

## 1. PROJECT TITLE

## Radium Hot Springs Aquacourt Foundation Repairs (Phase II)

## 2. PROJECT LOCATION

Kootenay National Park (KNP), BC

KM 100.8 to 101.3 of Highway 93S



### 3. PROJECT SITE(S)

The Project site is located at the Radium Hot Pools Complex (located at approximately KM 100.9 to 101.2 of Highway 93S). Four specific locations where works will be occurring include:

- Twin box culverts beneath the Complex pool deck;
- Sinclair Creek channel beneath the Complex building; and
- Sinclair Creek downstream of the Complex building.
- Cool Pool Concrete Envelope Repair, Gutter Reconfiguration and Liner Replacement

#### 4. PROPONENT

Parks Canada / Government of Canada

Consultant: Tetra Tech Canada Inc. (Tetra Tech)

## 5. PROPONENT CONTACT INFORMATION

To be provided after contract award

## **6. PROPOSED PROJECT DATES**

Planned completion: 2023-03-31

## **7. PROJECT DESCRIPTION**

### **Project Justification and Proposed Works:**

The proposed works are not considered an emergency; however, should be completed with some urgency so as to ensure infrastructure at the Hot Pools Complex is not adversely affected. In addition, work must be completed in Sinclair Creek in advance of the spring run-off beginning March 31, 2023

### **Repairs to the Twin Box Culverts Beneath the Pool Deck:**

Records indicate the twin box culvert under the pool deck was rebuilt in 1967 along with upgrades to the pools. A visual inspection of the culverts in January 2020 and April 2022 found the headstock is badly damaged, has areas with exposed rebar reinforcement, and erosion of the concrete between the longitudinal grating has occurred. The culverts are approximately 65 m long with a slope of 4.6% and have an average width of 1850 mm and average height of 1250 mm. Proposed works during the Project includes repairs to the headstock and installation of a new concrete floor (Tetra Tech 2022).

### **Upgrades to the Sinclair Creek Channel Beneath the Building:**

Flows from Sinclair Creek are currently conveyed through an open channel on the south side of the Hot Pools Complex structure approximately 7.8 m wide by approximately 4.0 m high. The observed deterioration of channel, bedrock and concrete components are caused by erosion due to water flow and flood events, abrasion, freeze-thaw, and corrosion of reinforcing steel. Deterioration from all factors is exacerbated by direct exposure to water flow, increased wetting cycles, freeze-thaw, and mechanical damage from having the open channel directly under the building (Tetra Tech 2022).

Tetra Tech (2022) recommends extending the existing twin box culverts by approximately 66 m from the existing culvert outlet at the east end of the building to the retaining wall at the west end of the building to eliminate exposure of the building and channel to the forces of the open channel. Studies indicate the twin culvert should have a combined peak flow capacity of 14 cubic metres per second. Twin culverts similar to the upstream existing culverts under the Hot Pool deck are recommended to provide durability and provide redundancy for maintenance. The majority of this culvert will be constructed with modular precast concrete units as they are preferred from a constructability, environmental risk, and cost perspective compared with cast-in-place concrete. The modular precast concrete units will be attached to the existing twin box culverts using cast in place concrete.

### **Erosion Protection of Sinclair Creek Channel Downstream of the Proposed Twin Box Culverts:**

Previous hydraulic reports indicate that the stream bed has eroded extensively in areas immediately downstream of the building. The erosion can be attributed to multiple factors including but not limited to the characteristics of the rock on the south side of the building, converging flows from the stream and incoming water from surface run off and dechlorinated discharge from the pools. With the installation of the twin box culverts stream velocities and thus erosion potential in this area is expected to increase (Tetra Tech 2022).

To mitigate further erosion and undermining, riprap is proposed for the north bank of Sinclair Creek, downstream of the Hot Pools Complex. The riprap will be placed to allow the continued discharge of dechlorinated water from the pool while also discouraging persons from swimming in this area of the stream (Tetra Tech 2022).

### **Cool Pool Repairs**

## Radium Aqua Court Foundation Repairs

### July 2022

The current pool expresses water through the wall. The liner is aged and requires replacement. The gutter is antiquated and will be replaced with a modern at deck level overflow gutter. Due to the poor condition of the pool wall, some demolition will be required as part of the renovation work. Piping for a heated glycol deck will be installed around the perimeter of the pool.

#### **Construction Work Office**

Will be located across the street from the site.

#### **Hours of Operation**

The facility will be open to visitors during construction.