





**Reading Extension Sewer and Metropolitan Sewer Rehabilitation
Design, Construction Administration and
Resident Engineering/Inspection Services**

Stoneham/Woburn/Wakefield, MA

Contract 7163

July 15, 2015



Project Limits





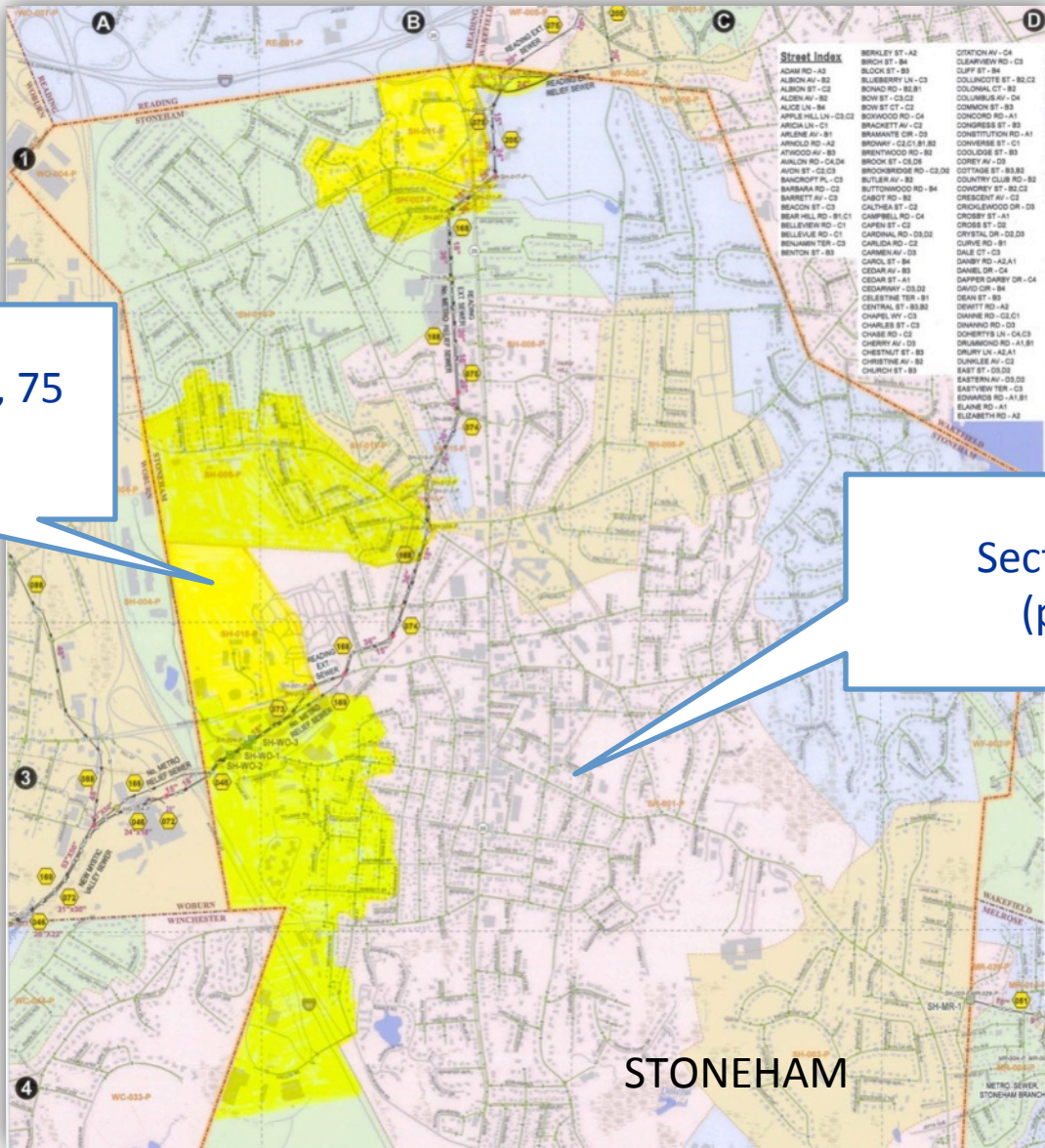
Original Construction



Construction of a Section of the Reading Extension Sewer (circa. 1919)
along Prospect Street near the Stoneham town line.



Stoneham Tributary Areas to MWRA



Sections 73, 74, 75
(yellow)

Section 46
(pink)

STONEHAM



Design Phase

- Pipeline/Manhole Rehabilitation Evaluation
- Traffic and Environmental Assessments
- Flow Diversion and Bypass Pumping Design
- Contract Design Documents (Plans & Specs)
- Bidding Services

Construction Phase

- Construction Administration
- Coordination with Municipalities and Agencies
- Resident Engineering and Inspection Services



Procurement Process

- 1 Step RFQP
- 3 Proposals
- Selection Committee Recommends Arcadis U.S., Inc.





Alewife Brook Pump Station Rehabilitation MWRA Contract 6797

July 15, 2015



Alewife Brook Pump Station - Location



Alewife Brook
Pump Station



East Elevation





West Elevation



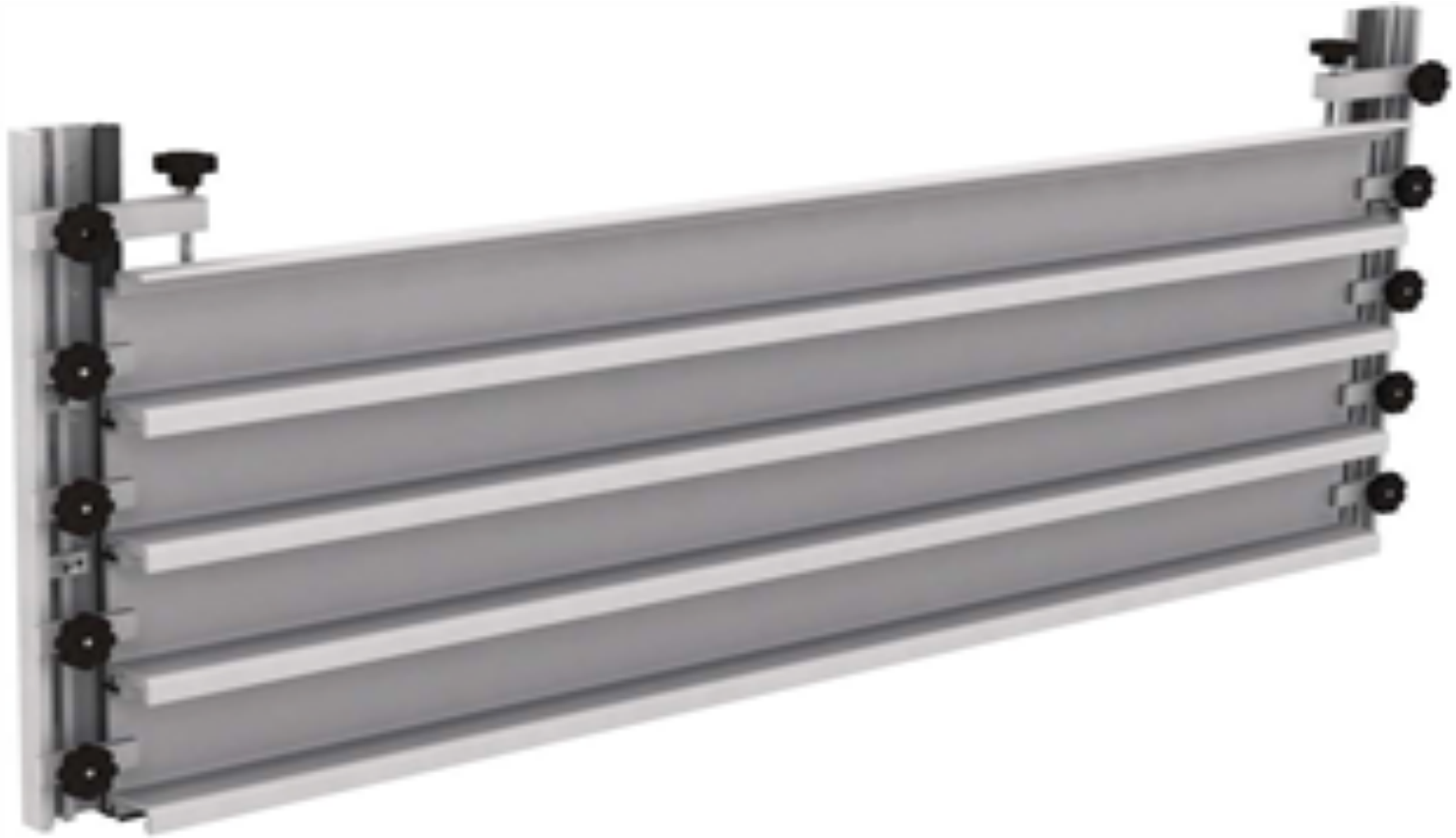


South Elevation



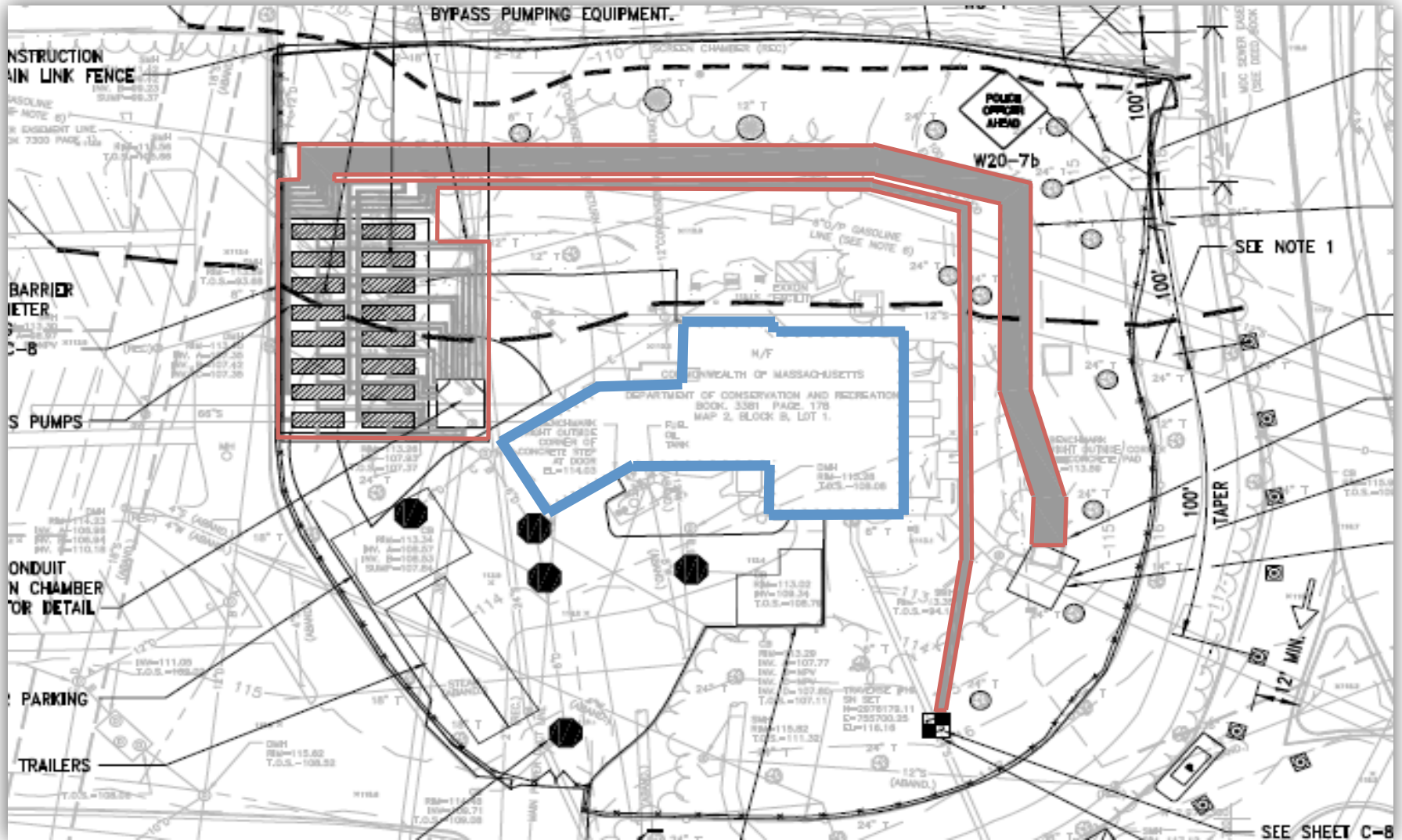


Flood Logs (typical)





Site Plan





Pump Room



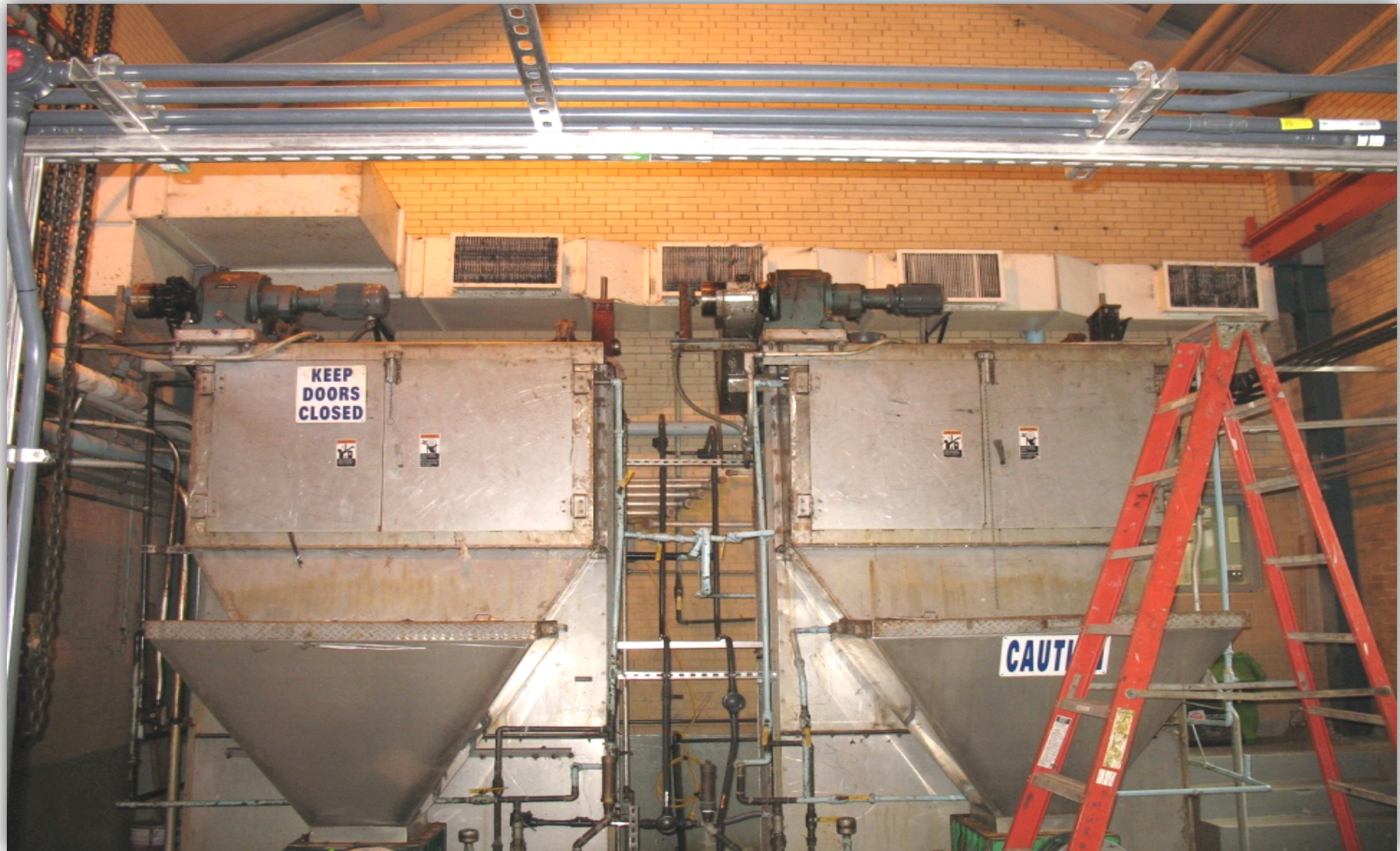


Operating Room





Screen Room





Construction Cost and Schedule

Construction cost: \$11,947,677

Construction schedule:

NTP	July 2015
Completion	November 2017



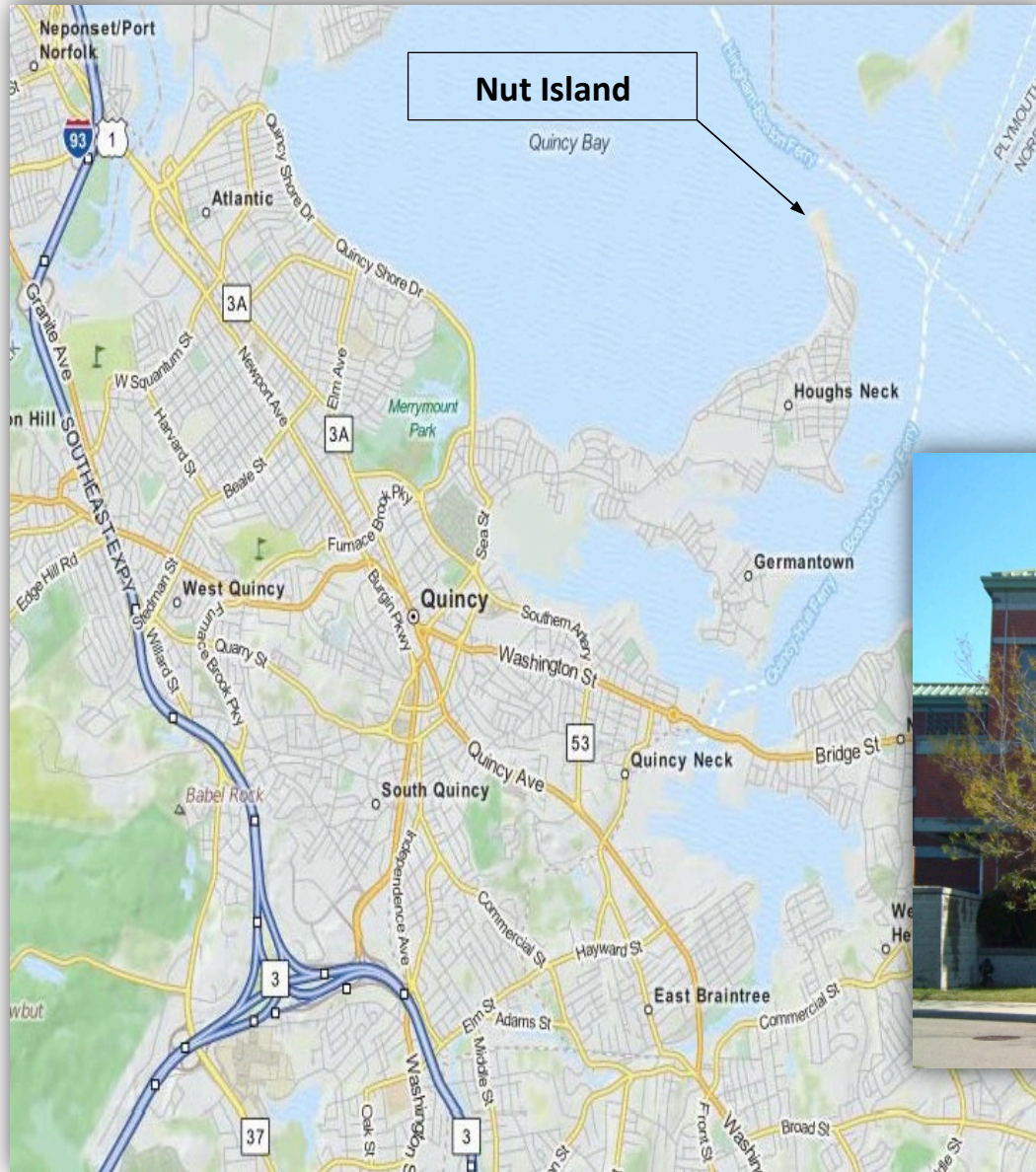


Nut Island Odor Control, HVAC, and Energy Management Systems Evaluation Services Contract 7494

July 15, 2015

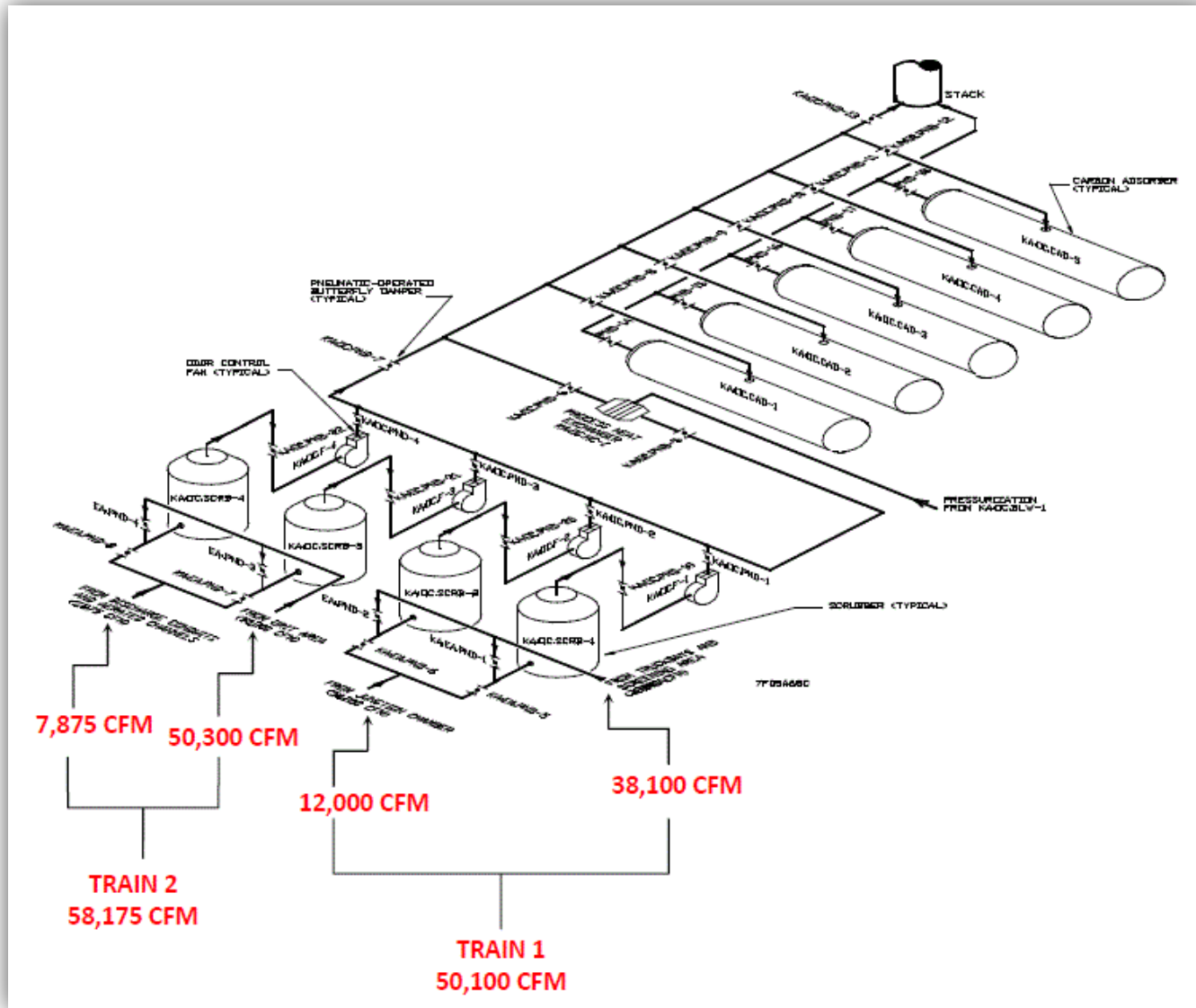


Nut Island Headworks





Odor Control Air Duct Schematic (Air Flow Rates)





Odor Control System

Evaluation of:

Wet Scrubbers

- Chemical Storage System
- Chemical Delivery System

Carbon Adsorption System

- Carbon Storage System
- Carbon Dust Reduction
- Heat Exchanger Need

Odor Control Fans

- VFDs on Four Odor Control Fans
(existing two-speed motors)





HVAC System

Evaluation of:

- Air Handling Units
- Manual & Motorized Dampers
- Ductwork
- Air Flow Rates

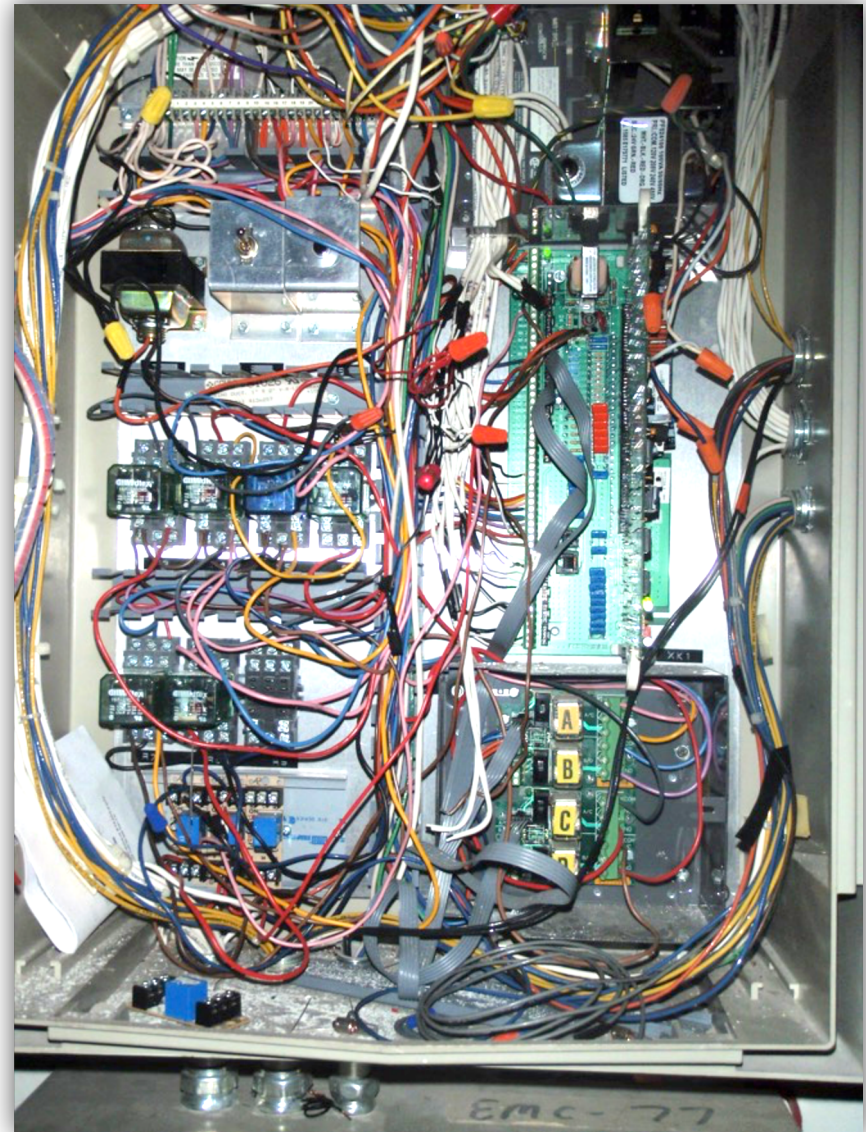




Energy Management System

Evaluation of:

- Replacement of Energy Management System
- Interfacing with existing system





Procurement Process

- One Step RFQ/P
- Three Respondents
- Selection Committee Recommends Hazen and Sawyer, PC





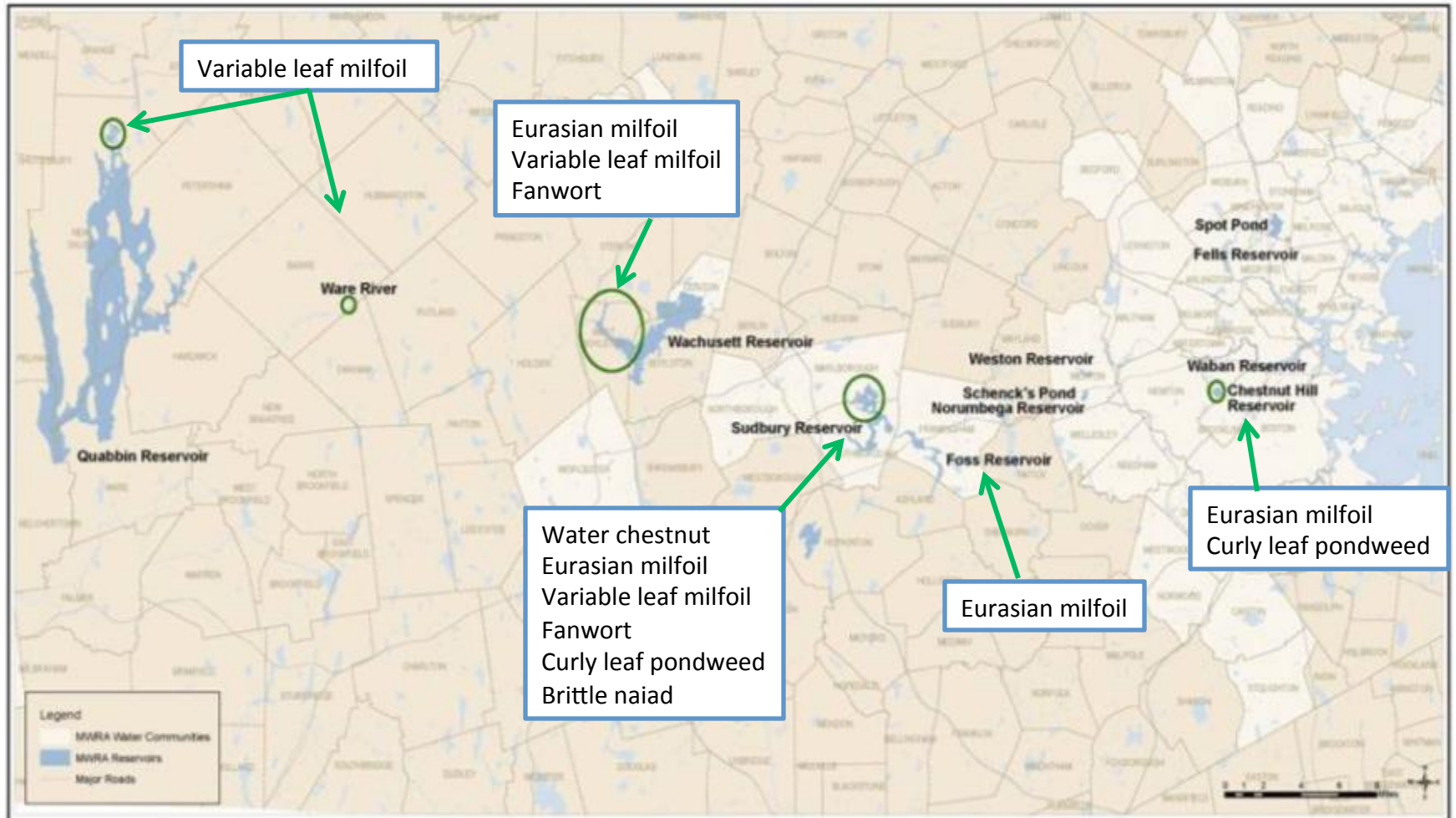
Invasive Aquatic Plant Management at MWRA Reservoirs

July 15, 2015



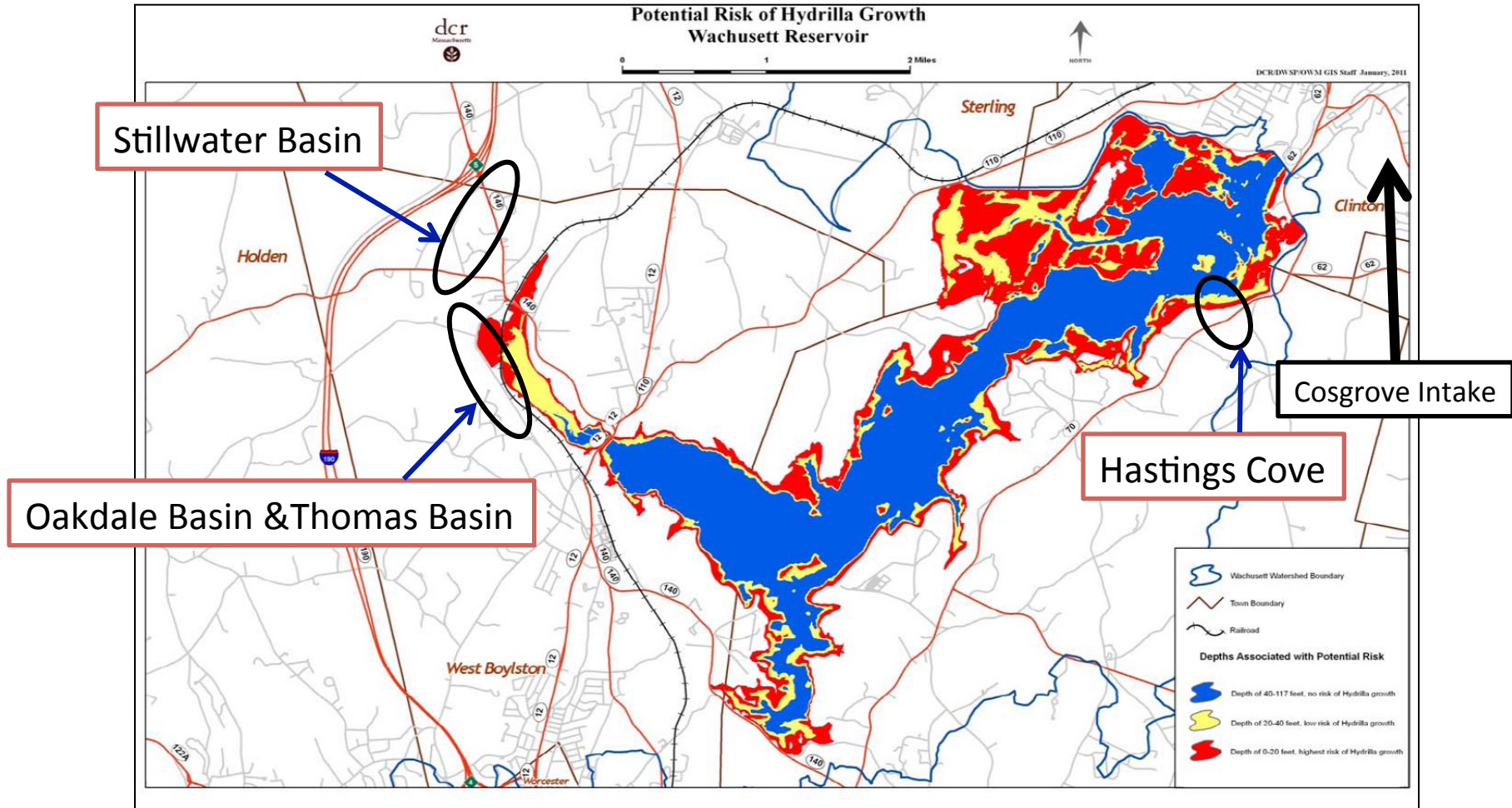
Locations of Reservoirs

MWRA/DCR Reservoirs with Invasives Control Projects





Wachusett Reservoir is a **high risk** for new invasives





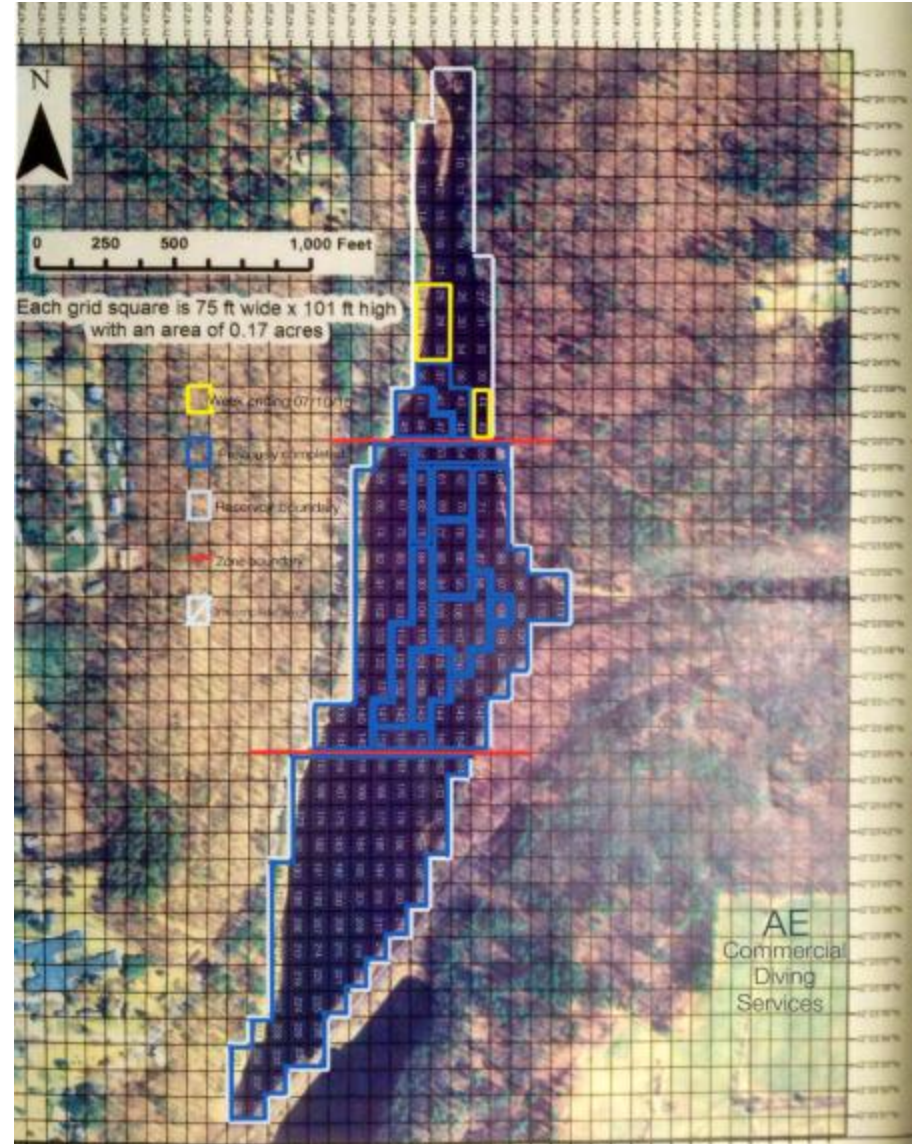
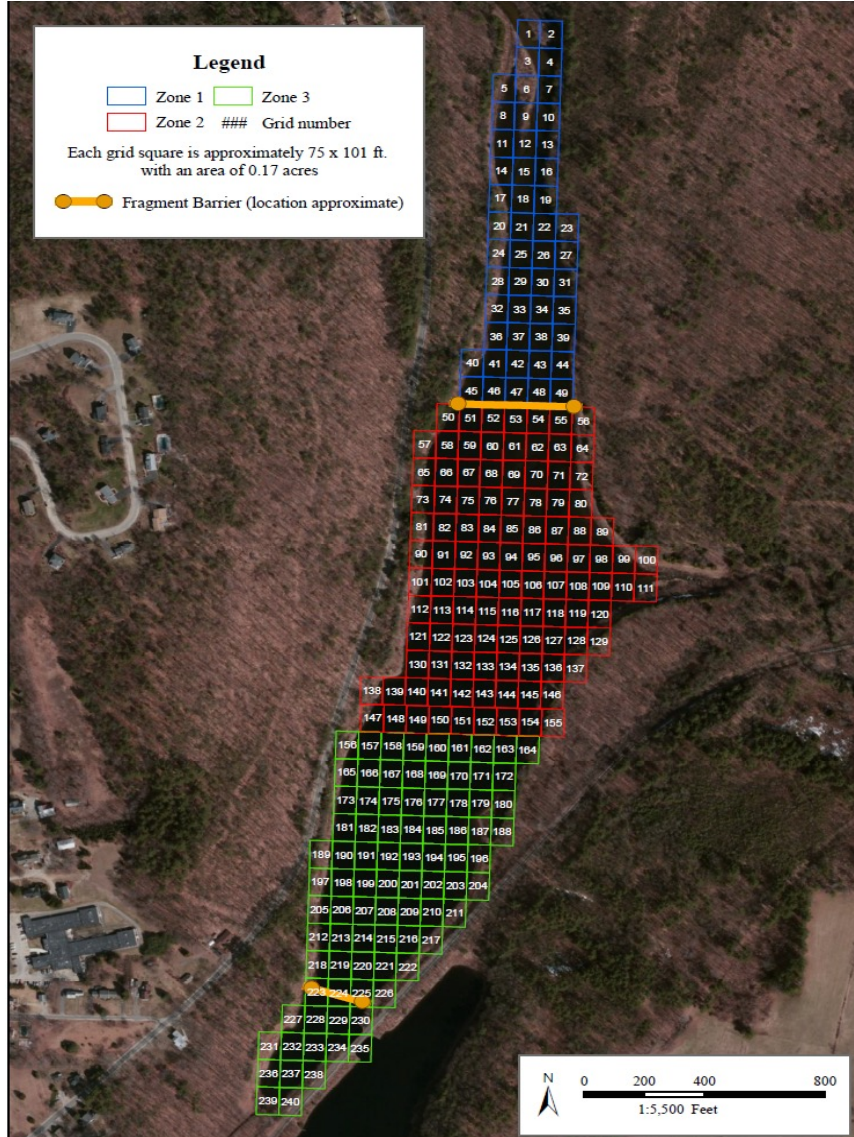
Wachusett saw different approaches

- Floating Fragment Barriers – annual since
- Routine Annual Harvesting 2002 - present
 - Spring survey
 - First diver hand-harvest in July
 - Second diver hand-harvest in fall
- 2007 – attempt at biological control (wee
- Enhanced efforts 2012 onward:
 - Diver Assisted Suction Harvesting (DA
 - Added in Oakdale and Thomas Basin
 - Added Hastings Cove
- 2013 to Present – DASH deployed full scale
in Stillwater Basin





Stillwater Basin – 37.5 Acres, Max depth = 17.5 ft. / ave. depth 8 ft.





DASH Boats operating in Stillwater Basin



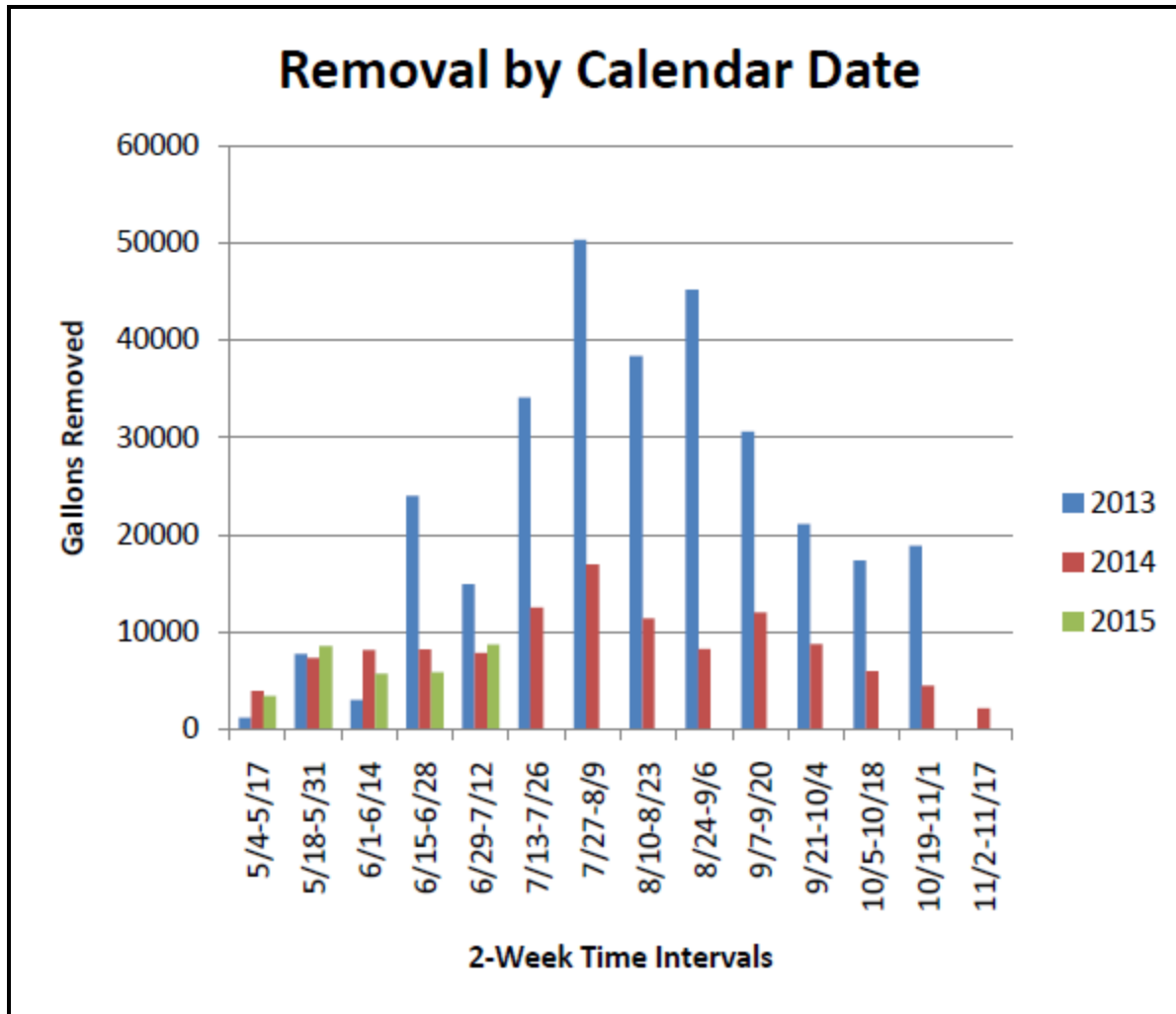
Suctioned plants emerge on screen.



Plant laid out on boat deck. Getting rootball is critical.



Annual DASH removal 2013-present





Underwater views – EWM before and after





Return of other Native Plants Documented



Photo 2 – May 22, 2015 – Area of native plants (*Brasenia Schreberi*) observed in Grid 120



Sudbury Reservoir water chestnut control areas





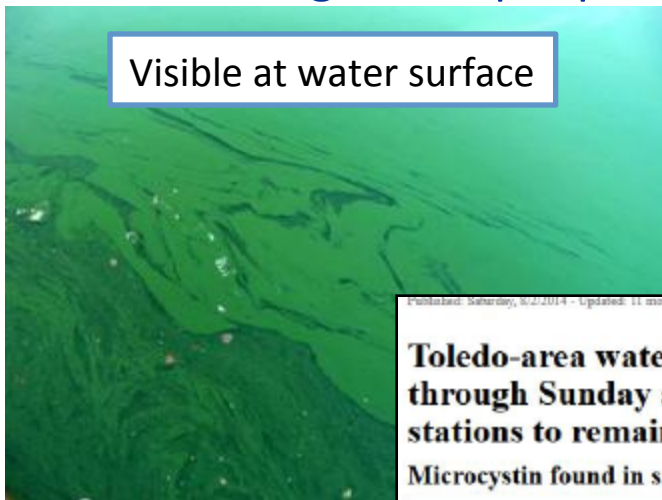
Invasives harvesting at Chestnut Hill Reservoir



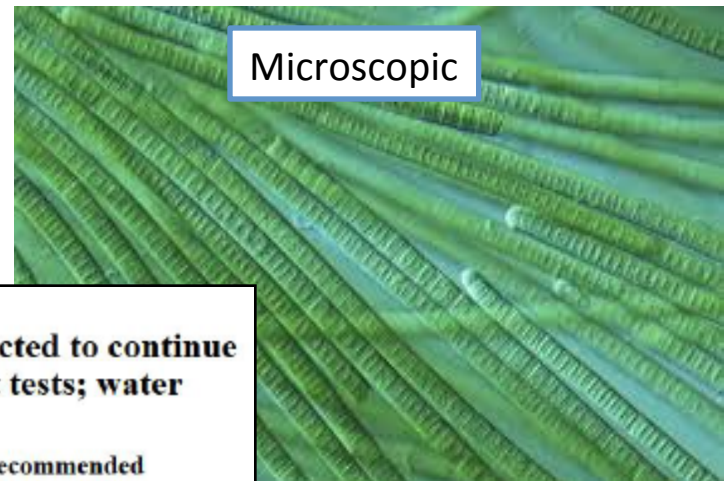


Chestnut Hill post-harvest cyanobacteria Bloom 2014

- Why? *Cyanobacteria* occur naturally in lakes and ponds, typically at low concentrations that are not harmful and not visible.
- When levels of key nutrients (particularly phosphorus) in the water body increase and combine with hot temperatures and still water, the organisms thrive.
- In 2014, we had a long-lasting *cyanobacteria* bloom. *Cyanobacteria* can produce toxins such as *Microcystin* which can be carcinogenic to people (US EPA)



Visible at water surface



Microscopic

Published: Saturday, 6/2/2014 - Updated: 11 months ago

Toledo-area water advisory expected to continue through Sunday as leaders await tests; water stations to remain open

Microcystin found in samples; boiling not recommended

BY TAYLOR DUNGJEN AND DAVID PATCH
BLADE STAFF WRITERS



Quabbin Boat Inspection/Decon Program





As of 2014 Survey...

NO exotic aquatic plant beds observed in these distribution reservoirs:

- Weston Reservoir
- Norumbega Reservoir
- Spot Pond Reservoir
- Fells Reservoir

Stable or declining infestations of exotic species at these reservoirs:

- Wachusett Reservoir (Hastings Cove) – Variable- leaf milfoil (decline)
- Chestnut Hill Reservoir - Eurasian milfoil (rapid decline in 2014), curly-leaf pondweed (apparent decline)
- Sudbury Reservoir - Eurasian milfoil (stable), Water Chestnut (decline)
- Quabbin Reservoir - Variable-leaf milfoil (stable), Brittle naiad (pioneering plants removed in 2014 season and did not return in 2015 as of recent survey of 7/12)

One new exotic plant species documented at:

- Sudbury Reservoir (Brittle Naiad in 2014 –status to be determined July 2015 survey)

Increasing exotic plant species

- Foss Reservoir – Eurasian milfoil (increasing)



Looking ahead on invasive plants control:

- Continue DASH at Stillwater Basin
- Continue annual aquatic plant surveys for early warning.
- Aggressively respond to new invasives
- Follow-up on Chestnut Hill alum
- Remain Vigilant



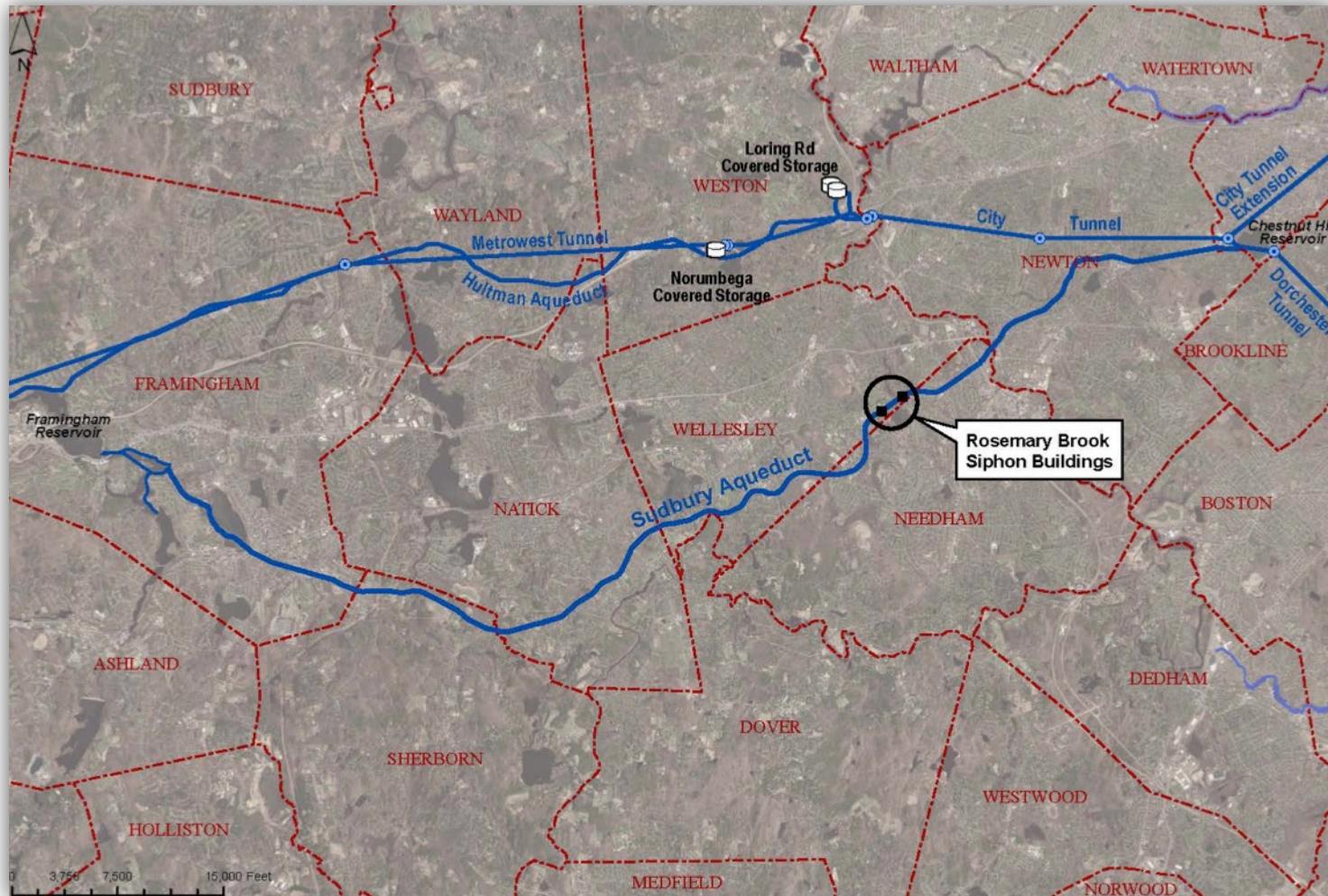


Rosemary Brook Siphon Buildings Stabilization

July 15, 2015

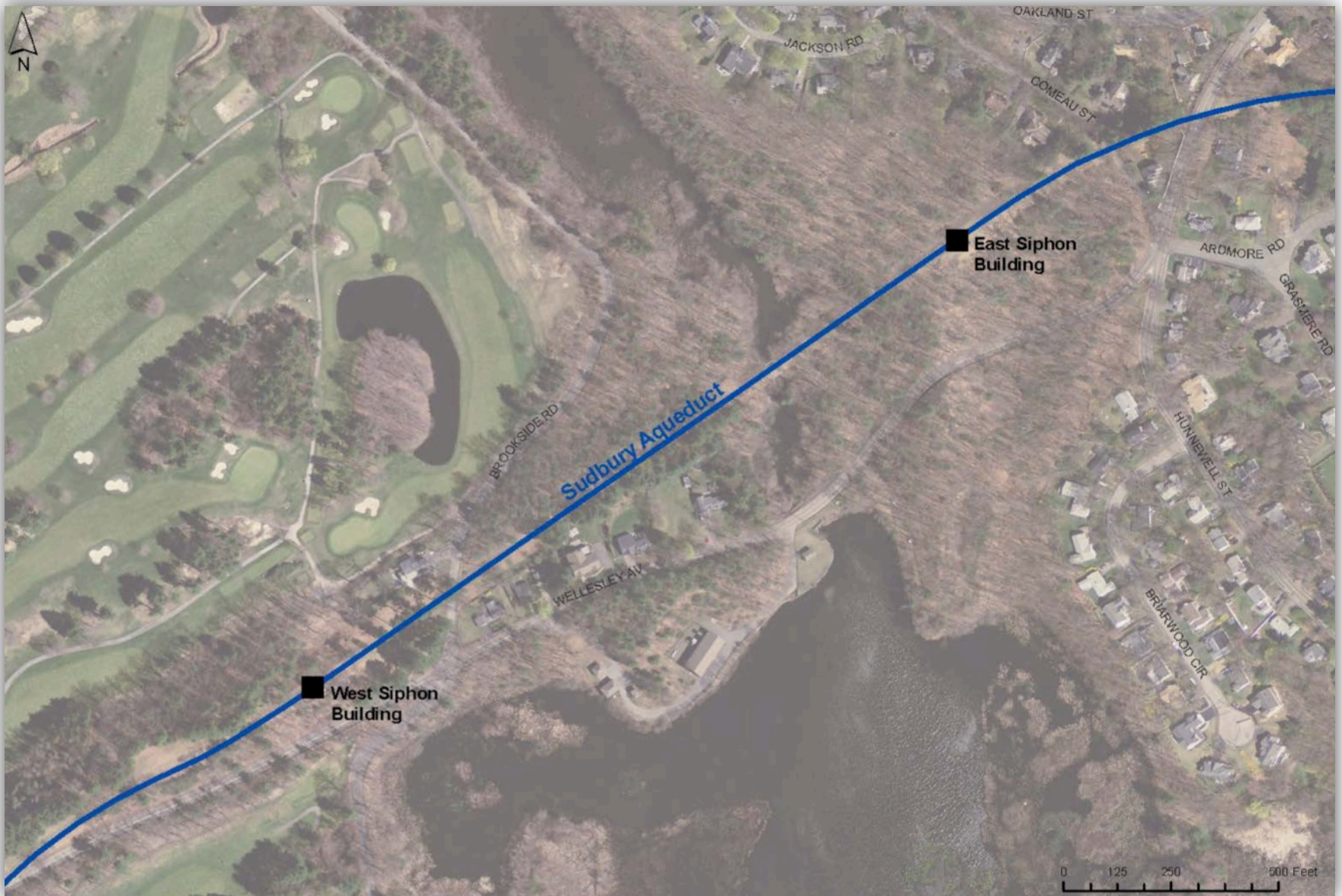


Sudbury Aqueduct Emergency Backup Supply to Chestnut Hill Emergency Pump Station





Rosemary Brook Siphon Buildings Location





Historic Photos



West Siphon Building



East Siphon Building



Current State of Buildings



Current View West Building



Current View East Building



Current Condition



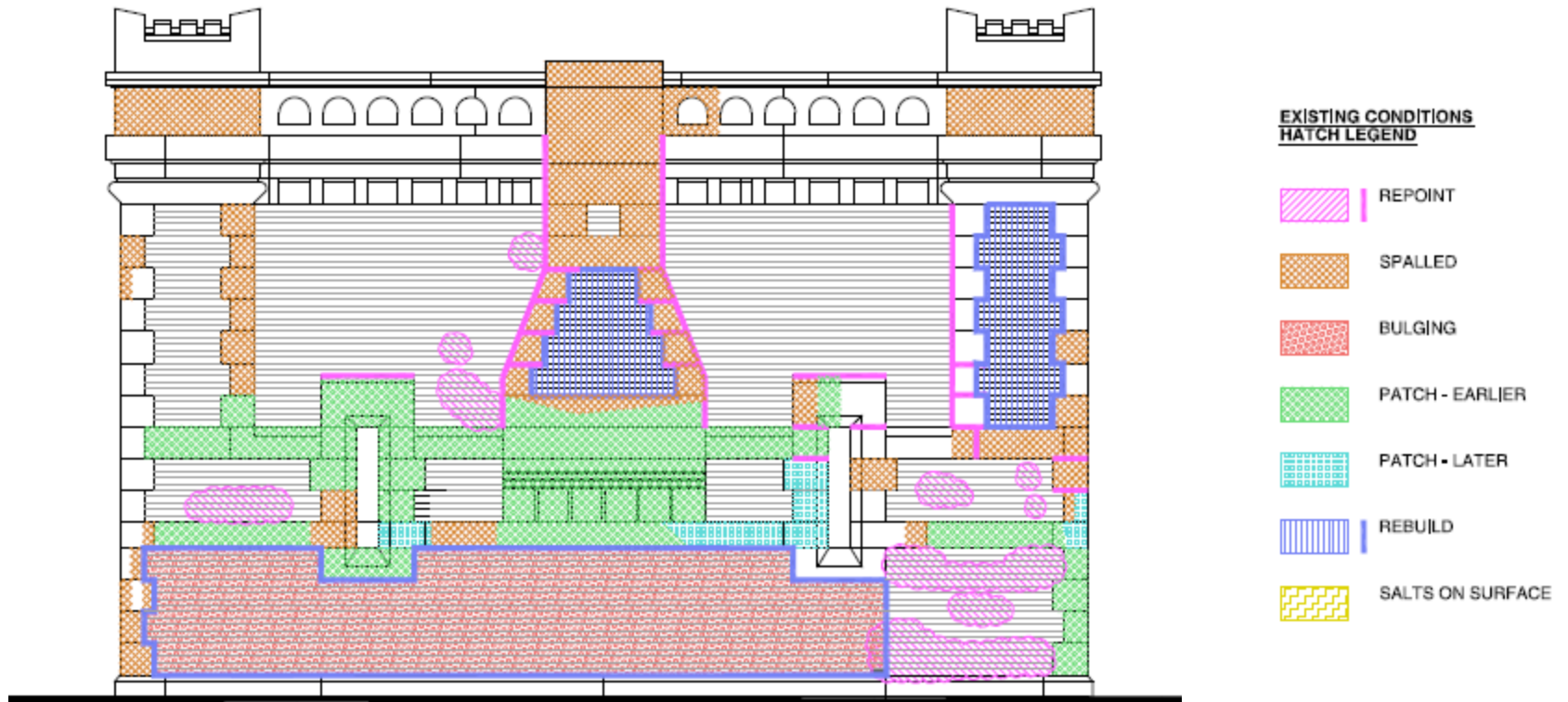


Current Condition





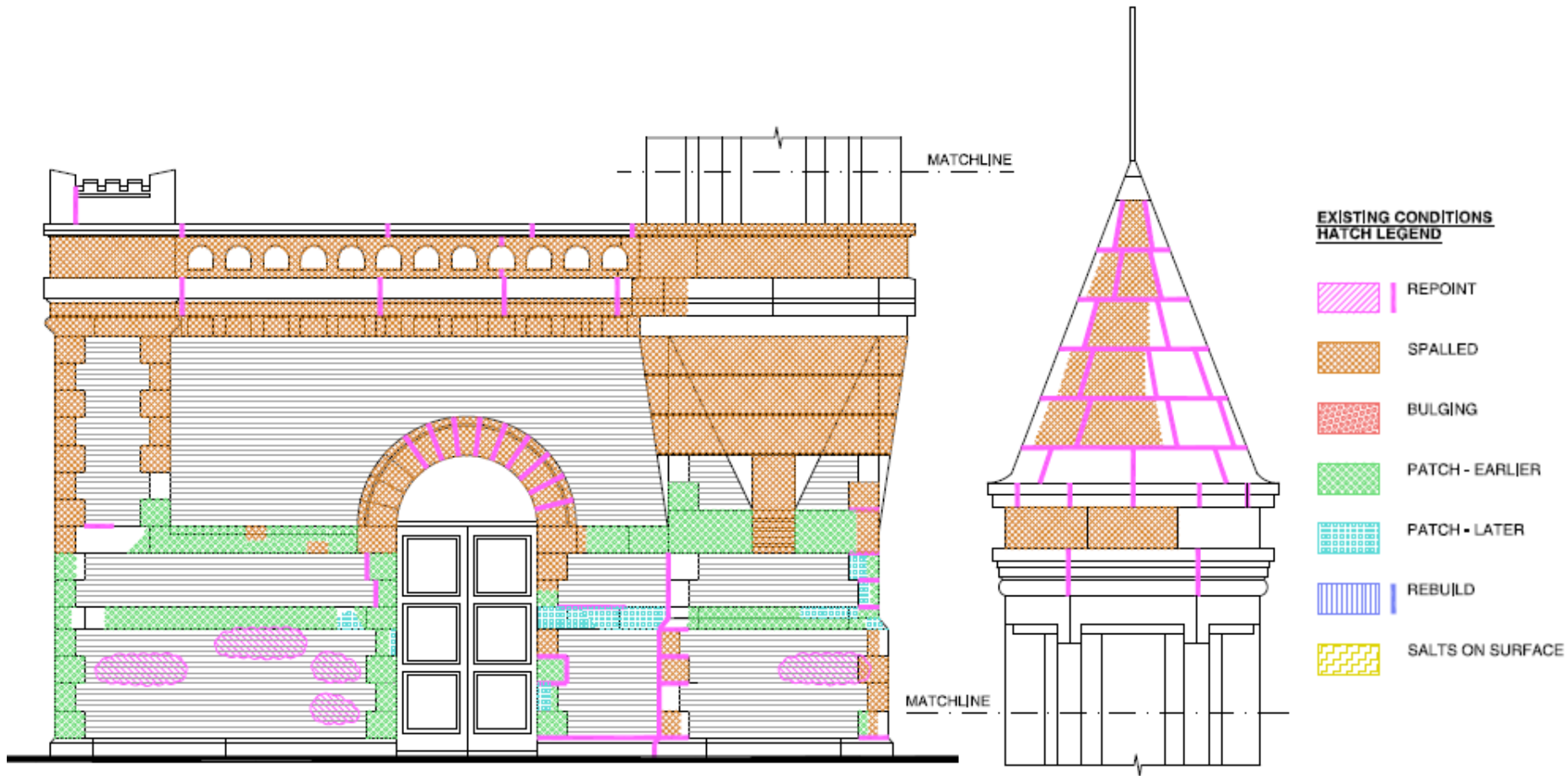
West Building Repairs – North Elevation



WEST BLDG - NORTH ELEV

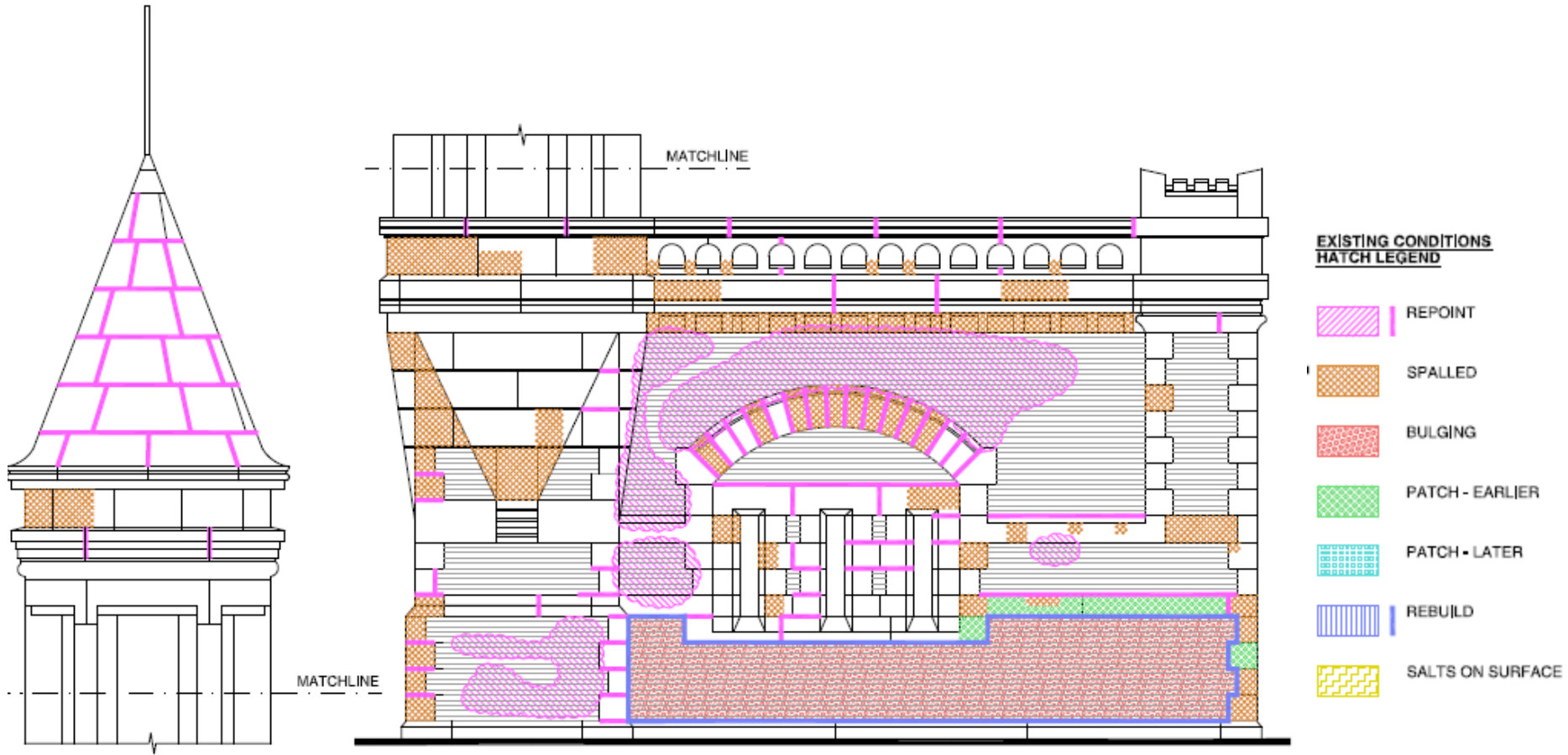


West Building Repairs – South Elevation





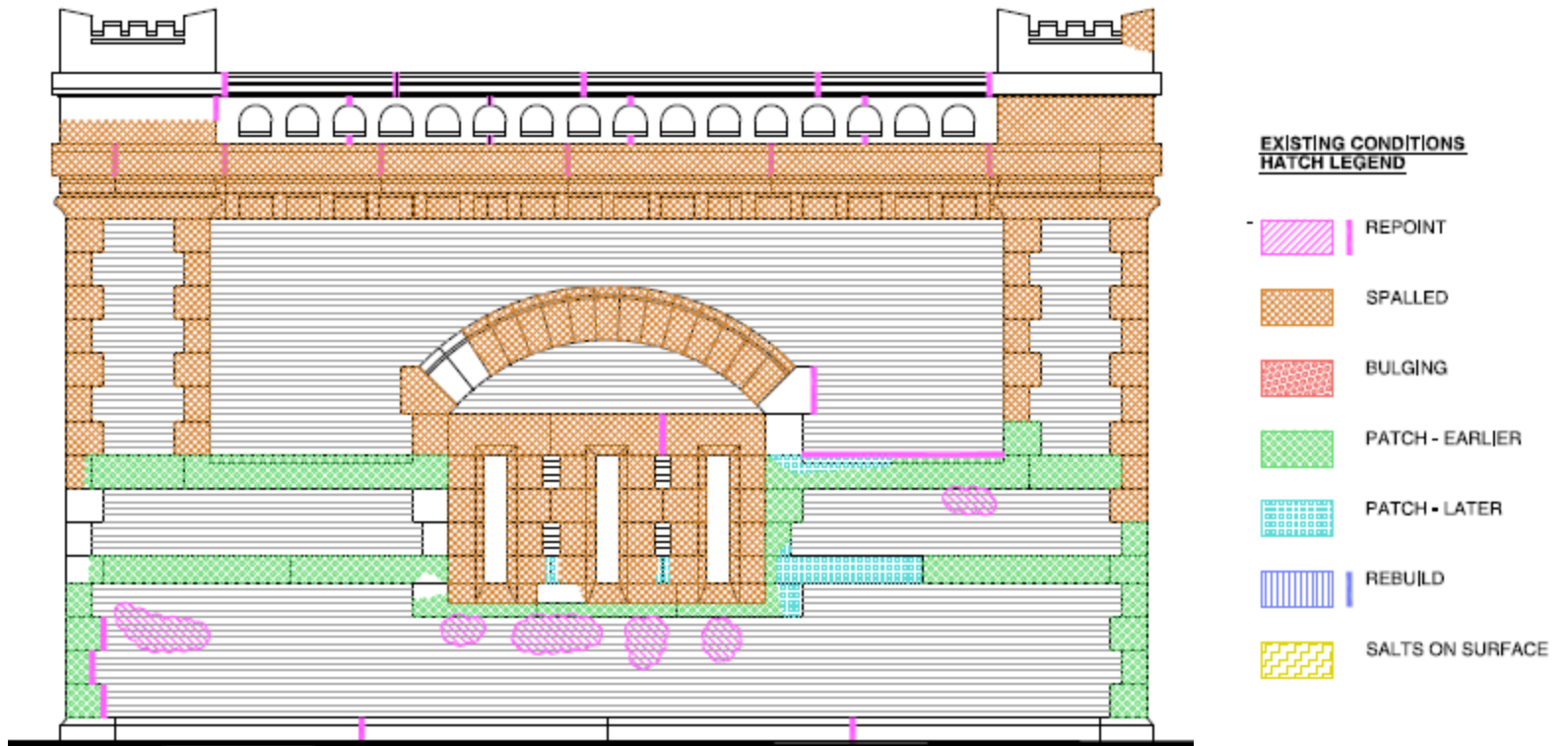
West Building Repairs – East Elevation



WEST BLDG - EAST ELEV



West Building Repairs – West Elevation



WEST BLDG - WEST ELEV



Major Items of Work

- New roofs
- Rebuild selected areas of damaged walls
- Replacement of selected sandstone
- Replacement of floor beams and supports
- Selected replacement of floor grating
- Door and window repairs
- Aqueduct repairs

