



Manage our Resources



Explore Innovative Solutions



Protect our Environment



Preserve our Community

CITY OF PORTSMOUTH WASTEWATER DIVISION

PEIRCE ISLAND WASTEWATER TREATMENT  
FACILITY PROJECT UPDATE

CITY COUNCIL WORKSHOP

MARCH 3, 2014

# Topics for Discussion

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- Introduction
- WWTF Project Status
  - History
  - Design Process
  - Design Status
  - Next Steps
- Great Bay Peer Review
- Questions and Comments



# Public Process History

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- During the Course of This Process, Have Given Over 40 Presentations on This Topic Including:
  - Wastewater 101 and 202
  - Numerous Quarterly Updates
  - Council Briefings and Public Input Sessions
  - Council Retreats
  - City-wide Neighborhood Association Meetings
  - Pilot Open House
  - City Wastewater Website

[www.portsmouthwastewater.com](http://www.portsmouthwastewater.com)



## Recent History

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- November 8, 2010 – City Council Vote to Submit Final Wastewater Master Plan
- September 2012 –Piloting Memorandum
- January/February 2013 – Engineering Selection for Final Design
- April 8, 2013 - City Council Vote to Pursue BAF Technology within Fence
  - All new structures within fence
  - Operational flexibility to meet different effluent limits



# Existing Site



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# Existing Site

Grit Building

Primary Clarifiers

Admin Building

Solids Processing Building

Disinfection Tank

Filter Building



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# INTEGRATED DESIGN TEAM

- City Staff
- Consulting Team
  - Civil
  - Geotechnical
  - Process
  - Architectural
  - Structural
  - Mechanical Systems (HVAC, Plumbing, etc.)
  - Electrical/I&C



**AECOM**

- Petersen Engineering, Inc.
- Altus Engineering, Inc.
- Independent Archaeological Consultants
- Normandeau Associates
- Bowker & Associates
- Carlin Contracting
- Doucet Survey
- New England Borings



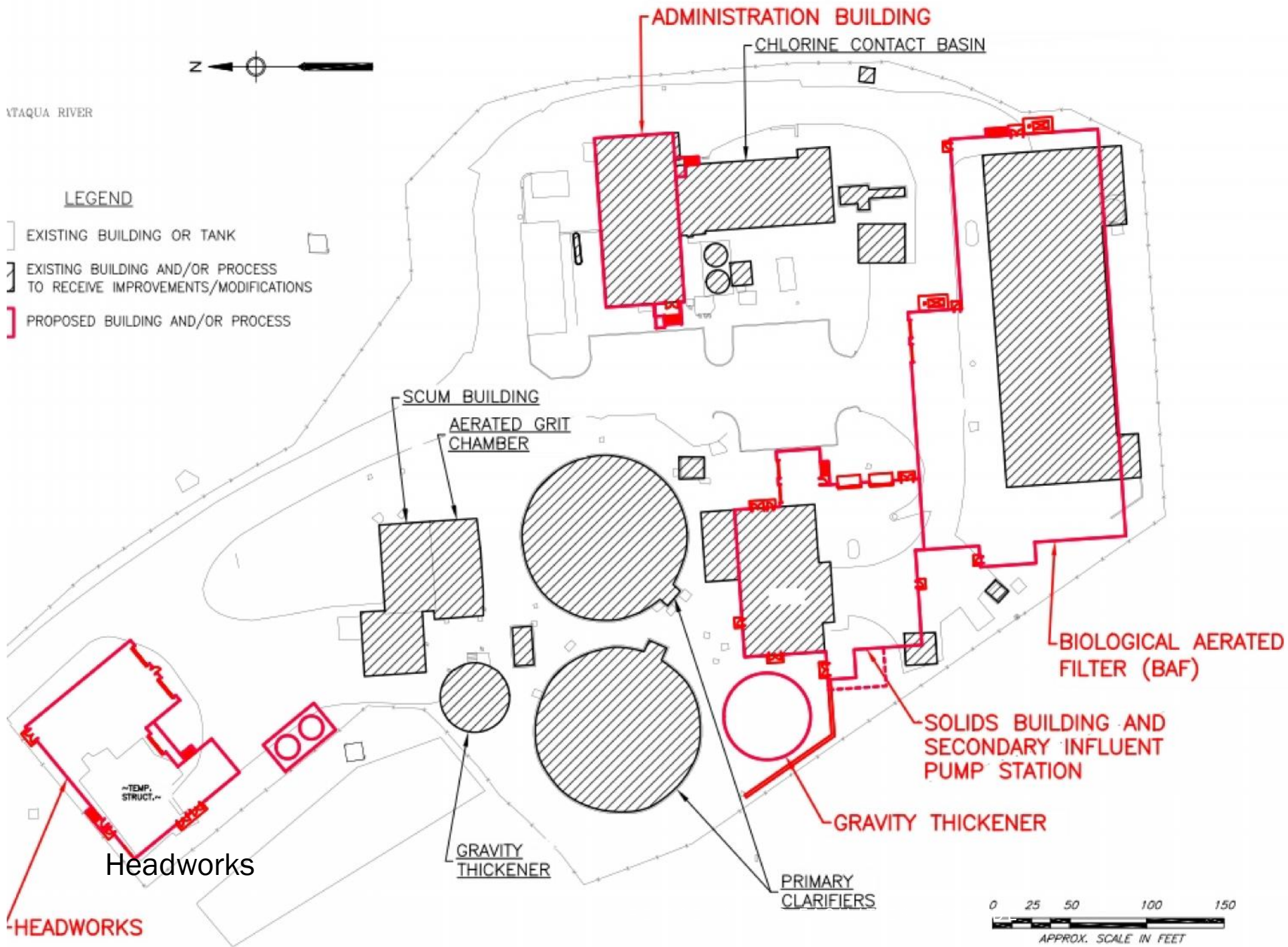
# Engineering Design Process

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- Conceptual Design ← Complete
- Final Design – Phase 1 ← Ongoing
- Final Design – Phase 2 ← Ongoing
- Value Engineering ← July 2014
- Final Design – Phase 3
- Construction Documents
- Bidding
- Construction
- Startup







# Required Improvements

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- **Compliance Related**
  - Meet Secondary Treatment Standards (BAF)
  - Headworks
  - Pump Station
  - Sludge Improvements
- **Maintenance**
  - Maintain WWTF Operations During Construction
  - Replacement of Aged Equipment
  - Emergency Replacement of Failed Equipment



## Next Steps

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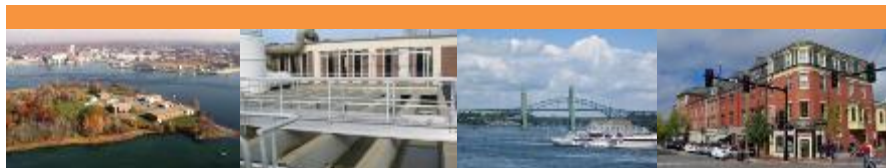
- Final Design – Phase 2 to 30%
  - Sustainability Evaluations
  - LEED Administration Building?
- Permitting Applications
- Value Engineering - July 2014
- Ongoing Public Outreach
- Ongoing Design Updates
  - [www.portsmouthwastewater.com](http://www.portsmouthwastewater.com)



# Public Outreach

- Portsmouthwastewater.com – Web
- @Portswastewater – Twitter Feed
- Monthly Wastewater Project Update
- Press Releases
- Council Briefings

The screenshot displays the City of Portsmouth Wastewater website. At the top, there is a navigation bar with the logo and four main categories: 'preserve our community', 'protect our environment', 'manage our resources', and 'enable innovative solutions'. Below this is a sidebar with a navigation menu including Home, About, Sustainability, Projects, Regional, Resources, Contact, and WaterSense. The main content area features two news articles. The first is titled 'Joint Report of Peer Review Panel' dated Feb. 21, 2014, which discusses a scientific review of the 'Numeric Nutrient Criteria of the Great Bay Estuary'. The second article is 'The City of Portsmouth Works to Address EPA Wastewater Mandates', detailing the city's compliance with National Pollutant Discharge Elimination System (NPDES) permits. To the right of the second article is a 'Newsletter' link. Below the articles is a 'Tweets' section showing two tweets from @Portswastewater: one about a monthly wastewater update and another about a project update for the Peirce Island Wastewater Treatment Facility Upgrade. At the bottom of the website, there are two aerial photographs of wastewater treatment facilities: Pease International Tradeport WWTF and Peirce Island WWTF.



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# City and Community Committees/Boards

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- Peirce Island Committee
- Friends of the South End
- Prescott Park Board of Trustees
- Recreation Board
- Sustainability Committee



## Next Update – August 2014

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- Updated Layouts/Renderings
- Results of Value Engineering
- Updated Opinion of Project Cost
- Sustainable Components



## Peer Review Report - Process

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- DES and Cities Agreement for Peer Review – April 2013
- Charge Questions Jointly Developed
- Key Documents Jointly Compiled
- Experts Jointly Selected
- Public Comment Solicited
- CLF, EPA and UNH Professors Comment
- All Public Comments to Experts
- Peer Review Report Received



# Peer Review Report - Results

- Eelgrass Losses Exist but Link Between Nitrogen and Eelgrass Loss Not Established
- DES approach too simple
  - Complex system
  - “Confounding” factors
- New Approach Needed
- Robust Water Quality Monitoring Program

Dr. Bierman writes: “the DES 2009 report did not adequately demonstrate that nitrogen is the primary factor in the Great Bay Estuary because it did not explicitly consider any of the other important, confounding factors in developing relationships between nitrogen and the presence/health of eel grass.” Report at page 18.



Photo: US EPA, K. Villalba, Northeast Region

Dr. Kenworthy writes: “there is no basis for a scientifically defensible linkage between nitrogen impairment and eelgrass impairment presented in the report.” Report at page 19.





## Peer Review Report– Next Steps to Support Permits

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- Continued Collaboration with Dover and Rochester
- Continue Dialogue with DES to Identify Next Steps
  - New Approach - Hydrodynamic Model
  - Additional Science Efforts
- Discuss with EPA Permits both Wastewater and Stormwater



# Questions and Answers



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