

NEWEA 2016 Annual Conference Boston, MA

**The Final Link in MWRA's Long-term CSO
Control Plan for Alewife Brook**



Massachusetts Water Resources Authority

January 2016

Overview

1 Long-term CSO Control Plan

2 Alewife Brook Project

a Planning

b Design

c Construction



MWRA's mission is to provide reliable, cost-effective, high-quality water and sewer services that protect public health, promote environmental stewardship, maintain customer confidence, and support a prosperous economy.



Continuing MWRA's Mission

MWRA is currently developing the CSO Post Construction Compliance Monitoring.

- System Inspections
- Flow Metering
- System Modeling
- CSO Performance Assessment
- Reporting (by December 2020)



Alewife Brook Project Locus

- Two outfalls on Alewife Brook
 - SOM01A
 - MWR003



Project Phases

SOM01A & MWR003

- Planning » Hydraulic Modeling



SOM01A

- Design
- Construction



MWR003

- Design
- Construction



Hydraulic Modeling Approach

- Updated, calibrated and verified MWRA's North System hydraulic (InfoWorks) model
- Included pending projects to create Baseline
- Evaluated alternatives to meeting LTCP goals
 - Achieve balance between CSO control and hydraulic grade lines



LTCP Levels of Control for Alewife Brook

- **Reduce CSO activations from 63 to 7 in a typical year**
- **Reduce CSO volume from 50MG to 7.3MG in a typical year**



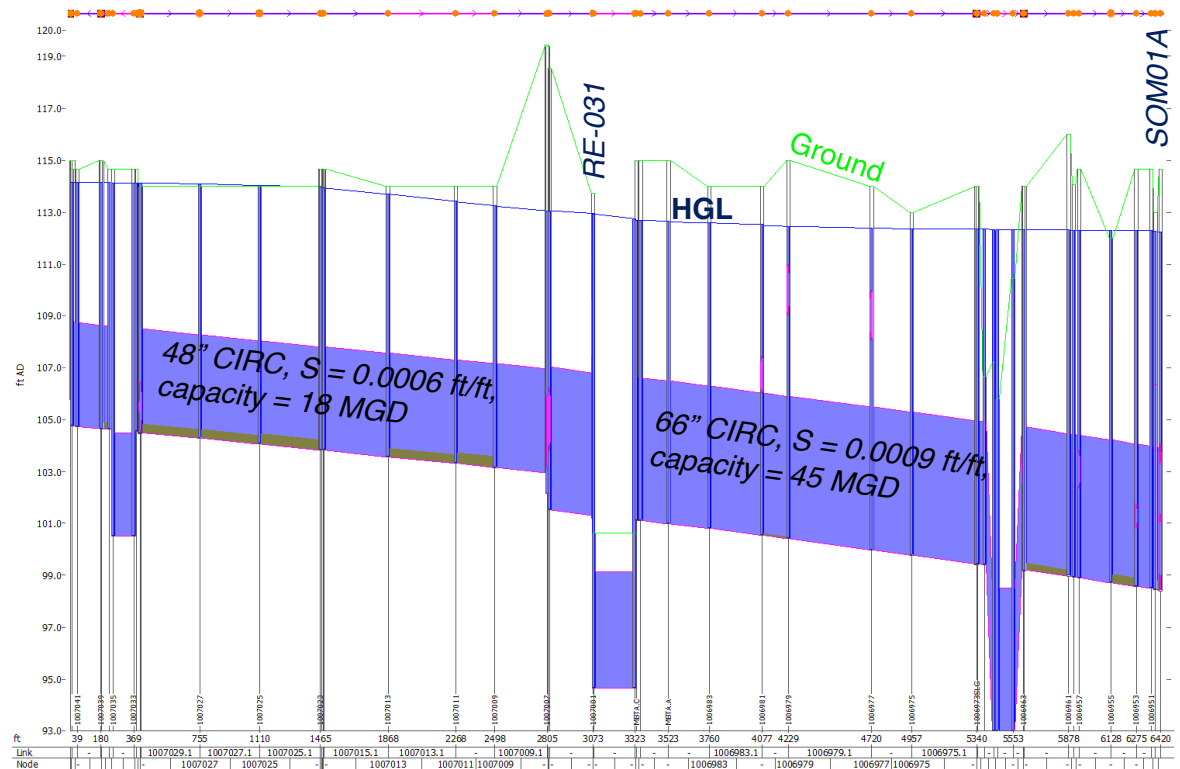
Final Variance Report for Alewife Brook and the Upper Mystic River EOE #10335 (July 2003)



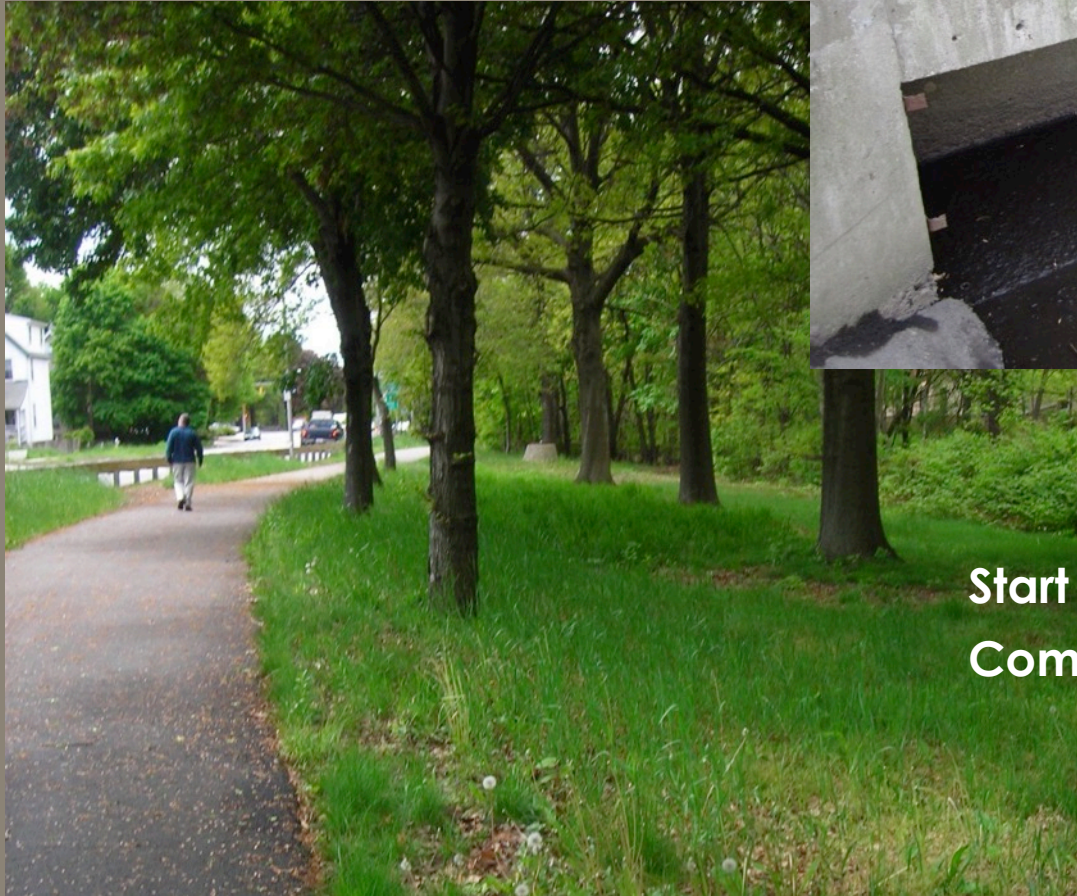
Hydraulic Modeling Highlights/Results

- Iterative process that focused first on system modifications at SOM01A and then added modifications at MWR003

- Recommended system modifications result in 6.3 MG, or ~1 MG less than the 7.3 MG goal



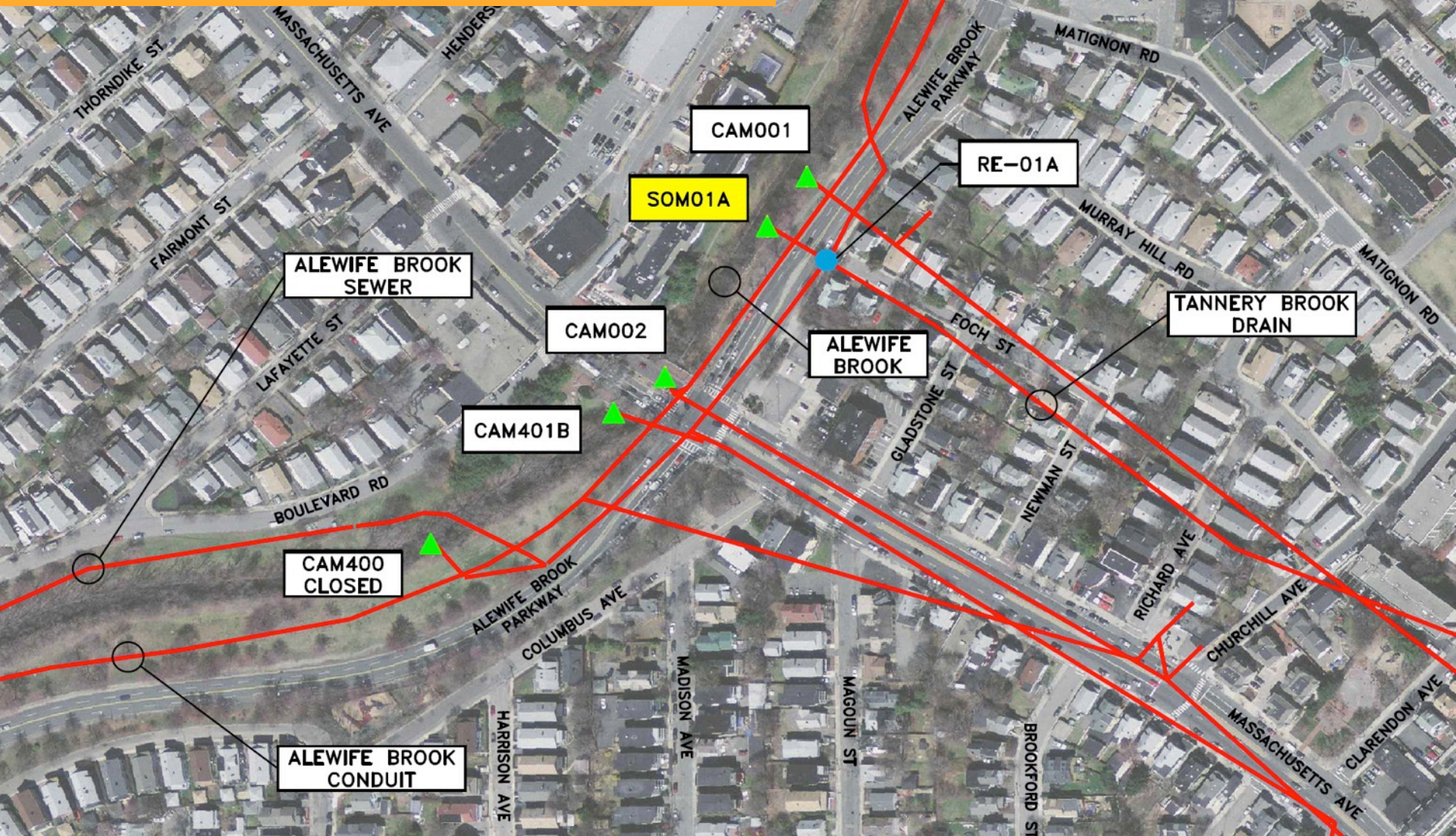
SOM01A

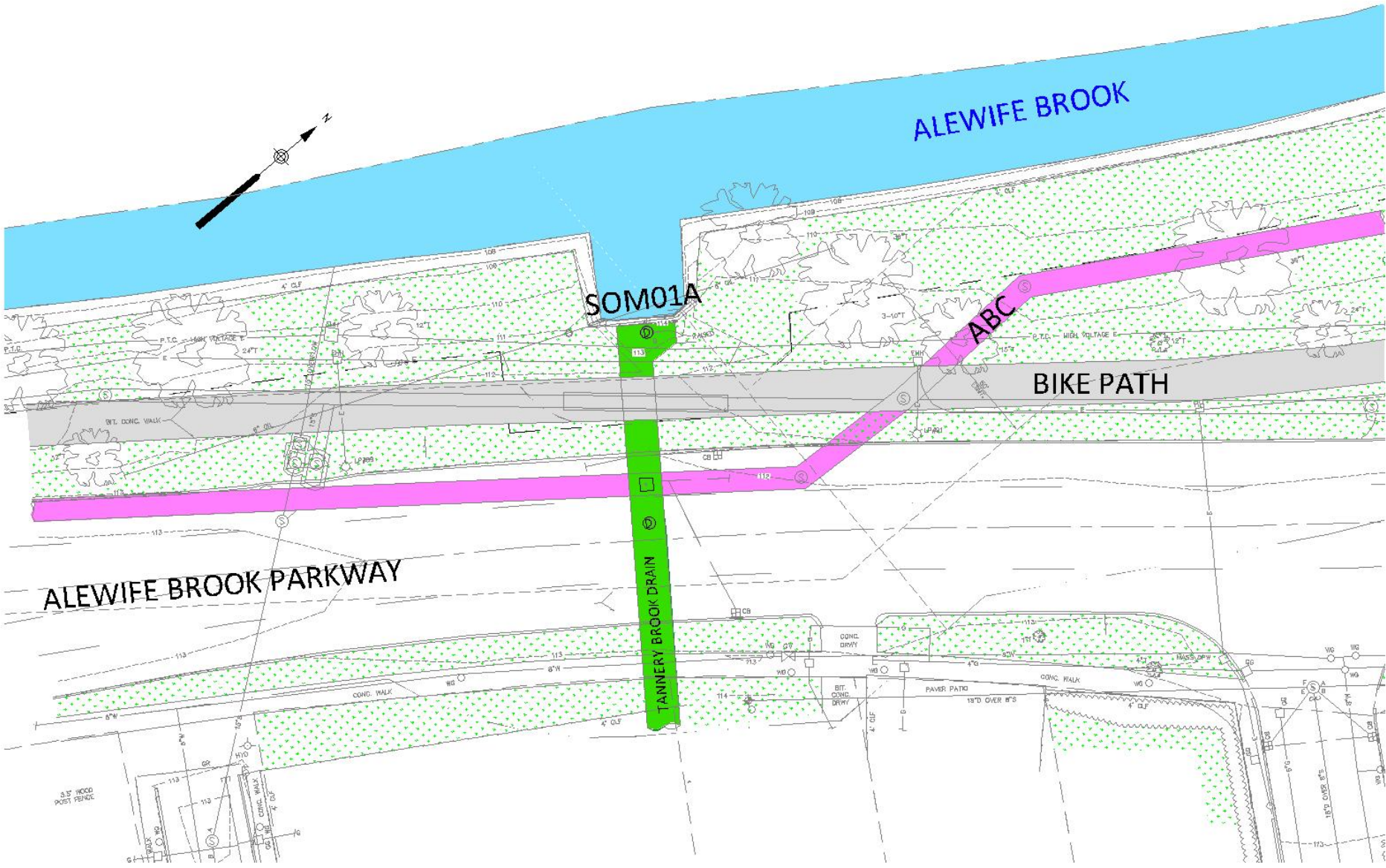


Start Construction by September 2013
Complete Construction by June 2014



Interceptor Connection Relief and Floatables Control at Outfall SOM01A





ALEWIFE BROOK

SOM01A

ABC

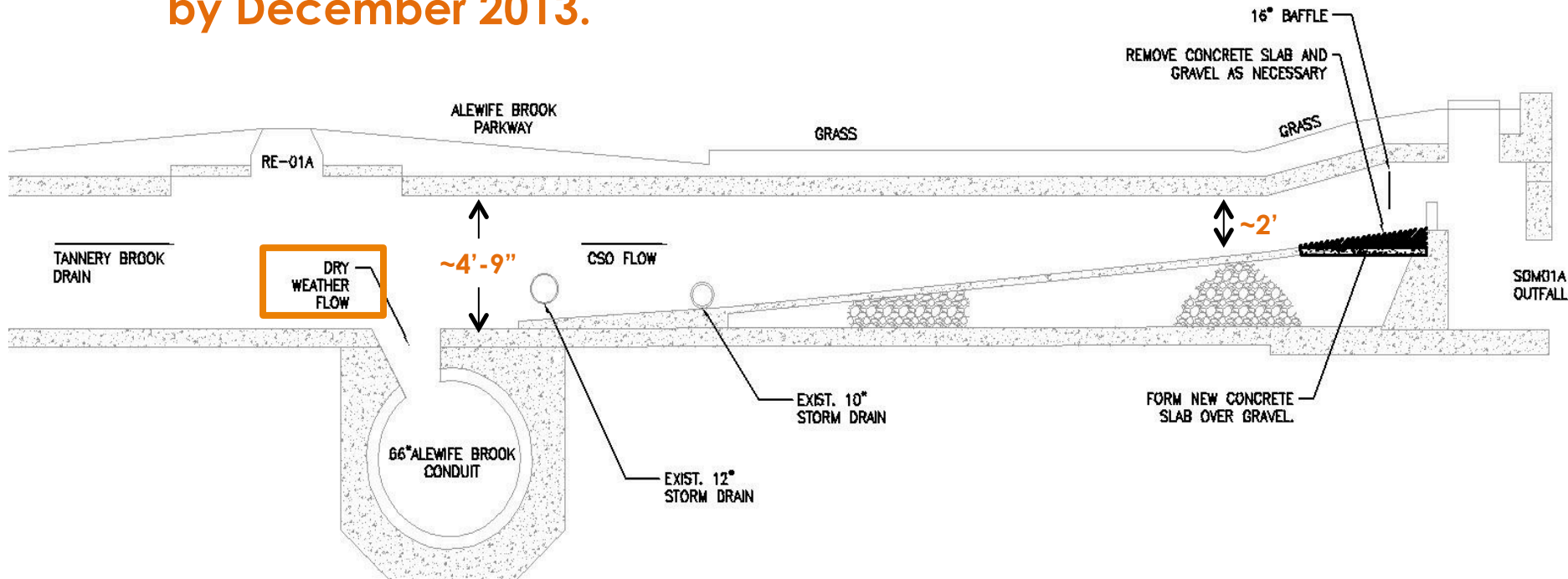
BIKE PATH

ALEWIFE BROOK PARKWAY

TANNERY BROOK DRAIN

SOM01A Recommended Plan

- Enlarge drop connection to Alewife Brook Conduit (ABC).
- Raise overflow weir.
- Install underflow baffle for floatables control.
- Underflow baffle and weir are adjustable for hydraulic performance flexibility.
- Construction began in September 2013 and was completed by December 2013.



Bid

R. Zoppo Corp. \$292,300

Bidder 2 \$334,500

Bidder 3 \$520,000

Final Construction

\$235,700





Debris Catcher Demo at Zoppo Yard

Debris Catcher





Debris Catcher in Action



Debris Caught





Overflow Weir



Working in the Drain



New Underflow Baffle and Adjustable Overflow Weir

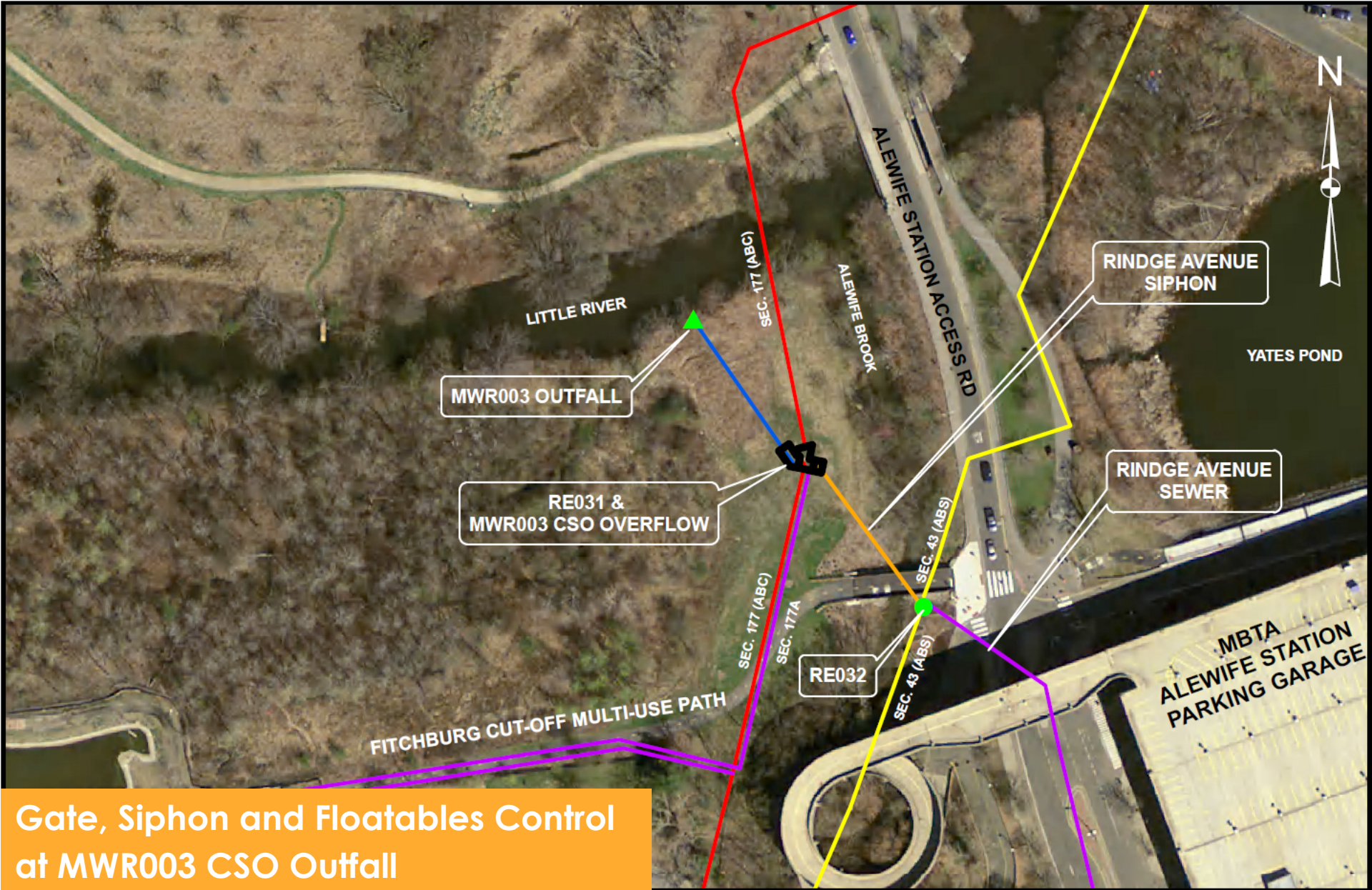
MWR003



Start Construction by August 2014

Complete Construction by October 2015





Gate, Siphon and Floatables Control at MWR003 CSO Outfall





RE031

RE032

Fitchburg Cutoff
Multiuse Path

RE032

DETOUR
←

ROAD CLOSED
FOR MAINTENANCE

NO MOTOR VEHICLES
PEDESTRIANS ONLY

DO NOT ENTER

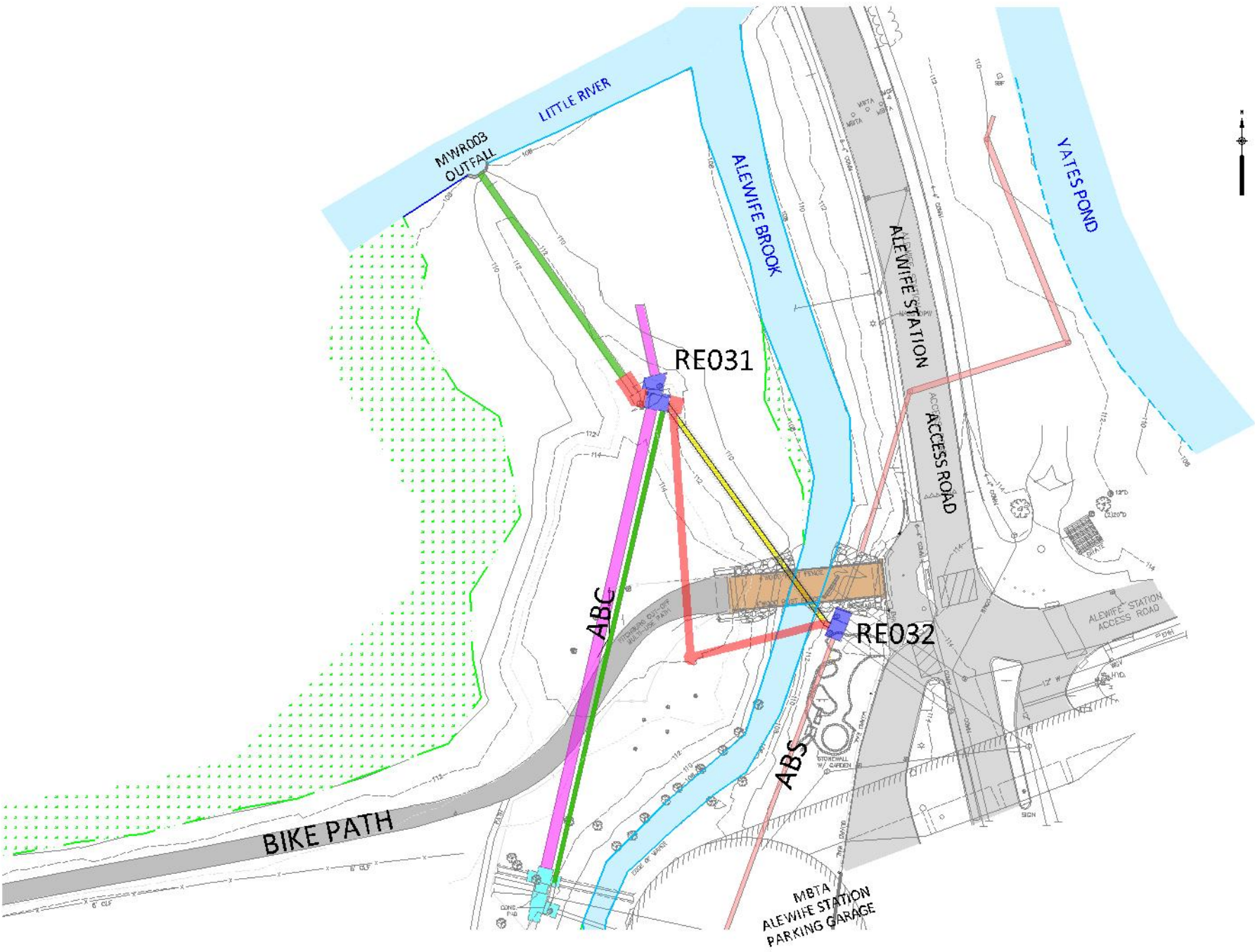
RE031



MWR003 Recommended Plan

- Abandon existing 30-inch Rindge Avenue Siphon and install new 48-inch siphon.
- Install underflow baffle in RE031 for floatables control.
- Install automated weir gate at RE031 to open during extreme storms.
- Install flap gate on outfall.
- Install stop log guides in RE032 at new 48-inch siphon inlet to allow for future adjustments, as needed.





Bid

P. Gioioso & Sons, Inc.	\$2.67M
Bidder 2	\$2.79M
Bidder 3	\$2.83M

Final Construction

\$2.57M





Staff Standing
on RE032



12/17/2014

Alewife Brook Crossing



Siphon Installation



Modifications to RE032



08.20.2015 09:21

Restored Bank



05-11-2010

At RE031
Looking Toward RE032



12/17/2014

Support of Excavation
At RE031



RE031 Exterior



Top View with Weir Gate and Underflow Baffle Wall

2015.08.26 12:03



Weir Gate

05.13.2015 14:55



Instrumentation



02.02.2015 06:46



02.10.2015 07:36



02.10.2015 07:33



02.20.2015 10:45

Questions?

