Station 4
Construction

Please provide your comments on the comments cards supplied at each station. Comment cards can be taken home and returned to the City or comments can be provided online via the project website.

Construction Method and Access

The selection of the preferred construction method was based on a number of technical studies, including Geotechnical Studies as well as Hydrotechnical Analysis.

- The preferred construction method is the Causeway-Trestle Solution (CTS), a hybrid construction approach.
- The CTS involves a combination of temporary causeways and a temporary work bridge (trestle) to access the piers and superstructure.
- A ferry barge or lifting span bridge will be used to transport equipment and material over the navigable channel.

- Based on the peat layer thickness of the river bed of a specific section of causeway, the causeway area has been classed into three zones where three causeway designs are proposed to be utilized.
- The causeways would to be progressively placed until the end of 2019 and would be progressively removed between 2020 to 2021.

**Water Level Schedule**

<table>
<thead>
<tr>
<th>Month</th>
<th>Expected Water Level (m)</th>
<th>Average Water Level (m)</th>
<th>Highest Water Level (m)</th>
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<tbody>
<tr>
<td>APR-2020</td>
<td>- 75.50 [2]</td>
<td>-</td>
<td>-</td>
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<tr>
<td>SEP-2019</td>
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<td>75.60</td>
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<td>DEC-2019</td>
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<td>75.30</td>
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<tr>
<td>NOV-2019</td>
<td>75.00</td>
<td>75.30</td>
<td>75.50</td>
</tr>
</tbody>
</table>
Construction

Existing Conditions

Additional Geotechnical Investigations in Fall 2018 Findings:

- Confirmation that permanent design for bridge foundations adequate (with respect to lateral capacity)
- Very deep bedrock on west
- Determination that Silty Clay overburden does not have capacity to support vertical loads of piles (trestle or permanent)
**Causeway Zone**

**Causeway Access**
- The causeway consists of the main causeway access and fingers that will allow access to the piers
- Consistent, shallow water depth (1.5-2m)
- Use of locally sourced rock fill material is available and re-used on project
- Safety during construction

**Trestle Zone**

**Trestle Access**
- Trestle consists of the main trestle spans and fingers that allow access to the Piers
- Suitable rock depth for piles (20m)
- Same open dimension as Cataract River at Belle Island (same hydraulic conditions)

**Determining the Right Access Method**

- **Causeway**
  - <5m water depth
- **Trestle**
  - 5-15m water depth
Considerations

Water Quality
- Turbidity curtains and water quality monitoring established during causeway installation and removal

Vegetation
- Milfoil is an invasive species and a hardy propagator, and after removing rockfill causeway to 100mm below original elevation, natural re-deposition and regrowth will occur rapidly

Benthic Community
- Existing benthic fauna is relatively impoverished in the fine silty sediments of the Cataraqui River
- The remnant causeway materials will enhance benthic diversity in the short term until redeposition returns it to the existing condition

Connectivity
- The passage open with trestle is as wide as the Cataraqui River is at Belle Island and this is where the flow passes
- Five additional passageways will be constructed in case any species wish to pass north to south
Construction Methods

Foundations

Installation of steel casing and drilling out inside the casing. After a rock socket is formed, reinforcing steel will be installed and concrete will be poured in the casing.

Caps

Prefabricated reinforcing steel cage, and formwork for Pier Caps.
Construction Methods

Approach Concrete Girders, Steel Girder Main Span and Deck Construction

Partial depth precast concrete deck panel placement, precast concrete girder erection, and steel girder erection.