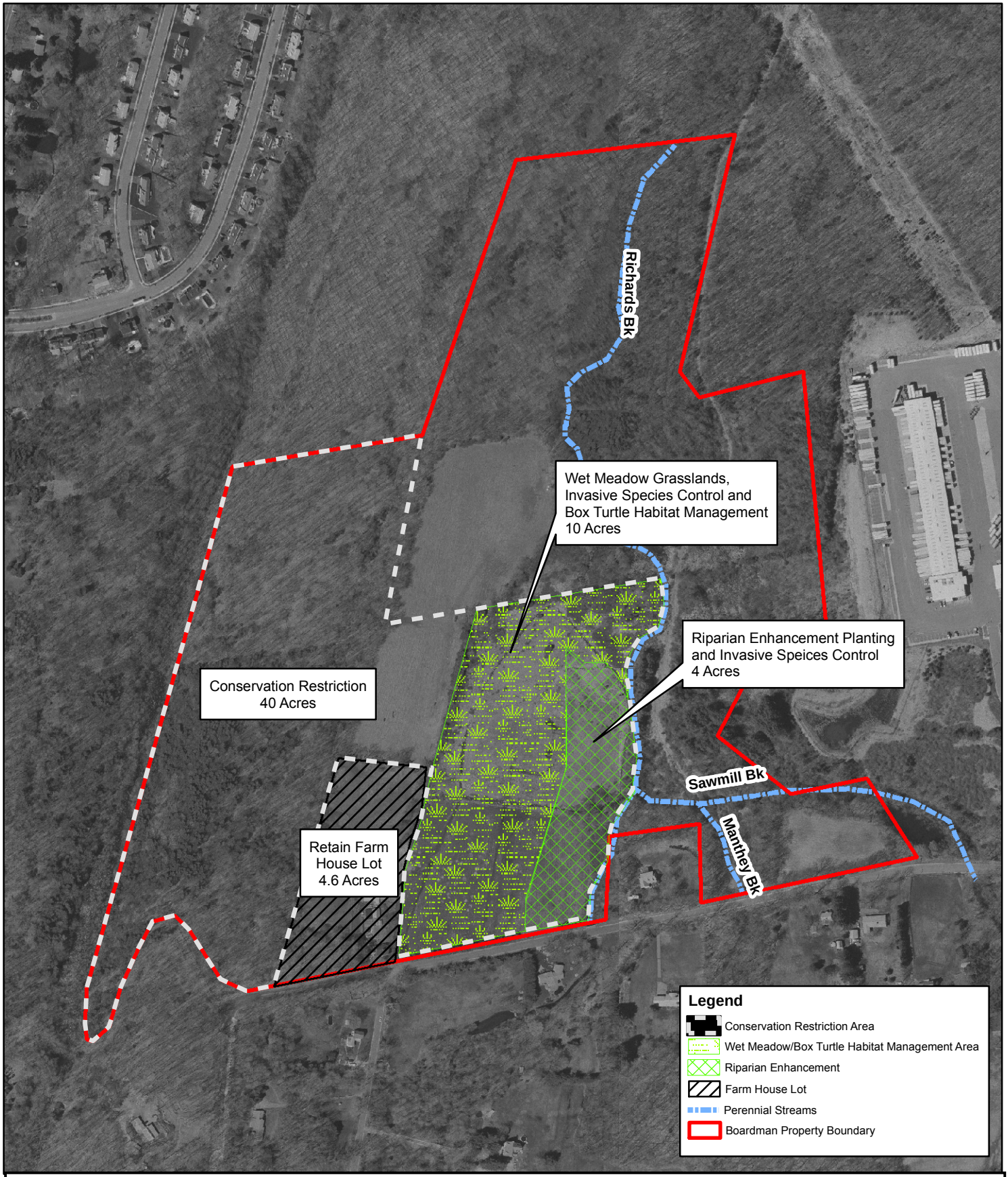
BRAC Realignment
Project Site Cucia Park On-Site Mitigation Plan
Middletown, CT

SCALE	DATE	PROJECT NO.
1:4,800	12/09	60140125

AECOM

Figure Number

2



Source: CT Ortho Photograhp

Coordinate System: NAD 1927, State Plane Connecticut FIPS 0600 Feet

N

1 inch = 400 feet

BRAC Realignment
Boardman Lane Off-Site
Mitigation Plan
Middletown, CT

SCALE	DATE	PROJECT NO.
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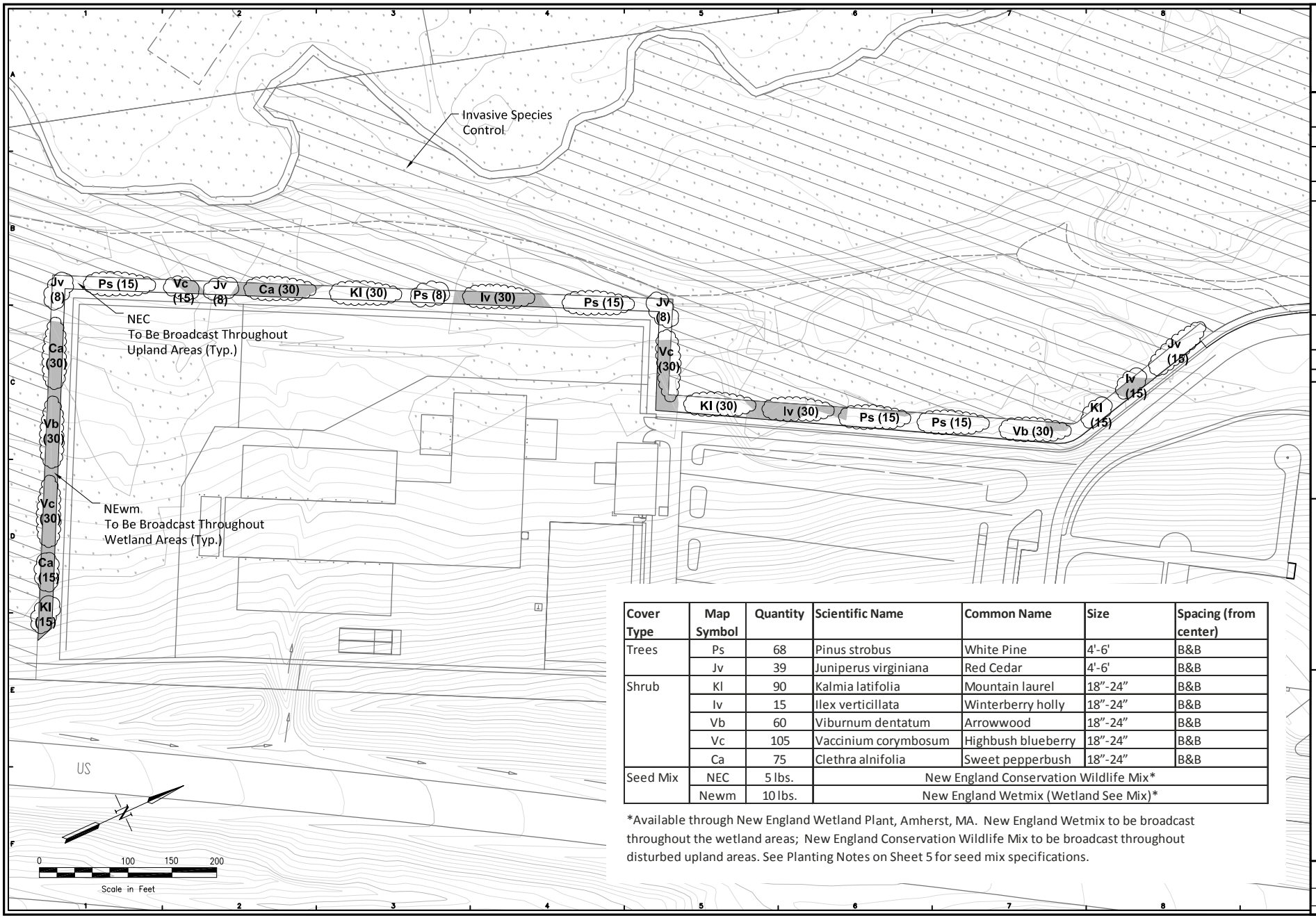
AECOM

Figure Number

2



Cover Type	Map Symbol	Quantity	Scientific Name	Common Name	Size	Spacing (from center)
Trees	Ps	68	Pinus strobus	White Pine	4'-6'	B&B
	Jv	39	Juniperus virginiana	Red Cedar	4'-6'	B&B
Shrub	Kl	90	Kalmia latifolia	Mountain laurel	18"-24"	B&B
	Iv	15	Ilex verticillata	Winterberry holly	18"-24"	B&B
	Vb	60	Viburnum dentatum	Arrowwood	18"-24"	B&B
	Vc	105	Vaccinium corymbosum	Highbush blueberry	18"-24"	B&B
	Ca	75	Clethra alnifolia	Sweet pepperbush	18"-24"	B&B
Seed Mix	NEC	5 lbs.	New England Conservation Wildlife Mix*			
	Newm	10 lbs.	New England Wetmix (Wetland See Mix)*			

*Available through New England Wetland Plant, Amherst, MA. New England Wetmix to be broadcast throughout the wetland areas; New England Conservation Wildlife Mix to be broadcast throughout disturbed upland areas. See Planting Notes on Sheet 5 for seed mix specifications.

NO | DRWN | DATE | REVISION | CHKD | DATE | APPVD | DATE

AECOM
AECOM
Westford, MA
978.589.3171
www.aecom.com

Smith Street
Middletown, CT

DATE: 12/2009
PROJ. NO.: 60140125

Overvlew
On-Site Mitigation
Cucla Park

BRAC Realignment
Mitigation Plan

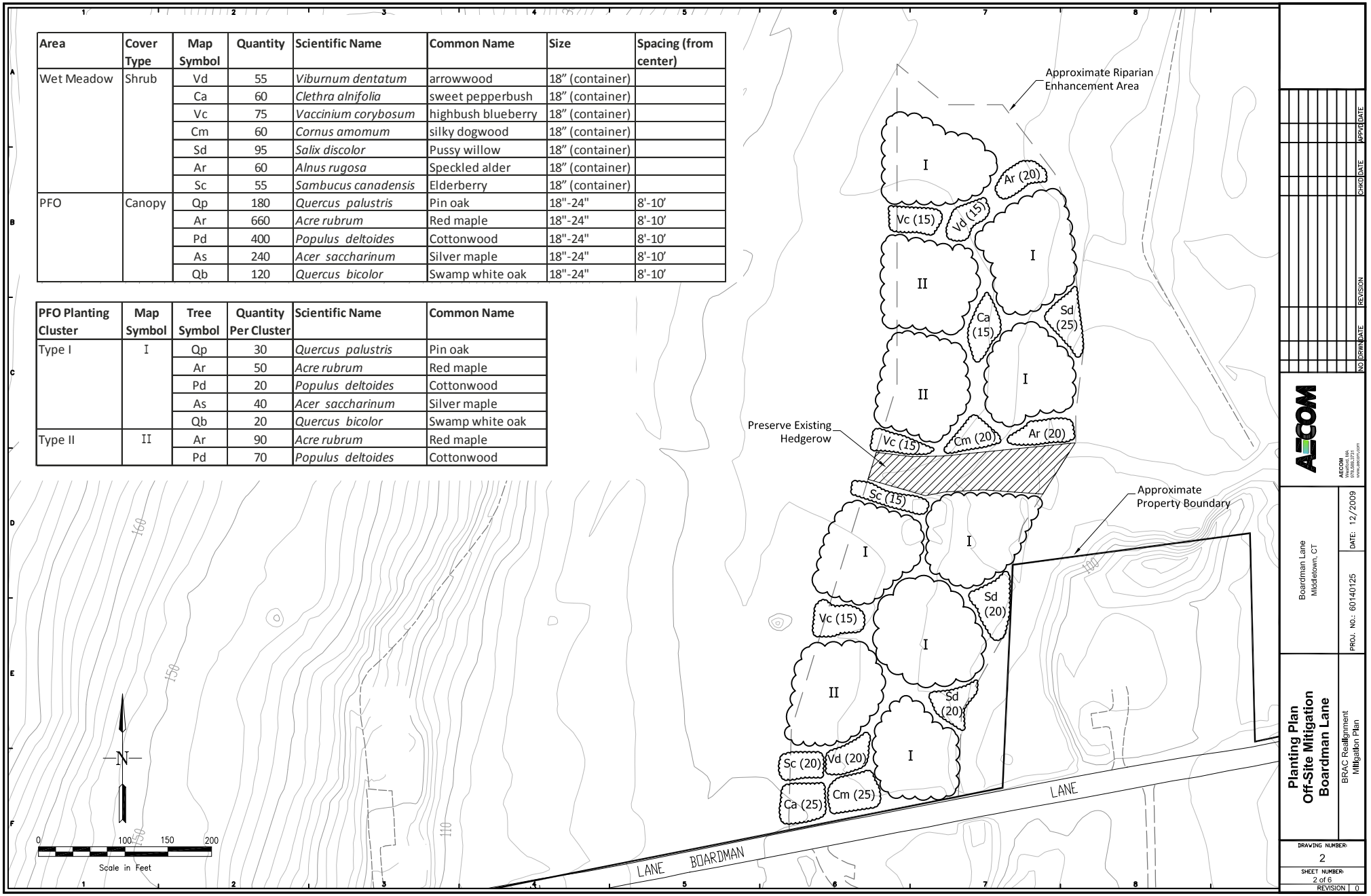
DRAWING NUMBER:
4

SHEET NUMBER:
4 of 6

REVISION 0

Area	Cover Type	Map Symbol	Quantity	Scientific Name	Common Name	Size	Spacing (from center)
Wet Meadow	Shrub	Vd	55	*Viburnum dentatum*	arrowwood	18" (container)	
		Ca	60	*Clethra alnifolia*	sweet pepperbush	18" (container)	
		Vc	75	*Vaccinium corybosum*	highbush blueberry	18" (container)	
		Cm	60	*Cornus amomum*	silky dogwood	18" (container)	
		Sd	95	*Salix discolor*	Pussy willow	18" (container)	
		Ar	60	*Alnus rugosa*	Speckled alder	18" (container)	
		Sc	55	*Sambucus canadensis*	Elderberry	18" (container)	
PFO	Canopy	Qp	180	*Quercus palustris*	Pin oak	18"-24"	8'-10'
		Ar	660	*Acre rubrum*	Red maple	18"-24"	8'-10'
		Pd	400	*Populus deltoides*	Cottonwood	18"-24"	8'-10'
		As	240	*Acer saccharinum*	Silver maple	18"-24"	8'-10'
		Qb	120	*Quercus bicolor*	Swamp white oak	18"-24"	8'-10'

PFO Planting Cluster	Map Symbol	Tree Symbol	Quantity Per Cluster	Scientific Name	Common Name
Type I	I	Qp	30	*Quercus palustris*	Pin oak
		Ar	50	*Acre rubrum*	Red maple
		Pd	20	*Populus deltoides*	Cottonwood
		As	40	*Acer saccharinum*	Silver maple
		Qb	20	*Quercus bicolor*	Swamp white oak
Type II	II	Ar	90	*Acre rubrum*	Red maple
		Pd	70	*Populus deltoides*	Cottonwood



Planting Plan
Off-Site Mitigation
Boardman Lane

BRAC Realignment
Mitigation Plan

Boardman Lane
Middletown, CT

PROJ. NO.: 60140125
DATE: 12/2009

DRAWING NUMBER: 2
SHEET NUMBER: 2 of 6
REVISION: 0

APPENDIX A - FIGURE 5

Appendix B

Data Forms

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Boardman Lane Site | City/County: Middletown/Middlesex | Sampling Date: 5/20/2015

Applicant/Owner: 99th RSC | State: CT | Sampling Point: B1

Investigator(s): DRC, ABL | Section, Township, Range:

Landform (hillslope, terrace, etc.): Floodplain | Local relief (concave, convex, none): Flat | Slope (%): <1%

Subregion (LRR or MLRA): LRR R | Lat: 41.578844 | Long: -72.728506 | Datum: NAD 83

Soil Map Unit Name: Wilbraham and Menlo | NWI classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation ____ , Soil ____ , or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____ , Soil ____ , or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?**	**Yes ____ No X**
Hydric Soil Present?	Yes ____	No X		
Wetland Hydrology Present?	Yes ____	No X		

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ Marl Deposits (B15) **(LRR U)**
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres along Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Tilled Soils (C6)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ Drainage Patterns (B10)
- ____ Moss Trim Lines (B16)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ FAC-Neutral Test (D5)
- ____ Sphagnum Moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
No signs of wetland hydrology

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: **B1**

Tree Stratum (Plot Size: 20-foot radius plot)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Sapling Stratum (Plot Size: 20-foot radius plot)			
1. *Quercus bicolor*	2	Y	FACW
2.			
3.			
4.			
5.			
6.			
	2	= Total Cover	
50% of total cover:		20% of total cover:	

Shrub Stratum (Plot Size: 20-foot radius plot)			
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Herb Stratum (Plot Size: 20-foot radius plot)			
1. *Ranunculus hispidus*	10	N	FAC
2. *Taraxacum officinale*	5	N	FACU
3. *Galium mollugo*	10	N	FACU
4. *Solidago altissima*	5	N	FACU
5. *Cirsium discolor*	10	N	FACU
6. *Allium vineale*	15	Y	FACU
7. *Rumex crispis*	5	N	FAC
8. *Clematis virginiana*	5	N	FAC
9. *Asclepias syriaca*	2	N	UPL
10.			
11.			
	67	= Total Cover	
50% of total cover:	33.5	20% of total cover:	13.4

Woody Vine Stratum (Plot Size: 20-foot radius plot)			
1. N/A			
2.			
3.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:			Multiply by:
OBL species	n/a	x 1 =	n/a
FACW species	n/a	x 2 =	n/a
FAC species	n/a	x 3 =	n/a
FACU species	n/a	x 4 =	n/a
UPL species	n/a	x 5 =	n/a
Column Totals:	n/a (A)		n/a (B)

Prevalence Index = B/A = n/a

Hydrophytic Vegetation Indicators:

_____ 1 - Rapid Test for Hydrophytic Vegetation

_____ 2 - Dominance Test is >50%

_____ 3 - Prevalence Index is ≤3.0[1]

_____ Problematic Hydrophytic Vegetation[1]

_____

(Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Remarks: (if observed, list morphological adaptations below.)

Hydrophytic Vegetation Present? **Yes** X **No** _____

SOIL Sampling Point: **B1**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (Moist)	Matrix %	Redox Features Color (Moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	7.5YR 3/4	100					Silt loam	
8-12	7.5YR 4/6	100					Silt loam	-
								-

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplains Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(Outside MLRA 150A, B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** **X**

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Boardman Lane Site | City/County: Middletown/Middlesex | Sampling Date: 5/20/2015

Applicant/Owner: 99th RSC | State: CT | Sampling Point: B2

Investigator(s): DRC, ABL | Section, Township, Range:

Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): Flat | Slope (%): >1%

Subregion (LRR or MLRA): LRR R | Lat: 41.580988 | Long: -72.728444 | Datum: NAD 83

Soil Map Unit Name: Wilbraham and Menlo | NWI classification: PEM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation ____ , Soil ____ , or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____ , Soil ____ , or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes	X	No		
Wetland Hydrology Present?	Yes	X	No		

Remarks:
Floodplain wetland associated with Richards Brook.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- ____ High Water Table (A2)
- X Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ Marl Deposits (B15) **(LRR U)**
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres along Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Tilled Soils (C6)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ Drainage Patterns (B10)
- ____ Moss Trim Lines (B16)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ FAC-Neutral Test (D5)
- ____ Sphagnum Moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present? Yes X No ____ Depth (inches): ½-1”

Water Table Present? Yes ____ No ____ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 0”

Wetland Hydrology Present? **Yes X No ____**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Inundation appears deeper that normal possibly due to beaver activity. Multiple trees flooded and dying or very stressed

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: **B2**

Tree Stratum (Plot Size: 20-foot radius plot)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Sapling Stratum (Plot Size: 20-foot radius plot)			
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Shrub Stratum (Plot Size: 20-foot radius plot)			
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Herb Stratum (Plot Size: 20-foot radius plot)				
1.	*Phalaris arundinacea*	60	Y	OBL
2.	*Carex stricta*	10	N	OBL
3.	*Equisetum arvense*	10	N	FAC
4.	*Carex stipata*	10	N	OBL
5.	*Mimulus ringens*	5	N	OBL
6.				
7.				
8.				
9.				
10.				
11.				
		95	= Total Cover	
50% of total cover:		47.5	20% of total cover:	19

Woody Vine Stratum (Plot Size: 20-foot radius plot)			
1.	N/A		
2.			
3.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	n/a	x 1 =	n/a
FACW species	n/a	x 2 =	n/a
FAC species	n/a	x 3 =	n/a
FACU species	n/a	x 4 =	n/a
UPL species	n/a	x 5 =	n/a
Column Totals:	n/a (A)		n/a (B)

Prevalence Index = B/A = n/a

Hydrophytic Vegetation Indicators:

_____ 1 - Rapid Test for Hydrophytic Vegetation

_____ 2 - Dominance Test is >50%

_____ 3 - Prevalence Index is ≤3.0[1]

_____ Problematic Hydrophytic Vegetation[1]

_____

(Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Remarks: (if observed, list morphological adaptations below.)

Hydrophytic Vegetation Present? **Yes** X **No** _____

SOIL Sampling Point: **B2**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (Moist)	Matrix %	Redox Features Color (Moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 3/2	100					Silt loam	
1-12	10YR 3/1	80	5YR3/4	20	C	M	Silt loam	-
								-

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplains Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(Outside MLRA 150A, B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- X Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** **X** **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Smith Street Site | City/County: Middletown/Middlesex | Sampling Date: 5/21/2015

Applicant/Owner: 99th RSC | State: CT | Sampling Point: S1

Investigator(s): DRC, ABL | Section, Township, Range:

Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Flat | Slope (%): 8-10%

Subregion (LRR or MLRA): LRR R | Lat: 41.579278 | Long: -72.719197 | Datum: NAD 83

Soil Map Unit Name: Wilbraham and Menlo | NWI classification: PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation ____ , Soil ____ , or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____ , Soil ____ , or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes	X	No		
Wetland Hydrology Present?	Yes	X	No		

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- X Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- X Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum Moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No ____ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 4”

Wetland Hydrology Present? **Yes X No ____**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Hillslope wetland. Shallow soil layer over bedrock. Water present at interface of soil and bedrock

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: **S1**

Tree Stratum (Plot Size: 20-foot radius plot)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	30	Y	FAC
2. *Fraxinus pennsylvanica*	5	N	FACW
3.			
4.			
5.			
6.			
	35	= Total Cover	
50% of total cover:	17.5	20% of total cover:	7

Sapling Stratum (Plot Size: 20-foot radius plot)			
1. *Fraxinus pennsylvanica*	20	Y	FACW
2. *Cornus florida*	2	N	FACU
3.			
4.			
5.			
6.			
	22	= Total Cover	
50% of total cover:	11	20% of total cover:	4.4

Shrub Stratum (Plot Size: 20-foot radius plot)			
1. *Viburnum dentatum*	10	Y	FAC
2.			
3.			
4.			
5.			
6.			
	10	= Total Cover	
50% of total cover:		20% of total cover:	

Herb Stratum (Plot Size: 20-foot radius plot)			
1. *Juncus effuses*	70	Y	OBL
2. *Toxicodendron radicans*	10	N	FAC
3. *Equisetum arvense*	10	N	FAC
4. *Scirpus cyperinus*	5	N	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	95	= Total Cover	
50% of total cover:	47.5	20% of total cover:	19

Woody Vine Stratum (Plot Size: 20-foot radius plot)			
1. N/A			
2.			
3.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:			Multiply by:
OBL species	n/a	x 1 =	n/a
FACW species	n/a	x 2 =	n/a
FAC species	n/a	x 3 =	n/a
FACU species	n/a	x 4 =	n/a
UPL species	n/a	x 5 =	n/a
Column Totals:	n/a (A)		n/a (B)

Prevalence Index = B/A = n/a

Hydrophytic Vegetation Indicators:

_____ 1 - Rapid Test for Hydrophytic Vegetation

_____ 2 - Dominance Test is >50%

_____ 3 - Prevalence Index is ≤3.0[1]

_____ Problematic Hydrophytic Vegetation[1]

_____

(Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Remarks: (if observed, list morphological adaptations below.)

Hydrophytic Vegetation Present? **Yes** X **No** _____

SOIL Sampling Point: **S1**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (Moist)	Matrix %	Redox Features Color (Moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5YR 4/2	80	7.5YR 4/4	20	C	M	Silt loam	
4-6	7.5YR 5/3	70	7.5YR 4/2	30	C	M	Silt loam	-
								-

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplains Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(Outside MLRA 150A, B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- X Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Bedrock

Depth (inches): 6”

Hydric Soil Present? **Yes** **X** **No** ___

Remarks:

Probe rejected at 6” due to bedrock. Red parent material soils

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Smith Street Site | City/County: Middletown/Middlesex | Sampling Date: 5/21/2015

Applicant/Owner: 99th RSC | State: CT | Sampling Point: S2

Investigator(s): DRC, ABL | Section, Township, Range:

Landform (hillslope, terrace, etc.): Floodplain | Local relief (concave, convex, none): Flat | Slope (%): <1%

Subregion (LRR or MLRA): LRR R | Lat: 41.582439 | Long: -72.718699 | Datum: NAD 83

Soil Map Unit Name: Wilbraham and Menlo | NWI classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation ____ , Soil ____ , or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____ , Soil ____ , or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?**	**Yes ____ No X**
Hydric Soil Present?	Yes ____	No X		
Wetland Hydrology Present?	Yes ____	No X		

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ Marl Deposits (B15) **(LRR U)**
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres along Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Tilled Soils (C6)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ Drainage Patterns (B10)
- ____ Moss Trim Lines (B16)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ FAC-Neutral Test (D5)
- ____ Sphagnum Moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland Hydrology Present? **Yes ____ No X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
No signs of wetland hydrology

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: **S2**

Tree Stratum (Plot Size: 20-foot radius plot)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	5	N	FAC
2. *Acer sacchrum*	5	N	FACU
3. *Quercus alba*	10	Y	FACU
4. *Carya ovata*	15	Y	FACU
5. *Quercus velutina*	5	N	NI
6.			
	40	= Total Cover	
50% of total cover:	20	20% of total cover:	8

Sapling Stratum (Plot Size: 20-foot radius plot)			
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Shrub Stratum (Plot Size: 20-foot radius plot)			
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Herb Stratum (Plot Size: 20-foot radius plot)			
1. *Acer rubrum*	5	Y	FAC
2. *Parthenocissus quinquefolia*	5	Y	FACU
3. *Viburnum dentatum*	5	Y	FAC
4. *Onoclea sensibilis*	3	N	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	20	= Total Cover	
50% of total cover:	10	20% of total cover:	4

Woody Vine Stratum (Plot Size: 20-foot radius plot)			
1. N/A			
2.			
3.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40 (A/B)

Prevalence Index worksheet:

Total % Cover of:			Multiply by:
OBL species	n/a	x 1 =	n/a
FACW species	n/a	x 2 =	n/a
FAC species	n/a	x 3 =	n/a
FACU species	n/a	x 4 =	n/a
UPL species	n/a	x 5 =	n/a
Column Totals:	n/a (A)		n/a (B)

Prevalence Index = B/A = n/a

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- 2 - Dominance Test is >50%
- 3 - Prevalence Index is ≤3.0[1]
- Problematic Hydrophytic Vegetation[1]

(Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Remarks: (if observed, list morphological adaptations below.)

Hydrophytic Vegetation Present? **Yes** ____ **No** **X**

SOIL Sampling Point: **S2**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (Moist)	Matrix %	Redox Features Color (Moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	7.5YR 3/3	100					Silt loam	
2-12	7.5YR 4/4	100					Silt loam	-
								-

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplains Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(Outside MLRA 150A, B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- X Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** **X**

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Smith Street Site | City/County: Middletown/Middlesex | Sampling Date: 9/23/2015

Applicant/Owner: 99th RSC | State: CT | Sampling Point: S1

Investigator(s): DRC, ABL | Section, Township, Range:

Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Flat | Slope (%): 8-10%

Subregion (LRR or MLRA): LRR R | Lat: 41.579278 | Long: -72.719197 | Datum: NAD 83

Soil Map Unit Name: Wilbraham and Menlo | NWI classification: PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation ____ , Soil ____ , or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____ , Soil ____ , or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes	X	No		
Wetland Hydrology Present?	Yes	X	No		

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- X Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- X Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum Moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No ____ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 6”

Wetland Hydrology Present? **Yes X No ____**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Hillslope wetland. Shallow soil layer over bedrock. Water present at interface of soil and bedrock

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: **S1**

Tree Stratum (Plot Size: 20-foot radius plot)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	30	Y	FAC
2. *Fraxinus pennsylvanica*	5	N	FACW
3.			
4.			
5.			
6.			
	35	= Total Cover	
50% of total cover:	17.5	20% of total cover:	7

Sapling Stratum (Plot Size: 20-foot radius plot)			
1. *Fraxinus pennsylvanica*	20	Y	FACW
2. *Cornus florida*	2	N	FACU
3.			
4.			
5.			
6.			
	22	= Total Cover	
50% of total cover:	11	20% of total cover:	4.4

Shrub Stratum (Plot Size: 20-foot radius plot)			
1. *Viburnum dentatum*	10	Y	FAC
2.			
3.			
4.			
5.			
6.			
	10	= Total Cover	
50% of total cover:		20% of total cover:	

Herb Stratum (Plot Size: 20-foot radius plot)			
1. *Juncus effuses*	60	Y	OBL
2. *Toxicodendron radicans*	10	N	FAC
3. *Equisetum arvense*	20	Y	FAC
4. *Scirpus cyperinus*	5	N	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	95	= Total Cover	
50% of total cover:	47.5	20% of total cover:	19

Woody Vine Stratum (Plot Size: 20-foot radius plot)			
1. N/A			
2.			
3.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:			Multiply by:
OBL species	n/a	x 1 =	n/a
FACW species	n/a	x 2 =	n/a
FAC species	n/a	x 3 =	n/a
FACU species	n/a	x 4 =	n/a
UPL species	n/a	x 5 =	n/a
Column Totals:	n/a (A)		n/a (B)

Prevalence Index = B/A = n/a

Hydrophytic Vegetation Indicators:

_____ 1 - Rapid Test for Hydrophytic Vegetation

_____ 2 - Dominance Test is >50%

_____ 3 - Prevalence Index is ≤3.0[1]

_____ Problematic Hydrophytic Vegetation[1]

_____

(Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Remarks: (if observed, list morphological adaptations below.)

Hydrophytic Vegetation Present? **Yes** X **No** _____

SOIL Sampling Point: **S1**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (Moist)	Matrix %	Redox Features Color (Moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5YR 4/2	80	7.5YR 4/4	20	C	M	Silt loam	
4-6	7.5YR 5/3	70	7.5YR 4/2	30	C	M	Silt loam	-
								-

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplains Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(Outside MLRA 150A, B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- X Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Bedrock

Depth (inches): 6”

Hydric Soil Present? **Yes** **X** **No** ___

Remarks:

Probe rejected at 6” due to bedrock. Red parent material soils

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Smith Street Site | City/County: Middletown/Middlesex | Sampling Date: 9/23/2015

Applicant/Owner: 99th RSC | State: CT | Sampling Point: S2

Investigator(s): DRC, ABL | Section, Township, Range:

Landform (hillslope, terrace, etc.): Floodplain | Local relief (concave, convex, none): Flat | Slope (%): <1%

Subregion (LRR or MLRA): LRR R | Lat: 41.582439 | Long: -72.718699 | Datum: NAD 83

Soil Map Unit Name: Wilbraham and Menlo | NWI classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation ____ , Soil ____ , or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____ , Soil ____ , or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?**	**Yes ____ No X**
Hydric Soil Present?	Yes ____	No X		
Wetland Hydrology Present?	Yes ____	No X		

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ Marl Deposits (B15) **(LRR U)**
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres along Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Tilled Soils (C6)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ Drainage Patterns (B10)
- ____ Moss Trim Lines (B16)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ FAC-Neutral Test (D5)
- ____ Sphagnum Moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland Hydrology Present? **Yes ____ No X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
No signs of wetland hydrology

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: **S2**

Tree Stratum (Plot Size: 20-foot radius plot)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	5	N	FAC
2. *Acer sacchrum*	5	N	FACU
3. *Quercus alba*	10	Y	FACU
4. *Carya ovata*	15	Y	FACU
5. *Quercus velutina*	5	N	NI
6.			
	40	= Total Cover	
50% of total cover:	20	20% of total cover:	8

Sapling Stratum (Plot Size: 20-foot radius plot)			
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Shrub Stratum (Plot Size: 20-foot radius plot)			
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Herb Stratum (Plot Size: 20-foot radius plot)			
1. *Acer rubrum*	5	Y	FAC
2. *Parthenocissus quinquefolia*	5	Y	FACU
3. *Viburnum dentatum*	5	Y	FAC
4. *Onoclea sensibilis*	3	N	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	20	= Total Cover	
50% of total cover:	10	20% of total cover:	4

Woody Vine Stratum (Plot Size: 20-foot radius plot)			
1. N/A			
2.			
3.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40 (A/B)

Prevalence Index worksheet:

Total % Cover of:			Multiply by:
OBL species	n/a	x 1 =	n/a
FACW species	n/a	x 2 =	n/a
FAC species	n/a	x 3 =	n/a
FACU species	n/a	x 4 =	n/a
UPL species	n/a	x 5 =	n/a
Column Totals:	n/a (A)		n/a (B)

Prevalence Index = B/A = n/a

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- 2 - Dominance Test is >50%
- 3 - Prevalence Index is ≤3.0[1]
- Problematic Hydrophytic Vegetation[1]

(Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Remarks: (if observed, list morphological adaptations below.)

Hydrophytic Vegetation Present? **Yes** ____ **No** **X**

SOIL Sampling Point: **S2**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (Moist)	Matrix %	Redox Features Color (Moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	7.5YR 3/3	100					Silt loam	
2-12	7.5YR 4/4	100					Silt loam	-
								-

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplains Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(Outside MLRA 150A, B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- X Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** **X**

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Boardman Lane Site | City/County: Middletown/Middlesex | Sampling Date: 9/22/2015

Applicant/Owner: 99th RSC | State: CT | Sampling Point: B1

Investigator(s): DRC, ABL | Section, Township, Range:

Landform (hillslope, terrace, etc.): Floodplain | Local relief (concave, convex, none): Flat | Slope (%): <1%

Subregion (LRR or MLRA): LRR R | Lat: 41.578844 | Long: -72.728506 | Datum: NAD 83

Soil Map Unit Name: Wilbraham and Menlo | NWI classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation ____ , Soil ____ , or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____ , Soil ____ , or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?**	**Yes ____ No X**
Hydric Soil Present?	Yes ____	No X		
Wetland Hydrology Present?	Yes ____	No X		

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ Marl Deposits (B15) **(LRR U)**
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres along Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Tilled Soils (C6)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ Drainage Patterns (B10)
- ____ Moss Trim Lines (B16)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ FAC-Neutral Test (D5)
- ____ Sphagnum Moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland Hydrology Present? **Yes ____ No X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
No signs of wetland hydrology

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: **B1**

Tree Stratum (Plot Size: 20-foot radius plot)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Sapling Stratum (Plot Size: 20-foot radius plot)			
1. *Quercus bicolor*	2	Y	FACW
2.			
3.			
4.			
5.			
6.			
	2	= Total Cover	
50% of total cover:		20% of total cover:	

Shrub Stratum (Plot Size: 20-foot radius plot)			
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Herb Stratum (Plot Size: 20-foot radius plot)			
1. *Ranunculus hispidus*	10	N	FAC
2. *Taraxacum officinale*	5	N	FACU
3. *Galium mollugo*	15	Y	FACU
4. *Solidago altissima*	5	N	FACU
5. *Cirsium discolor*	10	N	FACU
6. *Centaurea jacea*	20	Y	FACU
7. *Rumex crispis*	5	N	FAC
8. *Asclepias syriaca*	3	N	UPL
9.			
10.			
11.			
	73	= Total Cover	
50% of total cover:	36.5	20% of total cover:	14.6

Woody Vine Stratum (Plot Size: 20-foot radius plot)			
1. N/A			
2.			
3.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:			Multiply by:
OBL species	n/a	x 1 =	n/a
FACW species	n/a	x 2 =	n/a
FAC species	n/a	x 3 =	n/a
FACU species	n/a	x 4 =	n/a
UPL species	n/a	x 5 =	n/a
Column Totals:	n/a (A)		n/a (B)

Prevalence Index = B/A = n/a

Hydrophytic Vegetation Indicators:

_____ 1 - Rapid Test for Hydrophytic Vegetation

_____ 2 - Dominance Test is >50%

_____ 3 - Prevalence Index is ≤3.0[1]

_____ Problematic Hydrophytic Vegetation[1]

_____

(Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Remarks: (if observed, list morphological adaptations below.)

Hydrophytic Vegetation Present? **Yes** _____ **No** **X**

SOIL Sampling Point: **B1**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (Moist)	Matrix %	Redox Features Color (Moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	7.5YR 3/4	100					Silt loam	
8-12	7.5YR 4/6	100					Silt loam	-
								-

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplains Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(Outside MLRA 150A, B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** **X**

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic and Gulf Coastal Plain Region

Project/Site: Boardman Lane Site | City/County: Middletown/Middlesex | Sampling Date: 9/22/2015

Applicant/Owner: 99th RSC | State: CT | Sampling Point: B2

Investigator(s): DRC, ABL | Section, Township, Range:

Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): Flat | Slope (%): >1%

Subregion (LRR or MLRA): LRR R | Lat: 41.580988 | Long: -72.728444 | Datum: NAD 83

Soil Map Unit Name: Wilbraham and Menlo | NWI classification: PEM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation ____ , Soil ____ , or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____ , Soil ____ , or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes	X	No		
Wetland Hydrology Present?	Yes	X	No		

Remarks:
Floodplain wetland associated with Richards Brook.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum Moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No ____ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 8”

Wetland Hydrology Present? **Yes X No ____**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Area is much drier than during spring monitoring. No standing water present on site within wetland areas

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: **B2**

Tree Stratum (Plot Size: 20-foot radius plot)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Sapling Stratum (Plot Size: 20-foot radius plot)			
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Shrub Stratum (Plot Size: 20-foot radius plot)			
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Herb Stratum (Plot Size: 20-foot radius plot)				
1.	*Phalaris arundinacea*	50	Y	OBL
2.	*Carex stricta*	10	N	OBL
3.	*Equisetum arvense*	10	N	FAC
4.	*Carex stipata*	10	N	OBL
5.	*Lythrum salicaria*	30	Y	OBL
6.				
7.				
8.				
9.				
10.				
11.				
		110	= Total Cover	
50% of total cover:		55	20% of total cover:	22

Woody Vine Stratum (Plot Size: 20-foot radius plot)			
1.	N/A		
2.			
3.			
		= Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:			Multiply by:
OBL species	n/a	x 1 =	n/a
FACW species	n/a	x 2 =	n/a
FAC species	n/a	x 3 =	n/a
FACU species	n/a	x 4 =	n/a
UPL species	n/a	x 5 =	n/a
Column Totals:	n/a (A)		n/a (B)

Prevalence Index = B/A = n/a

Hydrophytic Vegetation Indicators:

_____ 1 - Rapid Test for Hydrophytic Vegetation

_____ 2 - Dominance Test is >50%

_____ 3 - Prevalence Index is ≤3.0[1]

_____ Problematic Hydrophytic Vegetation[1]

_____

(Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Remarks: (if observed, list morphological adaptations below.)

Hydrophytic Vegetation Present? **Yes** X **No** _____

SOIL Sampling Point: **B2**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (Moist)	Matrix %	Redox Features Color (Moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 3/2	100					Silt loam	
1-12	10YR 3/1	80	5YR3/4	20	C	M	Silt loam	-
								-

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplains Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(Outside MLRA 150A, B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- X Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

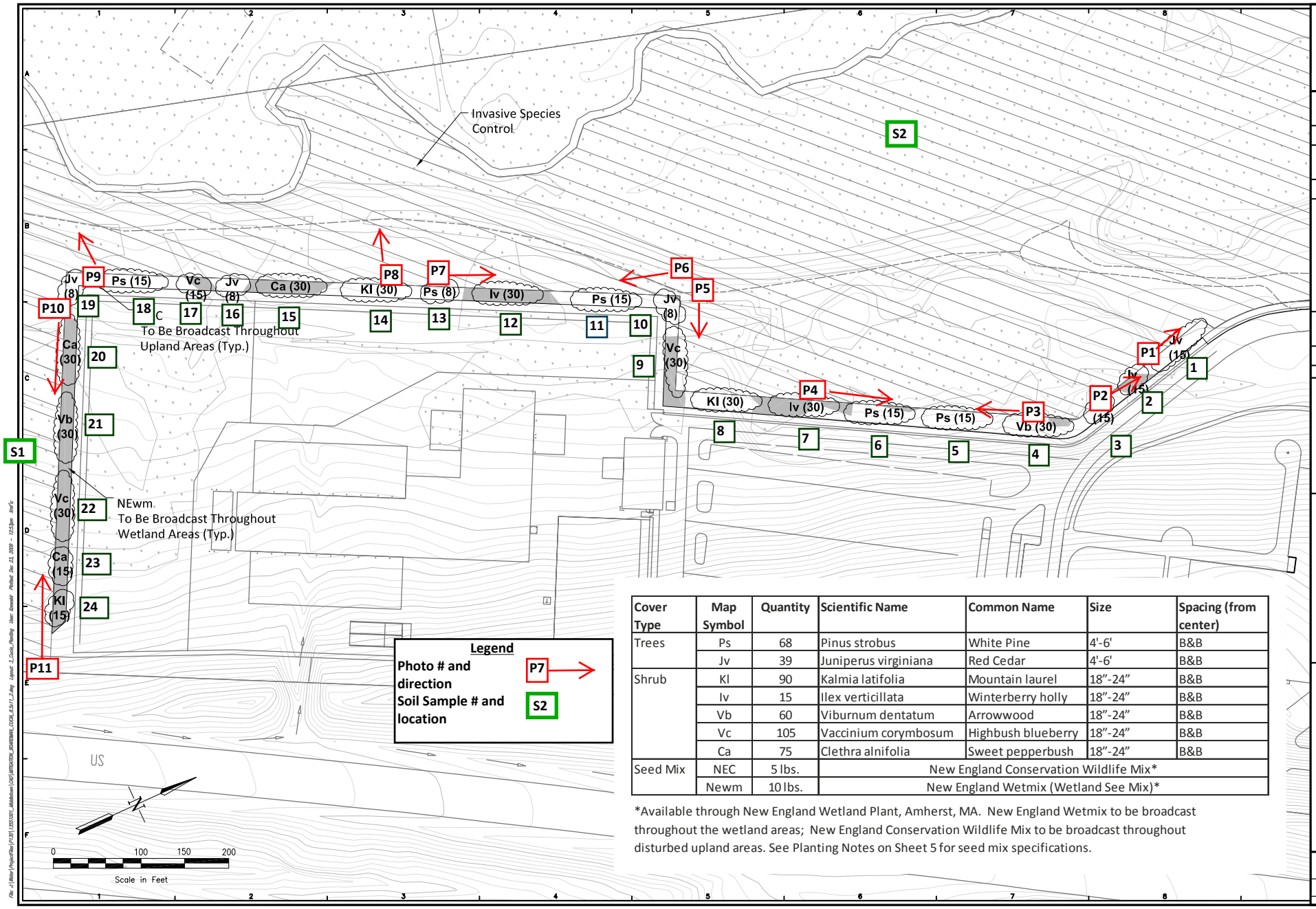
Depth (inches): _____

Hydric Soil Present? **Yes** **X** **No** _____

Remarks:

Appendix C

Photos



Cover Type	Map Symbol	Quantity	Scientific Name	Common Name	Size	Spacing (from center)
Trees	Ps	68	Pinus strobus	White Pine	4'-6'	B&B
	Jv	39	Juniperus virginiana	Red Cedar	4'-6'	B&B
Shrub	Kl	90	Kalmia latifolia	Mountain laurel	18"-24"	B&B
	Iv	15	Ilex verticillata	Winterberry holly	18"-24"	B&B
	Vb	60	Viburnum dentatum	Arrowwood	18"-24"	B&B
	Vc	105	Vaccinium corymbosum	Highbush blueberry	18"-24"	B&B
	Ca	75	Clethra alnifolia	Sweet pepperbush	18"-24"	B&B
Seed Mix	NEC	5 lbs.	New England Conservation Wildlife Mix*			
	Newm	10 lbs.	New England Wetmix (Wetland See Mix)*			

*Available through New England Wetland Plant, Amherst, MA. New England Wetmix to be broadcast throughout the wetland areas; New England Conservation Wildlife Mix to be broadcast throughout disturbed upland areas. See Planting Notes on Sheet 5 for seed mix specifications.

NO | DRWN | DATE | REVISION | CHKD | DATE | APPVD | DATE

AECOM
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Westford, MA
978.589.3777
www.aecom.com

Smith Street
Middletown, CT

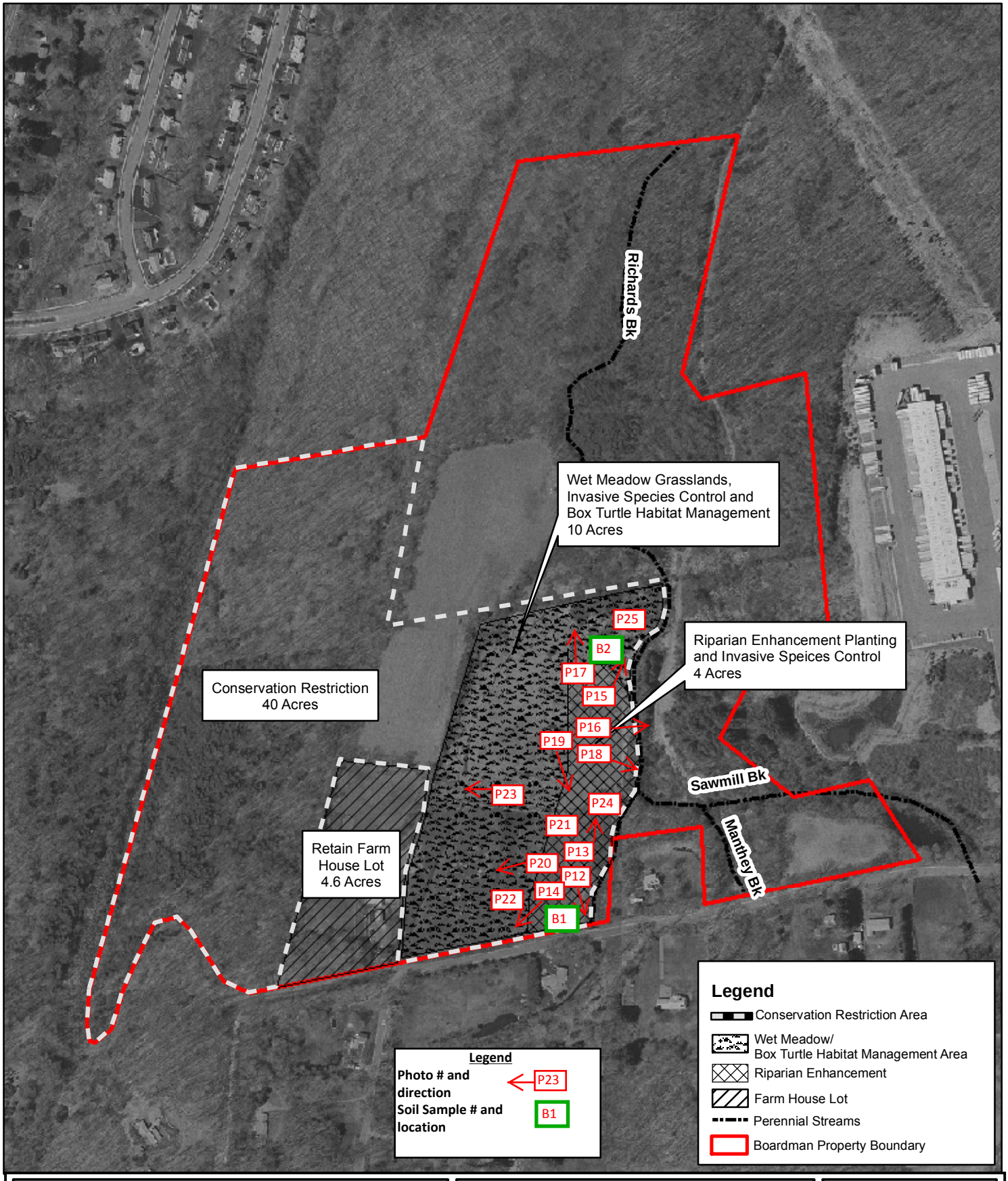
DATE: 12/2009
PROJ. NO.: 60140125

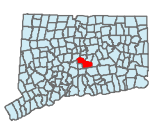
Overview
On-Site Mitigation
Cucla Park

BRAC Realignment
Mitigation Plan

DRAWING NUMBER: 4
SHEET NUMBER: 4 of 6
REVISION 0

APPENDIX C - FIGURE 1





Source: CT Ortho Photograhp

Coordinate System: NAD 1927, State Plane Connecticut FIPS 0600 Feet

N

1 inch = 400 feet

BRAC Realignment
Boardman Lane Off-Site
Mitigation Plan
Middletown, CT

SCALE	DATE	PROJECT NO.
1:4,800	12/09	60140125

AECOM

Figure Number

3

Photo 1 – Smith Street - North end of site looking north planted red cedar on right, reed canary grass in center (Fall)

Photo 2 – Smith Street - North end of site looking north – Volunteer Am sycamore on left, multiflora rose and oriental bittersweet on right. (Fall)

Photo 3 – Smith Street - North end of site looking south – Planted white pine on right, colts foot in center. (Fall)

Photo 4 – Smith Street - North end of site looking north – green ash seedlings (Spring)

Photo 5 – Smith Street - Center of site looking east (Spring)

Photo 6 – Smith Street - Center of site looking south – Common reed at toe of slope, bush honeysuckle left center. (Spring)

Photo 7 – Smith Street – Center of site looking north – white pine plantings in center – multiflora rose on left and right (Fall)

Photo 8 – Smith Street – Center of site of site looking west, common reed in center (Fall)

Photo 9 – Smith Street – Southwest corner of site looking southwest at common reed stand (Spring)

Photo 10 – Smith Street – Southwest corner of site looking east – New England Wetmix application area. (Spring)

Photo 11 – Smith Street - South end of site looking west- deer tongue grass left center. (Fall)

Photo 12 – Boardman Lane - South end of site looking southeast. (Spring)

Photo 13 – Boardman Lane - South end of site looking north (Fall)

Photo 14 – Boardman Lane - South end of site looking southwest toward southern portion of habitat management area. (Fall)

Photo 15 – Boardman Lane - North end of site looking northeast. (Spring)

Photo 16 – Boardman Lane - North end of site looking east-reed canary grass. (Spring)

Photo 17 – Boardman Lane - North end of site looking north. (Fall)

Photo 18 – Boardman Lane - North end of site looking east, reed canary grass in center. (Fall)

Photo 19 – Boardman Lane - North end of site looking south towards hedgerow. (Spring)

Photo 20 – Boardman Lane - South end of site looking west at habitat management area. (Spring)

Photo 21 – Boardman Lane – Close up of typical vegetation – goldenrod, horsetail, deer tongue grass, wild madder. (Spring)

Photo 22 – Boardman Lane – Brown knapweed, common throughout (Fall)

Photo 23 – Boardman Lane – Center of site looking west, Canada thistle center and left center. (Fall)

Photo 24 – Boardman Lane – Autumn olive, tree-row in center of site. (Fall)

Photo 25 – Boardman Lane –Purple loosestrife, common in wetland areas. (Fall)