
Construction of South River Harborwalk Scope of Work Project Description

Project Site

The City of Salem, (“the proponent”) is proposing to construct a Harborwalk, make minor seawall repairs and replace an existing steel sheetpile wall along a portion of the South River in downtown Salem. The Project Area is bounded by Derby Street to the north, the Beverly Cooperative Bank to the west, land owned by the City of Salem and Mass Electric (National Grid) to the south and the Congress Street Bridge to the east.

Project Description

The proposed Harborwalk is generally ten foot clear width and approximately 778 feet long (plus 222 feet included within the 15 Peabody Street Park/Phase 1 Harborwalk Project described below). The walkway will be constructed of concrete and timber and includes sections that are at grade, pile supported over the South River and pile supported on land. The Project also includes a public plaza along Derby Street.

Scope of Work

Construction of the Project will progress as described in the following sections. The contractor will coordinate the construction with the designated Mass Electric Site Supervisor at weekly coordination meetings.

The City has divided the South River Harborwalk Project into two phases. Phase 1 includes approximately 222 linear feet that will be constructed as part of the “A Park and Harborwalk at 15 Peabody Street” project which is scheduled to be completed by November 1, 2009. Phase 2 involves the remaining approximately 778 linear feet of the Harborwalk which the City expects to bid in June of 2009. The Harborwalk is designed as a 10 foot wide concrete and timber structure that will include an entry plaza, benches, lighting, trash receptacles, railings and miscellaneous seawall, bulkhead and other site improvements.

Phase 1 – A Park and Harborwalk at 15 Peabody Street Area 2 (Station 2+28 to 4+50)

Along the southern side of the South River from Station 2+28 to 3+95, the Harborwalk will be constructed by removing any existing vegetation, placing 4-6 inches of compacted crushed stone, installing concrete forms, and pouring reinforced concrete. Once the concrete has cured, the area to the south of the concrete will be graded using granular fill at a 3:1 slope, loamed and seeded.

In this area where the Harborwalk is being placed above grade, 4 inch diameter perforated PVC drainage pipes with weepholes will be placed through the Harborwalk. Additionally, a continuous 4 inch diameter perforated PVC pipe will be installed along the toe of the slope for its entire length. The granular fill will create a smooth transition and adequate drainage between the existing grade and the proposed harborwalk.

From Station 3+95 to 4+50 the Harborwalk becomes integral with the Peabody Street Park portion of the project and is constructed as a cast-in-place concrete walkway with portions of stone dust and concrete pavers

Phase 2 – Construction of South River Harborwalk

This phase of work is scheduled to be bid around June 2009. The work includes the remainder of the Harborwalk from Derby Street to Congress Street with the project being divided into the following components that are shown on the attached Sheets 3 and 4 of the attached Bid Plans.

Base Bid – Harborwalk from Station 0+00 to 2+28 (at grade portion of concrete walkway from Derby Street to the western edge of the Phase 1 limit)

Add-Alternate No. 1 – Harborwalk from Station 4+50 to 8+26 (pile-supported timber walkway and at grade concrete walkway)

Add-Alternate No. 2 – Harborwalk from Station 8+26 to 10+00 (at grade concrete walkway and elevated timber walkway to Congress Street)

Add-Alternate No. 3 – Steel Benches (provision and installation of two steel benches)

Add-Alternate No. 4 – Trash Receptacles (provision and installation of two trash receptacles)

Stage 1

Location of Mass Electric Utility Duct (Base Bid)

The location of the Mass Electric Utility Duct in the vicinity of the proposed steel sheetpile wall anchoring system that was located in March of 2008 using ground penetrating radar will be more precisely located by excavating two test pits to better identify the vertical location of the duct. This information will be coordinated with Mass Electric prior to the installation of the sheetpile walls described in Stage 3 below. It is anticipated that a representative from Mass Electric will be present during the test pit excavation.

Stage 2

Construction Mobilization and Access (Base Bid, Add-Alternates No. 1 and 2)

Construction access and staging will occur along the project site and will also include use of the northerly portion of the Peabody Street Park parcel for crane access to construct the pile supported section in front of the Mass Electric substation and may include portions of the

Pickering Wharf parking lot lease parcel (see attached Figure entitled Harborwalk Construction Access & Staging Area - South River).

The bid specifications will stipulate that access and staging at the Pickering Wharf parking lot lease parcel cannot occur until the contractor has met with the lessee to review, and the lessee has approved, the proposed location of the site access and staging area and the schedule for usage of the staging area.

Because the lease parcel is used for public parking, the contractor will be required to minimize the area and the duration of time required for staging to the maximum extent possible.

A 40 foot wide construction access corridor will be provided along the Harborwalk except in front of the Mass Electric substation. Construction of the Harborwalk in that location (which is included as part of Add-Alternate No. 1) will likely occur from a land-based wheel-type crane and will be determined once the contractor is engaged.

It is anticipated that the single crane will operate from two set up locations. In order to avoid using the area directly in front (north side) and west of the Mass Electric substation building, the crane will be located on the city owned Peabody Street park parcel to construct the westerly portion of the pile supported structure and on the east side of the Mass Electric substation building to construct the easterly portion of the pile supported structure (see crane location on attached Figure). Should Mass Electric need the crane on their property to be moved to gain site access, the contractor will move the crane within 4 hours of such a request from Mass Electric. Small work barges in the South River may also be used.

Mass Electric requires that a Mass Electric site safety supervision representative be present on the site during the test pit activity associated with the steel sheetpile anchoring system described in Stage 3 below and during construction of the pile supported section of the Harborwalk described in the Pile Supported Harborwalk Section. Mass Electric representatives have stated that the cost of this representative will be charged to the City at a rate of \$640 per day.

Stage 3

Installation of Steel Sheetpile Wall and Pile Supported Harborwalk fronting Mass Electric Property and Repairs to Granite Seawall

Steel Sheetpile Wall (Base Bid)

The new steel sheetpile wall will be installed just seaward of the existing deteriorated sheeting at the head of the South River between Stations 1+05 and 2+10. An existing concrete cap will be removed and the steel sheetpile will be installed approximately 1½ feet in front of the existing steel sheetpile wall using a land based vibratory pile driver.

To secure the new steel sheeting to the existing sheeting, steel helical anchors will be installed through the sheeting faced into the soil to provide horizontal support. The anchors will be installed in the order of 7 feet below grade and angled to lie below the level of the existing conduit. The steel anchors will be fastened to the sheetpile with steel wales. The area between the two steel sheetpile walls will be filled with crushed stone.

In the vicinity of the existing tide gate, the sheetpile will be cut off and tied to the existing steel tide gate head walls with concrete backing landward of the new sheeting in the corner areas. The concrete will be poured from land by a concrete pump truck.

Pile Supported Harborwalk Section (Add-Alternate No. 1)

The pile supported section of the Harborwalk fronting the Mass Electric property will be installed as part of Stage 2 from Station 4+50 to Station 6+35.

Prior to constructing this section of Harborwalk, approximately 14 deteriorated timber piles located in this area adjacent to the Mass Electric property and 15 Peabody Street underneath the proposed pile supported section of the Harborwalk will be cut at the mudline, removed and properly disposed. The uneven and corroded sections of deteriorated steel sheeting in this location will be cut to match the top of the fill area located between the granite seawall and the steel sheeting to create an even edge. No cutting of steel sheeting should occur below the top of fill as this could adversely impact the stability of the fill. The cut steel sheeting shall be properly disposed. This work will occur before the pile supported section of the Harborwalk is installed.

The Harborwalk in this location will be constructed as a 12 foot 8 inch wide (10 foot clear) pile supported structure over the South River. Falsework comprised of steel piles may be installed to guide the installation of eighteen (18), 12 inch diameter timber CCA-Treated southern yellow pine piles. The piles will be driven using a land based crane-mounted pile driver. The deck will be formed and poured in place from Station 4+50 to 4+80 and constructed with timber members from Station 4+80 to 6+35. The majority of the existing concrete wall in front of the Mass Electric substation will remain except for an approximate 60 foot section along the eastern end that will need to be removed to allow for the walkway construction. An 8-foot high 5/8-inch mesh black chain link fence will be installed along this portion of walkway.

Repairs to Existing Granite Seawall (Base Bid)

Minor repairs to the existing granite seawall include removing and replacing approximately 3 feet of stone wall in damaged areas. This work will be performed by crane or backhoe operations from land.

Stage 4 Harborwalk Construction

Area 1 (Station 0+25 to 2+10) (Base Bid)

Along the western end of the South River from Station 0+00 to Station 2+10, the Harborwalk will be constructed by removing the stone dust from the existing pathway, placing 4 to 6 inches of gravel, and constructing forms for pouring reinforced concrete. The top surface of the Harborwalk will meet existing grade.

Area 2 (Station 4+50 to 4+80 and 4+80 to 6+35) (Add-Alternate No. 1)

See Stage 2 discussion on Pile Supported Harborwalk.

Area 3 (Station 6+35 to 8+26) (Add-Alternate No. 2) and (Station 8+26 to 8+86) (Add-Alternate No. 2)

Along the southern side of the South River from Station 6+35 to 8+86, the Harborwalk will be constructed by removing any existing vegetation, placing 4-6 inches of compacted crushed stone, installing concrete forms, and pouring reinforced concrete. Once the concrete has cured, the area to the south of the concrete will be graded using granular fill at a 3:1 slope, loamed and seeded.

In this area where the Harborwalk is being placed above grade, 4 inch diameter perforated PVC drainage pipes with weepholes will be placed through the Harborwalk. Additionally, a continuous 4 inch diameter perforated PVC pipe will be installed along the toe of the slope for its entire length. The granular fill will create a smooth transition and adequate drainage between the existing grade and the proposed harborwalk.

Area 4 (Stations 8+86 to Station 10+00)

Continuing along the southern side of the South River from Station 8+86 to Station 10+00, the Harborwalk will be constructed as an elevated, timber pile-supported structure on land. Installation will include twenty two (22), 2 foot square and two (2), 4 foot by 2 foot concrete footings installed with steel helical anchors with twelve (12) of the footings anchored into the existing seawall. Timber posts, caps, stringers, decking and railings will be installed per the Contract Drawings. An expansion joint will be installed between the elevated walkway and the Congress Street Bridge.

This portion of the Harborwalk will connect to the Congress Street Bridge and will require modifications to the Congress Street Bridge railings for access as shown on the Harborwalk Design Drawings.

As required by the Conservation Commission, the contractor will be responsible for transferring and placement of sixteen (16), large granite boulders from the City DPW yard to the south side of the elevated portion of Harborwalk at this location from vehicles using the adjacent parking lot.

Stage 5 Landscaping and Walkway Features*Public Plaza (Base Bid)*

Construction of the Derby Street Public Plaza will begin by removing the existing vegetated berm and pavement. The area will then be graded to accommodate the planting area and plaza. The planting areas along the east and west sides of the plaza will be loamed and vegetation planted. A cast-in-place concrete entry plaza will be saw cut during the curing process to allow removal if such removal is necessary at some time in the future to access the underlying Mass Electric utility duct. One, 2 foot by 2 foot by 4 foot granite bench will be installed in the plaza area. In addition, a concrete footing and flagpole will then be installed and an existing light pole located at the Derby Street entrance to the plaza will be relocated.

Benches and Trash Receptacles (Add-Alternate No. 3 and 4, respectfully)

The Harborwalk will have two steel benches and two *Big Belly 3* solar powered trash receptacles.

*Fencing /Railing*Derby Street Plaza (Base Bid)

A 106 foot long timber guard rail will be installed along the east side of the plaza.

Harborwalk Railing (Base Bid, Add-Alternate No. 1 and 2)

A 4 foot high decorative PVC railing will be installed along the waterside of the Harborwalk.

Interpretive Signage (Base Bid and Add-Alternate No. 1)

Two interpretive sign panel frames will be installed along the Harborwalk (an additional interpretive sign panel frame is being installed in the 15 Peabody Street Park as part of that construction project).