

## **Culvert Replacement on Hay Camp Road (km 20), Wood Buffalo National Park (WBNP), Alberta**

### **1) Reference Documents:**

- Location Plans & Drawings:
  - Hay Camp Road Culvert Replacement - Location Plan – 001;
  - Hay Camp Road Culvert Replacement - Typical Section – 101;
  - Alberta Transportation Standard Drawing No.: CB6 -2-5M1 - Hand Laid Riprap.
  - Hwy 58 Stockpile Location Plan;
- Environmental & BMP's:
  - Parks Canada, Basic Impact Analysis (BIA) [July 2020];
  - Fisheries & Oceans Canada (DFO) – Letter of Advice (20-HCAA-0140) [September 2020];
  - Parks Canada National Best Management Practices (2015);
- Specifications:
  - Submittal Procedures – specification 01 33 00;
  - Rip-Rap – specification 31 37 00;
  - Geotextile Soil Stabilization – specification 31 32 19.16;
  - Pipe Culverts – specification 33 42 13;
  - NWT Division 5 – Granular Materials, Section 3 - Hauling;
- Other:
  - Hay Camp Road Culvert Replacement – 2020 Site Photos;
  - Nilex Geosynthetic Clay Liners – Product Specifications and Installation Guidelines;
  - Baroid Graded Sodium Bentonite Chips – Product Information.

### **2) Statement of Work**

The Contractor will undertake the removal and disposal of the existing washed-out culvert structures (2) and supply and install a new culvert structure in accordance with the attached IFC drawings and specifications contained herein.

**Work cannot commence prior to August 16, 2021 this may change dependent on weather conditions.**

**Contractor schedule and staging requires coordination and approval of Departmental Representative (DR).**

**The Contractor may elect to interim stockpile the required aggregates to take advantage of frozen road conditions before July 16, 2021. On-site stockpile and staging areas are limited therefor; the Contractor shall satisfy themselves of the room required to stockpile the materials and stage equipment to complete the work.**

**All work must be completed by September 15, 2021.**

The Contractor will:

- Load, haul and place or interim stockpile 25 mm, 40 mm aggregates supplied by Parks Canada.
  - Interim stockpiling of the aggregates will be permitted on the existing road surface in the vicinity of the culvert location. The following type and quantity of aggregate will be required for the culvert installation work.
    - 250 m<sup>3</sup> of 25 mm aggregate.
    - 600 m<sup>3</sup> of 40 mm aggregate.
  - The 25 mm and 40 mm aggregate stockpiles are located at the Hwy 58 km 28 stockpile site and is shown on reference document – Hwy 58 Stockpile Location Plan.
    - The approximate haul distance from the aggregate stockpile site to the culvert installation site is 71.0 km.
    - All hauling in accordance with NWTT Division 5 – Granular Materials, Section 3 - Hauling.
      - In addition to Section 3 – Hauling, the Contractor shall be responsible for installing and maintaining all temporary construction signage for the project.
  - The 80 mm aggregate will be hauled by the Park prior to construction and made available to the Contractor in an existing stock pile on site.
    - 60 m<sup>3</sup> of 80 mm aggregate will be supplied.
- Isolate and dewater the work area in accordance with specification 33 42 13 and the pre-approved Environmental Protection Plan (EPP).
- Remove and dispose the existing upstream beaver dam (by hand) under the supervision of the Environmental Surveillance Officer (ESO).
- Remove and dispose of two (2) existing 600 mm diameter corrugated steel pipes (CSP.)
  - All culvert waste materials and debris shall be hauled and disposed of outside of the Park at a suitable disposal facility.
- All unsuitable embankment materials are to be loaded, hauled and stockpiled at the Hay Camp Road km 18 stockpile site as indicated on the project location plan.
- Supply and install one (1) - 24 m x 1200 mm diameter CSP in accordance with the plans and specifications.
  - Culvert bedding and backfilling detail are shown on reference document - Typical Section 101.
  - Specification 33 42 13 – Pipe Culverts applies to all work.
- Supply and install a geosynthetic clay liner on the upstream side of the culvert as indicated on Typical Section 101 and to the manufacturer's specifications.
  - Product shall meet or exceed the product specifications of Nilox: Bentomat ST or Bentomat DN included in this package for reference.
- Supply and install riprap (150mm-300mm) in accordance with Reference Drawing No.: CB6-2.5 M1.
  - Place non-woven geotextile on prepared surface.
  - Remove clay seal and replace with Geosynthetic Clay Liner as indicated on Typical Section 101.
  - Inlet riprap volume: 5 m<sup>3</sup>; area: 10 m<sup>2</sup>.
  - Outlet riprap with apron volume: 10 m<sup>3</sup>; area: 19 m<sup>2</sup>.

- Supply and install Ice Worm Advantage Culvert Savers or approved alternative to manufacturers specifications.
- Reclaim all work areas to meet or exceed pre-disturbance conditions as accepted by the DR.

Contractor to submit product data for review and approval prior to commencing work in accordance with specification 01 33 00 Submittal Procedures.

Contractor will facilitate DR site access during the work.

The Contractor must:

- Establish safe access to all sites according to applicable regulations and codes.
- Comply with all mitigation measures outlined in **Section 9. Mitigation Measures** of the Basic Impact Analysis (BIA) [July 2020].
- Submit a health and safety plan which includes emergency response.
- Provide survey services required for the stockpile measurements and quality control testing throughout the construction of the culvert installation including the culvert bedding, culvert envelop and backfilling operations.

The Contractor must submit a site-specific Environmental Protection Plan (EPP) and Quality Control Plan (QCP) within Seven (7) days prior to the commencement of work.

The EPP should include at a minimum:

- An in-stream work isolation plan including the methodology, equipment and materials for isolating work site and maintaining flows, contingency planning and procedure for allowing DR access to the site to complete a fish salvage or turbidity monitoring if required.
- A site-specific erosion and sediment control plan (ESC) to implement the most rigorous recommendation and mitigation measures outlined in the BIA and Parks Canada BMP's.

The QCP should include at a minimum:

- Contact information for the retained Professional Engineering Services.
- Specific procedures for submitting test results.
- Testing standards and frequency for all Quality Control Testing.
- Stockpile Survey measurements.

Other mitigations will include:

- On-site startup environmental briefing with Parks Environmental Surveillance Officer (ESO).

### 3) Measurement and Payment:

Payment for the loading, hauling, interim stockpiling and stockpile survey measurements for the 25mm and 40mm aggregates will be made under the **“Unit Price Item 1 – Interim Hauling of Aggregates”** and shall include all equipment, materials and labour required to complete the works.

Measurement for the loading, hauling and interim stockpiling of the aggregates will be in cubic meters by the Contractor in the Stockpile and accepted in writing by the DR.

Payment for the Supply and Installation of the Culvert will be made under the **“Lump Sum Price Item 1 – Supply and Install Culvert”** and shall include all equipment, materials, incidentals, and labour required to complete the works.

Further to specification 33 42 13 – Pipe Culverts, the following will be considered incidental to the work and no separate or additional payment will be made:

- Mobilization and demobilization.
- Common excavation.
- Loading, hauling and stockpiling excavated waste material at designated locations.
- Removal and disposal of existing culvert structures.
- Supply and install of the geosynthetic clay liner, woven/ non-woven geotextile fabric, rip rap and culvert markers.
- Placement of all backfill aggregate materials including the 80mm stockpiled by the Park.
- Applicable safety and environmental mitigation measures.
- Preparation and implementation of QCP and ECP.

A table of estimated construction quantities is included on reference document – Typical Section 101.

#### **Allowances:**

Should the DR request additional work beyond what is described, payment at negotiated prices or rates will be made under **“Lump Sum Price Item 2 - Prime Cost Sum”**.

- Include in Contract Price the nominal Prime Cost Sum amount of \$20,000.00.
- Prime Cost Sum provided for in the unit price table is not a sum due to the Contractor. Rather, it is an allowance for unforeseen work items, and payment will only be made against it for additional miscellaneous work specifically requested by the DR.
- Any additional work must be approved by the DR prior to commencement. Such work could potentially include:
  - Miscellaneous repairs to Hay Camp Road including but not limited to; loading, hauling and spreading of excess gravel at the direction of the DR.
  - The supply and installation of a device to prevent beavers from damming the culvert.
  - Mitigation measures to avoid impact to fish passage/ habitat.
  - Other environmental measures requested by the DR.

#### 4) Constraints:

##### Best Management Practices:

- The Contractor must follow all of the Parks Canada Best Management Practices (2015).

##### Mitigation Measures:

- The Contractor must comply with all mitigation measures outlined in **Section 9. Mitigation Measures** of the Hay Camp Road Culvert Replacement, Basic Impact Analysis (BIA) [July 2020] included in this package.

##### Wildlife:

- The least risk to fish (including their eggs, juveniles, spawning adults and/or the organisms upon which they feed and migrate) window for work in and around freshwater is from July 15- September 15. Based on the Alberta Code of Practice for watercourse crossings in on the Fort McMurray Management Area Map Restricted Activity Periods for Class C waterbodies, <https://open.alberta.ca/dataset/1bdbc003-75a0-41dc-b33d-099c5bc536ad/resource/d0ebf416-a3b1-4660-904b-5bedceee5f21/download/fortmcmurray-codepracticecross-map-2006.pdf>
- Capture, relocate and monitor for fish trapped within isolated, enclosed, or dewatered areas, dewater gradually to reduce the potential for stranding fish.
- Appropriately screen all water intake pipes to prevent amphibian and fish entrainment or impingement if any water pumps are used for construction.
- Place screens away from natural or man-made structures that may attract fish that are migrating, spawning, or in rearing habitat.
- Place screens in waters with low concentrations of fish throughout the year.
- Orient the screen so any natural water flow passes across the surface of the screen material.
- Place screens a minimum of 30 cm above the bottom of the watercourse to prevent the entrainment of sediment and benthos that dwell in the substrate.
- Ensure all openings for guides and seals are smaller than the opening width of the screen material (2.54 mm) so fish cannot pass through.
- Ensure there is enough structural support to prevent sagging or collapsing of the screen panel.
- Account for the areas blocked by supports while meeting the effective screen area recommended in [Interim code of practice: end of pipe fish protection screens for small water intakes in freshwater](#)
- Protect large screens with trash racks fabricated of bar (150 mm spacing is typical) or grating in areas where there is debris loading (i.e. woody material, leaves or algae mats).
- Check the approach velocity directly in front of the screen to ensure it does not exceed the designed approach velocity at any location.
- Avoid withdrawing water from the shore area when possible.
- When possible, avoid withdrawing water, or reduce the rate of water withdrawal, during critical July 15 to September 15 to diminish the likelihood of entraining eggs and larval fish.
- Aquatic invasive species are introduced and spread through transporting sands and sediments and using contaminated construction equipment. To prevent the spread of aquatic invasive species during construction in aquatic environments:
  - Clean, drain and dry any equipment used in the water; and,
  - Never move organisms or water from one body of water to another.
- Limit impacts on riparian vegetation to those approved for the work, undertaking or activity;

- Limit access to banks or areas adjacent to waterbodies;
- Construct access points and approaches perpendicular to the watercourse or waterbody;
- Re-vegetate the disturbed area with native species suitable for the site.
- Restore stream geomorphology (i.e., restore the bed and banks, gradient and contour of the waterbody) to its initial state.
- If natural habitats are to be cleared or disrupted, the Migratory Bird Act must be addressed. Nesting birds are protected and hence, clearing of such lands must be either avoided during the nest periods (early May to late August) or have the area surveyed by a qualified biologist who is certified in acknowledging that bird nests are not present.
- Appropriately screen chimney and ventilation shafts to avoid attracting cavity roosting birds and bats to risky locations.
- Identify and protect important herptile habitats – such as aquatic breeding sites for amphibians, turtle nesting grounds, and snake hibernacula. If work must be completed in summer months, choose a period that minimizes the risk of all species on site.
- Avoid or terminate activities on site that attract or disturb wildlife.
- Secure materials that might attract wildlife. (e.g. petroleum products, human food and garbage.)
- If wildlife is observed on or near the work site, allow the animals the opportunity to leave the work area to the surrounding habitat and away from areas of potential conflict.
- Vacate the area or stay away from wildlife that shows aggressive behaviour or persistent intrusion.
- Notify the ESO immediately about dens, litters, nests or carcasses, wildlife activities or encounters on or around the site. Other related wildlife encounters should be reported to the ESO within 24-hours.
- No feeding, baiting or luring of any wildlife is permitted. Do not approach or harass wildlife.
- Notify the ESO immediately if wildlife obtains access to garbage, food or other attractants that were intentionally or accidentally left out.
- All contractors will carry bear spray, have bear spray training, and wildlife awareness training mandatory to all workers on site.
- Sensitive areas or those close to the snake hibernaculum should be fenced off or a boundary of the site created to ensure no one is working outside the work space.  
Before removing the current culvert, it must be searched for nests or wildlife residency prior to demolition.

#### **Equipment operations:**

- Equipment must arrive on site in good working order, a clean and dry condition, free of fuel leaks (e.g. fuel, oil or grease), mud and vegetation from other sites. This will help decrease the risk spread of alien invasive species. Equipment will be subject to an inspection from the ESO before work begins.
- All refuelling must take place on an impermeable fuel mat with a berm or within a container. Leaks and spills during refueling must be cleaned up and contaminated materials must be disposed of appropriately. Fuel must never be dispelled or deposited into the environment or any water body.
- Machinery must be stored, maintained and refuelled on a flat surface, outside the dripline of trees and a minimum of 30m from waterbodies, as measured from the High Water Mark.
- During construction, any cleaning of tools or equipment should be done off-site. If it must be

done on-site, it must be at a distance of 100m or more from the water body to prevent the wash water and its substances from entering the water.

- Select equipment appropriate to the nature of work being conducted (e.g. avoid using large scale machinery when hand tools or smaller scale machinery could be used).
- Gas generators must be secured to prevent movement during operation and set up on an impermeable fuel mat with a berm or within a container that can contain 110% of the volume of fuel in the generator.

#### **Fuel Storage and Refueling/Emergency Plans/ Spill Response Plan:**

- Plan activities near water such that materials and chemicals do not enter the water course, including: grout, paint, primers, degreasers, rust solvents, poured concrete, blasting abrasives, or other chemicals.
- Maintain all machinery on site in a clean condition and free of fluid leaks to prevent any deleterious substance from entering the water.
- Develop and implement a Spill Response Plan to avoid a spill of deleterious substances prior to work starting, including detailed information about the contaminant and storage, security, handling, use and disposal of empty containers, surplus product and waste generated in the application of these products in accordance with all applicable Federal and Provincial legislation.
- The Spill Response Plan will include at minimum:
  - A list of products and materials to be used or brought to the construction site that are considered as being hazardous or toxic to the environment.
  - Required equipment on site.
  - Size, type and location of spill kits.
  - Fuelling procedures and fuel storage.
  - Spill prevention procedures (e.g. storage and containment of materials, security, handling, use and disposal, etc.).
  - Spill response (e.g. containment, clean-up, disposal of contaminated materials, etc.).
  - Spill reporting procedures.
  - Up-to-date emergency response contact list including contact information for reporting spills.
- The Prime Contractor is responsible for ensuring that all crew members and subcontractors on site receive a briefing about the Spill Response Plan and are aware of the location and use of spill kits and containment devices.
- Spill kits will be present on-site and close to re-fuelling, lubrication and repair locations that are capable of dealing with 110% of the largest potential spill and shall be maintained in good working order.
- Notify the ESO and emergency contact immediately of a sewage, oil, fuel or other deleterious substance spill whether near or directly into water body. In the event of a major spill, call the first contact authority (See Appendix A).
- Containments must be recovered at source and disposed of according to applicable laws, policies and regulations. The site will be inspected by the ESO to ensure completion of expected standards.
- All fuel must be stored in a bear proof container, to prevent bears getting access to them.
- All spills must be contained and cleaned-up as soon as it is possible to safely do so. All other work must cease until the spill has been adequately contained or cleaned up.
- Ensure clean-up measures are suitably applied so as not to result in further alternation of the bed and/or banks of the watercourse.

- Ensure that building material used in a watercourse is handled and treated in a manner to prevent the release or leaching of substances into the water that may be deleterious to fish.

**Protocols for discovery of archeological or cultural sites of interest:**

- Should any cultural resources be unearthed during site preparation, or discovered at any other stage of the project, work will be halted in this area until the find is evaluated. If workers accidentally find any significant isolated cultural resources while they are working, work will cease in the immediate area. The project manager, a Parks Canada archaeologist, and/or a cultural resource advisor will be contacted to discuss any protective actions that might be needed. Significant isolated historic items may include but are not limited to: historic cabin foundations or dumps, concentrations of turn-of-the-century bottles or cans, structural features related to early road construction, or pre-contact resources such as concentrations of butchered animal bone, hearths, stone features, or archeological artifacts.

**5) Contractor Requirements:**

**Contractor team:**

- The Contractor is responsible for coordinating and directing all contractor and sub-contractor team activities. The Contractor team must be comprised of qualified professional and technical expertise with extensive relevant experience and must be capable of providing the services identified in this requirement.

**Standard of care:**

- The Contractor must demonstrate that the project will be undertaken utilizing best practices of the professions, manufacturers, and trades involved and must meet or exceed the requirements of all applicable standards and codes.

**Errors and Omissions:**

- No fee payment will be made by Parks Canada Agency based on the cost of work incurred to remedy errors or omissions, for which the Contractor is responsible.

**Changes in services:**

- The Contractor, if requested in writing to do so, will make any required changes in the work for the project notwithstanding his or her previous approval and advise the Parks Canada Agency Representative of any changes to the time, schedule, budget and other implications. The Contractor will provide an estimated cost for the required changes to the Parks Canada Agency Representative.

### **Health and Safety:**

- The Contractor is required to perform a site-specific safety hazard assessment and provide a site-specific health and safety plan related to the project.
- The Contractor is responsible for the health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they are affected by conduct of work.
- The Contractor must report all accidents to the Parks Canada Agency Representative immediately.
- The Contractor must comply with and enforce compliance by employees and sub-contractors with safety requirements of contract documents, applicable federal, provincial, territorial and local statues, regulations and ordinances and with site-specific Health and Safety Plan.
- The Contractor must comply with Occupational Health and Safety Regulations, General Safety Regulation, Province of British Columbia.
- The Contractor must comply with Canada Labour Code, Canada Occupational Safety and Health Regulations.
- The Contractor must immediately address health and safety non-compliance issues identified by authority having jurisdiction or by the Parks Canada representative. Provide Parks Canada representative with written report of action taken to correct non-compliance of health and safety issues identified. Parks Canada representative will stop work if non-compliance of health and safety regulations if not corrected.
- The Contractor must give precedence to safety and health of public and site personnel and protection of environment over cost and schedule considerations for work.

### **Standards, Guidelines, codes, by-laws, Permits:**

- The Contractor is required to obtain a Restricted Activity Permit from Parks Canada for excavation, water withdrawal, or all-terrain vehicles and machinery to be used off paved surfaces prior to mobilizing. The permit must be kept on site at all times.
- The following apply to the activities in connection with this project:
  - Canada National Park Act and Regulations.
  - Migratory Bird Act, Fisheries Act and Species at Risk Act.
  - Most recent CSA standards.
  - Local Provincial and Municipal Codes, Standards and Regulations accepted as having jurisdiction in the National Parks where work is being performed and for which the requirements are more stringent than those named above, must be followed.

**Risk management:**

- The Contractor will perform work with adequate safety personnel to monitor safety and mitigate risk to assets.

**Responsibilities of contractor:**

- The Contractor must ensure all work meets the prescribed standards identified herein.
- The Contractor will be responsible for arranging and undertaking all services necessary to complete this project.
- The Contractor will be responsible for ascertaining the availability of all information from Parks Canada representative prior to the start of the project and for determining the procedures to be followed throughout the course of the project as well as other requirements.
- The Contractor must maintain direct communication with the Parks Canada representative. All correspondence and communications must be addressed to the Parks Canada representative.
- Contractor and sub-contractors must obtain a business license from the Parks Canada Administration Office in Fort Smith prior to commencement of work.
- Contractor and sub-contractors' business and private vehicles are required to obtain a vehicle work pass from Parks Canada. These passes are obtained free of charge at the Parks Canada Administration Building with proof of business license.

## **6) Project Administration Requirements**

### **Project management:**

The Parks Canada Representative shall:

- Facilitate a contract between the successful contractor and Parks Canada;
- Perform general project management duties, as required;
- Arrange meetings and work inspections as required throughout the duration of the project, for members of the project team, including representatives from Parks Canada and contractor; and
  - Meetings will normally be held on-site.

### **The Contractor will:**

- Attend the meetings;
- Answer any questions as required;
- Advise Parks Canada when work is nearing completion so that final site inspection can be arranged while access and equipment is available for detailed inspection; and
- Advise Parks Canada in writing of outstanding information needed to proceed with the project.

### **Lines of communication:**

- All formal directions regarding project scope, budget, schedule, etc. must come from the designated Parks Canada representative, in writing.

### **Media:**

- The Contractor must not respond to requests for project related information or questions from the media. All media related inquiries are to be directed to the Parks Canada representative