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January 22, 2021

**Project #    Client Reference:**  
60638794

Triage and Planning Unit

**Subject: Request for Review as part of Eureka HAWS Two Temporary Crossings**

The purpose of this memo is to provide the Department of Fisheries and Oceans Canada (DFO) with information for the proposed Project and subsequent Request for Review (RfR).

## Background Information

The Eureka High Arctic Weather Station (HAWS; the site) is located on the north side of Slidre Fjord, at the northwestern tip of Fosheim Peninsula, Ellesmere Island, NU. Since 1947, Environment & Climate Change Canada (ECCC, the proponent) has owned and managed the overall operations and maintenance of the site under Land Reserve #1021. The total area of the site is approximately 2.23 hectares. There are presently 15 primary buildings and other facilities at the HAWS. The Eureka runway is located 1.5 km northeast of the HAWS main site and is the primary way by which the HAWS is accessed year-round.

ECCC is currently undertaking or planning a number of construction and infrastructure improvement projects at the HAWS. As such, the existing quarry site at West Remus Creek will need to be expanded in order to support the current and planned improvement projects. ECCC has obtained a number of permits and is currently in the process of applying for new permits or permit extensions, where applicable, with respect to the projects at the site.

As a part of the quarry expansion activities, ECCC plans to install culverts to support two (2) temporary access crossings: one (1) over Remus Creek (Easting: 532493.638911, Northing: 8875259.99035) and one (1) over West Remus Creek (Easting: 531882.353668, Northing: 8875555.02758) (Figure 1). The area at each location is approximately 70 m<sup>2</sup> (totalling 140 m<sup>2</sup>) and will include the following high-level activities:

- Temporary installation of up to three (3), each up to 600 mm<sup>1</sup> corrugated metal pipe culverts (up to 12 m in length) at each temporary access location.
- If more than one culvert is required, spacing between culverts may range between 1 m to 2 m apart, which would only nominally increase the surface area.
- Grading the channel with minimal slope changes.
- Installation of geotextile along the banks of the channel.
- Erosion and sediment control of the channel.

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<sup>1</sup> Number and sizing (either 300 mm, 400 mm, 500 mm or 600 mm) of culvert will be dependent on current site conditions and size of airplane craft able to transport equipment to site.

Public Services and Procurement Canada (PSPC) Technical Services division provides project management services to administer the various infrastructure upgrade projects on behalf of ECCC. AECOM Canada Ltd. (AECOM) has been retained by PSPC to support the engineering and permitting activities associated with the improvement projects and upgrades at the HAWS and has undertaken this RfR on their behalf.

This package has been prepared to support and request a DFO RfR of the "activity". To support this review, please find attached:

- Attachment 1 – RfR DFO Form
- Figure 1 – Site Map of Eureka HAWS Showing Location of Two Temporary Water Crossings
- Figure 2 – Temporary Access Culvert Detail Diagram

## Design and Construction

### *Timing:*

- Construction Phase: June 1, 2021 to September 30, 2021<sup>2</sup>
- Operations Phase: June 15, 2020 to October 15, 2025
- Closure/Decommissioning Phase: October 15, 2025 to October 31, 2025

### *Activities In-Stream:*

- Grading the channel with minimal slope changes.
- Placement of geotextile liner in the shallow substrate.
- Installation of corrugated metal pipe culvert on top of geotextile liner.
- Placement of aggregate fill on top of culvert pipe and as necessary for bedding.

### *Amount of footprint below highwater mark:*

- West Remus and Remus Creeks are ephemeral creeks which meander and have ill-defined bed and banks. Flows are conveyed during spring freshet but the creeks are generally dry for the remainder of the year. The highwater mark is unknown and as such, we have assumed the footprint of 70 m<sup>2</sup> at each temporary crossing (totalling 140 m<sup>2</sup>) is all below the highwater mark.
- Refer to Figure 2

## Regulatory Context

In addition to ECCC's RfR submission, this Project will require:

- Application for Conformity Determination with the Nunavut Planning Commission for quarry expansion project activities at the West Remus Creek quarry site at the Eureka HAWS

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<sup>2</sup> Construction timing may vary within this period based on number of resources able to mobilize to site, available equipment and available transportation due to seasonal constraints and travel restrictions associated with the COVID-19 pandemic.

## Existing Conditions

The HAWS is located in an extreme climate with long, very cold winters and short, cool summers. The field season for the completion of construction activities is, understandably, extremely short. It consists of (at most) July, August and the beginning of September. Outside these months, the ground is frozen and there is no water flowing in the water bodies in the Project location area. Remus Creek and West Remus Creek, and the portions in which the Project will be taking place, are temporary, ephemeral watercourses, which are only filled with water during the spring freshet period.

Hydrology assessments have been previously conducted at the HAWS for Station Creek and Black Top Creek and some historical data is available. Generally, flow within all watercourses at the site begins in mid June (around June 15) and ends in late August or Early September<sup>3</sup>.

Based on a desktop review and on discussions with station staff regarding local conditions and observations relating to fish and fish habitat at Station Creek, and aquatic species and mammal observations during their time at the HAWS site (Environmental Impact Assessments (EIAs) conducted in 2016 and 2018 (Arcadis)), no species listed under the Species at Risk Act (SARA) or assessed under COSEWIC have been identified within the Project area. Furthermore, no species have been identified under the Nunavut Wildlife Act.

West Remus Creek and Remus Creek drain a large area to the east of the Eureka runway, starting in June; however, flow most likely ceases in September and any remaining water freezes. There is no evidence of anadromous fish, such as arctic char, that move into the streams in summer to breed, as expected due to the ephemeral, temporary nature of the water bodies. Based on these observations, there is no critical fish habitat present at the HAWS site (including Remus Creek and West Remus Creek, in the immediate vicinity of the Project). Remus and West Remus Creeks are similar to nearby Black Top Creek. Staff working at the Eureka HAWS have reported that they do not believe that Black Top Creek is fish bearing, however, this has not been confirmed, but likely true due to the ephemeral nature of the water body<sup>4</sup>.

## Proposed Mitigation Measures

The mitigation measures associated with this scope of work are outlined below.

### *Aquatic Environment*

- Minimize duration of in-water work.
- Suitable erosion and sediment control measures will be implemented to prevent sediment from entering West Remus Creek and Remus Creek.
- Erosion control structures (temporary matting, geotextile, etc.) are to be used. Vehicles/machinery are to be checked for leakage of lubricants or fuel and are maintained in good working order. Basic petroleum spill clean-up equipment will be kept on-site.
- Schedule work to avoid wet, windy, and rainy periods that may increase erosion and sedimentation.

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<sup>3</sup> WorleyParsons Canada Ltd. 2010. *Eureka Civil Consulting Services. Prepared for Public Works and Government Services Canada.*

<sup>4</sup> Arcadis Canada Inc. (Arcadis). 2018. *Environmental Impact Assessment: Addendum for High Arctic Weather Station Project Improvements: Construction of New Road, Construction of Water Crossing over Black Top Creek, and Development of New Quarry Site. March.*

- Avoid building structures on meander bends, braided streams, alluvial fans, active floodplains or any other area that is inherently unstable and may result in erosion and scouring of the stream bed or the built structures.
- Undertake all instream activities in isolation of open or flowing water to maintain the natural flow of water downstream and avoid introducing sediment into the watercourse.
- Plan activities near water such that materials such as paint, primers, blasting abrasives, rust solvents, degreasers, grout, poured concrete or other chemicals do not enter the watercourse.
- Fuel will be stored in double wall containment capsules at a designated areas.
- Develop a response plan that is to be implemented immediately in the event of a sediment release or spill of a deleterious substance and keep an emergency spill kit on site.
- Develop and implement an Erosion and Sediment Control Plan for the site that minimizes risk of sedimentation of the waterbody during all phases of the project.
- If replacement rock reinforcement/armouring is required to stabilize eroding or exposed areas, then ensure that appropriately sized, clean rock is used; and that rock is installed at a similar slope to maintain a uniform bank/shoreline and natural stream/shoreline alignment.
- Remove all construction materials from site upon project completion.

#### *Aquatic Community*

- Despite the lack of reported fish species in West Remus Creek, which is similar and comparable to Remus Creek, mitigation measures for construction activity are to be implemented as a precaution to prevent physical disturbance to the stream beds or margins including adherence to DFO Fish and Fish Habitat Policy Statement (2019). For instance, should any fish be detected, ensure that all in-water activities, or associated in-water structures, do not interfere with fish passage, constrict the channel width, or reduce flows, or result in the stranding or death of fish. It is very unlikely that any SAR are in the creeks at any time.
- Conduct instream work during periods of low flow, or at low tide, to further reduce the risk to fish and their habitat or to allow work in water to be isolated from flows.
- If possible, complete the culvert installation while the ground and creek are still frozen or during dry conditions, to minimize an impact to fish and fish habitat.
- Design and plan activities and works in water body such that loss or disturbance to aquatic habitat is minimized and sensitive spawning habitats are avoided, and impacts to SARA-listed aquatic species, their residences or critical habitat are avoided.
- Design and construct approaches to the waterbody such that they are perpendicular to the watercourse to minimize loss or disturbance to riparian vegetation.
- Increased movement of borrow materials or fuel from storage sites that involve transport along the stream margins may require temporary relocation of roads or transport in the fall when the area is frozen. If changes in the stream banks and bed are observed, then construction will halt until fall or conducted in spring before thaw. Site personnel will be instructed on the importance of not driving heavy equipment along the stream banks or bed.
- Ensure that construction materials used in a watercourse have been handled and treated in a manner to prevent the release or leaching of substances into the water that may be deleterious to fish.

- Immediately stabilize shoreline or banks disturbed by any activity associated with the project to prevent erosion and/or sedimentation, preferably through re-vegetation with native species suitable for the site.
- Reclaim bed and banks of the waterbody to their original contour and gradient; if the original gradient cannot be reclaimed due to instability, a stable gradient that does not obstruct fish passage should be reclaimed.
- Ensure that all in-water activities, or associated in-water structures, do not interfere with fish passage, construct the channel width, or reduce flows, or result in the stranding or death of fish.

## Conclusions and Closure

The Project will result in no permanent loss of habitat. A temporary loss of approximately 70 m<sup>2</sup> of possible low-quality fish habitat at each location, totalling approximately 140 m<sup>2</sup>. This determination is based on aquatic assessments and confirmation from personnel at the HAWS site, which concluded that the watercourse is ephemeral, has little-to-no surface water present outside of the spring freshet period, and, as such, is unsuitable for spawning and rearing, or to support fish that were previously considered part of a HADD fishery, or fish that support such a fishery. Furthermore, the work will not contravene the SARA prohibitions with respect to aquatic or semi-aquatic species as none were identified as being present. The proposed work is considered to comprise routine activities, which can be easily isolated from fish habitat to protect fisheries values outside the work area, and for which standard guidance on the best practices for performance exists and can be applied. Relevant best management practices and DFO's Fish and Fish Habitat Protection Measures will be implemented where appropriate, including:

- Preventing the death of fish
- Ensuring proper sediment control
- Preventing the entry of deleterious substances in water
- Minimizing the duration of in-water work
- Isolation of aquatic work areas
- Proper equipment condition, inspection, maintenance, refuelling and operation
- Proper material handling, spill prevention and response

AECOM, on behalf of ECCC, is requesting DFO review the proposed work to determine whether or not it results in a HADD that requires an Authorization under Subsection 35(2)(b) of the modernized *Fisheries Act*.

Should you require any additional information, please do not hesitate to contact Laura MacKay, Senior Environmental Specialist at PSPC, at 431-275-8316 or [laura.mackay@pwgsc-tpsgc.gc.ca](mailto:laura.mackay@pwgsc-tpsgc.gc.ca).

Sincerely,

**AECOM Canada Ltd.**



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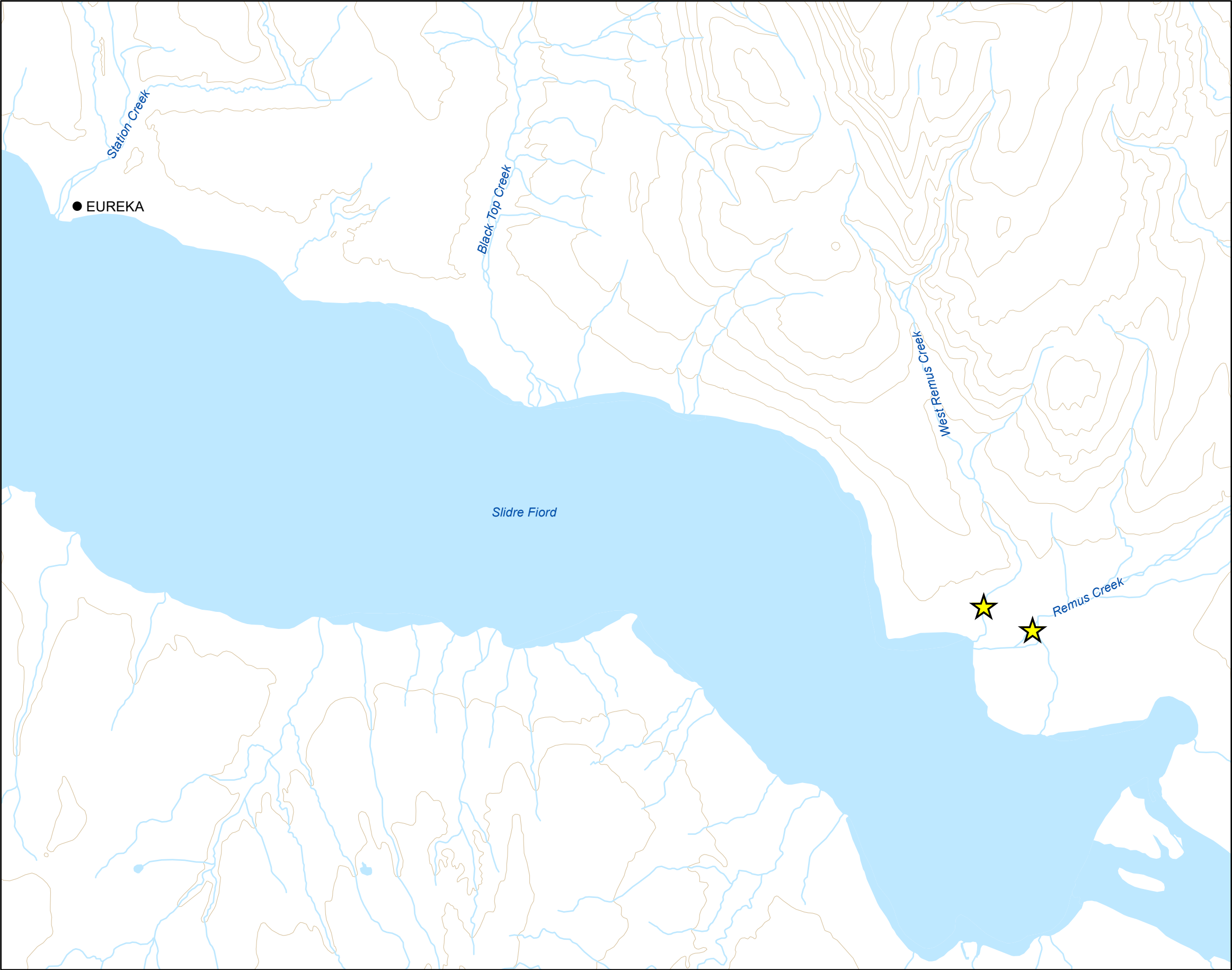
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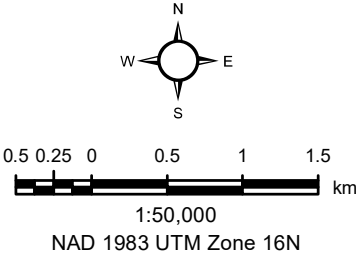
# Attachment 1

# Figure 1





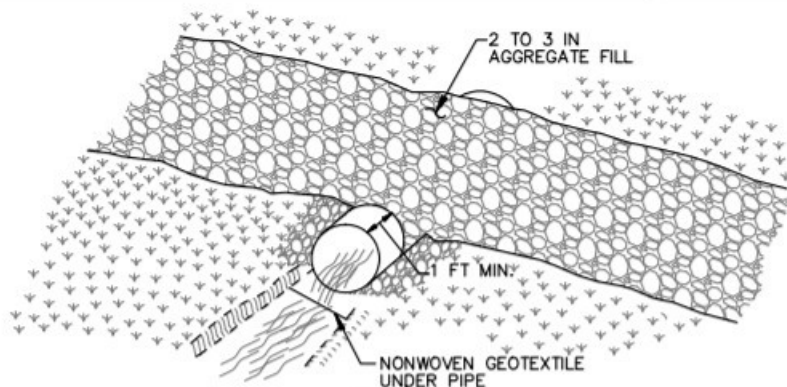
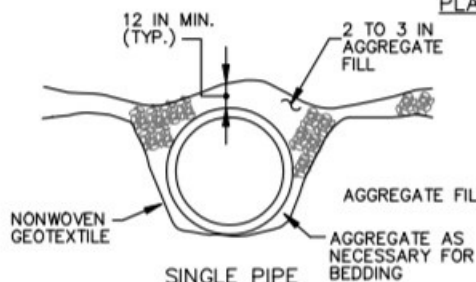
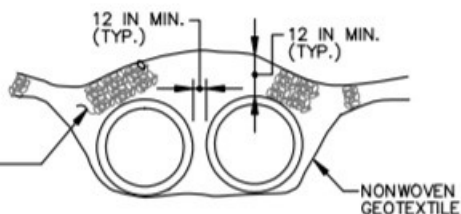
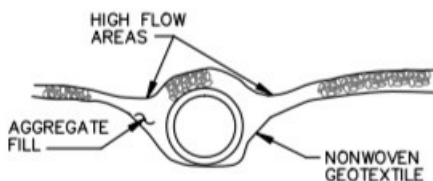
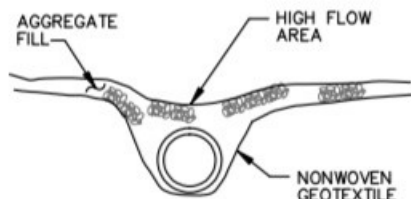
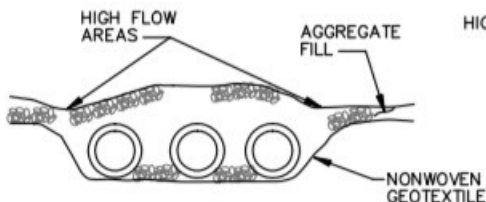
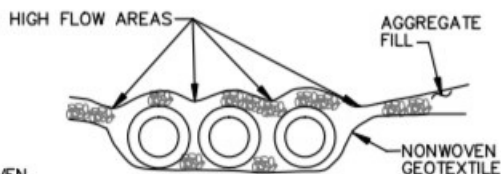
- Legend
- Temporary Water Crossing
- Watercourse
- Waterbody



Sources: NRCan

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# Figure 2

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