

ALL ABOUT DAYLIGHTING & RESTORING STREAMS

APRIL 14TH | 12PM | VIRTUAL EVENT

Agenda

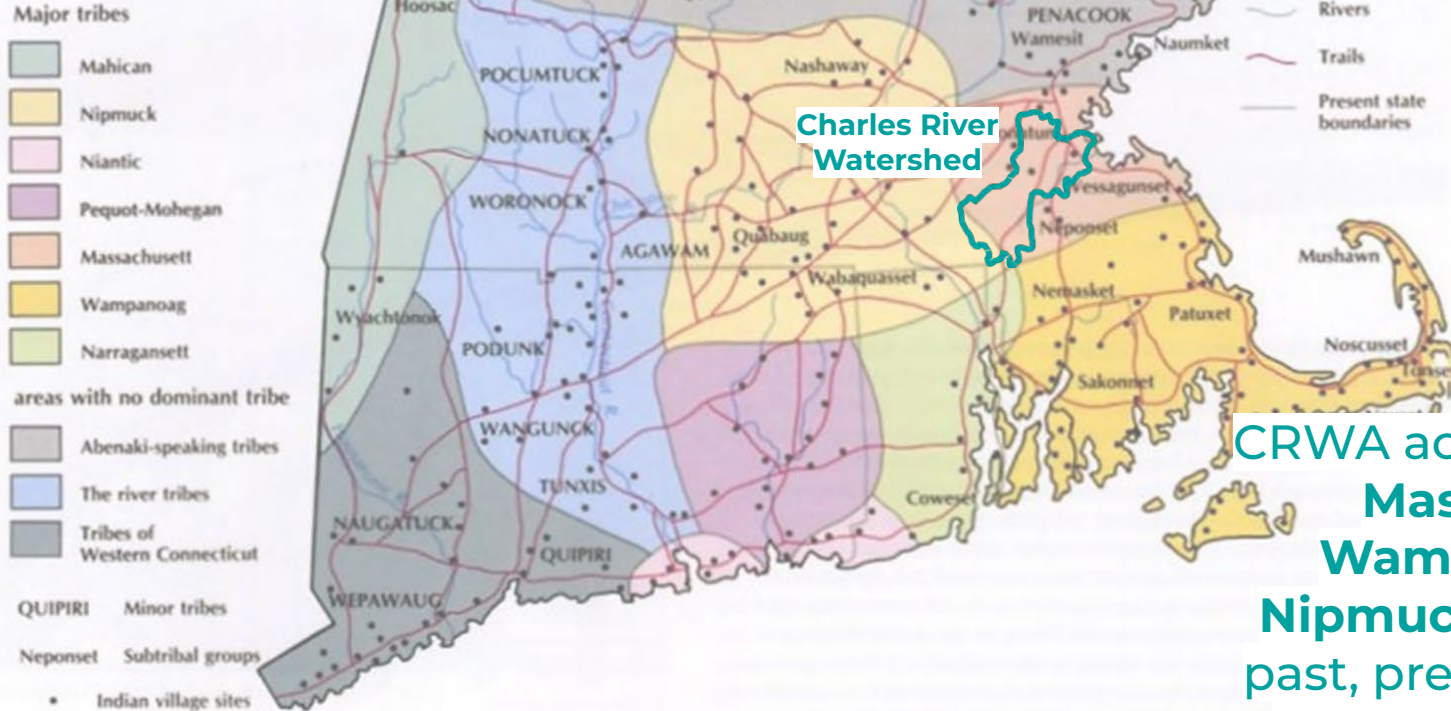
- 12:00 - 12:10 Introduction
- 12:10 - 12:25 Fuller Brook Restoration
- 12:25 - 12:40 Fernald Site Restoration
- 12:40 - 12:45 CRWA Initiatives
- 12:45 - 1:00 Questions* & Answers

*Please type your questions in the Chat, and we will go through them at the end!



Land Acknowledgement

NATIVE SETTLEMENTS AND TRAILS c.1600–1650



Charles River
Watershed

CRWA acknowledges the
**Massachusetts,
Wampanoag, and
Nipmuc Nations** as the
past, present, and future
caretakers of this land

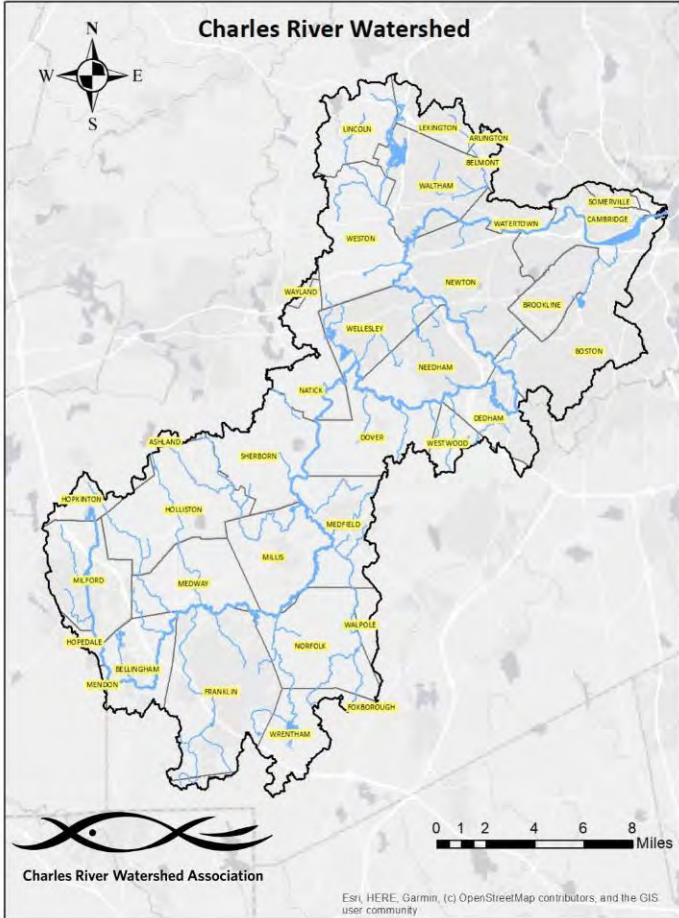
We protect, restore, and enhance the Charles River and its watershed through **science, advocacy, and the law.**

We develop science-based strategies to **increase resilience, protect public health, and promote environmental equity** as we confront a changing climate.

Program Areas:

- Climate Resilience
- River Science
- **River Restoration**
- Stormwater Solutions
- Education & Outreach





CRWA takes a watershed-scale view

- Charles River is 80 miles long
- 35 towns in watershed
- Over 1 million residents
- 20 dams
- 308 mi² watershed



Brandon Schmitt
Town of Wellesley



Bill Doyle, PE
Waltham Conservation Commission

Fuller Brook Restoration



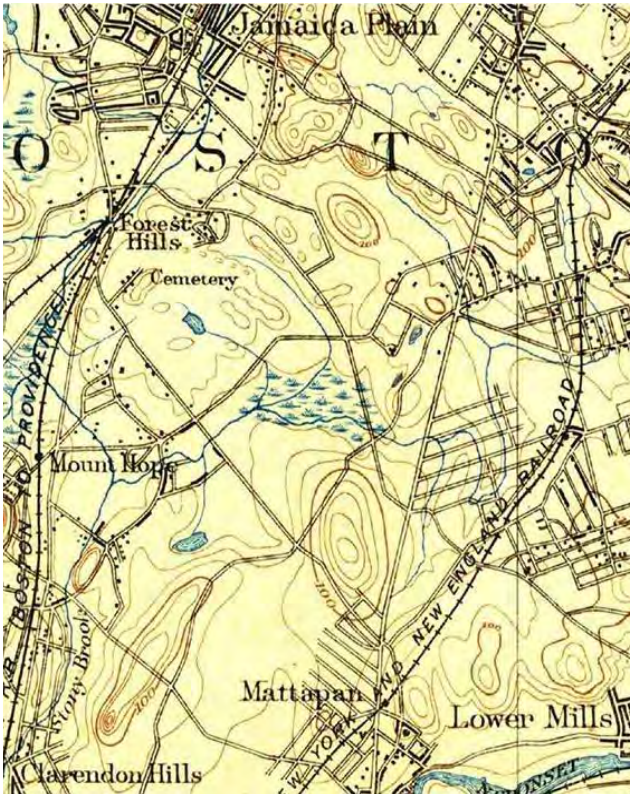
Fuller Brook Meadow in Bloom

Fernald Site Restoration

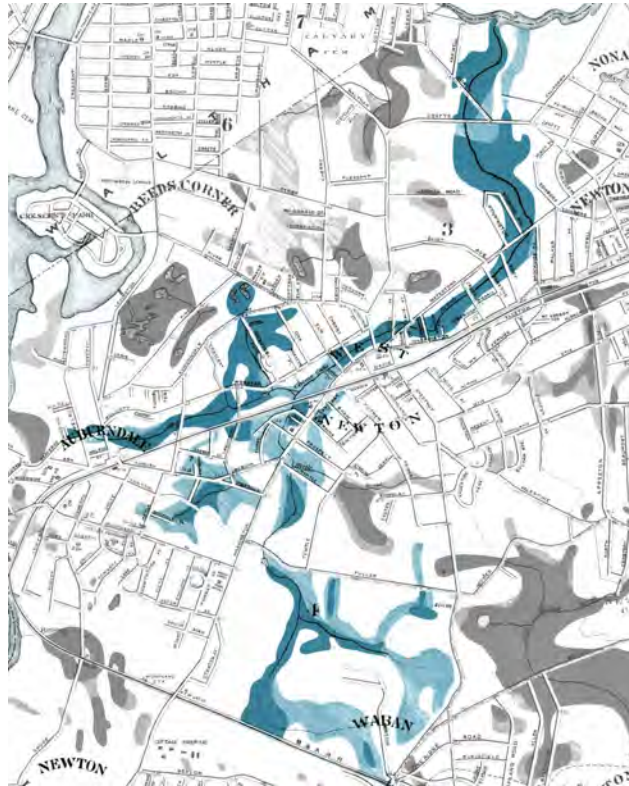


Restored Landscape at Fernald

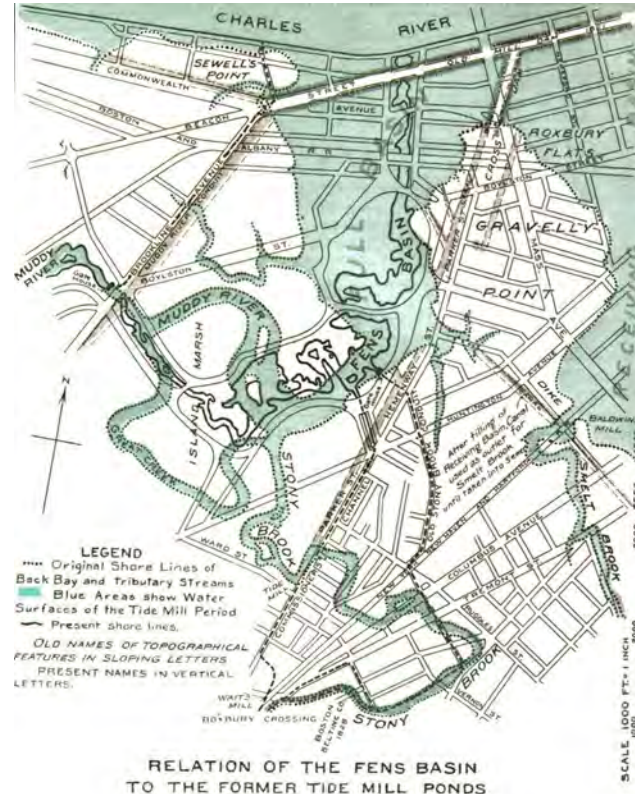
CRWA Stream Restoration Initiatives



Canterbury Brook, 1893



Cheesecake Brook, 1892



Muddy River

Canterbury Brook

- Only daylit portion of Stony Brook watershed
- Section of stream runs through Mass Audubon's Boston Nature Center (old Boston State Hospital site)
- Located in EJ neighborhood
- We will engage community & produce conceptual-level engineering designs for restoration



Canterbury Brook in Drought



BNC Wetland

Cheesecake Brook

Visioning process in 2020

Proposed:

- Bank Restoration
- Increased Sinuosity
- Bioretention
- Tributary Daylight
- Rock Vane at Charles Confluence
- Pedestrian & Traffic Improvements

North Albemarle Road Cheesecake Brook Restoration



Rendering of Part of Restoration

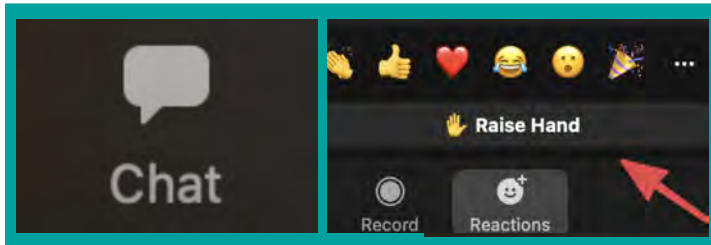
2023-2024 Goal: Incorporate parts of vision into City development & transportation plans

Muddy River



Aerial of Muddy River Restoration Area

- Most polluted tributary in watershed
- Receiving water quality grades D- to C-
- Major restoration project by Army Corps in Emerald Necklace
- Water quality still impaired
- CRWA will lead a visioning process in Muddy River Watershed to improve water quality over next 50-100 years



**Please submit questions
through the chat, or
raise your hand!**

LEARN MORE >
crwa.org/stream-restoration



Stay Connected!

Email

charles@crwa.org

River Current Newsletter

crwa.org/river-current

Lisa Kumpf, CRWA


lkumpf@crwa.org

Robert Kearns, CRWA

rkearns@crwa.org



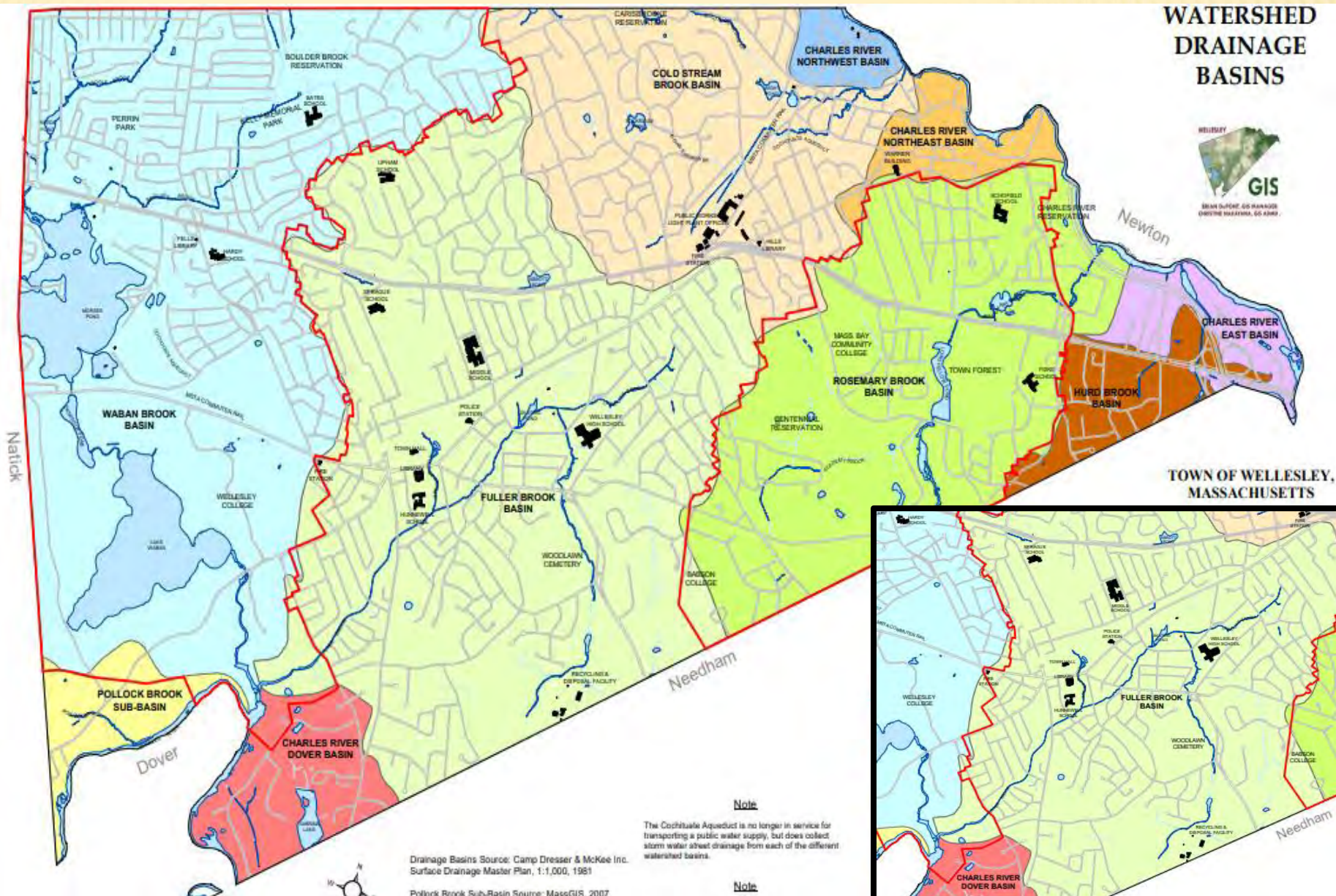
Fuller Brook Park Preservation Project



BROOK PATH
FULLER BROOK PARK
TOWN OF WELLESLEY



WATERSHED DRAINAGE BASINS

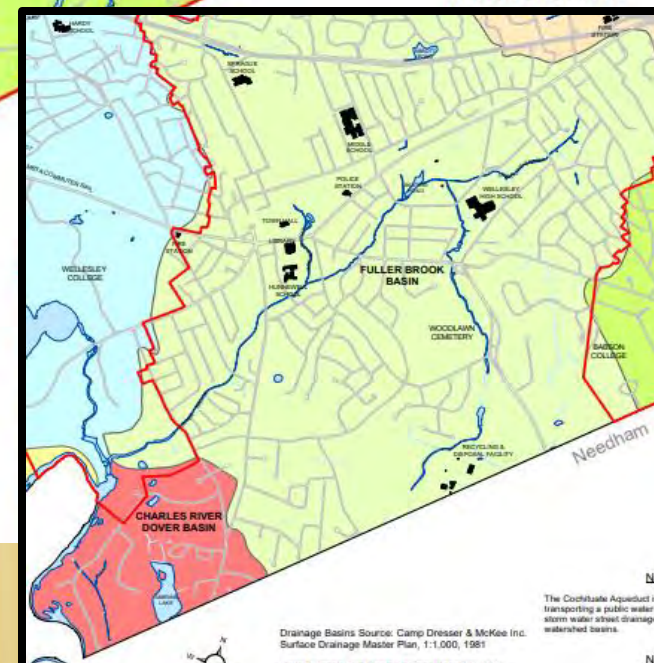


TOWN OF WELLESLEY, MASSACHUSETTS

Drainage Basins Source: Camp Dresser & McKee Inc. Surface Drainage Master Plan, 1:1,000, 1981
 Pollock Brook Sub-Basin Source: MassGIS, 2007

Note
 The Cochituate Aqueduct is no longer in service for transporting a public water supply, but does collect storm water sheet drainage from each of the different watershed basins.

Note



Drainage Basins Source: Camp Dresser & McKee Inc. Surface Drainage Master Plan, 1:1,000, 1981
 Pollock Brook Sub-Basin Source: MassGIS, 2007

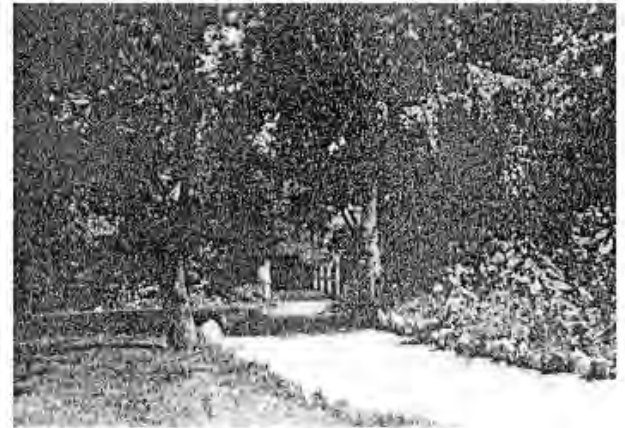
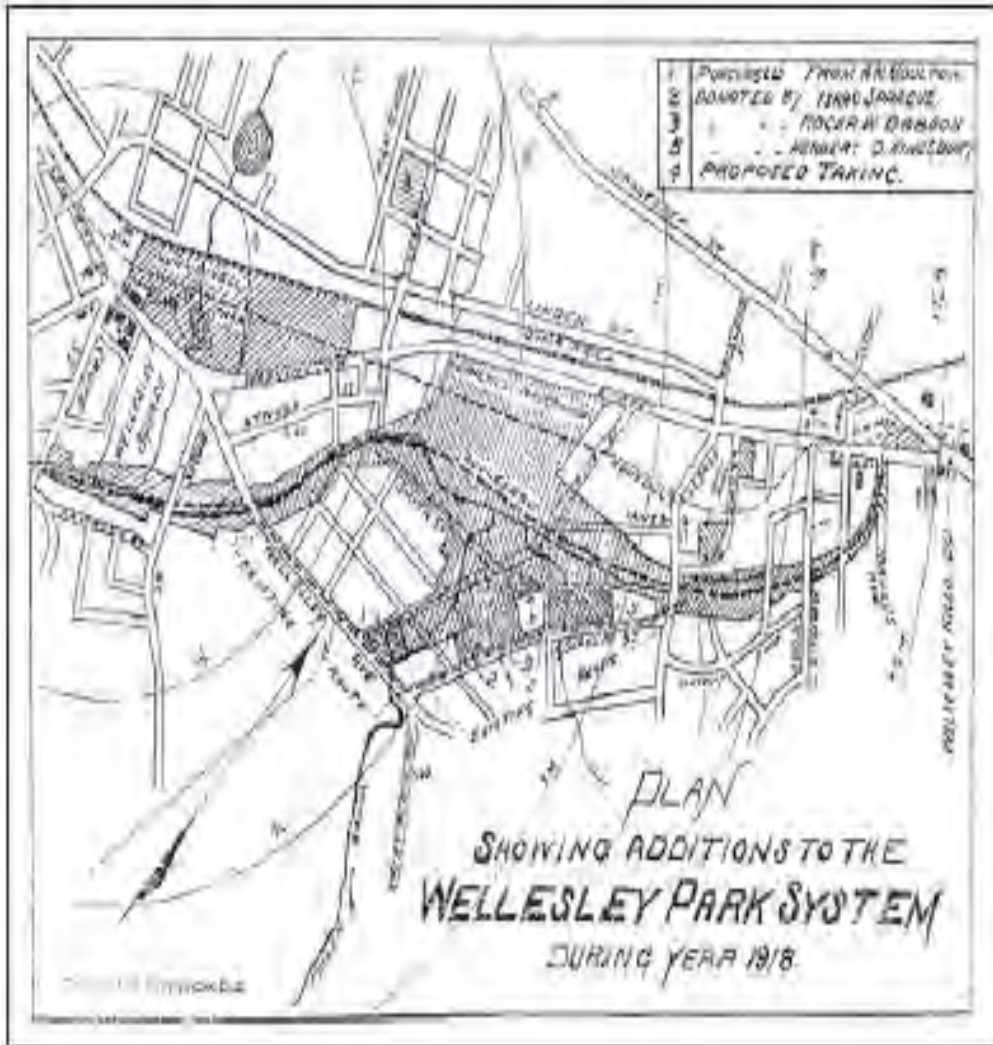
Note
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Note

OUTLINE

- × Project History
- × Project Goals
- × Trails, Pathway, Historic Features
- × Stream Restoration

PARK HISTORY





BEFORE: Pre-construction view of Fuller Brook near Grove Street, 1958. (NRC files)

1958, 1958, 1958, 1958

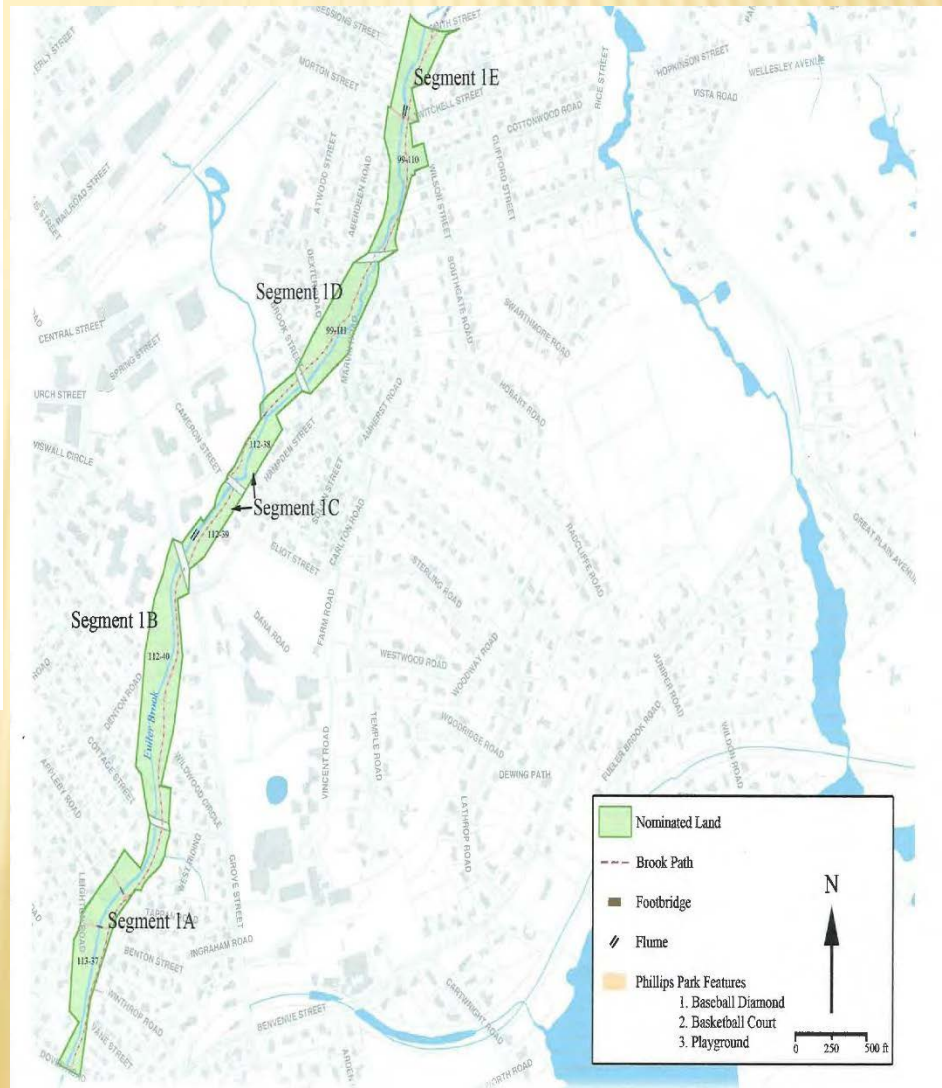
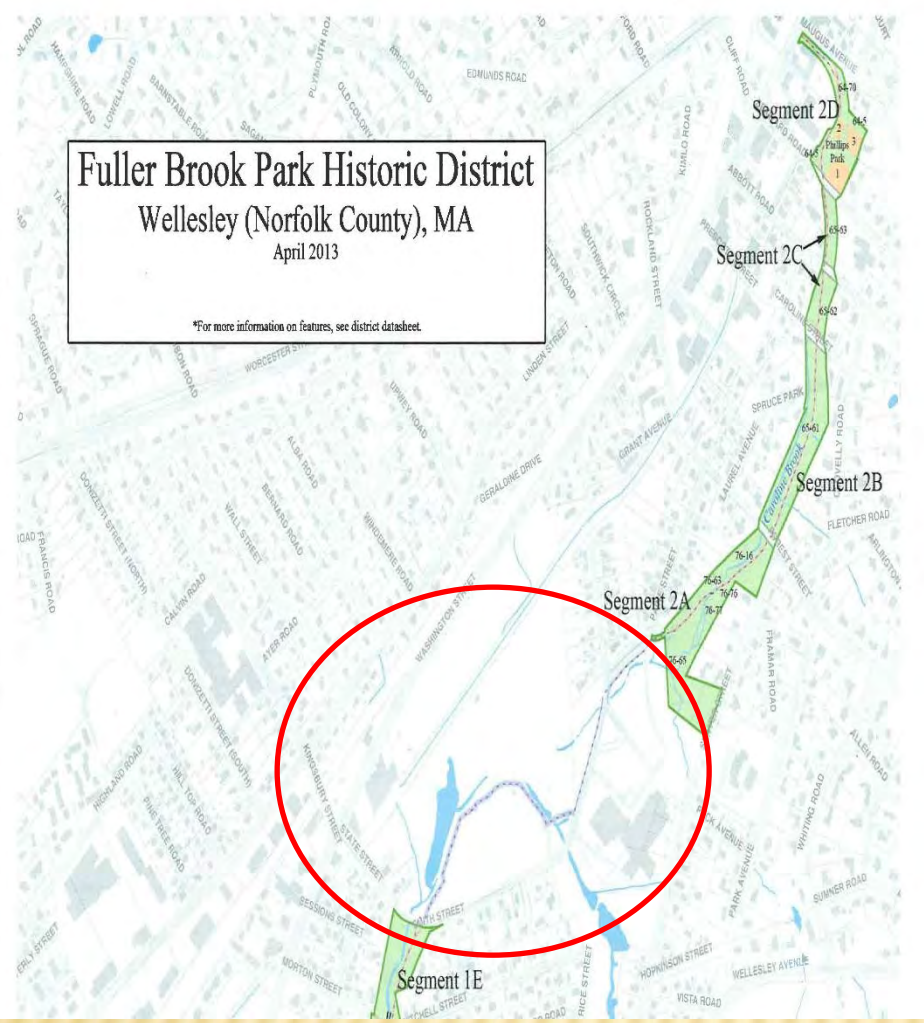


Fuller Brook Park Historic District

Wellesley (Norfolk County), MA

April 2013

*For more information on features, see district dataset.



PROJECT FUNDING TIMELINE

History

- ✘ . Initiated in 2003, CPA funded 50K in 2003 for the Master Plan. Master Plan was completed in 2009.
- ✘ Cultural Landscape report was written and submitted for National Register of Historic Places.
- ✘ Park Design was funded by the CPA in 2010 ATM. FBP Coordinating Committee formed, preliminary design was finished in Jan. 2011.
- ✘ Demonstration path completed in 2011 with \$23,000 from CPA.
- ✘ Final design/permitting \$665,000 in CPA funds. Appropriated at 2011 STM
- ✘ Final design and permitting was completed in 2013.
- ✘ Addition of State St pond dredging, \$35,000 in CPA funds approved in 2013 STM

Construction and Project Management

- ✘ 2014 ATM appropriates \$5,470,205 for construction and hires Peter Jackson as the project manager.
- ✘ Began in Summer 2014, completed 2017.

Post Construction

- ✘ \$550,000 for 1-5 years, including \$15,000 per year for invasive species management.

PROJECT GOALS

- Improve the Pathway
- Improve Vegetation
- Maintain Historic Features
- Improve Drainage and Streamcourse

TRAILS IMPROVEMENTS

- **Improve the Trails: path below water table/surrounding land, erosion, poor drainage, accessibility problems (grades and curb cuts) or no curbs, undefined edges, unmarked street crossings and inauspicious entries, and variable path widths and locations. Bridge repair.**



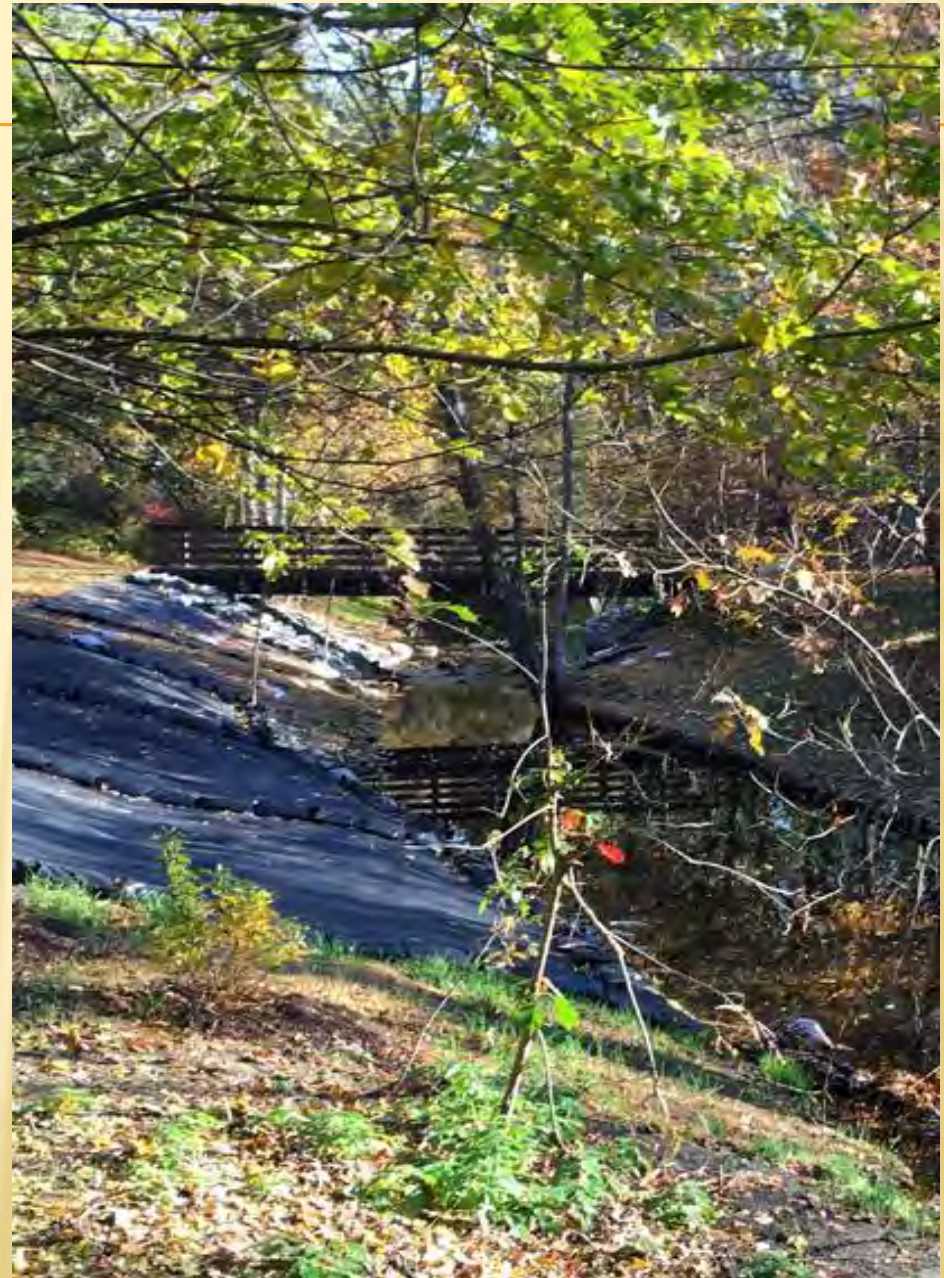
Existing narrow beaten footpath along the chain-link fence and fir hedge bordering the football field in Segment 3.













VEGETATION MANAGEMENT

- **Improve Vegetation: Invasive Control (Japanese Knotweed, Norway Maple, Bittersweet) Ailing or Injured Trees**
- **Plant New Native Species**



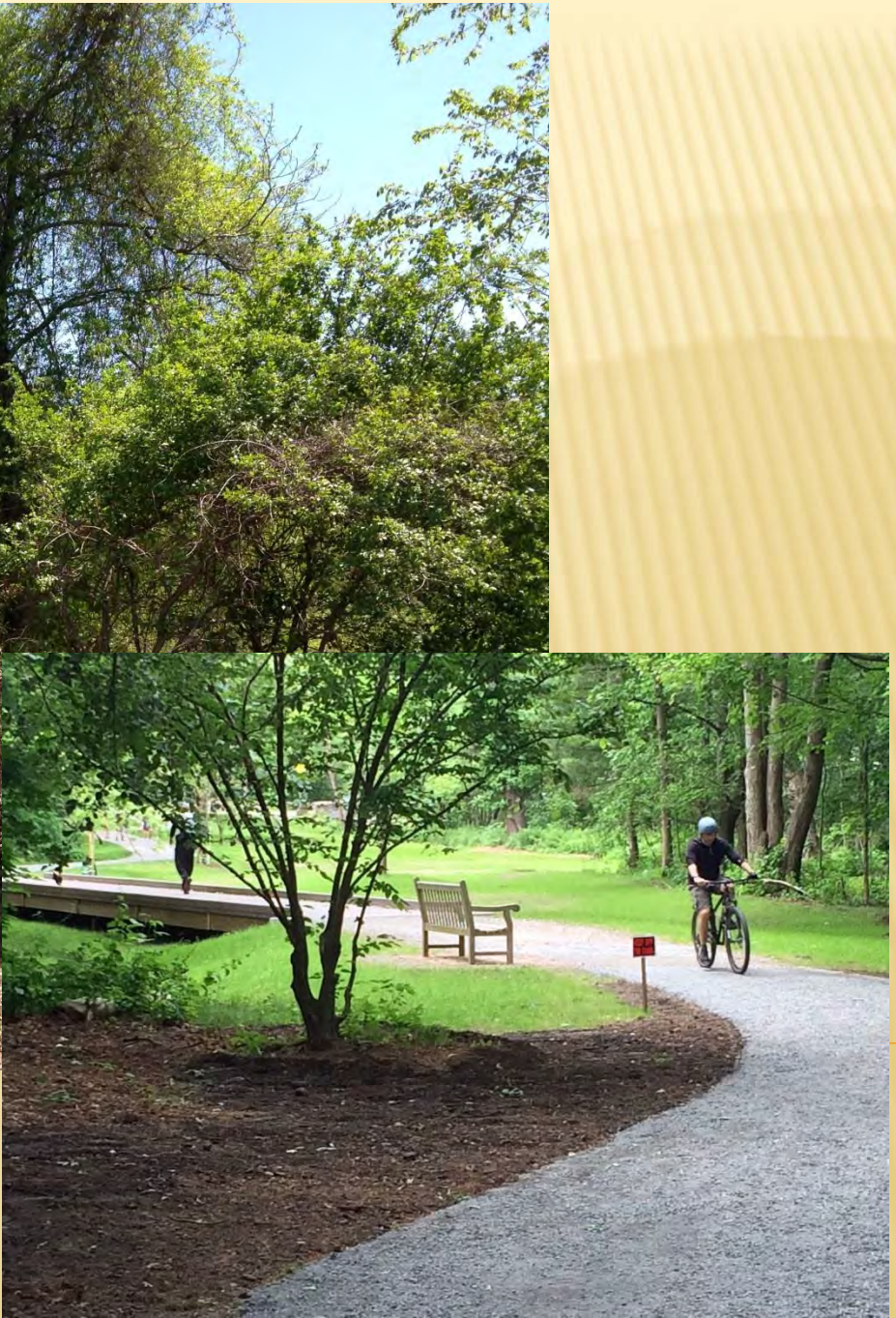












STREAM RESTORATION

- **Improve Stream course: Invasive Plants, Erosion control and bank stabilization, derelict Stream liner removal and sediment removal**









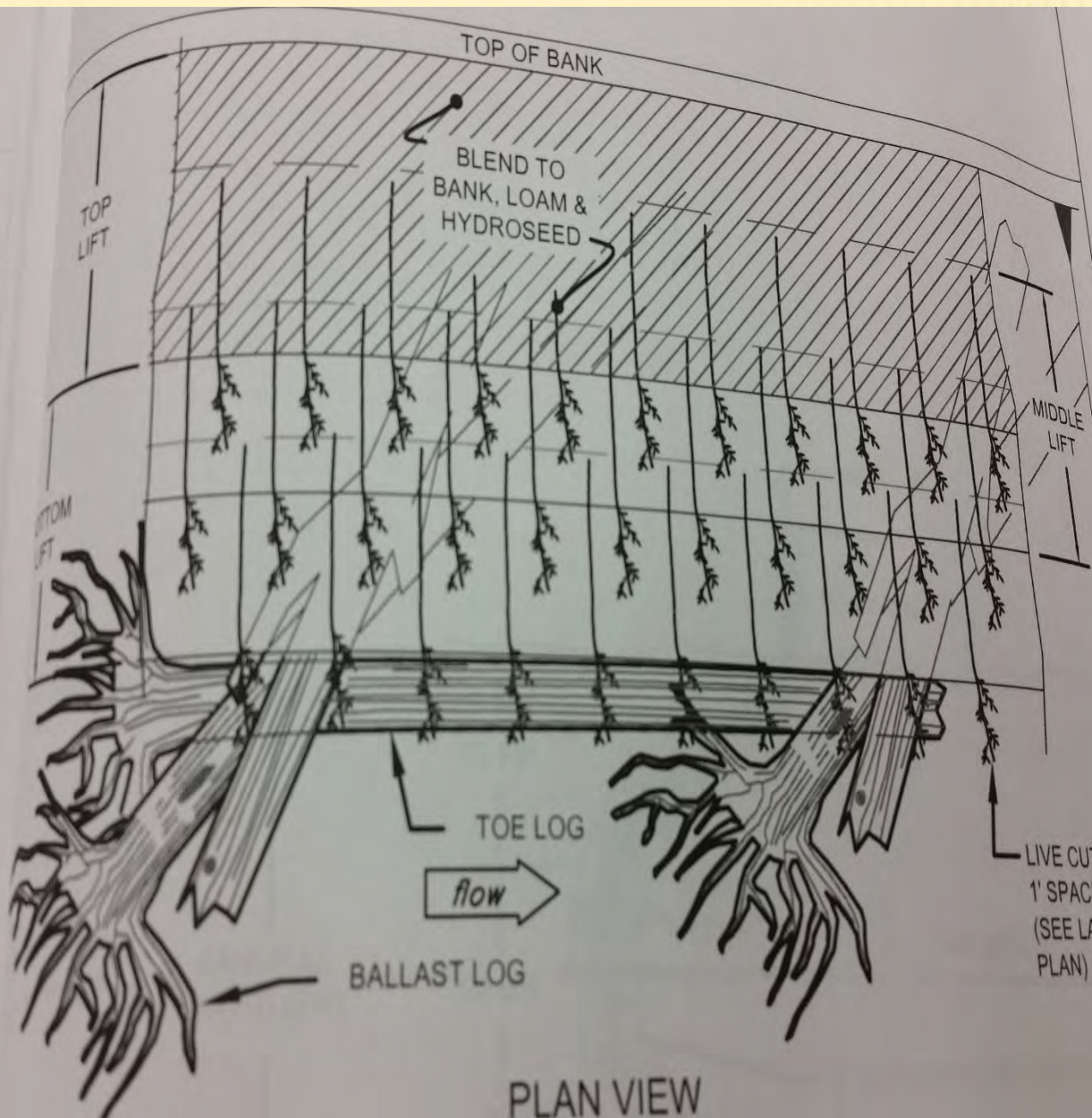
UPPER CAROLINE BROOK











PLAN VIEW

18'-24' LONG, R
LOG (SEE SP

ORDINARY
HIGH WATER

LOG AND FO
STONES KE
INTO STAB
BANK SEC
(8'-10' MIN

CABLE
18'-
L

LIVE CUTTINGS,
1' SPACING
(SEE LANDSCAPE
PLAN)

ORDINA
HIGH W

















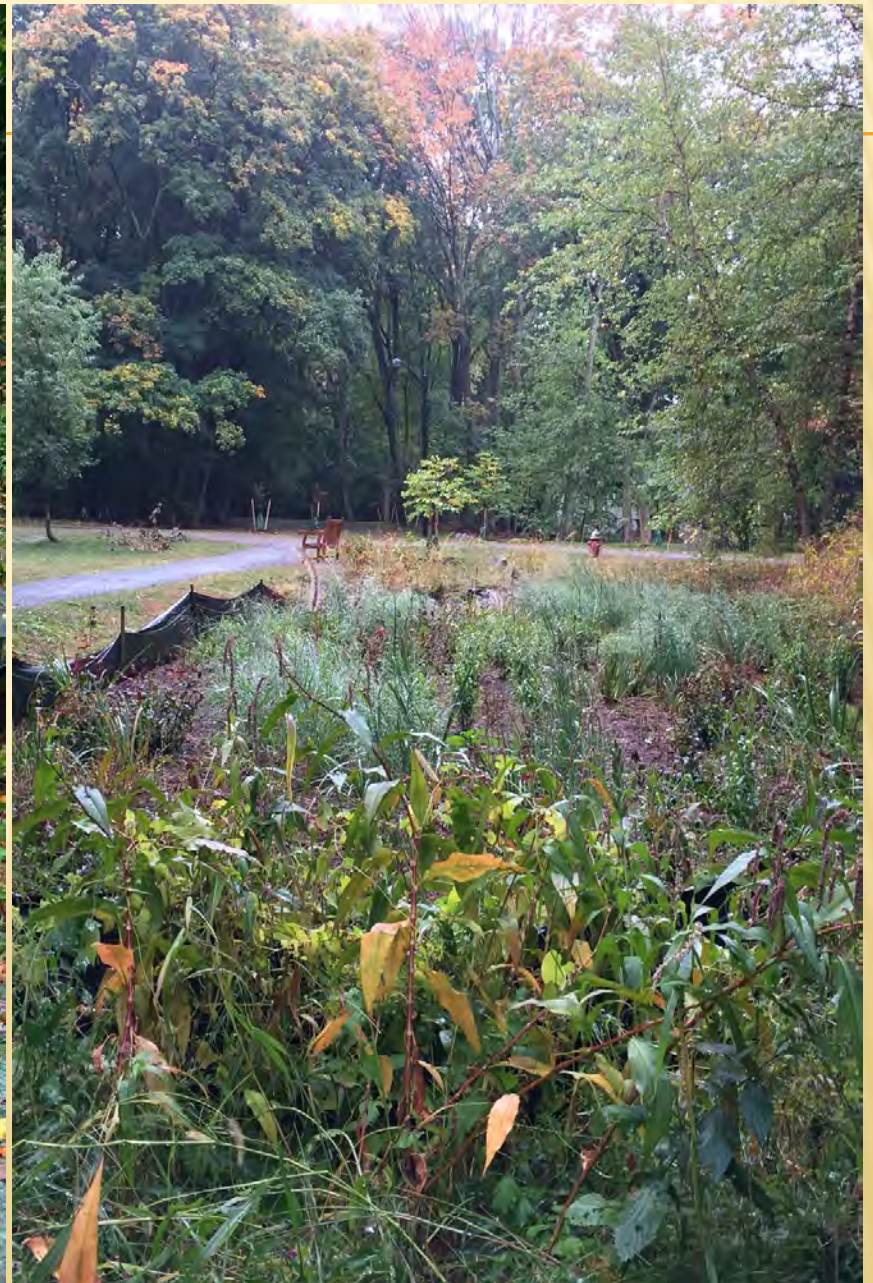


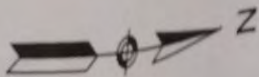
BIO-RETENTION BASIN











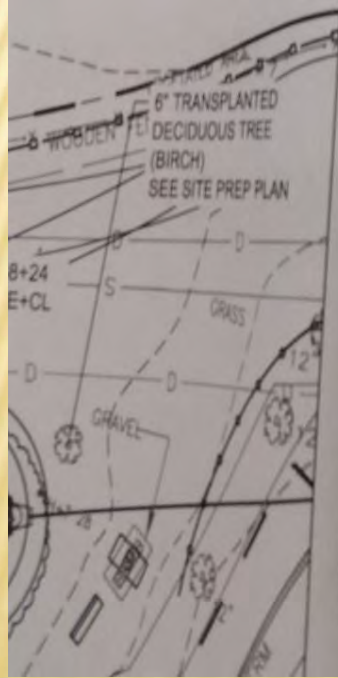
Bioretention Area 2 Planting Schedule

Key		Botanical Name	Common Name	Size	Spacing
Shrubs					
CA	8	<i>Clethra alnifolia</i>	White Summer Sweet	#7	5' O.C.
CSB	10	<i>Comus sericea</i> 'Bailey'	Bailey Red Twig Dogwood	#3	5' O.C.
IGC	13	<i>Ilex glabra</i> 'Compacta'	Compact Inkberry	#5	5' O.C.
IVSG	1	<i>Ilex verticillata</i> 'Southern Gentleman'	Southern Gentleman Winterberry	#5	6' O.C.
IVWR	5	<i>Ilex verticillata</i> 'Winter Red'	Winter Red Winterberry	#5	6' O.C.
ITV	11	<i>Itea virginica</i>	Virginia Sweetpire	#3	4' O.C.
VD	1	<i>Viburnum dentatum</i>	Arrowwood Viburnum	#7	5' O.C.
VDBM	4	<i>Viburnum dentatum</i> 'Blue Muffin'	Blue Muffin Arrowwood Viburnum	#7	5' O.C.
Ground Cover/Grasses/Perennials					
AH	80	<i>Amsonia hubrichtii</i>	Thread-leaf Bluestar	#1	24" O.C.
ANA	66	<i>Aster novae-angliae</i>	New England Aster	#1	18" O.C.
AFF	66	<i>Athyrium filix-femina</i>	Common Ladyfern	#1	18" O.C.
CLC	277	<i>Carex laxiculmis</i>	Spreading Sedge	plugs	18" O.C.
CPL	226	<i>Carex platyphylla</i>	Silver Sedge	plugs	18" O.C.
CL	136	<i>Chasmanthium latifolium</i>	Indian Woodoats	#1	30" O.C.
DCG	118	<i>Deschampsia cespitosa</i> 'Goldtau'	Goldtau Tufted Hair Grass	#1	24" O.C.
HADS	216	<i>Heuchera americana</i> 'Dale's Strain'	Dale's Strain Coral Bells	plugs	18" O.C.
HMAB	61	<i>Heuchera macrorrhiza</i> 'Autumn Bride'	Autumn Bride Coral Bells	plugs	18" O.C.
IVE	175	<i>Iris versicolor</i>	Blue Flag	#1	24" O.C.
JE	208	<i>Juncus effusus</i>	Soft Rush	#1	18" O.C.
LC	208	<i>Lobelia cardinalis</i>	Cardinal Flower	#1	18" O.C.
PD	208	<i>Penstemon digitalis</i>	Beardtongue	#1	18" O.C.
TCG	51	<i>Tradescantia</i> 'Concord Grape'	Concord Grape Spiderwort	#1	18" O.C.

SEE TYPICAL PERMANENT FABRIC INSTALLATION DETAIL FOR FABRIC INSTALLATION



- NOTES:
1. CUT THE FABRIC TO FIT THE ROOTBALL.
 2. FOLD FABRIC OVER THE ROOTBALL.
 3. DIG THE HOLES FOR THE PLANTS.
 4. AFTER PLANTING, COVER THE FABRIC TO SECURE IT.



STATE STREET POND DREDGING



STATE STREET POND







Questions?



Contact

✘ Brandon Schmitt

✘ bschmitt@wellesley.ma.gov

✘ www.wellesley.ma.gov/NRC

Fernald Stream Restoration

Charles River Watershed Association

April 14, 2023

Bill Doyle, PE

Founding president of C1.0 Engineering & Development, more than thirty years' experience in land planning, construction, and civil engineering with emphasis on site and utility design, onsite wastewater treatment, construction administration and innovative and alternative stormwater management. Bill has provided planning, permitting, engineering design and consulting services for large- and small-scale development and infrastructure-related improvements throughout the United States and over seas.

Bill specializes in providing sustainable site design and consulting, stormwater master planning, utility design, and environmental permitting for commercial, institutional and residential projects.

Bill has a long history of practical construction experience and is a Registered Professional Engineer in Massachusetts, and Maine. Bill is a LEED Accredited Professional. Bill is passionate about community involvement and has, among other boards, commissions and groups; been a Waltham Conservation Commissioner for over 18 years.



The Property

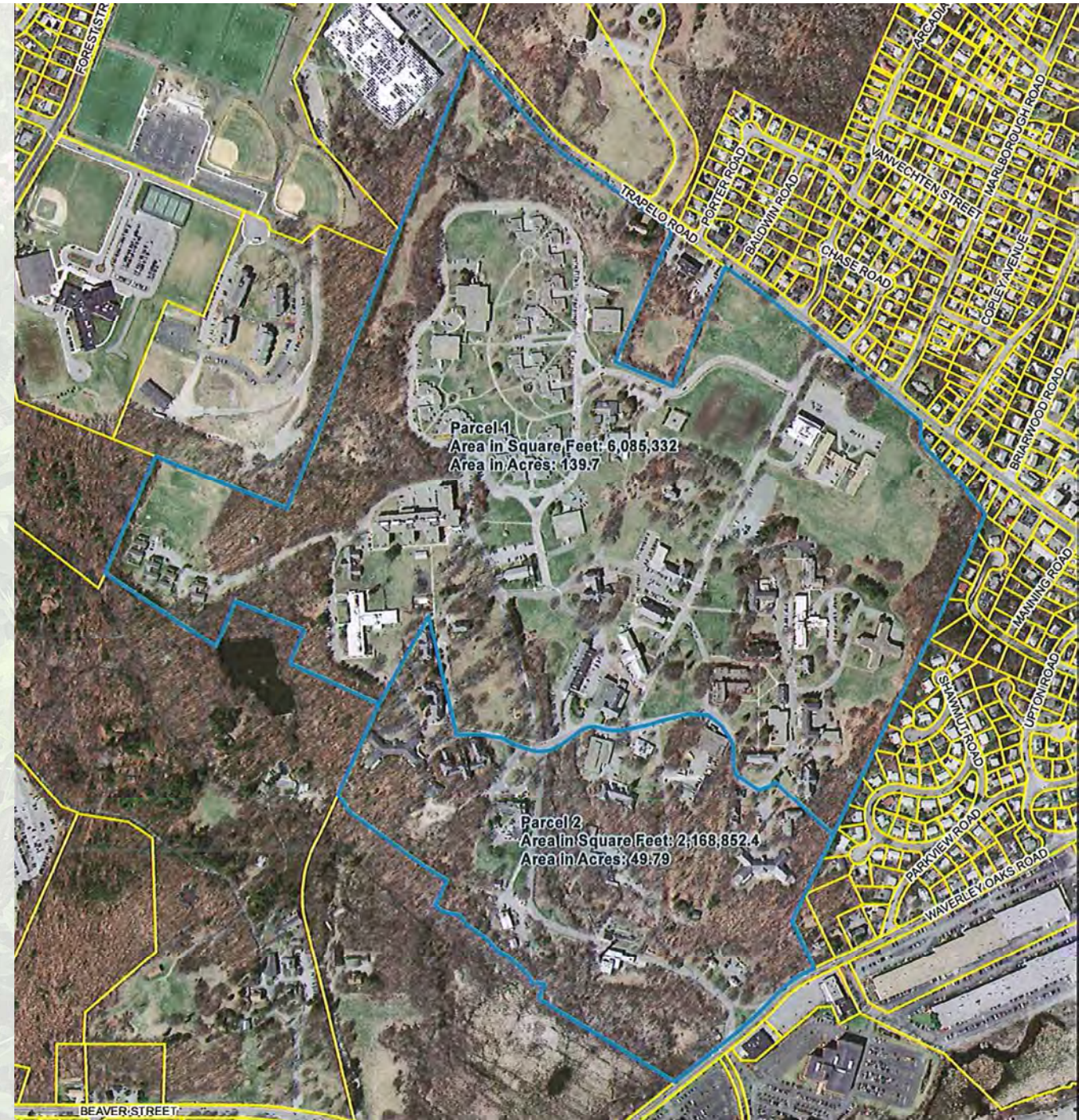
- 200 acres
- State owned mental health hospital
- Drains to Beaver Brook
- Contiguous to Waltham open space
- Contiguous to Bentley and Girl Scouts
- Wooded, lawn, roads and buildings

My career as a consulting engineer, working with DCAM over the years in decommissioning hospitals across the state



What we know

- Infrastructure information
- Wetlands and Rivers
- Flooding in eastern Waltham / Beaver Brook
- Lots of buildings and lots of open space
- State operated and maintained
- Contaminants
- CPA dollars and City dollars



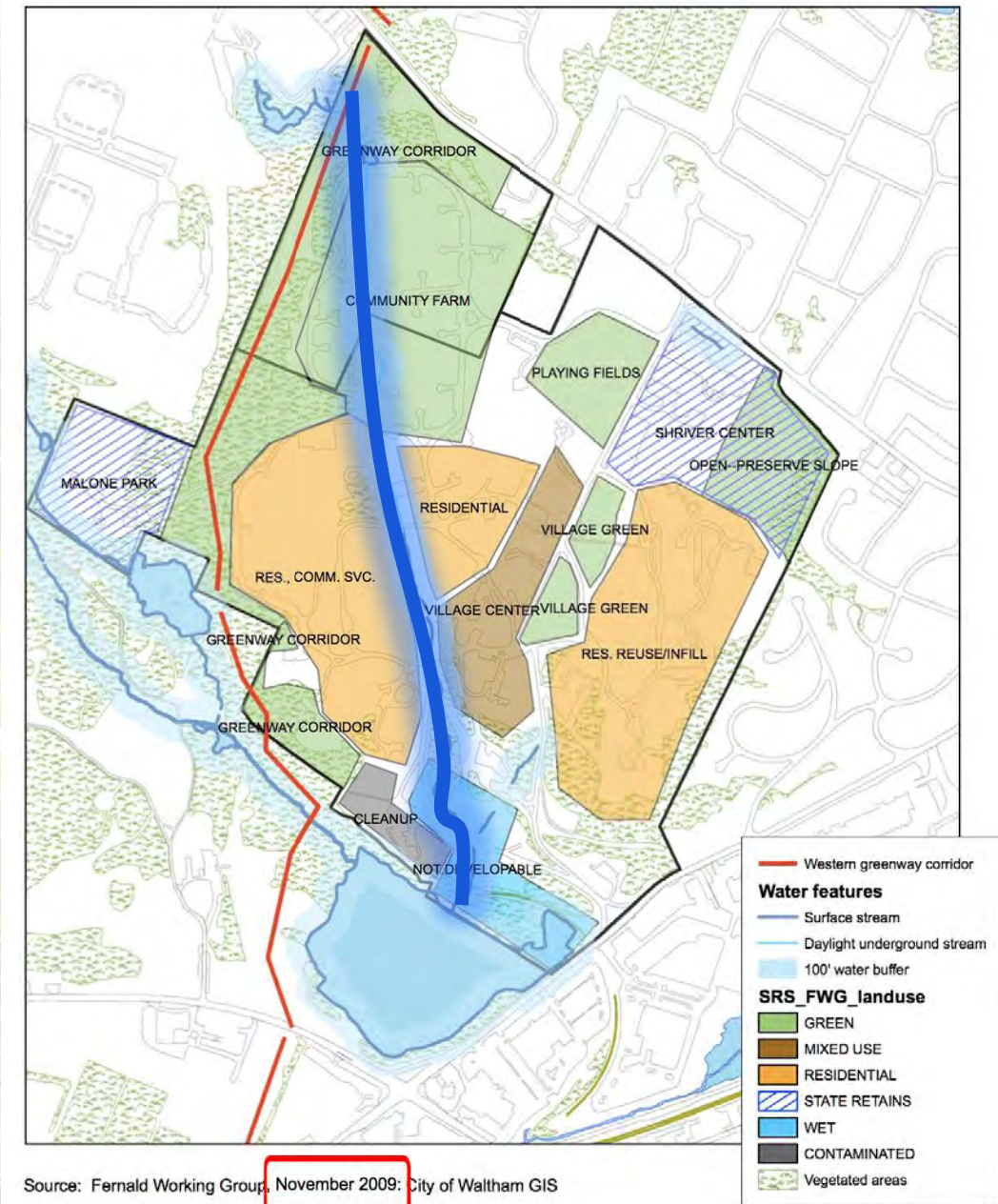
The Ideas

- Parks, housing, municipal offices, recreation, farming, cemetery....
- Master planning
- Natural recourses
- Water quality
- Flood mitigation
- Conservation
- Connectivity
- Amenity
- Outreach

- Stream

<https://fernaldworkinggroup.org>

Fernald Center (Waltham, MA)
Fernald Working Group Vision proposed uses by sector



Start

- Build history
- Discontinue utilities
- Demolish buildings
- Clean up land
- What do we build.....
.....consensus!



Consensus

The City of Waltham



Invites
Interested Parties
To propose the best offer and or bid
For the service or product herewith described:

FERNALD REHABILITATION, WET LAND STUDY.

Bid due date: Wednesday October 15, 2014 at 10:00AM

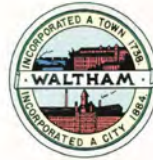
Site visit and project briefing: Wednesday October 8, 2014 at 10:00AM
(Meet at the front entrance of the Fernald facility: 200 Trapelo Rd., Waltham)

Phone: 781-314-3244, Fax: 781-314-3245

Page 1 of 32

WALTER E. FERNALD DEVELOPMENTAL CENTER WETLANDS RESTORATION & STREAM DAYLIGHTING NOTICE OF INTENT FILING

WALTHAM, MA



MAYOR
JEANNETTE A. MCCARTHY
CITY ENGINEER
STEPHEN A. CASAZZA, P.E.



LIST OF DRAWINGS

EX-1	EXISTING CONDITIONS PLAN
L-1	LAYOUT PLAN I
L-2	LAYOUT PLAN II
L-3	LAYOUT PLAN III
C-1	GRADING PLAN I
C-2	GRADING PLAN II
C-3	GRADING PLAN III
LA-1	LANDSCAPE PLAN I
LA-2	LANDSCAPE PLAN II
LA-3	LANDSCAPE PLAN III
LA-4	PLANTING SCHEDULE
P-1	STREAM PROFILE
S-1	CROSS SECTIONS I
S-2	CROSS SECTIONS II
D-1	DETAILS I
D-2	DETAILS II
D-3	DETAILS III

FEBRUARY 2019

FOR PERMITTING PURPOSES ONLY



Creation

- Stream
- Incubator
- Sequester-er
- Flood control
- Amenity
- Resource
- Conservation
- Connection
- Habitat



April 14, 2023

Fernald Stream Restoration - CRWA

Creation

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April 14, 2023



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April 14, 2023

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April 14, 2023

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