Talking Points for:
Alewife Reservation Stormwater Wetland – Grand Opening
15 October 2013

Project Overview and Goals

- Part of the MWRA long-term CSO Control Plan for Alewife Brook
- The present CSO volume to Alewife Brook from the CAM 004 area (5.8 MG and 10 activations per year) will be completely eliminated
- Stormwater wetland reduces peak flows to Little River during major storm events compared to original model conditions (circa 1999).
- Stormwater Wetland meets and/or exceeds goals stated in DCR's 2003 Alewife Reservation Master Plan
- Alewife Reservation part of the Metropolitan Park System (oldest in country); one of Boston's "Urban Wilds"; remnant of the Great Swamp that stretched from Fresh Pond to Spy Pond (historically low area that collected water)
- Clearing of site began in October 2011; most of the earthwork done in 2012; plantings in 2012 and 2013
- City of Cambridge DPW responsible for maintenance of stormwater wetland basin, spillways, wet meadow overflow area, forebay and water quality channel
- DCR will maintain the park component (amphitheatre, boardwalks and paths, benches, kiosk, and bike racks) and all landscape outside of stormwater wetland basin
- The City has a project web page that includes Construction Drawings, presentations and meeting minutes

Permitting/Construction Factoids:

- Wildlife Impact and Risk Assessment Study was done prior to clearing and grubbing operations (study and findings can be found on Cambridge DPW web site)
- "Escape" routes created in Construction Phase sediment fences for rabbits, reptiles, and amphibians
- Upland and Hydric (wetland) soils were manufactured from existing soils and compost
- Soils containing invasive weed seeds/roots were stripped and removed from site
- A large gravel and hard-piped French Drain constructed at the base of the wetland was used for dewatering the main basin during construction; water was pumped into sediment control basins before clean water left the site

Sediment Forebay/Belmont Structure

- 8-ft wide x 4-ft high reinforced concrete box culvert from the Alewife Brook Parkway to the Forebay transports storm water from the Fawcett Street area and upstream areas in the vicinity of Huron Ave, Concord Ave and the Fresh Pond Parkway. Extensive BMPs are in place throughout the catchment to further remove sediment prior to discharge into the Forebay.
- Designed to trap sediment, floatables and trash from storm system and keep it from entering the stormwater wetland basin
- Headwall Structure has provisions for stop logs that are manually placed to temporarily prevent flow during maintenance activities in either the box culvert or the Forebay

- Forebay bottom uses cabled concrete block (ease of maintenance). The intent is to periodically clean the Forebay using a vactor truck and bobcat driven down onto the cabled blocks.
- Two 12-in pipes at the Forebay Outlet Structure allow smaller flows (el. 1' NGVD) from the Forebay to the Main Basin via the adjacent Water Quality Channel. The design and constructed elevations of the surrounding earthen dam to allow passage of higher flows (1-year event)
- Banks stabilized with Permanent Erosion Control Blanket, native seed mixes, live stakes, and native trees and shrubs
- Maintenance plan calls for periodic removal of sediment and trash

Water Quality Channel:

- Designed to convey water from Forebay to Main Wetland Basin
- 2.5:1 side slopes; northern bank contains chain link fence fabric to reduce opportunity for burrowing animals (muskrats/beavers/groundhogs)
- Channel banks stabilized with Permanent Erosion Control Blanket (Green polypropylene) anchored in place; native seed mixes (3 different types) were placed beneath the ECB and are now helping to stabilize
- Over 650 Live Stakes (dormant twigs) planted in December 2012 to help stabilize banks during high flow events; shrub species include dogwoods, willows, and buttonbush.
- Channel edges stabilized with coir (coconut fiber) fascine; anchored into soil using galvanized "duck bill" anchors that were driven to depth and "set" in place by pulling up and connecting to fascines
- High Marsh habitat designed for low-flow conditions; planted with High Marsh wetland plugs including: marsh marigolds, sedges, rushes, joe-pye weed, wool grass, and marsh hibiscus

Wetland Basin:

- Over 3.5 acres in size; acts as "final polish" of urban stormwater before entering Little River
- Effective for removing suspended solids, heavy metals and nutrients
- Designed to accommodate a 10-year storm event (10.3 acre-feet of storage)
- Inlets from Little River Oxbow via Equalization Manhole and sediment Forebay via Water Quality Channel. Main Outlet to Little River is made via a 36-in pipe protected from tailwater from the Little River using a 36-in Flap Valve. Connection to Oxbow was made in July 2013
- 2 spillways designed for overflow (west to Wet Meadow, east to existing BVW). Used at 10-year events
- 3 deep pool areas created for habitat (up to 4.5 feet deep)
- Island created to maximize flow path of stormwater thru wetland, promoting infiltration and ability of plants to uptake nutrients; top of island will be above 100-year storm event
- Water quality monitoring of phosphorus, nitrogen, coliform, at outlet structure and forebay as well as on CambridgePark Drive from the Box Culvert before it enters the Forebay.
- Mosquito habitat lessened thru water movement and habitat creation (bats, dragonflys, etc…)

Wetland Basin Plantings:

- Over 120,000 wetland plugs and tubers planted; over 3,800 new upland plants
- Habitats include open water, deep marsh, emergent marsh, high marsh, and wet meadow (see wetland planting board for species/zones)
- Constructed using hydric soils manufactured from reclaimed soils and compost
- A fence and string system was constructed to protect the plantings from geese and ducks during the establishment period (strong root system)
- Berms planted with native riparian seed mix and shrub species, including: winterberry, sweet pepperbush, highbush blueberry, cranberrybush viburnum, spiraea, elderberry, chokeberry, alders, dogwoods, pussy willow

Little River Oxbow:

- Excavated and stabilized for compensatory flood storage
- Water can enter the Wetland Basin via an 8" pipe and flow regulator; flap gate closes and stops water from entering Wetland Basin, from the Oxbow and Little River at design elevation (1.0 NGVD)
- Sand bag dams along Little River (2 channels) were used during construction to keep area dry for earthwork and construction of overlook; a huge crane was brought in from NYC to remove sand bag dam and let the water in (September 2012). Size of crane was necessitated due to the required reach between the crane set up along the spillway and the dam installed at the interface between the Little River and the Oxbow.
- Turbidity curtains were installed in the Little River to reduce any sediment that might escape during high flow periods or during the sand bag installation
- 2 islands created for habitat diversity; both will be underwater during a 100-year storm event
- Habitats include open water, upland, and high marsh
- Open water habitat (up to 4 feet deep at normal river level) conducive to unique fish species, including alewife
- Animals cited include carp, alewife, swans, waterfowl, painted/snapping turtles, deer, muskrat

Upland Habitats/Riparian Woodland Vegetative Communities:

- Scrub/shrub, Riparian Woodland (wet) and Upland Woodland (dry) habitats
- All species native to Eastern Massachusetts; no cultivars were used
- Woodland plantings along the tall Pfizer building chosen to adapt to the shade microclimate
- Native Tree plantings include: red and black oaks, white oak, white pine, red maple, black gum, grey birch, yellow birch, sugar maple, black willow, American elm, green ash, sycamore
- Native Shrub species include: blueberries, viburnums, bayberry, spicebush, dogwoods
- Upland Grasses include: Canadian and Virginia wild ryes, switchgrass

DCR Park Features:

- Important bikeway connection between Belmont and Alewife T/major commuter routes (Minuteman, Linear Park, Alewife Brook Greenway, Fresh Pond connector (future) and Cambridgepark connector (future)

- Amphitheatre, bike racks, and informational kiosk; amphitheatre constructed using reclaimed historic bridge abutment stones and hand-placed by Contractor; kiosk is weathered cor-ten steel
- Engraved Boulders at Amphitheatre: contain words or phrases that help visitors interpret the historical context of Great Swamp; developed in conjunction with DCR and Friends of Alewife Reservation
- Over 1,600 linear feet of boardwalk and trails: Stabilized Aggregate (Perimeter Trail) is stone dust with natural (agave) binder; boardwalk deck and rails are IPE (sustainably-harvested tropical hardwood); pvc-coated mesh, plastic lumber and pressure-treated pine
- Amphitheatre Plantings: Tall Turf seed mix (red and hard fescues) used for low maintenance and drought tolerance; Lowbush Blueberries on sunny knoll; canopy trees are Sugar Maples; small clusters of Sassafras tree plantings
- Engraved Boulders located along Perimeter Path; includes Kingfisher, Dragonfly, Woodcock, Snapping Turtle, Bullfrog and Algonquin Indian (hidden on island)