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# Water Licence N5L1-1843 - Annual Report (2020)

## Revision 1

Construction of Concrete Arch Bridge along Inuvik to Tuktoyaktuk Highway (ITH) at km 131.2 over Gunghi Creek

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Department of Infrastructure  
Inuvik, NT

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March 2021



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## 1.0 Introduction

## 2.0 Introduction

The Government of the Northwest Territories Department of Infrastructure (GNWT) is currently undertaking replacement works of an existing culvert over Gunghi Creek that carries the Inuvik to Tuktoyaktuk Highway (ITH), south of Tuktoyaktuk, Northwest Territories (the 'Project'). This Annual Report has been developed in collaboration with Allen Services & Contracting Ltd. and Wood Environment & Infrastructure Solutions to meet Part B, Item 1 of the Project *Water Licence N5L1-1843* for the licence effective date February 1, 2020 to December 31, 2020.

## 3.0 Project Description

The Gunghi Creek crossing is located 14 km south of Tuktoyaktuk at the Inuvik to Tuktoyaktuk Highway (ITH) KM marker 131.2 (Zone 8W, 577222.00 m E, 7693944.00 m N). The Project involves replacement of the existing 2000 mm diameter by 38 m long corrugated steel pipe culvert (CSP) with a new 7518 mm span by 3500 mm rise by 38.966 m length open bottom concrete arch bridge, installed with a 0.0015 m/m streambed gradient to match average surveyed streambed gradients. The approved watercourse crossing replacement works includes channel restoration and an onsite temporary detour (ice road and snow fill) to bypass traffic around the site during construction.

Channel restoration will consist of a 0.45 m thick constructed channel bed of Class 1 rock riprap with over non-woven geotextile that will be embedded and graded to transition smoothly to the natural channel bed elevations upstream and downstream of the CSP. The channel bed transitions will extend 5 m upstream and downstream from the new bridge structure. Armored bank transitions at the bridge inlet and outlet ends will have 2:1 slopes. The constructed channel bed will incorporate rock boulders (Class 2 boulders [projecting 350 mm above the Class 1 riprap]) spaced at 5.0 m intervals. The Project works will occur within the existing ITH right-of-way (RoW) obtained by the Government of the Northwest Territories, Department of Infrastructure from the Inuvialuit Regional Corporation.

Construction was originally scheduled for winter 2020, with completion planned for April 15, 2020 and instream works completed by March 31, 2020, outside the restricted activity timing window of April to July 15. Due to timing of obtaining project approvals, construction was delayed until the winter 2020/2021 with a high risk that the project may not be completed prior to spring freshet. Construction commenced December 1, 2020 with completion scheduled for no later than April 15, 2021 and instream works completed no later than March 31, 2021, outside the restricted activity timing window for works in or around water of April 1 to July 15. The revised construction schedule is provided in Appendix A.

## 4.0 Results

The following provides a summary of Project related activities for the licence effective date February 1, 2020 to December 31, 2020 to meet Part B, Item 1 of the Project *Water Licence N5L1-1843*.

### 4.1 Sewage Disposal

Item 1(a) of the Water Licence requires monthly and annual quantities of sewage disposed of and associated disposal location. No Project related activities occurred for the licence period February 1, 2020 to November 30, 2020. During the December 1-31, 2020 construction period a porta potty was on-site but no disposal of sewage waste was needed.

Where sewage is disposed of during the remainder of the construction period, it will be transported to a sewage lagoon facility for disposal or treatment as required and done according to the Hamlet of Tuktoyaktuk or Town of Inuvik regulation.

### 4.2 Non-Hazardous Waste

Item 1(b) of the Water Licence requires monthly and annual quantities and types of non-hazardous waste removed from the Project and associated disposal locations. No Project related activities occurred for the licence period February 1, 2020 to November 30, 2020. During the December 1-31, 2020 construction period, no non-hazardous waste was removed from the Project.

Where non-hazardous waste is generated during the remainder of the construction period will be transported to an approved facility as required.

### 4.3 Hazardous Waste

Item 1(c) of the Water Licence requires monthly and annual quantities and types of hazardous waste removed from the Project and associated disposal locations. No Project related activities occurred for the licence period February 1, 2020 to November 30, 2020. During the December 1 - 31, 2020 construction period, no hazardous waste was removed from the Project site.

Any hazardous waste generated during the remainder of the construction period will be transported to an approved disposal or treatment facility as required.

### 4.4 Hazardous and Non-Hazardous Temporary Waste Stored

Item 1(d) of the Water Licence requires quantities and types of hazardous and non-hazardous waste temporarily stored on site including disposal plans for each type of waste.

No Project related activities occurred for the licence period February 1, 2020 to November 30, 2020. During the December 1 - 31, 2020 construction period, no hazardous or non-hazardous waste was temporarily stored onsite.

Hazardous or non-hazardous waste generated during the remainder of the construction period will be stored and disposed of as outlined in Section 5.6 of the approved Environmental Management Plan - Revision 4.

## 4.5 Surveillance Network Program

Item 1(e) of the Water Licence requires a summary report, including all data and information generated under the “Surveillance Network Program (SNP)”.

Sampling and analysis under the Surveillance Network Program are required during the post-construction phase of the Project and were therefore not conducted during the licence period February 1, 2020 to December 31, 2020. Sampling and analysis will be conducted under the Surveillance Network Program following construction completion, as outlined in Annex 1 of the *Water Licence N5L1-1843* as follows:

- Monthly during periods of open water immediately following the completion of the construction activities; and
- Once annually during freshet for the duration of the licence.

## 4.6 Construction and Installation Activities and Schedule

Item 1(f) of the Water Licence requires a summary of the existing culvert replacement and open bottom concrete arch bridge construction and installation activities completed and an updated construction schedule.

No construction or installation activities occurred for the licence period February 1, 2020 to November 30, 2020. The Project commenced December 1, 2020, with construction of the temporary onsite detour (e.g., an ice road and snow fill). The detour was constructed within the existing ITH right-of-way. Man-made snow from lake water at ITH KM 120 was imported to construct the detour approaches on both the north and side of Gunghi creek. Water was withdrawn under a separate Water Licence N7L1-1835 issued for Construction and Maintenance of the ITH. Approximately 70% of the detour was constructed as of December 18, 2020 involving works completed outside of the watercourse channel. The section of the detour over Gunghi Creek was not constructed to ensure no water issues could/would arise while no personnel were on site. No other works were completed during the 2020 construction period. Construction of the detour halted on December 18, 2020 for the remainder of the year, while personnel were away on holiday break.

Construction and installation of the replacement crossing commenced with excavation of watercourse crossing embankment in January 2021, as per the construction schedule provided in Appendix A.

## 4.7 Unauthorized Discharges or Spills

Item 1(g) of the Water Licence requires a list and description including location and volume of all unauthorized discharges and spills, and summaries of all associated remedial and follow-up actions taken.

No Project related activities occurred for the licence period February 1, 2020 to November 30, 2020. During the December 1 - 31, 2020 construction period, no unauthorized discharges or spills occurred.

## 4.8 Spill Training and Communication Exercises

Item 1(h) of the Water Licence requires a description of any spill training and communications exercises carried out.

Training and communication were undertaken as outlined in Section 7.7.12 of the Environmental Management Plan – Version 4 and outlined below:

All personnel involved in an emergency response fully understand their roles and the roles of others whom they may interact with during an incident. To meet this commitment and to ensure personnel respond effectively, training activities included:

- Providing employees and contractor management with an orientation to Allen Services & Contracting Ltd.'s Emergency Response Plan and its applicable elements.
- Ensuring all employees are familiar with and trained in the safe work procedures related to the handling of petroleum products and fueling equipment.
- Discuss and clarify bridging between contractors' emergency response procedures and Allen Services & Contracting Ltd. Emergency Response Plan where applicable.
- Utilize summary wall charts outlining key responsibilities and lines of communication for quick reference purposes.
- Devote a portion of scheduled safety and/or staff meetings to discussion of emergency response issues on and on-going basis.
- Keep on site record of the training provided, when it was provided and who attended.

## 4.9 Studies Required by the Board

Item 1(i) of the Water Licence requires a report on any studies required by the Board and a brief description of any future studies planned by the Licensee.

No studies were required during the licence period February 1, 2020 to December 31, 2020. Specifically, water sampling of total suspended solids (TSS), pH, and total petroleum hydrocarbon (TPH) as outlined in Part D, Item 9 of the *Water Licence N5L1-1843*, as no instream works were conducted in 2020.

Future studies planned by the Licensee include post-construction sampling and analysis under the Surveillance Network Program as outlined in Annex 1 of the *Water Licence N5L1-1843*.

## 4.10 Modifications and/or Major Maintenance Work

Item 1(j) of the Water Licence requires a summary of modifications and/or major maintenance work as related to the Project.

Modifications and/or major maintenance work related to the Project were not required/completed during the licence period February 1, 2020 to December 31, 2020.

#### 4.11 Updates and/or Revisions to Project Plans

Item 1(k) of the Water Licence requires a description of any updates and/or revisions to any of the following plans:

- Spill Contingency Plan;
- Waste Management Plan;
- Erosion and Sediment Control Plan;
- Aquatic Effects Monitoring Plan; (now called the Fisheries Management Plan in the EMP V4);
- Wildlife Management Plan; and
- Closure and reclamation Plan.

An updated Environmental Management Plan (EMP) - Revision 4 was submitted to the Inuvialuit Water Board and approved on December 7, 2020. The updated EMP included revisions to the following plans:

- *Spill Contingency Plan:*
  - Added requirements for follow-up reporting of spills.
- *Erosion and Sediment Control Plan:*
  - Updated erosion and sediment control procedures.
- *Aquatic Effects Monitoring Plan:*
  - Title changed to Fisheries Management Plan.
  - Addition of mitigation measures.
  - Instream isolation measures and Total Suspended Solids/Turbidity Monitoring Plan removed in response to DFO approval of the Project based on the understanding that water will not be present in a liquid state at the watercourse crossing during construction and therefore instream isolation and water quality monitoring during construction will not be required.
  - Surveillance Network Program details were moved/addressed under the Fisheries Management and Monitoring Plan and QAQC Plan documents.

Proponent contact information and revised schedule dates were also updated throughout the EMP, where appropriate.



## 5.0 Closure

This report has been prepared for the exclusive use of the Government of the Northwest Territories and their authorized users for specific application to the project site. The methods identified were prepared in accordance with the proposed work scope for the site, industry best management practices and guidelines, and conditions of approvals for the Project. No other warranty, expressed or implied, is made.

We trust that the information contained within this report satisfies your requirements. Should you have any questions, please contact the undersigned at your earliest convenience.

Respectfully submitted,

**Wood Environment & Infrastructure Solutions**  
a Division of Wood Canada Limited



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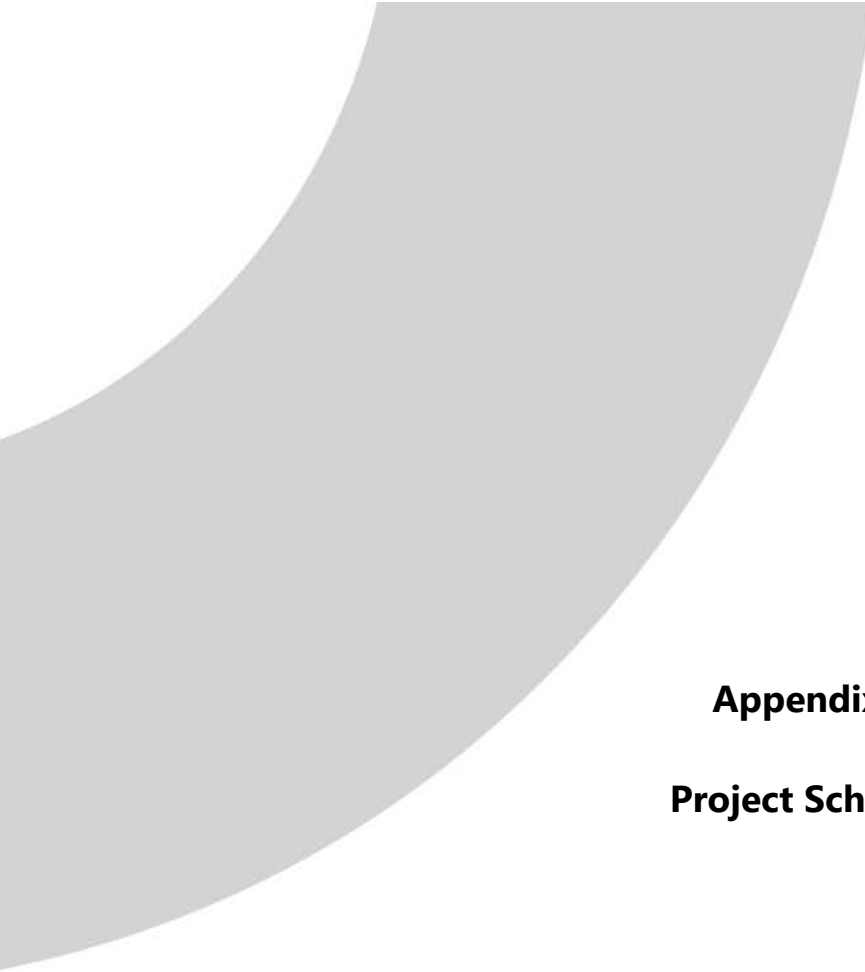
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**Appendix A**  
**Project Schedule**



