

ATTACHMENT 11

FUNCTIONAL ASSESSMENT

11.0 Overview

The proposed Canal Landing New Yard site plan includes the construction of a travel lift basin, two boat ramps, shorefront stabilization, dredging, and a floating dock system along the shorefront. The applicant understands how important coastal wetlands are to the people of Maine and is seeking to develop the property in a manner which maintains balance between development and resource impact. The proposed activities have a direct relation to the City of Portland's zoning goals.

In accordance with the Maine Department of Environmental Protection (MeDEP) Natural Resources Protection Act Regulations, we have previously submitted and were approved for a NRPA Permit for the shorefront activities along waterfront in the general vicinity of the current site. This proposed amendment request simply shifts some of the development activities slightly upstream along the Fore River shorefront. We have reviewed the MeDEP Maine's Coastal Wetlands Manual as part of the preparation of this Functional Assessment statement.

In general, it is understood that development creates potential impacts to coastal areas via filling, dredging, and shading activities, and new structures have the potential to alter water quality, displace habitats, and increase disturbance, erosion, and stormwater runoff. Based on the historical industrial use of the site from rail yards to gas works and existing proximity to CSO discharges, the Canal Landing New Yard project is unique in that, although there are impacts to the shorefront, there is also a great opportunity to remediate known environmental issues on the site, remove waste and debris from former industrial uses, and to further stabilize the shorefront slopes and to reactivate long dormant commercial/industrial waterfront. Furthermore, these activities comply with the local zoning and comprehensive plan vision.



Figure 1
Boat Ramp #2 Location

11.1 Characterization

The Fore River shorefront appears to be best characterized as a combination of mixed course and fine flat riprap stabilized shorefront. Although not formed by glacial scouring and bedrock erosion, the majority of the exposed environment along the shorefront is stabilized with granite revetment, riprap, and is similar in appearance to the intertidal habitat classification of "Mixed Course and Fine Flats" with regard to particle/grain size. The intertidal zone across most of the shorefront consists of numerous old pilings that protrude up from the flats during low tide conditions (see Figure 2).



Figure 2

A granite revetment extends across nearly the entirety of the shorefront (see Figure 3). Much of the shorefront is characterized by a former pier area that is currently in a dilapidated condition (see Figure 4). For much of the past 150 years the site's shorefront consisted of these numerous pilings, piers, and related infrastructure that supported the landside gas manufacturing and later rail yard activities. Much of this shorefront infrastructure still remains.



Figure 3

As outlined in the manual, the mixed course and fine flats usually support fewer animals with less biological diversity as other habitat areas. The Maine Inland Fisheries and Wildlife mapping for the Fore River does not highlight any of the site's shorefront as a significant wildlife habitat or fisheries habitat, thus suggesting that the site's value is diminished for these functions. The site's shorefront is also made less desirable due to the frequent passing of large tankers and associated tugs that create wave action that likely disrupts opportunity for species colonization.



Figure 4

Conditions along this length of waterfront are also exacerbated due to the Combined Sewer Outfalls that the City of Portland maintains in the area. One CSO outfall is located towards the easterly end of the shorefront. A second CSO outfall is located further west of the site. Both outfalls remain active. These conditions, combined with the known environmental issues associated with the waterfront, likely impact the shorefront's opportunity for wildlife or fisheries habitat. We have not performed an in-depth qualitative or quantitative species review or field card checklist of the shorefront due to these overriding site features and we request the Department's acceptance that no further field study is warranted.



Figure 5

In accordance with the manual, we offer the following tabular summary assessment of the site's functions and values, as we have determined based on our overview of the site:

Functions	Values	Assessment
1. Production of animals on and within the sediment and under rocks	Supports commercial shellfish and worm fishery Supports lobster fishery Food for fish, crab, shrimp, and other invertebrates Essential food resources for migrating shorebirds Supports the food web	Shorefront use for shellfish, worms, or related fisheries is not active. Evidence of habitat use or production appears low due to environmental conditions, CSO activity, and general vessel traffic along river. There are no commercial fish or shellfish activities.

Functions	Values	Assessment
2. Primary production from benthic diatoms and algae	Improves water quality Binds sediments therefore reducing erosion Fuels benthic food web Supports commercial fisheries and wildlife	May be limited along some of the waterfront where known environmental conditions and seepage of gas manufacturing by-product remain. CSO activity also exacerbates conditions. No commercial fisheries present and wildlife habitat is reduced.
3. Recycling of nutrients by bacteria	Supports plant and algal growth Supports commercial fisheries	No eel grass identified along waterfront.
4. Sediment sink and trap	Improves water quality (removes nutrients and toxics) Lessens coastal erosion	Currently much of the shorefront is unprotected from erosion and subject to passing wave action created by vessel traffic on the river.
5. Essential habitat	Provides the soil for eelgrass germination and proliferation Nursery ground for commercial fish and lobsters Roosting and staging areas for migrating shorebirds Nesting sites for spotted sand piper Winter habitat for purple sandpiper	No eelgrass observed from the shorefront and lobster production is limited due to the routine passing of large vessels and tugs proximate to the shorefront. No nesting, roosting or staging areas for shorebirds has been identified along the site shorefront.

11.2 Direct and Indirect Impacts

The direct impacts on the coastal frontage for the proposed Canal Landing New Yard project consist of fill, dredging, and shading. The Plan Figures in Attachment 3 identify these areas.

The following net impacts were originally computed and approved for the project, although only a portion of the impacts actually have occurred due to the applicant's loss of land from the State land taking, as evidenced by the following tally:

Originally approved impacts

Fill = 6,544± SF
Dredge = 8,966± SF
Shading = 12,892± SF

Actual impacts associated with Phase 1

Fill = 1,972± SF
Dredge = 0± SF
Shading = 6,600± SF

Some of the shading created by the existing dilapidated pier will be eliminated by this project. With the acquisition of additional shorefront upriver, the applicant is faced with additional remnant pier deck removal. Originally there was approximately 43,377 SF of existing pier area estimated for removal. The overall remnant pier decking that will now be removed over time is estimated at over 50,000 SF.

The proposed new total impacts associated with the additional waterfront land and activities (includes previously completed work and proposed new work) is as follows:

Revised impacts

Fill	=	6,822+ SF
Dredge	=	12,924+ SF
Shading	=	23,690+ SF

The indirect impacts for the site will consist of boating activity around the travel lift basin, piers, docks and ramps and will vary based on season and the size and scope of work scheduled for specific vessels.

11.3 Erosion Controls and Stormwater Runoff

Erosion and sediment control design components will be of paramount importance. The site and shorefront habitat will benefit from short-term erosion control measures during construction and long-term measures and permanent slope stabilization to be monitored and repaired as necessary by the applicant. Stormwater runoff for the proposed condition will continue to infiltrate into the ground via a crushed stone surface throughout the boat yard. Runoff generated by major storm events will be collected in perimeter swales and uniformly distributed at a controlled rate to the Fore River so as to not create point discharge locations subject to wash-out and habitat impact. During the course of construction, various measures, including, but not limited to, silt curtains, floating boom placement, crushed stone aggregate placement, and avoidance of mechanized equipment operation in the water will be maintained.

Disturbance is primarily limited to that associated with dredging and pile driving operations. A temporary reduction in water quality due to suspended silts/sediments from these activities will be an unavoidable impact.

Typical erosion control measures related to any land and water based activities will be:

1. Application of temporary and permanent erosion control measures for the project shall be in accordance with procedures and specifications of the current Maine Erosion and Sediment Control Handbook for Construction; Best Management Practices.
2. All upland areas disturbed during construction shall be reconstructed unless noted otherwise.
3. All work shall be executed from shore or by barge. No tracked or wheeled equipment shall be operated or placed below the highwater mark.

4. Temporary erosion control measures shall be removed upon completion of operations and establishment of acceptable ground cover.
5. The contractor shall be responsible for maintaining erosion control measures during construction and preventing the transport or deposition of eroded sediments into nearby waters.
6. Floating silt curtains around the work zone during any dredging, ramp or piling work.

11.4 Mitigation/Compensation

To offset the fill impact associated with the boat ramp the applicant offers the following:

1. Approximately 3,000 SF of unstabilized shoreline was previously remediated on the land taken by the State of Maine.
2. Approximately 13,600 SF of area below the HAT elevation 7.4 but behind the existing granite revetment wall will be restored with granular material and geosynthetic fabric behind the wall for stabilization. This area is currently eroded due to water that overtops or otherwise intrudes through the revetment and drags sediments outwards to the river (see Figure 1 above). The acquisition of the additional lands by the applicant has resulted in the opportunity to basically clean up more of the historic waterfront, which had been scarred by burned pier remnants, unmaintained revetment and shorefront that was suffering from erosion and related disrepair.
3. Approximately 50,000 SF of dilapidated pier surface will be removed and replaced with a new and substantially smaller pier system.
4. Clean-up of additional 1 to 2 acre area by the removal of remnant pier pilings. An unspecified number of piles (estimated 400-500 minimum) will be removed or cut off at the mudline. All new pilings will be installed outside of the Harbor Commission 50' setback from the Federal Channel boundary.