

CITY OF PORTSMOUTH
LITTLE BAY WATER LINE CROSSING PROJECT

INFORMATIONAL MEETING

For the Little Bay and Great Bay
Aquaculture Community



December 14th at 6:30 PM

Portsmouth City Hall,
1 Junkins Avenue,
Conference Room A

Or online: Please register in advance

[https://us06web.zoom.us/webinar/
register/WN_9LJEUzFzQbyLemQRXikH3A](https://us06web.zoom.us/webinar/register/WN_9LJEUzFzQbyLemQRXikH3A)

Little Bay Water Line Crossing Project Information

Introduction

The City of Portsmouth (the City) owns and maintains a 7 mile cross-country drinking water transmission main that brings treated drinking water from the Madbury Water Treatment Plant to Portsmouth. The 24-inch main carries approximately 60% of the water serving the City's regional water system that includes Portsmouth, Newington, Greenland, New Castle and portions of Madbury, Dover, Durham and Rye. The main crosses the Little Bay, approximately 4,000 ft to the southwest of the Scammell Bridge (US Route 4). At the crossing, the 24-inch concrete pipe transitions to two 20-inch cast iron pipes from the Durham shore to the Fox Point shore in Newington. The two parallel transmission mains, installed in the 1950s, are approximately 3,200 feet in length across the bay. A dive inspection completed in 2016 observed that portions of the two cast iron pipes have become exposed to salt water and have experienced significant exterior corrosion, with corrosion pits greater than 50% of the pipe wall thickness in some instances. This critical water main requires replacement for the City to maintain a safe, reliable supply of drinking water to the regional water system.



Proposed Project

The proposed project involves installing one 24-inch, high density polyethylene pipe (HDPE) on the floor of the bay in a previously disturbed corridor between the existing cast iron pipes crossing Little Bay, with connections to the

existing transmission main on the Durham and Newington shores. Several alternatives for water main replacement were evaluated including directionally drilling, establishing a new water main route along existing roads and bridges, and rehabilitating the existing pipes. Installation of a replacement pipe on the channel floor was selected as the most technically feasible and viable solution for providing a reliable drinking water supply from the Madbury drinking water treatment facility.

Construction Methods

The proposed installation method involves assembling the new pipeline on land and floating the pipeline into Little Bay. Since the HDPE pipe is neutrally buoyant, concrete collars are required to sink and anchor the pipeline along the channel bottom. The concrete anchors are designed to be installed while the pipeline is floating and full of air. Upon the evacuation of the air from the pipe, the pipe sinks to the bottom at the proposed location.



Similar Trestle Project

At the intertidal zone and within portions of the tidal buffer zone, the proposed pipeline will be buried to protect the pipe from freezing, anchor drag, navigational hazards, and tidal currents. Where excavation within the water is necessary, a temporary steel cofferdam will be installed. The cofferdam will be constructed by driving steel sheet piles into the channel floor. Excavation will occur within the cofferdam which will serve as a turbidity barrier to prevent the spread of sediment during excavation. A temporary trestle will be installed adjacent to the cofferdam to provide access to the work zone during construction. The cofferdam and trestle will extend approximately 400 ft from shore on either side. Upon installation of the replacement pipe, the cofferdam and trestle will be removed. Barges may be used in the middle of the channel to support the water main during installation and facilitate installation.

Excavation will be necessary on land at both shores to connect the new main to the existing water main and replace the existing non-operational valves. After installation and connection of the new HPDE main, and replacement of the non-working isolation valves, the two existing cast iron mains can be taken out of service individually, as needed, and evaluated for potential to be rehabilitated or replaced to maintain a redundant pipeline crossing.

Throughout construction, the City will have a designated construction monitor to observe that the project is being constructed in accordance with the contract documents and in accordance with approved environmental permit conditions. The contractor will be required to perform frequent turbidity monitoring to confirm that the construction is not resulting in the release of the sediment.



Similar Cofferdam Project

Restoration

The areas on shore impacted by construction will be restored by reestablishing vegetation including native grass and shrubs. On the Durham side of the project, approximately 2,100 sq. ft. of salt marsh will be impacted by the trench excavation for the pipeline. A salt marsh restoration plan has been developed to salvage impacted salt marsh and preserve it during construction. Upon removal of construction equipment, the salvaged salt marsh will be replanted and monitored to confirm successful restoration. Salt marsh seedlings may be planted, as needed, to fully re-establish the salt marsh. Areas within the water impacted by trench excavation will be restored back to existing elevation and conditions by placing the excavated materials back in the trench to the existing subaqueous surface elevation.

Permitting

The proposed project requires the following permit approvals: NHDES Wetlands Permit, NHDES Shoreland Permit, Army Corps of Engineers Individual Permit. Permit applications are currently being reviewed by the permitting authorities and permit issuance is expected in Winter 2021/2022.

Schedule

The following schedule is anticipated for the water main replacement project:

- Winter 2021/22 – Final Design and Permitting
- June 2022 – Bidding
- October-December 2022 – Construction Mobilization, Set Up
- December 2022 – February 2023- In Water Work
- Spring 2023 – Site Restoration

Contact

Questions or comments about this project can be sent to:

City of Portsmouth

[Brian Goetz](#)

Deputy Director of Public Works
bfgoetz@cityofportsmouth.com

[Zach Cronin](#)

Assistant City Engineer
zmcronin@cityofportsmouth.com

Wright-Pierce

[Darrin Lary](#)

Project Manager
darrin.lary@wright-pierce.com

[Britt Eckstrom](#)

Permitting Specialist
britt.eckstrom@wright-pierce.com

