dcr MASSACHUSETTS DEPARTMENT OF CONSERVATION AND RECREATION

Proposed Hammond Pond Access Improvements

DCR Public Meeting #2

6:30 pm – 8:00 pm July 7, 2011

Newton City Hall

Newton, Massachusetts

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Commonwealth of Massachusetts

Governor
Deval L. Patrick

Lieutenant Governor
Timothy Murray

Energy and Environmental Secretary
Richard K. Sullivan, Jr.

Department of Conservation and Recreation Commissioner
Edward M. Lambert, Jr.

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DCR Mission Statement

To protect, promote and enhance our common wealth of natural, cultural and recreational resources.

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Project History - Public Private Partnership

- **Early 2010 –** Michael Rudyak Memorial Fund approached DCR with a vision to improve access to Hammond Pond by funding the installation of a continuous path along the shoreline

- **Spring 2010 –** DCR recommended that the Memorial Fund retain the services of a design professional to refine concept and commence with outreach to the City of Newton and community stakeholders

- **Fall / Winter 2010-2011 –** Building on the foundation of conceptual work done by Bioengineering Group Inc., DCR's Partnership Matching Funds Program joined with the Memorial Fund to support a feasibility study to erect the framework for a final scope

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Goals and Objectives of Pond Access Improvements

1. Identify potential solutions to enhance the ecological function and biodiversity of the Pond and shoreline area
2. Identify methods for water quality remediation
3. Use sound ecological decisions to promote Low Impact Design stormwater management
4. Improve and increase access to water for fishing, passive boating, and viewing of Hammond Pond
5. Enhance accessibility on existing trails surrounding the Pond
6. Increase access to water to maximize public enjoyment of the Pond

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Partnership Matching Funds Project Support

DCR	$22,500
Michael Rudyak Memorial Fund	$22,500
Feasibility Study Total Funding	$45,000

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Purpose of Meeting

- To present preliminary findings of feasibility study for ecological restoration of Hammond Pond and its surrounding shoreline
- Present a conceptual design plan for a walkway, factoring in comments received
- Review the permitting process
- Review comments from first public meeting and obtain new comments on the conceptual design

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DCR Context Map

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Hammond Pond Neighborhood Location

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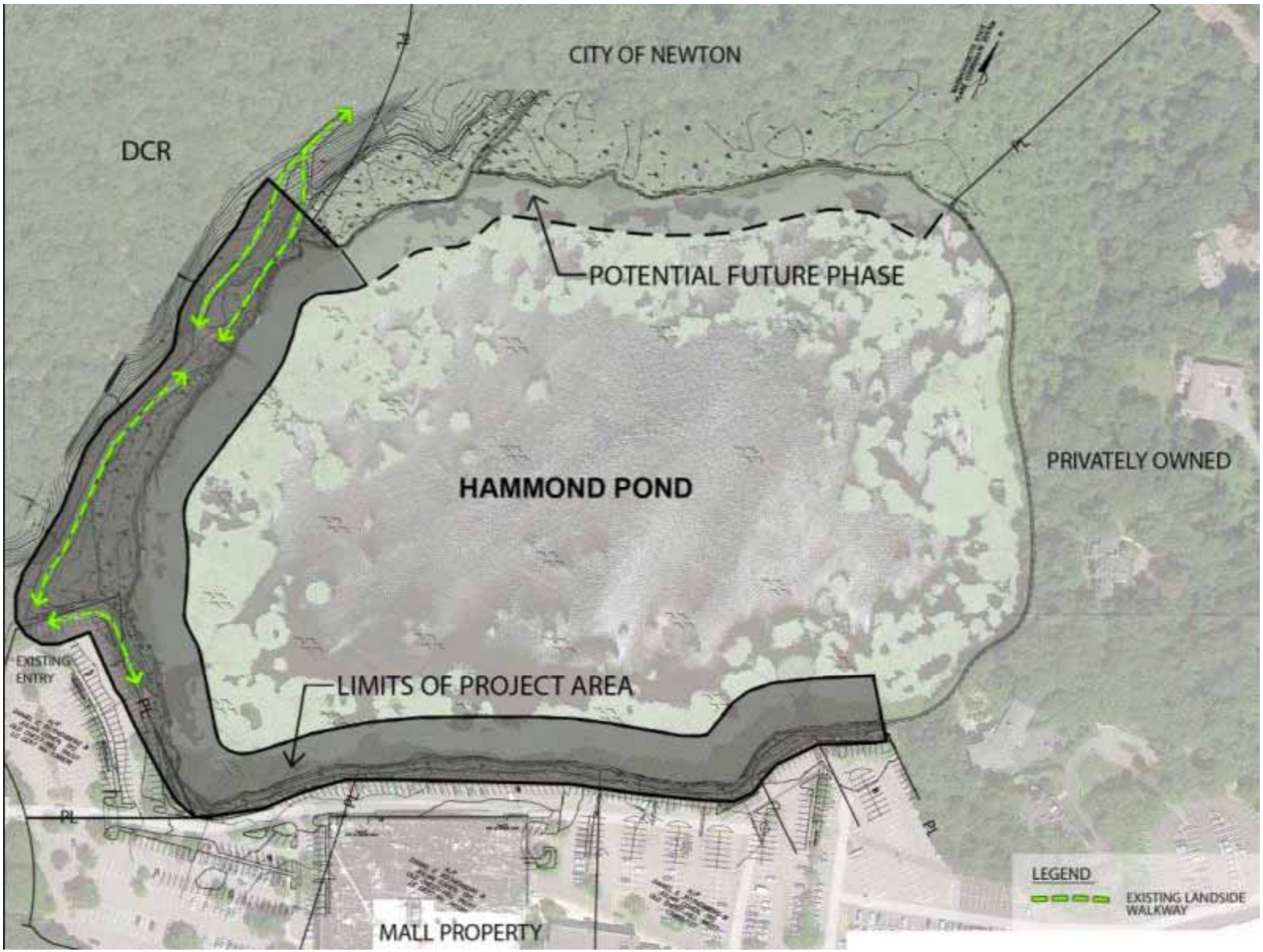
Project Area



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DCR Public Process for Hammond Pond Project

Public Meeting #1 - March 10

- Discuss and obtain public input on proposal to enhance public access around Hammond Pond and to identify solutions for its improved ecological function
- Present information about public private partnership

Public Comment Period - March 11 – April 1

Public Meeting # 2 – July 7th

- Present preliminary findings of feasibility Study
- Present conceptual design plan, factoring in comments received
- Obtain comments on conceptual design plans and collaborate on components of preliminary design
- Review permitting process

Public Comment Period - Extending two weeks after Public Meeting #2

Public Meeting # 3 - Early Fall

- Present preliminary design and completed feasibility study

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Michael Rudyak Memorial Fund Hammond Pond

Proposal Consultant / Design Team

- **Bioengineering Group** –

  Lead consultant. Award-winning multi-disciplinary firm hired by the Fund to ensure design is sensitive to its environmental location.

- **Carol R. Johnson Associates** –

  Nationally-acclaimed landscape architecture firm that has designed many trails adjacent to rivers and ponds.

- **Bourne Consulting Engineering** –

  Professional engineering service firm specializing in waterfront engineering projects.

Restored Planting - Fresh Pond

Overlook - Upper Charles

New Docks - Charles River

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Consultant / Design Team Project Scope

- Feasibility study
- Site inventory and public process
- Conceptual design
- Preliminary design, recommended plan and cost estimate
- Design development
- Permitting – local, state and federal
- Construction documents
- Bidding and construction phase services

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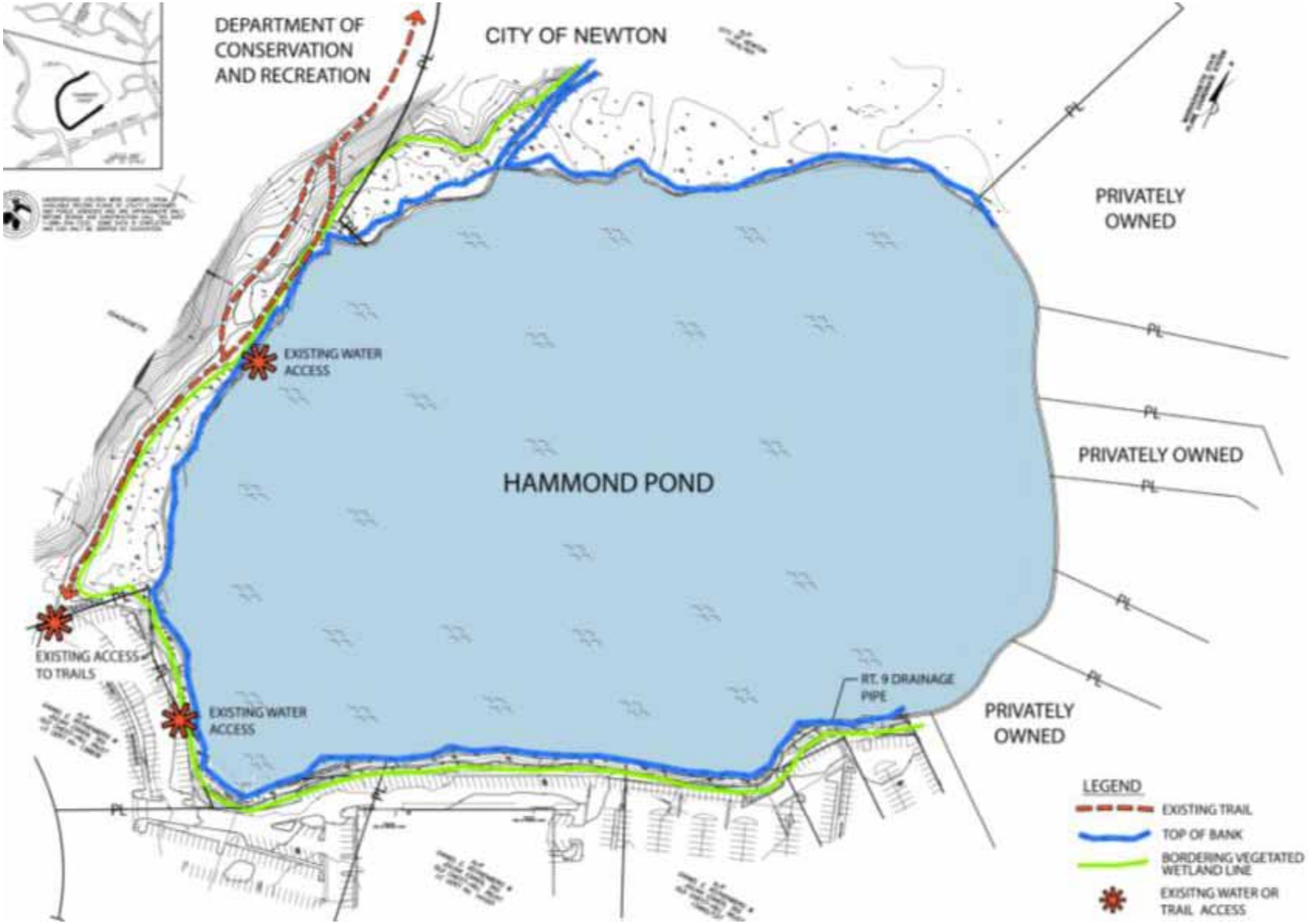
Existing Conditions Plan



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Hammond Pond Inventory Analysis

Ecology

Vegetation and Wildlife

Public Access

Views

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Ecology Analysis

- Kettle pond with acidic water does not promote aquatic plant growth unless balance is upset
- Plant material falls and settles on bottom of pond and does not decompose due to acidity, thus creating build-up on floor
- Pond ecology unbalanced by: dead plant material and fertilizers
- High levels of heavy metal in Pond water and sediment at pond floor
- Water lilies are sign of increased sediment
- Invasive species identified in different areas of the Pond: Purple Loosestrife, Garlic Mustard and Japanese Knotweed (in upland areas)

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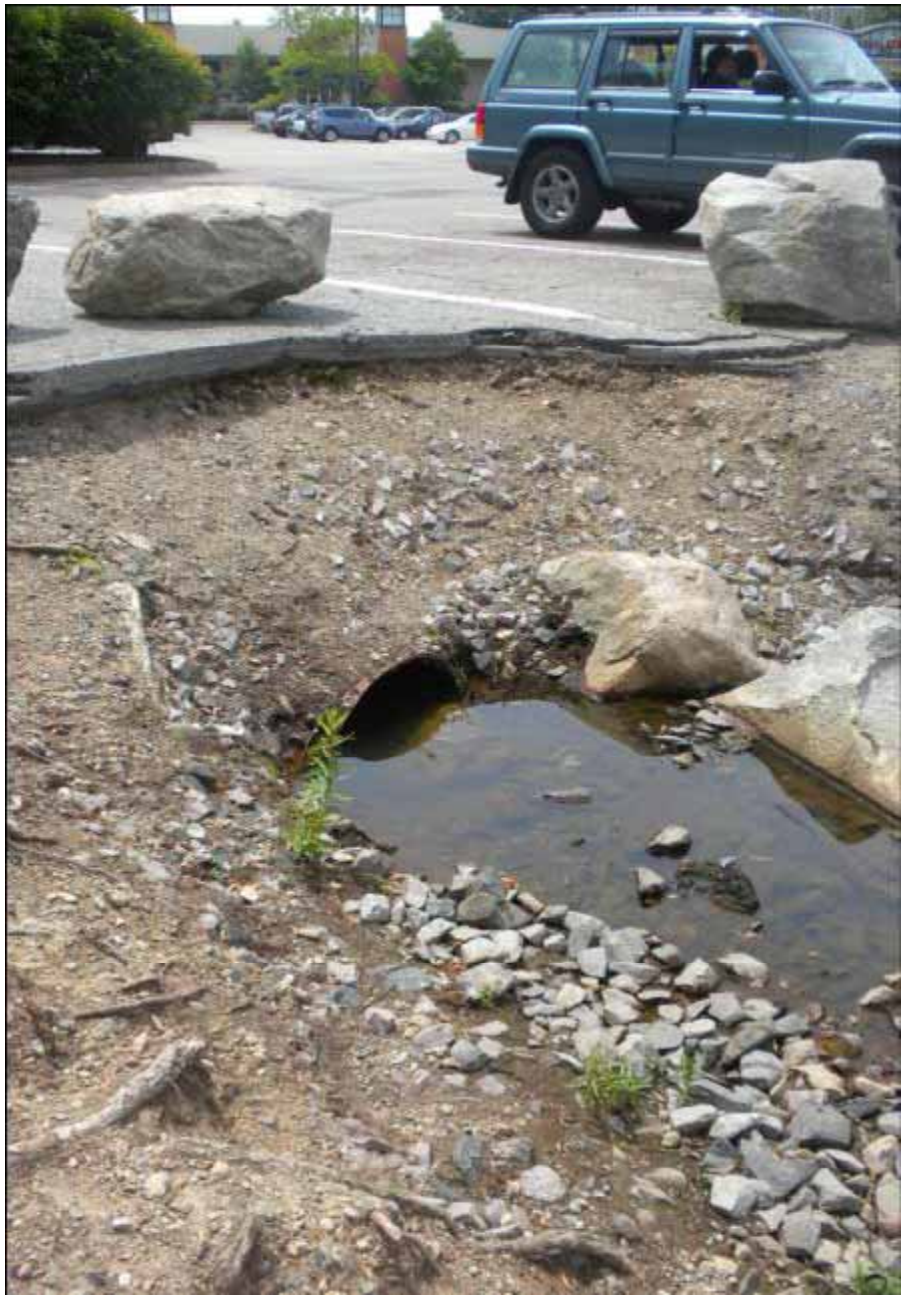
Ecology Inventory-
Rt. 9 Drainage



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Ecology Inventory–
Stormwater Mitigation

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Vegetation and Wildlife Inventory

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Plant Species Invnetory

Trees

- Red Maple (Acer rubrum)
- Paper Birch (Betula papyrifera)
- Atlantic White Cedar (Chamaecyparis thyoides)
- Atlantic White Water Lilies (Nymphaea odorata)

Shrubs

- Button Bush (Cephalanthus occidentalis)
- Sweet Pepperbush (Clethra alnifolia)
- Highbush Blueberry (Vaccinium corymbosum)

Perennials

- Swamp Loosestrife (Decodon verticillatus)
- Purple Loosestrife (Lythrum salicaria)
- Sensitive Fern (Onoclea sensibilis)
- Royal Fern (Osmunda regalis)
- Pickerel Weed (Pontederia cordata)
- Marsh Fern (Thelypteris paulustris)

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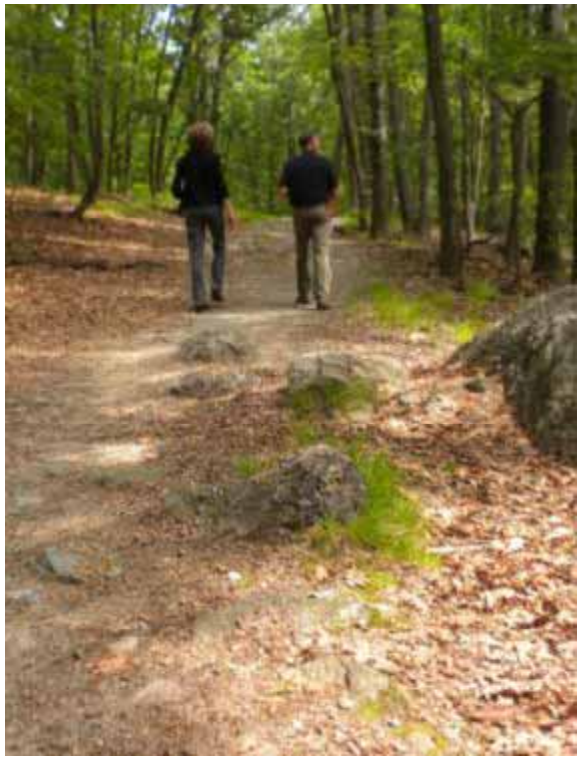
Public Access Inventory–
Trails



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Public Access Inventory- Pond

1

2

3

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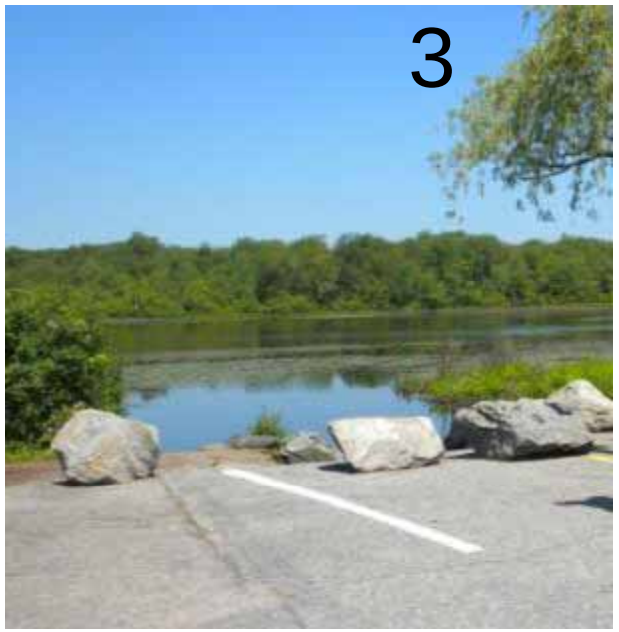
Views Analysis-

Accessible locations



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Analysis of Inventory Findings

- Pond habitat/ecosystem in slow decline
- Invasive species are prevalent, mostly along southern pond banks, requiring removal/containment
- Sediment flows into Hammond Pond from Route 9, adjacent Chestnut Hill Mall and upslope areas
- Improved water quality is needed in pond to reduce algal biomass and increase diversity of fish species
- Opportunities exist to add access, enhancing connections to the pond and surrounding trails system

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Feasibility Study Approach / Process

Task 1

- Inventory existing resource conditions
- Define problems and opportunities

Task 2

- Develop analysis of existing conditions
- Evaluate effects of alternative plans on pond
- Compare alternatives for benefits, constraints and costs

Task 3

- Select and develop the recommended plan

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Feasibility Study Goals

- Identify potential solutions to enhance ecological function of the pond and shoreline
- Identify methods for water quality remediation
- Identify areas where public access should and should not be encouraged along the shoreline and within the pond
- Identify low impact design options for stormwater management

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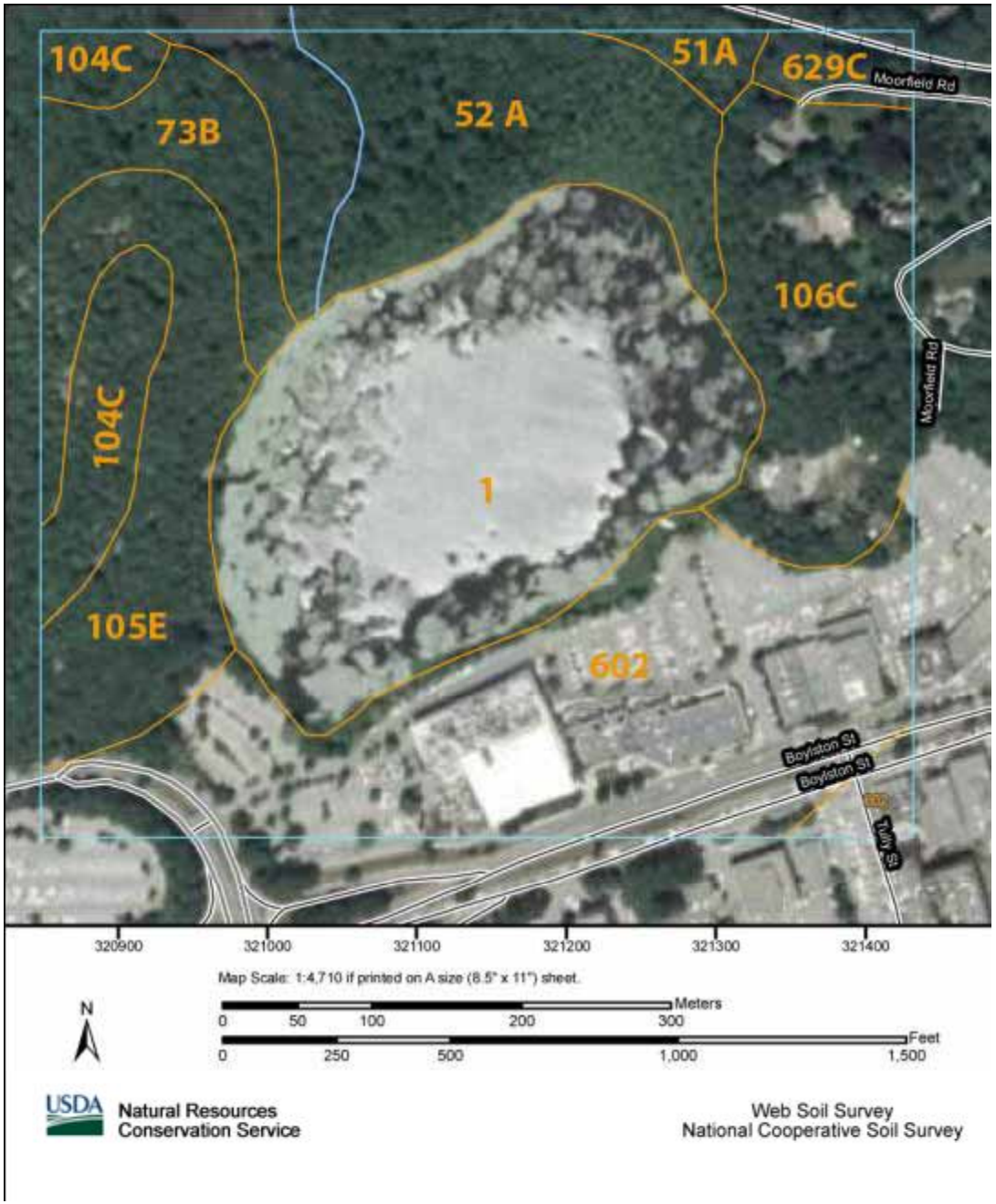
Soils Map

Map Unit Legend

Middlesex County, Massachusett	
Map Unit Symbol	**Map Unit Name**
1	Water
51A	Swansea muck, 0 to 1 percent slopes
52A	Freetown muck, 0 to 1 percent slopes
73B	Whitman fine sandy loam, 0 to 5 percent slopes, extremely stony
104C	Hollis-Rock outcrop-Charlton complex, 3 to 15 percent slopes
105E	Rock outcrop-Hollis complex, 3 to 35 percent slopes
106C	Narragansett-Hollis-Rock outcrop complex, 3 to 15 percent slopes
602	Urban land
629C	Canton-Charlton-Urban land complex, 3 to 15 percent slopes
Subtotals for Soil Survey Area	
Totals for Area of Interest	

Norfolk and Suffolk Counties, Massach	
Map Unit Symbol	**Map Unit Name**
602	Urban land, 0 to 15 percent slopes
Subtotals for Soil Survey Area	
Totals for Area of Interest	



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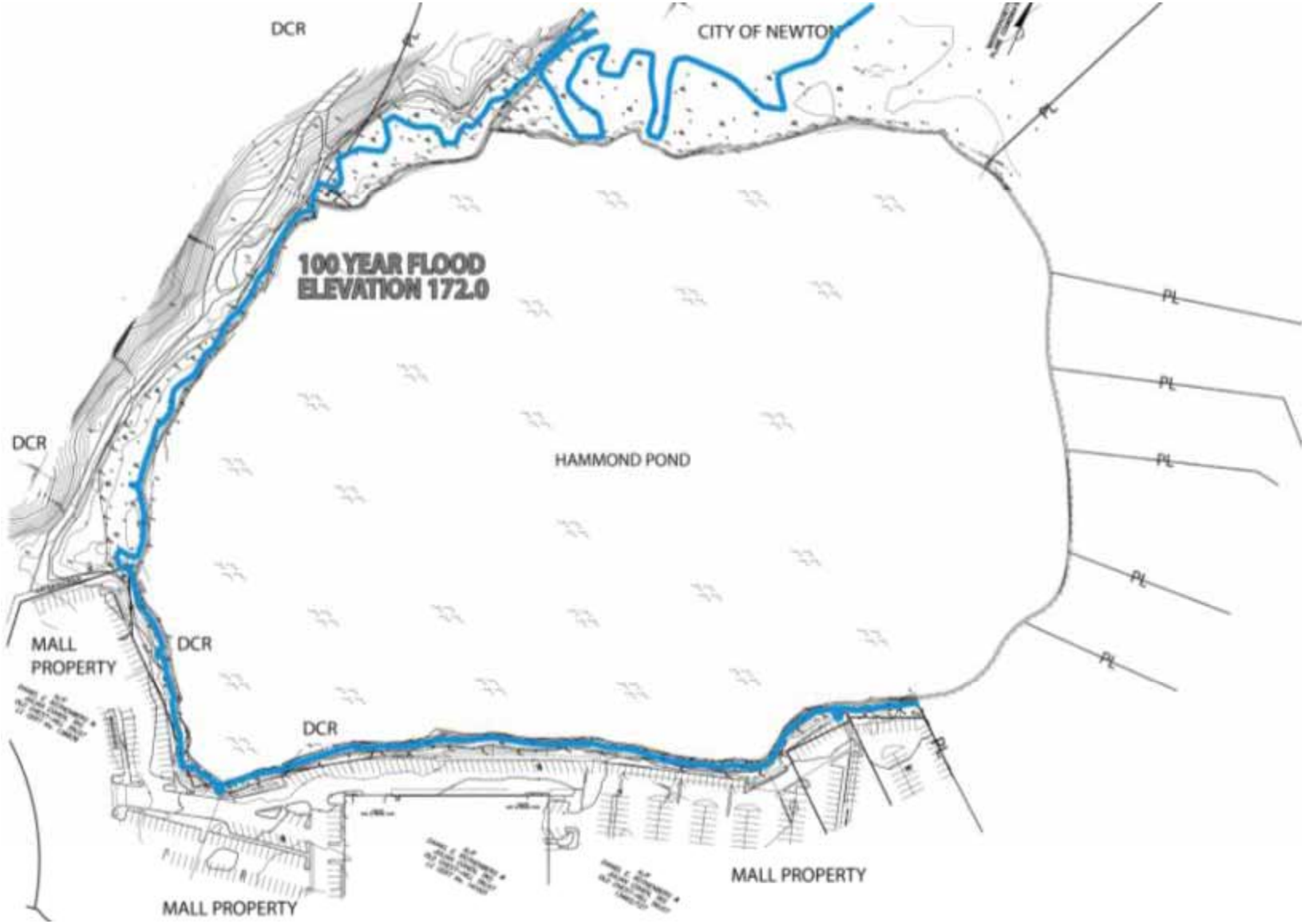
100 Year Flood Map



WATER ELEVATION = 170.5

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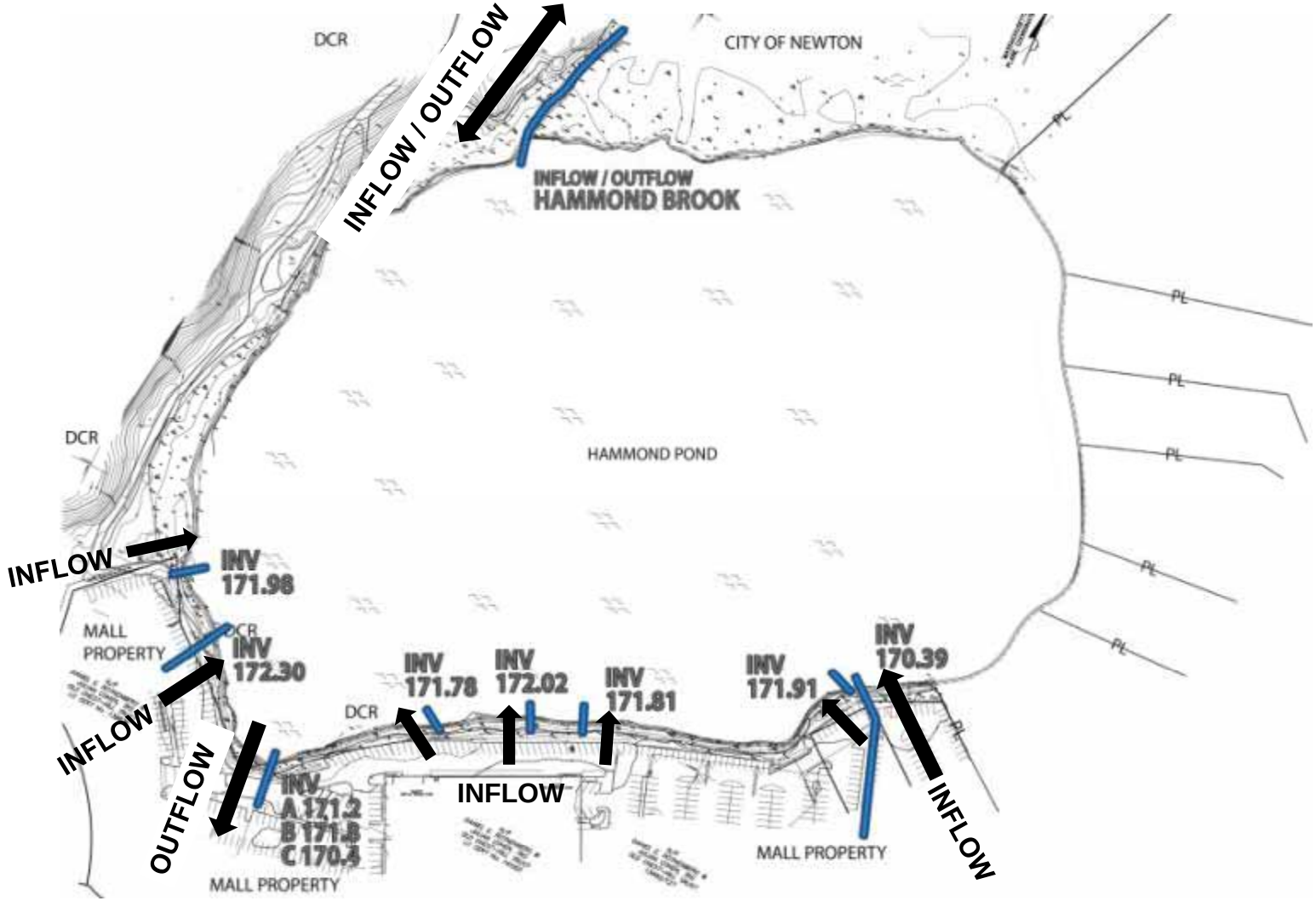
Hydrology Inventory Map



WATER ELEVATION = 170.5

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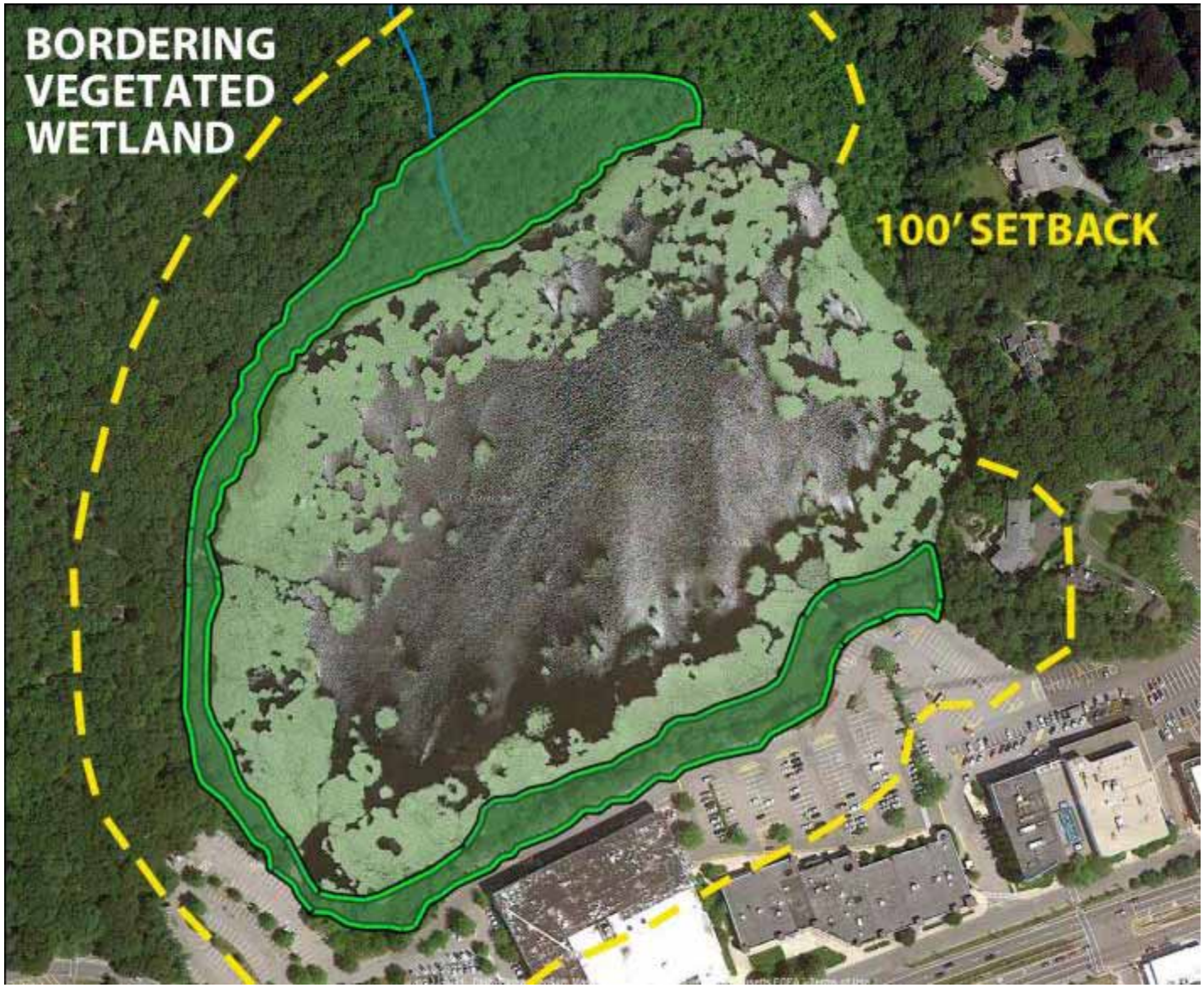
Bordering Vegetation Wetland Map



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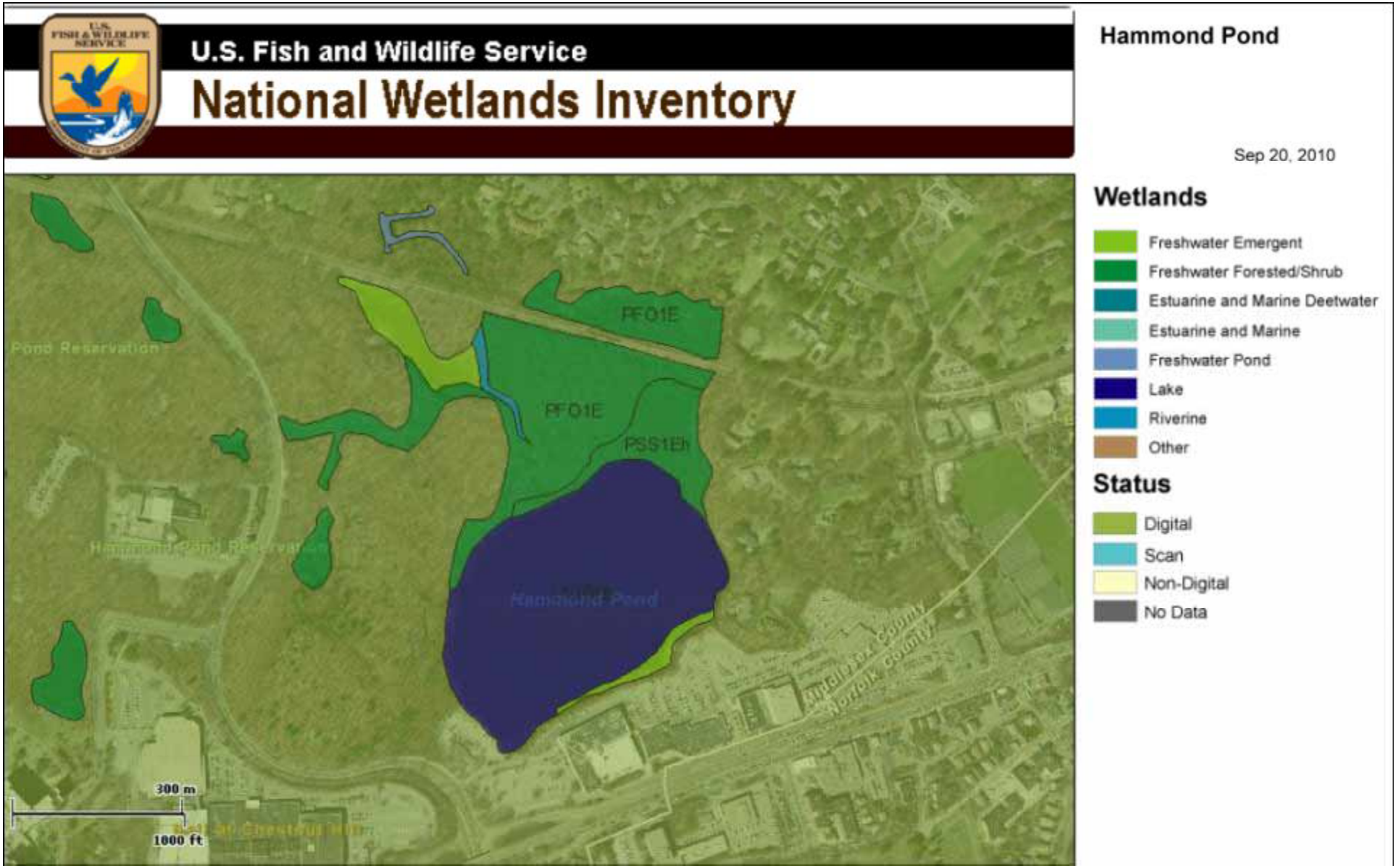
Wetland Inventory Map



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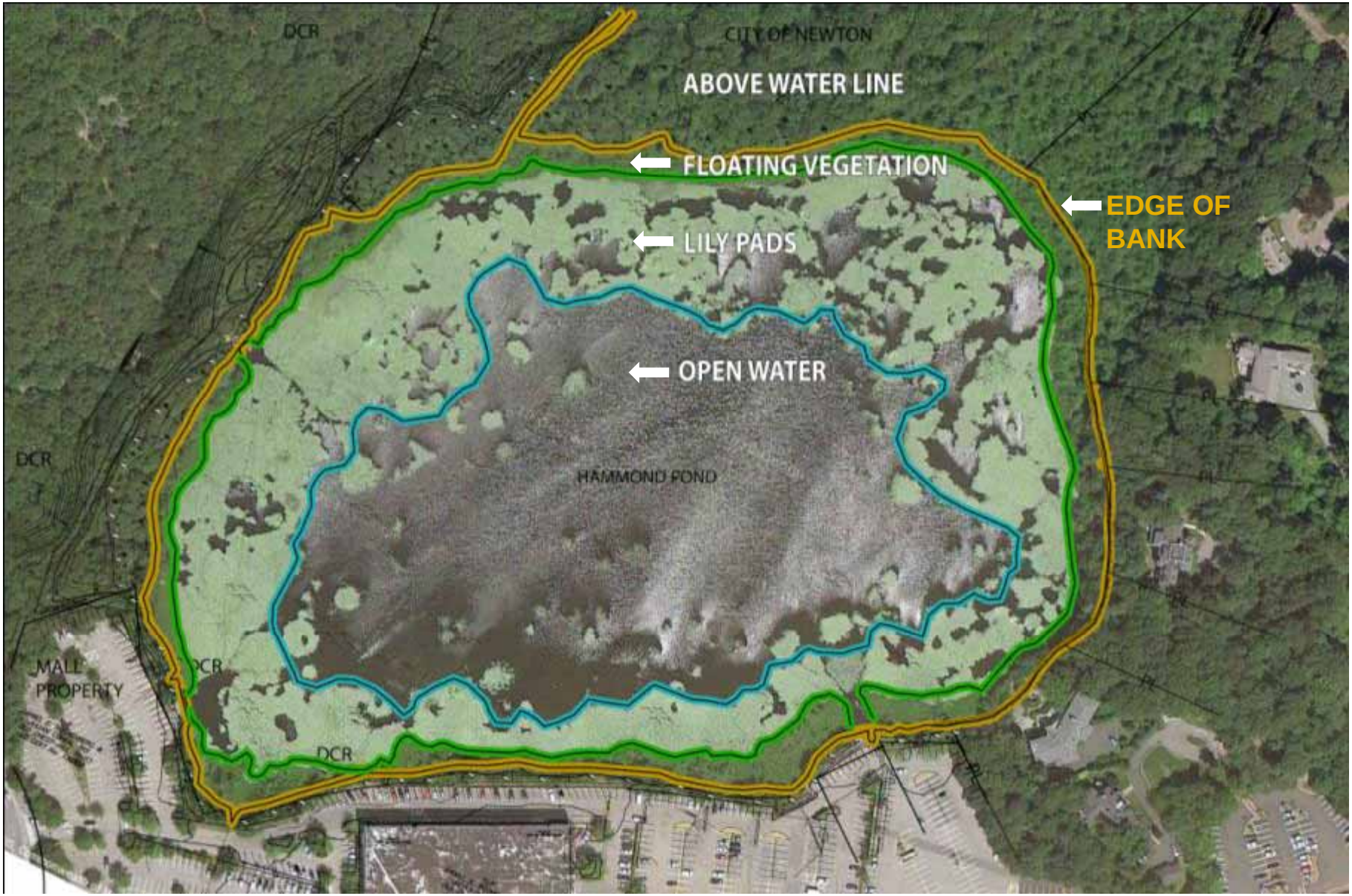
Pond Vegetation Map



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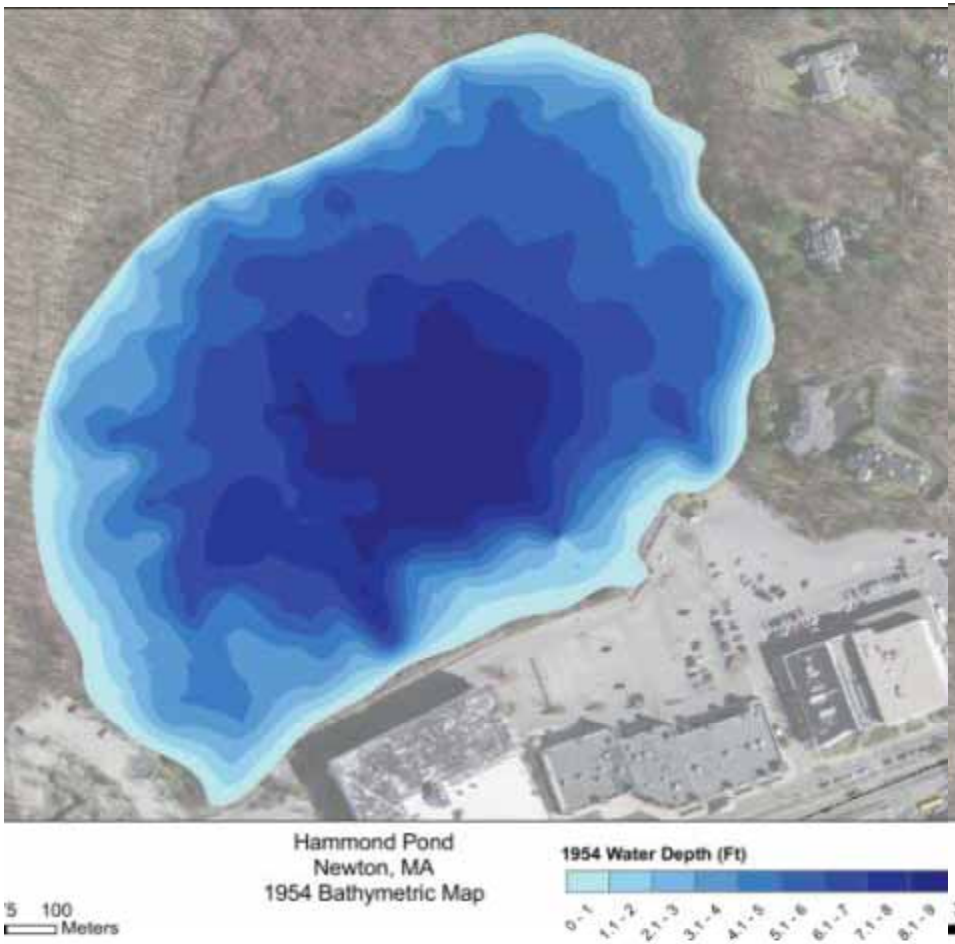
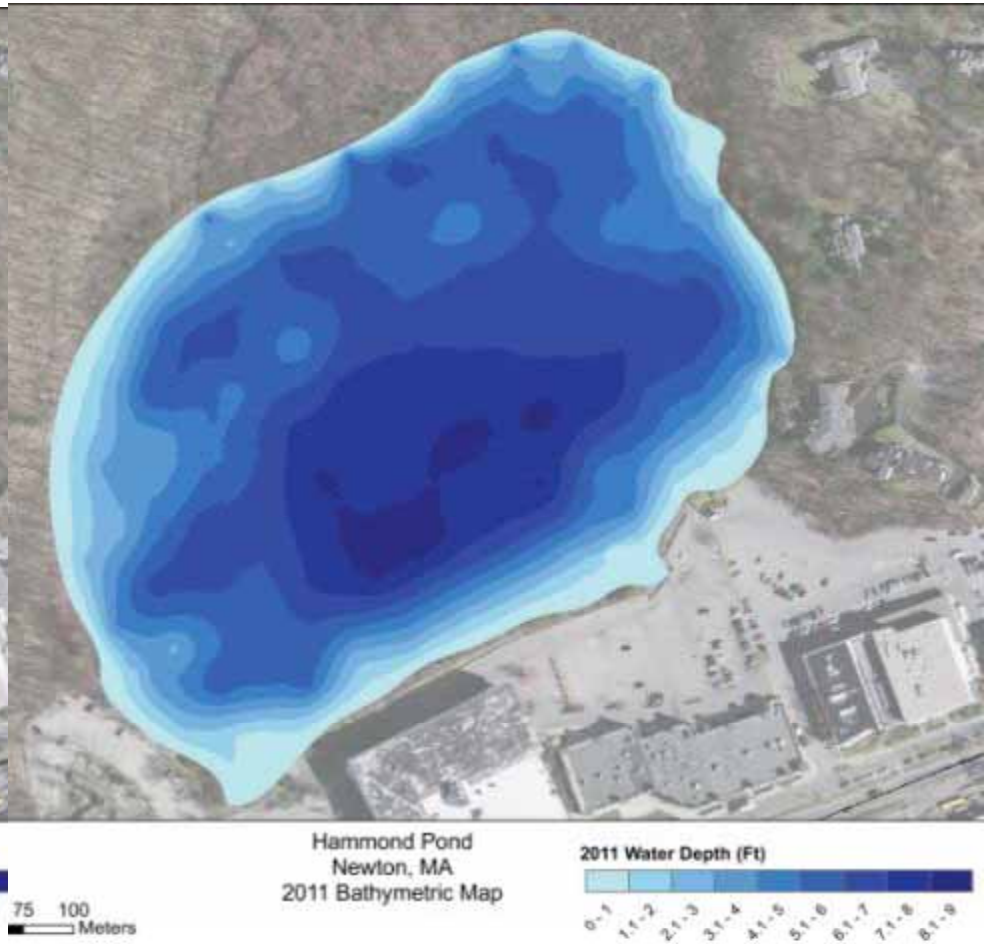
Bathymetry – Water Depth





1954 **2011**

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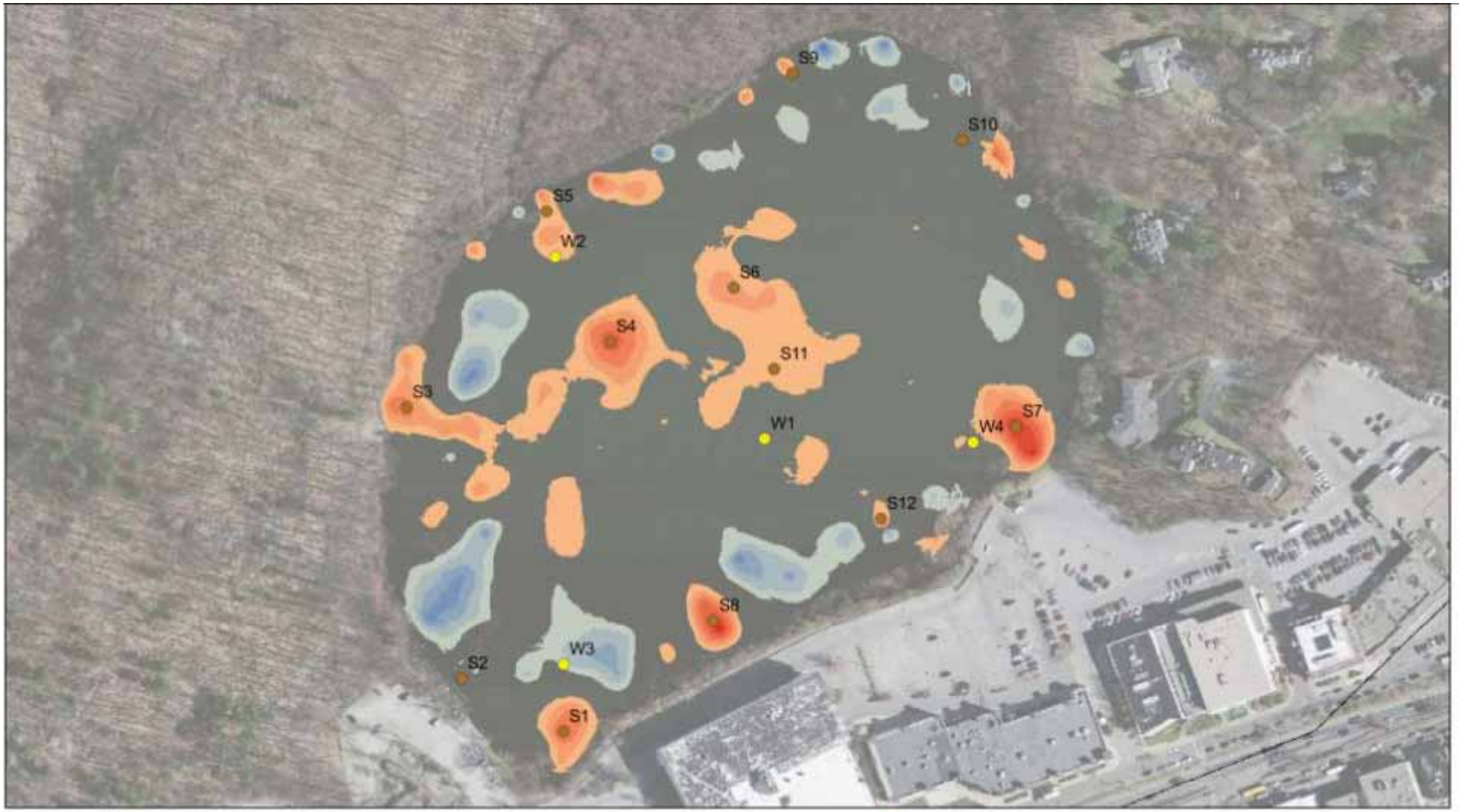
Bathymetry – Sediment Accumulation Areas



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Water Depth and Sediment Accumulation

N
W E
S

0 25 50 75 100
Meters

Hammond Pond
Newton, MA
Sediment Accumulation &
Sampling Locations

Sediment
Water
Sediment Accumulation Since 1954 (Ft)

Note: Negative depths = sedment loss, positve depths = sediment accumulation

AECOM

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Water Quality Testing

- Maximum water depth is approximately 8.8 feet
- Sediment accumulation has resulted in a loss of approximately 1 million gallons of capacity since 1954
- In-lake nutrient concentrations are indicative of eutrophication which can lead to degraded water quality, excessive algal growth, and depleted dissolved oxygen
- Showed expected ranges of pH, turbidity, and dissolved oxygen for an urban pond in Massachusetts
- Wildlife and dog use of the shore/pond or may indicate a potential bacterial source from the stormwater outfall
- Majority of in-lake phosphorus is particulate and not readily available for biological uptake.
- Phosphorus concentrations in Hammond Pond sediment can be considered relatively low with less potential for release into the water column under anoxic conditions.

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Pond Health and Access Opportunities(Opt) / Constraints(Cons)

Floating Marsh Mat	Opt	Provides shoreline buffer
		Provides bird and fish wildlife habitat
		Ecosystem education for visitors
	Cons	Prevents direct water access
		Unsafe for pedestrian use
		Environmentally sensitive
Lily Pads	Opt	Provides bird and fish wildlife habitat
	Cons	Prevents boating access
		Prevents access to deeper water for fishing
Rain Gardens	Opt	Limit direct runoff into pond
		Filter and treat captured storm water
	Cons	Not functioning correctly
		Prevent pond access

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Pond Health and Access Opportunities(Opt) / Constraints(Cons)

Wetlands and Woods Surrounding Pond	Opt	Provides shade and cooler water temps
		Provides buffer for pond from urban edge
		Provides high quality habitat area
		Provides ground water recharge
		Filtration of surface runoff
		Valuable aesthetic and recreational area
	Cons	Prevent views of pond
		Limit accessible water locations
Existing Access Points	Opt	Provide viewing points for pond
		Frequently used by visitors
	Cons	Safety and accessibility concerns
		Sediment and drainage issues
		Limited views of pond

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Pond Health and Access Improvement Plans

- Stabilize and develop safe access to existing lookout points
- Address drainage and storm water issues for inflow areas and surface runoff
- Develop methods to remove localized sediment accumulation in outfall areas
- Develop fore bays with berms for future localized sediment containment, removal and storm water treatment
- Selectively remove free floating and rooted water lilies
- Increase water depth by dredging deep soft sediments in selected areas of pond
- Enhance ground water and surface water influxes to increase pond flushing (e.g. selective dredging at springs)

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Project Design Considerations

Sustainability and Ecology

- Apply principles of sustainability consistent with DCR sustainability plan
- Minimize impact of new access elements on existing pond ecological conditions
- Address existing negative influences on pond health

Public Access

- Improve accessibility
- Locate on land and water, in close proximity to Hammond Pond, to increase and improve public enjoyment of water views

Public Safety

- Evaluate use of elements to ensure public safety – e.g., surface material, path/walkway widths, railings, and lighting

Design Elements

- Include overlooks for public viewing
- Evaluate use of pile-supports for stationary or floating walkways

Permitting

- Constraints: flood plain replication, delayed schedule, increased costs

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Comments Received

- First step should be health of pond emphasis on ecology
- Interest in improved access to pond
- Concerns with walkways affecting natural look of pond
- South side of site is a logical location for walkway
- Increased traffic around pond might upset pond ecosystem
- Concerns with parking lot runoff and storm drains

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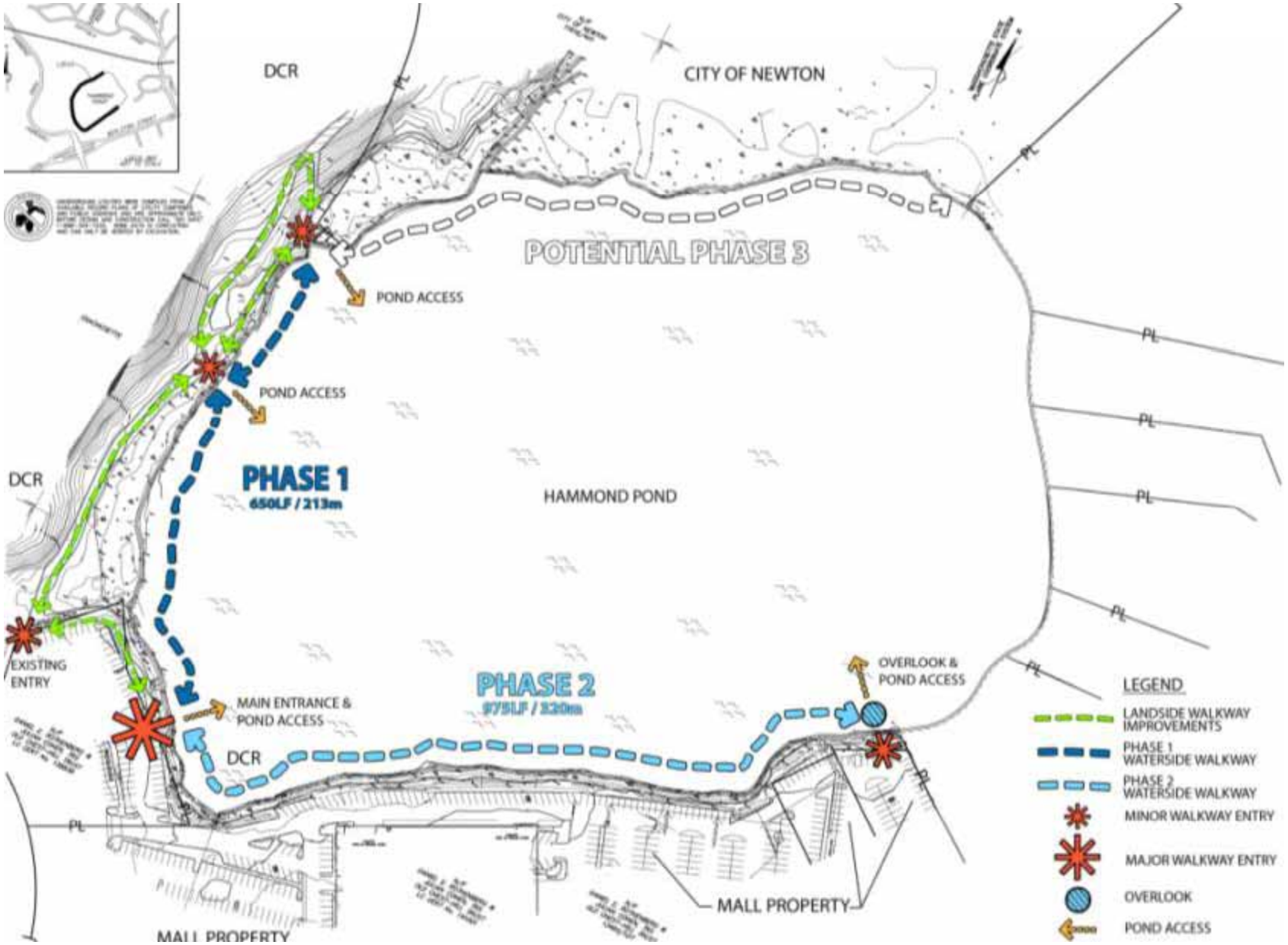
Conceptual Design Plan



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Conceptual Design – Boardwalk

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Conceptual Design – Boardwalk

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Conceptual Design – Overlooks

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Conceptual Design – Water Access

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Public Benefits

- Increased and improved access for visitors to engage waters edge
- Improved access for visitor enjoyment of pond views and wildlife
- Improved ecological function overall health and water quality of the pond
- Increased native vegetation, and improved wildlife habitat

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Permitting process

Abbreviated Notice of Resource Area Delineation (ANRAD) - To Mass Department of Environmental Protection Bureau of Resource Protection for review

Massachusetts Endangered Species Act (MESA) Review –To the Natural Heritage and Endangered Species Program for review

Project Notification Form (PNF) - To Mass Historical Commission and Newton Historical Commission in order to receive a decision as to whether the project is on/will negatively affect state historic sites.

Notice of Intent (NOI) - To the Newton Conservation Commission and Mass Department of Environmental Protection

Massachusetts Environmental Policy Act (MEPA) - To the Mass office of energy and environmental affairs to reviews environmental impacts

Chapter 91 License (water-dependent use) For walkway and water quality improvements filed under DCR to Mass DEP and Newton Conservation Commission

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Next Steps

July 7 – 21st	Public comment period
August	Design development – Phase 1
September	Public Meeting #3
October	Permitting – Phase 1
Winter	Construction documents and bidding – Phase 1 (Pending DCR decision)
Spring	Construction – Phase 1

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Questions & Answers

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Additional Information

Web:

http://www.mass.gov/dcr/news/publicmeetings/parklandspast.htm

If you have comments or suggestions:
Phone: 617-626-4974
Email: dcr.updates@state.ma.us
Write: Department of Conservation and Recreation,
Office of Public Outreach,
251 Causeway Street, Suite 600, Boston, MA 02114

Note: Public comments submitted to DCR by email or letter will be posted on the DCR website in their entirety, and no content, including personal information, will be redacted.