



## Parks Canada Basic Impact Analysis

### 1. PROJECT TITLE & LOCATION:

Goose River Trail Decommissioning & Restoration, Fundy National Park of Canada

### 2. PROPONENT INFORMATION:

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### 3. PROPOSED PROJECT DATES

Planned commencement: 2018-09-04  
Planned completion: 2018-11-23

### 4. INTERNAL PROJECT FILE #

NBSouth-2018-EIA-8

### 5. PROJECT DESCRIPTION

The Goose River Trail, located high above the rugged Bay of Fundy coastline in the south western corner of Fundy National Park, New Brunswick, is currently a 7.9 km trail that facilitates hiking and biking between Point Wolfe and Goose River (Figure 1). The trail, adopted from an old logging road that existed prior to 1862, was incorporated into the trail system after park establishment in 1948. Although meant to provide a coastal experience, the trail travels inland through forested areas far enough removed from the Bay of Fundy to prevent users from having an authentic coastal experience. The alignment of the trail, originally constructed for horse and wagon traffic, was built using techniques and practices that no longer meet modern best management standards in design and construction. Bench cut roads were carved into steep sloped terrain which traverse through several ravines. Very few modifications, in width and design, have been made over the last 70 years to convert the road to a more user friendly trail.

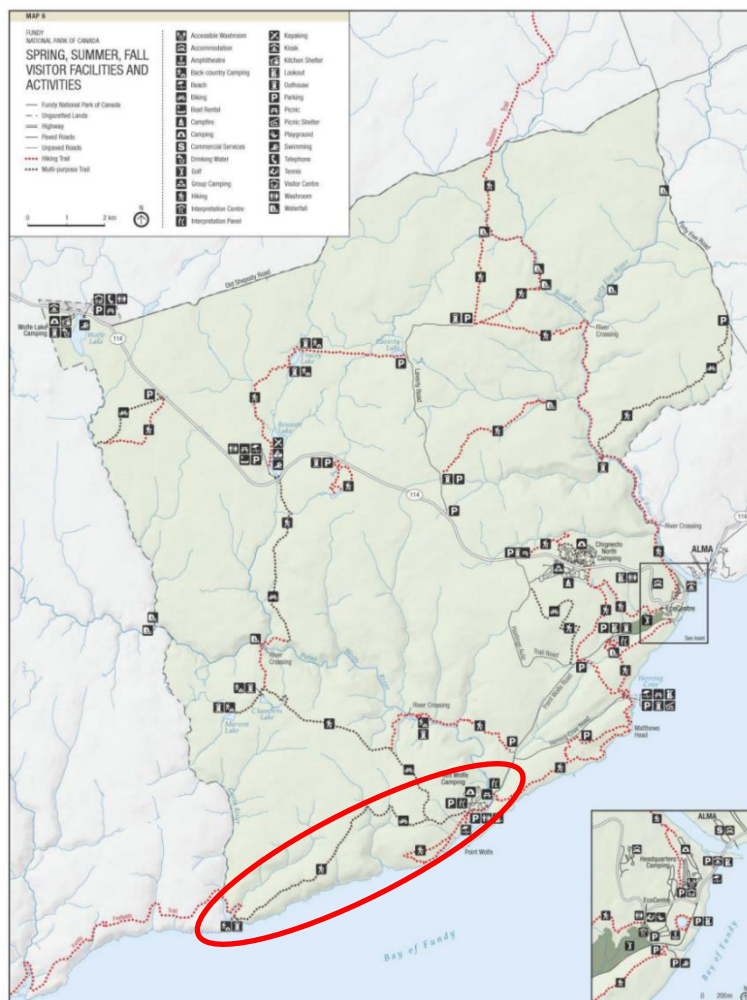


Figure: 1 Goose River Trail, Fundy National Park





In 2014, Fundy National Park conducted a Trail Condition Assessment on all trails within the park system to determine the overall ecological sustainability for each trail. The survey assessed the condition of each trail based on erosion, trail width and factored in features such as root exposure, wetted areas, braiding, social trails and trail infrastructure. Sections of each trail were assigned a poor (red), fair (yellow) or good (green) rating based on current trail conditions and the number of ecologically degraded features identified (Figure 2). Although not rated in the assessment, a number of safety concerns and issues were also identified during the assessment process. In addition to the Fundy National Park Trail Revitalization project, the Goose River Decommissioning and Restoration project was initiated based on the results of the Trail Condition Assessment which facilitated the prioritization and decision making process to identify the necessary work and actions required to enhance the ecological and recreational aspects of the current trail network. As indicated in Figure 2, the majority of the Goose River Trail was rated fair to poor based on width and erosion alone.

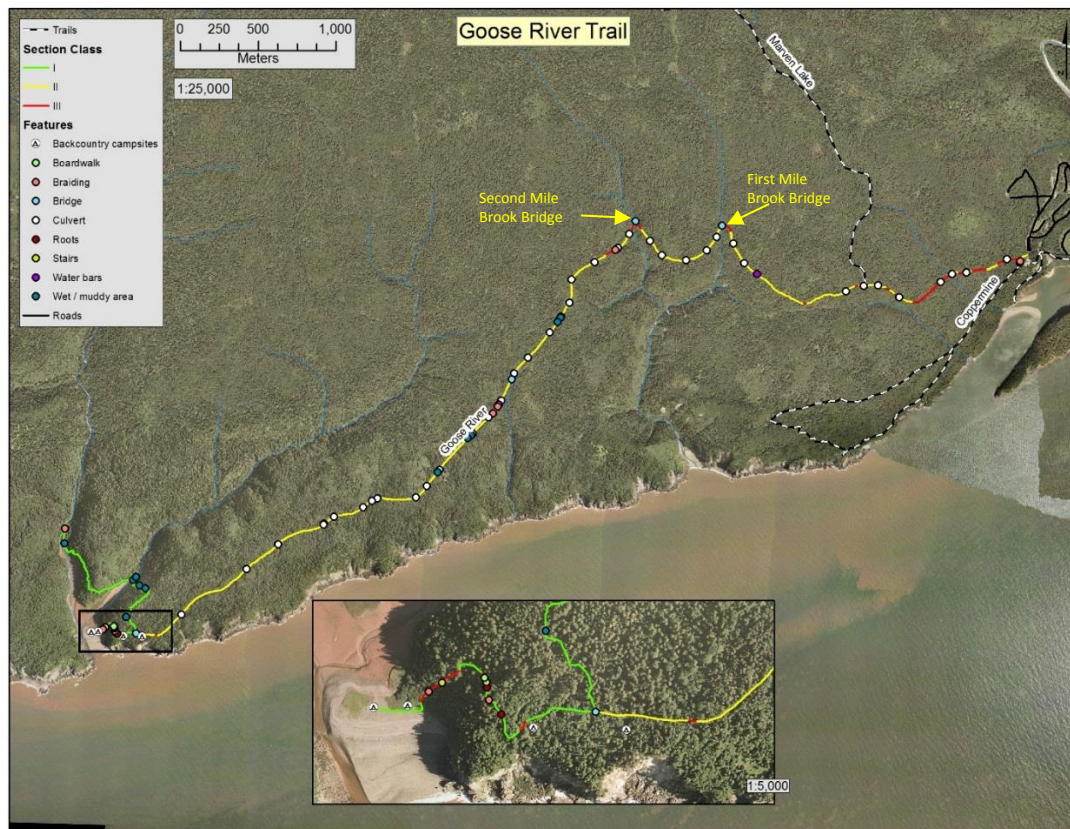
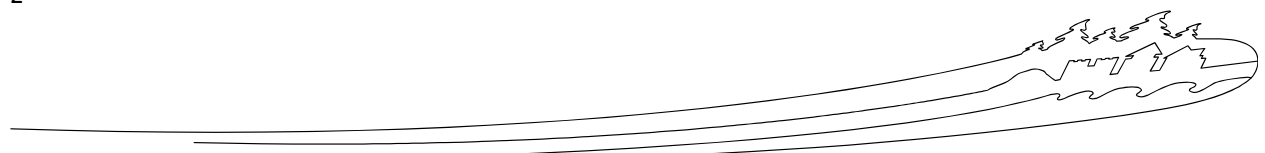


Figure 2: Goose River Trail Condition in 2014 with Identified Features.

Trail grade on several sections of the Goose River Trail exceed the recommended 10-15% slope. Grades exceeding 15% increase both the level of difficulty for users and the potential for environmental impacts. Trail segments located adjacent to First and Second Mile Brooks and near the junction between Goose River and Marven Lake trails range in trail grade between 17-35%. Not only does the steepness make it challenging for users, it is difficult to manage surface water (sheet flow) runoff. As a result, these areas (Figure 3) have experienced severe erosion damage where large quantities of roadbed material have eroded from the road/trail and carried down slope, some reaching fish bearing waterways.





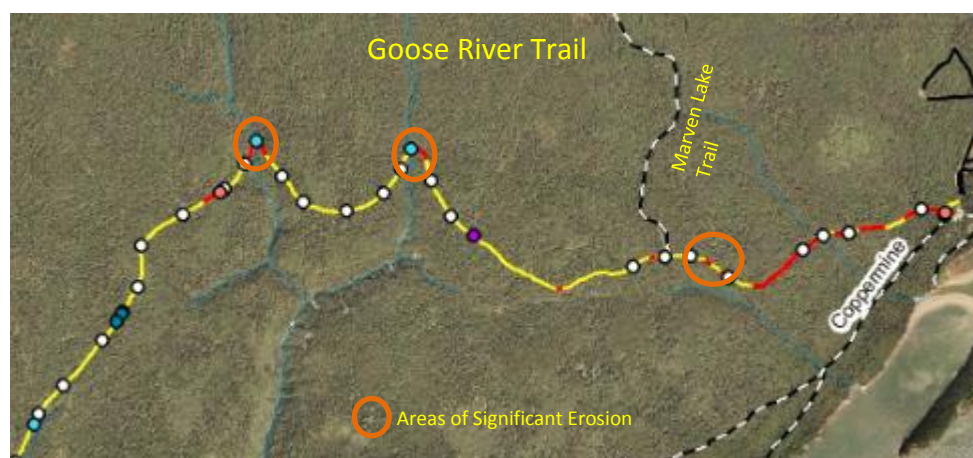


Figure 3: Areas of Significant Erosion in 2015

Substantial erosion was reported in November 2002 after a significant rainfall event. Parks Canada staff repaired the damages by backfilling the eroded trenches. Since 2002 park staff have continued to encounter erosion on these steep slopes but have managed to navigate through eroded areas to perform the necessary duties on the Goose River Trail. However, in June 2015 after another rainfall event where 141.7 mm of precipitation was recorded to have fallen at the Alma weather station over a 72 hour period, a large quantity of roadbed material was displaced and eroded outside of the trail corridor, some of which entered fish bearing waterways. It was estimated that some 500 m<sup>3</sup> of roadbed material eroded from the west side of Second Mile Brook alone (Figure 4).



Figure 4: Erosion Just West of Second Mile Brook Bridge, 2015

Although park staff attempted to repair the damages, they did not have the resources to stabilize the entire area appropriately to prevent further damage. They did however backfill a section of the eroded area to facilitate the passage of an ATV without a trailer. For this reason, delivery of firewood to the Goose





River backcountry campsites was no longer possible via the Goose River Trail. During an assessment of the Goose River Trail bridges, a Parks Canada structural engineer recommended in the assessment report to construct a new and narrow trail away from the areas of severe erosion or close the trail (Esarte, 2015). Repairs to these areas (Figure 3) were identified as emergency repairs and incorporated into the Trails Revitalization project. The awarded Contractor was responsible to design and implement a plan to stabilize the site, prevent further erosion and provide a sustainable trail for users, park activities and Contractor access. The emergency repairs were successfully implemented and completed in the fall of 2016.

The Goose River Trail is considered a Type II Trail under the Parks Canada Trail Specification. This class of trail is recommended to have a width between 1.0 m – 1.5 m. Approximately 95% of the Goose River Trail have a width range between 1.8 m - 5.5 m, exceeding the width range for a Type II trail (Figure 5). These areas have a much larger footprint than necessary and do not provide the user experience that hikers and bikers are seeking. There have been no significant efforts to narrow the Goose River Trail in the last 70 years. However, in 2005, wide vehicle bridges over First and Second Mile brooks were replaced with pedestrian bridges having an inside deck width of 1.77 m. These replacement bridges facilitate foot and ATV traffic but restrict wider vehicles like pickup trucks and backhoes.



Figure 5: Example of Trail Width on the Goose River Trail

Both bridge structures (Figures 2, 6 & 7) are constructed from three thirty foot steel I-beams anchored to wooden beam abutments. Decking and safety railing are constructed from pressure treated lumber SPF (2" x 6" decking and railing and 4" x 4" posts). A Pedestrian Bridge Review was conducted by a Parks Canada Structural Engineer in the fall of 2015. The report indicated that the west abutment on the First Mile Brook Bridge (Figure 6) had lost at least 90% of the bearing capacity due to erosion of the embankment. Within 20 m and just upstream of the First Mile Brook Bridge three smaller creeks emerge into one and the west abutment is located on the outside edge of a curve in the creek resulting in high water forces on that side. The erosion of the embankment was exacerbated on this side due to a large rock which appeared to block the flow of water during higher flows creating eddies (Esarte, 2015). All eroded material from the bank was likely flushed downstream. First Mile Brook is not considered a fish bearing stream as there is a natural barrier downstream which prevents fish passage. However, water from this stream flows into fish bearing waters approximately 700 m downstream.

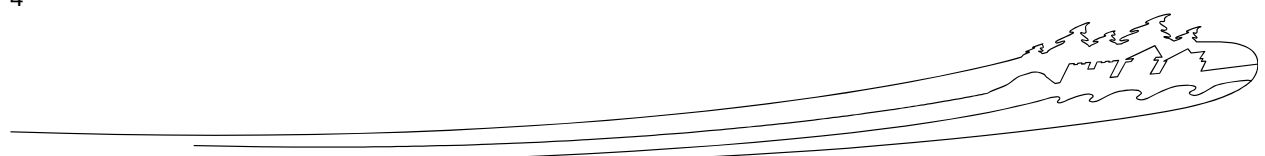






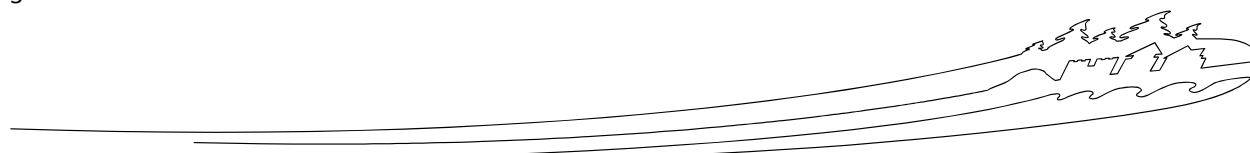
Figure 6: First Mile Brook Pedestrian Bridge

Second Mile Brook Bridge (Figure 7) was constructed over an existing bridge which is currently in really poor condition and is not in use other than to provide armouring for the embankments for the newer bridge. According to the Fundy National Park Pedestrian Bridge Report, the old bridge appears to constrict the channel which may affect flows downstream of the bridge. There were no concerns with the restriction at the time of the inspection. A black substance observed on some of the wood material on the old bridge likely indicate that the wood was treated with an unknown substance at one point. Currently, the timbers are severely rotten and at some point will fail. Once it fails it will further constrict the channel and erode or alter the channel downstream of the bridge. In 2015 the pedestrian bridge at Second Mile Brook was reported to be in good condition and required regular maintenance to prolong the life of the bridge. These bridges span a fish bearing stream and could impact fish habitat if failure was to occur.



Figure 7: Second Mile Brook Pedestrian Bridge

As part of the Trails Revitalization project the awarded Contractor was responsible to conduct an evaluation of the First and Second Mile bridges before the project commenced to ensure that they were both structurally stable to carry construction equipment (5 ton) and provide for Parks Canada ATV and pedestrian traffic. In addition, the Contractor is responsible to maintain the designated load bearing capacity until they no longer have a requirement to use the bridges which is expected to be August 2018.







Several sections of the Goose River Trail are located in wet low lying areas where it is difficult to provide the necessary drainage to keep the trail surface dry. Repetitive use by foot and vehicle traffic (ATV use by Parks Canada staff) have caused significant damage to the trail tread in these areas especially in wet weather conditions (Figure 8). These wet areas affect trail use and encourage trail users to wander off the trail tread in an effort to avoid getting their feet wet or muddy. These actions increase the disturbance footprint by damaging vegetation growing adjacent to the trail tread and could potentially have an impact on the ecological function of the area. In other areas, raised tread trail have been constructed to minimize travel through wet terrain. These sections of trail interrupt the ecological function of the area by impeding water flow from one side of the trail to the other.

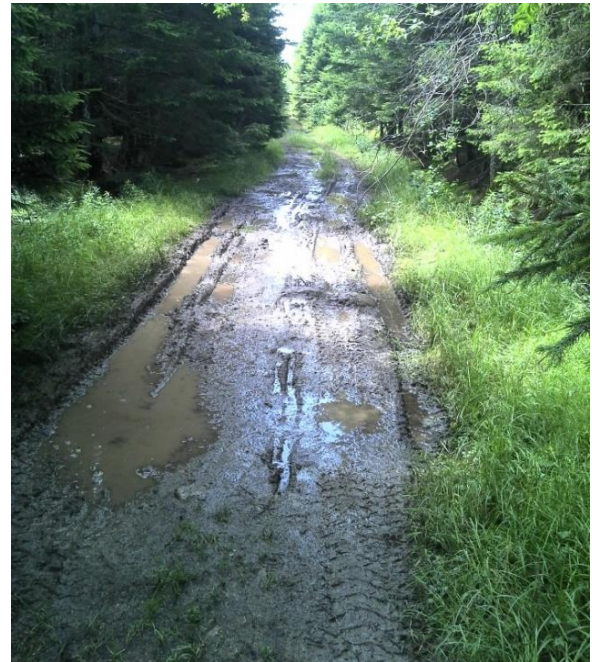


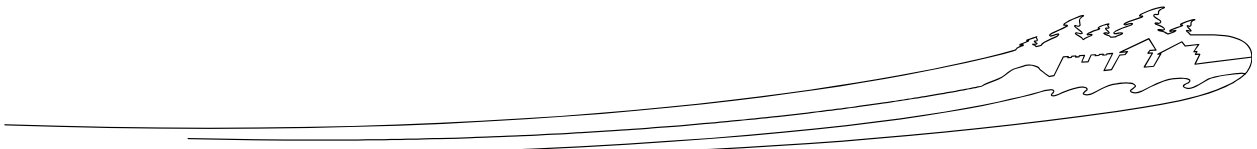
Figure 8: Wet Conditions on the Goose River Trail

Very little to no resurfacing has been conducted on the Goose River Trail in the past several years. Foot and vehicle traffic (ATV use by Parks Canada staff) have caused soil compaction and erosion of trail tread on many sections of the trail. As a result, root exposure is predominant on the western end of the trail (Figure 9). Many roots have been damaged, some have lost bark while others have been completely exposed. These damaged roots can no longer transport water and nutrients from the ground to upper portions of the tree. In addition, dead and dying roots provide little support to the tree structure. Exposure and continued wear on these root systems will surely impact the future viability of trees adjacent to the trail corridor. In addition to environmental impacts, these exposed roots pose a potential safety concern which could have a negative effect on user experience.



Figure 9: Exposed Roots on Goose River Trail

Sustainable Trails Ltd, a professional trail building company and a member of the Professional Trail Building Association, was contacted by Fundy National Park to provide an assessment and conceptual design on how to improve the ecological and recreational sustainability for several trails within the park





including the Goose River Trail. The following 3 options were identified in the conceptual design for the Goose River Trail:

- 1) Narrow the existing Goose River Trail to 1.2 m and construct a new Goose River Coastal Trail from the western park boundary to Point Wolfe.
- 2) Complete decommissioning of the existing Goose River Trail and construct a new Goose River Coastal Trail from the western park boundary to Point Wolfe.
- 3) Narrow the existing Goose River Trail to 1.2 m and not build a new Goose River Coastal Trail from the western park boundary to Point Wolfe.

Due to the severity of the issues found along the Goose River Trail, both design and ecological, Fundy National Park committed to option 2 (Figure 10) and engaged in replacing the existing Goose River Trail with a new alignment that would be compatible with the Parks Canada Type II Trail specifications. In addition, to enhance visitor experience, it was recommended to relocate the trail to follow more closely to the Bay of Fundy coastline. In 2016, a design-build contract was tendered (Fundy National Park Trail Revitalization) to facilitate the construction of the new Goose River Trail alignment. This project is currently ongoing with the completion date set for August 2018.

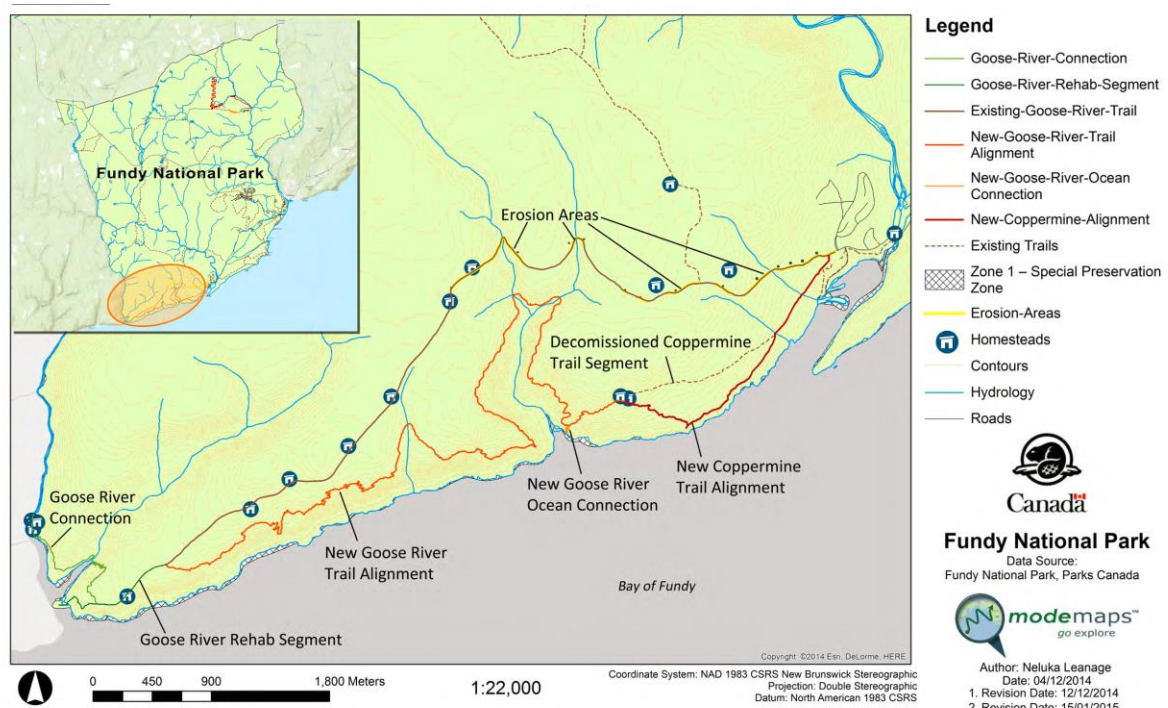
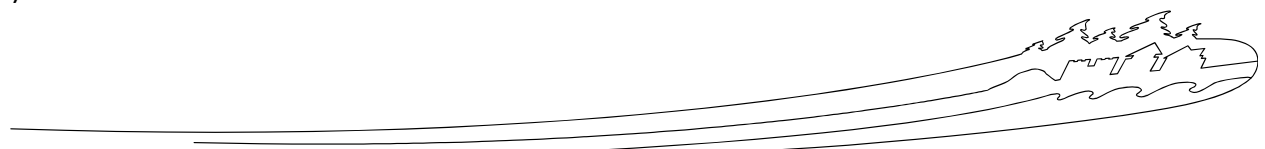


Figure 10: Proposed Realignment of Goose River Trail

Fundy National Park is committed to improving the ecological integrity of the forest ecosystem by constructing and maintaining an ecologically sustainable trail system. In addition, decommissioning and restoration of disturbance footprint as a whole is very well aligned with Fundy National Park's most recent management plan commitments as well as Parks Canada's corporate priorities and performance expectations. Further, the proposed investments will lead to measurable improvements in the ecological







integrity (EI) of Fundy National Park's forest ecosystem indicator, which was rated only as fair by our most recent state of the park report.

### Trail Decommissioning and Restoration

The Trail Condition Assessment and the conceptual design both identified issues and the necessary work required to enhance the ecological and recreational aspects of the existing Goose River Trail. The primary goal for the Goose River Decommissioning and Restoration project is to minimize erosion from past land management activities and to promote recovery of natural ecosystems to reflex that of the functioning ecosystems in the adjacent area. In addition, this recovery will eliminate a very large scar on the landscape and contribute to reducing the overall disturbance footprint for Fundy National Park. Naturalization strategies for trail rehabilitation will include trail closure, stabilization, reconnecting natural drainage patterns throughout the various watersheds, recontouring to pre-disturbance condition, recovering original organic material, revegetation, placement of woody debris/leaf litter and monitoring.

### Scope of Work

A 6.8 km section of the existing Goose River Trail is scheduled for decommissioning and restoration during this project. Below is a detailed list of required work for the Goose River Decommissioning and Restoration project based on the revised 99% design:

#### 1. Restore Natural Drainage Patterns

Natural drainage patterns along the Goose River Trail have been interrupted with the installation of roadside ditches (Figure 11). Groundwater on the upslope side of the trail, intended for ecosystem nourishment, is collected in inboard ditches and funnelled at a fast rate to larger drainage channels that discharge into the Bay of Fundy (interfering with the natural hydrology of the forest). In addition, surface runoff collected over compacted trail surfaces is concentrated and disbursed over unstable embankments or down the trail. This collection of surface and ditch water allow water runoff to build energy (volume & velocity) causing erosion and movement of sediment.

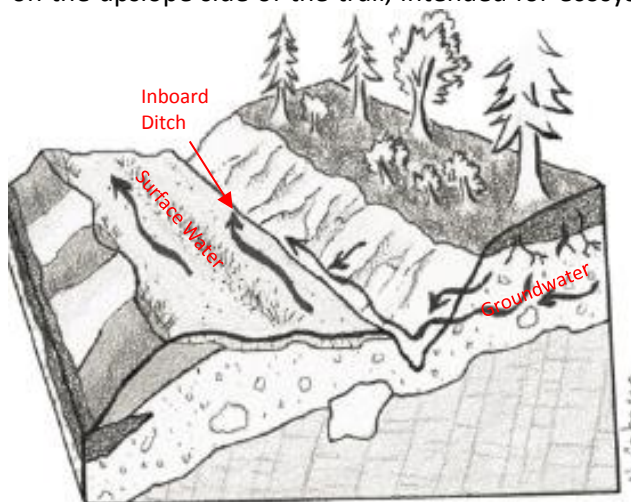


Figure 11: Existing Water Drainage Pattern

#### Required Work:

- Inboard ditches to be backfilled to restore groundwater flow (Figure 12).
- Road/trail bed re-contoured to reflect a near natural slope condition to restore surface runoff flow (Figure 12).





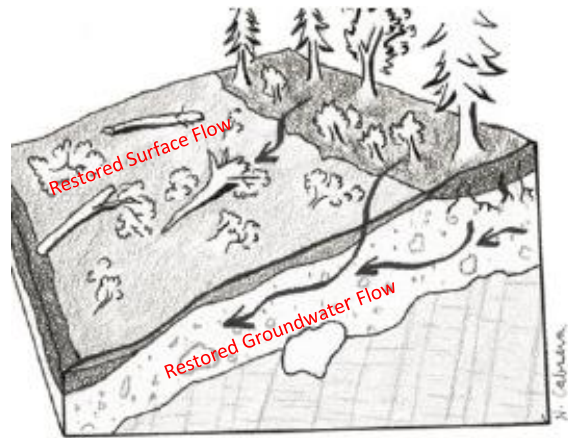


Figure 12: Backfill Inboard Ditch and Reshape Slope to Restored Natural Drainage Pattern

- Removal of 39 culverts and replace with natural drainage swales (Figure 13). A complete list of culverts scheduled for removal and associated design can be found in Appendix II (Goose River Trail Decommissioning & Restoration revised 99% design).

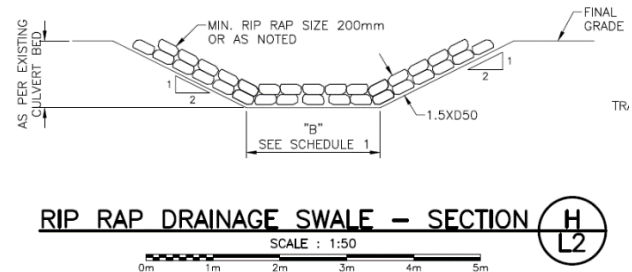
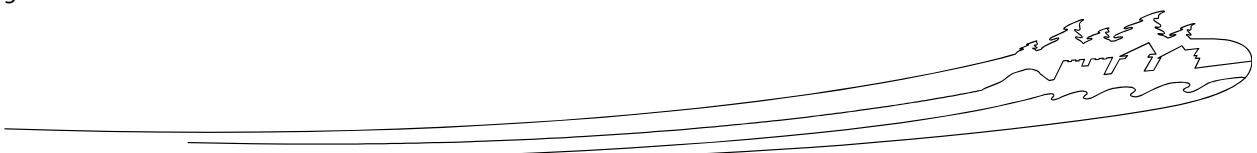


Figure 13: One of the Culverts to be Replaced along the Goose River Trail & Drainage Swale Design

- Installation of 111 new grade reversals to facilitate surface flow. In addition, 9 existing grade reversals will be reinstated; they were constructed as part of the Trails Revitalization project but due to heavy construction traffic require some modification. This type of grade reversal is referred to as rolling grade dips by IMBA Canada and the professional trail building industry. These features are often used on trails where the grade extends for a long distance and is constructed to shed water of the trail surface. Constructing this type of grade reversal will involve excavating a dip in the trail tread and placing the excavated material on the lower side to build a berm or gentle dirt ramp. Flowing water will be collected in the dip and funneled along the berm and discharged over the side slope (Figure 14).



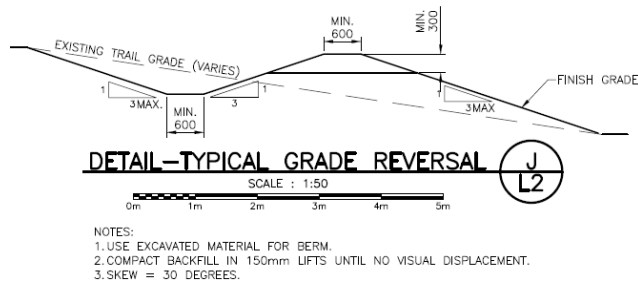


Figure 14: Design and Example of Rolling Grade Dip (Grade Reversal)

## 2. Recontour Trail Corridor

Described below and illustrated in Figure 15 are the steps that will be taken to recontour and shape the existing road/trail to reflect the natural slope of the landscape.

**Area 1:** Most of the Goose River Road/Trail was constructed using a cut and fill approach as illustrated in Figure 15.

**Area 2:** After several years of use the ruts, rills and outside berm have developed along the road/trail.

**Area 3:** Beginning of the road/trail removal process where the top surface is scarified.

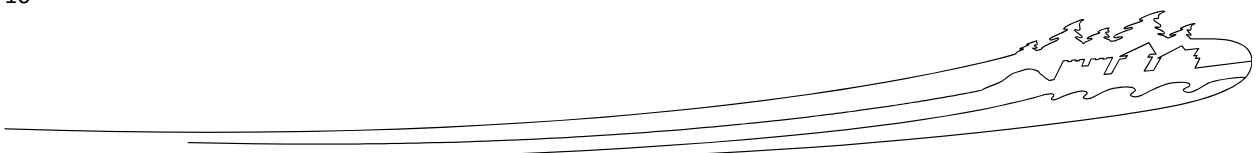
**Area 4:** Movement of material to start the reshaping process.

**Area 5:** Recontouring earth material to reflect the slope of the natural terrain.

**Area 6:** A full recontouring with a full match to the existing slope.



Figure 15: Recontouring Steps for Road/Trail Corridor







### 3. Scarification

Compacted roadbed/trail surface will be scarified by ripping the top 200 mm of soil (Figure 16). This process will break up compacted hard surfaces caused by foot and vehicle traffic and allows the loosened soil to bond with subsurfaces created by the scarification. In addition, the loosened soil provides a better growth medium for seed germination.



Figure 16: Root Rake Used to Scarify Road Surface

### 4. Erosion Control

It will be necessary to reduce erosion and the movement of soil after scarification. A straw mulch is required on exposed areas that have a slope less than 15% (Figure 17). It is recommended to loosely apply the straw at a 100 mm thickness. Areas having a slope of 15% or greater will be covered with biodegradable erosion control mats (blankets) as they aid in helping to prevent runoff from becoming an environmental challenge. Figure 18 was taken west of Second Mile Brook along the Goose River Trail where the slope exceeds 30% in places. This is the same area in Figure 4 where there was extensive erosion in 2015. In addition, a natural mulch layer of leaf litter and twigs can be collected from the adjacent forest and spread on exposed soil to stabilize the site and reduce the risk of soil erosion.



Figure 17: Exposed Area Covered with Straw Mulch

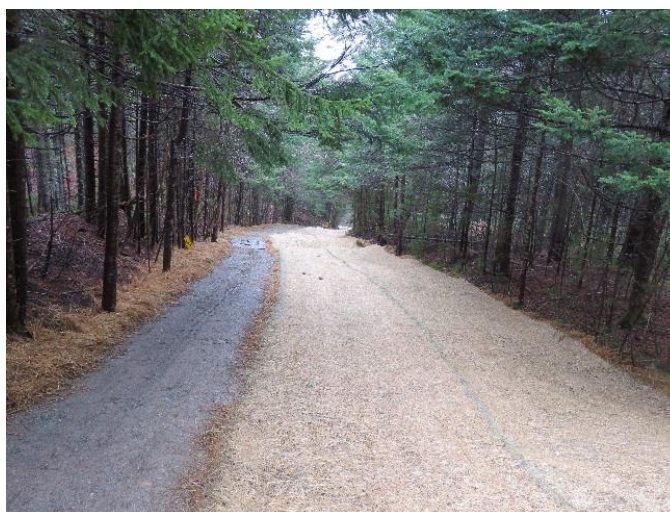
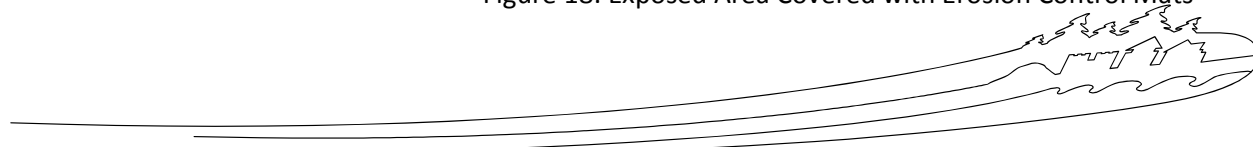


Figure 18: Exposed Area Covered with Erosion Control Mats







## 5. Revegetation

Parks Canada representatives will identify and mark natural vegetation growing adjacent to the Goose River Trail for harvest. Marked vegetation will be harvested and replanted into the scarified roadbed/trail corridor. Species selection will be reflective of that found in the adjacent forest. All plant material will be planted as soon as possible to prevent damage and give the plant the best chance at survival. In the event that plants cannot be planted within 24 hours of harvest, the Contractor will construct a temporary bed and transplant plants until the roadbed/trail is ready to support vegetation. Care will be taken during the removal process to ensure sufficient root material is collected and to prevent damages to remaining vegetation. An attempt will be made to backfill holes remaining from the removal of vegetation. Sections of the Goose River Trail restored in 2016 under the Trail Revitalization project were replanted in the fall of 2017 (Figure 19).

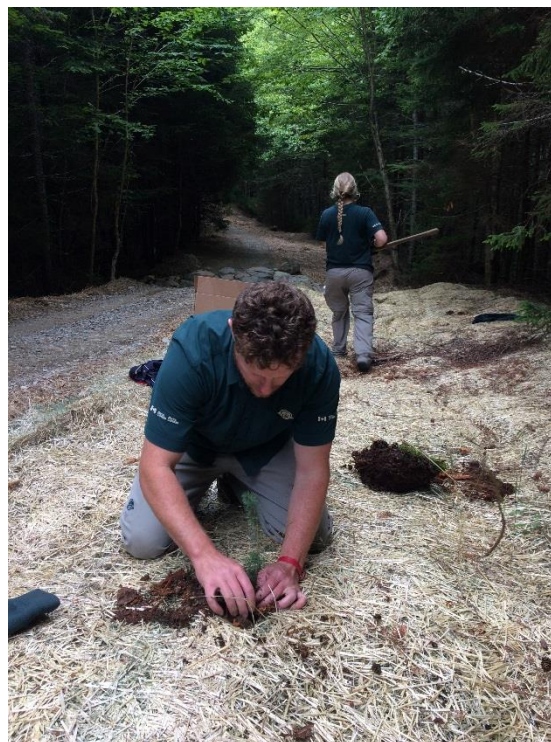


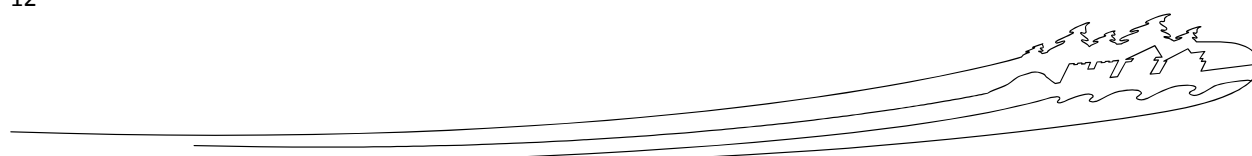
Figure 19: Transplanting of Native Trees

## 6. Placement of Woody Debris and Leaf Litter

Woody debris (fallen trees, snags logs, branches) and leaf litter will be collected from the adjacent forest and scattered over the scarified roadbed/trail surface (Figure 20). This material will contain windblown and waterborne seeds which will accelerate the natural regeneration process. As this material degrades, it will provide nutrients and increase the organic content of the soil.



Figure 20: Leaf Litter and Woody Debris used to Restore Old Trail Tread







In addition, this material will provide cover and habitat for insects and small mammals and will create microhabitats along the restored corridor.

## 7. Bridge Removal

- Figure 21 below identifies the areas along the Goose River Road/Trail where the old vehicle bridge and the two pedestrian bridges are located (Figures 6 and 7) and scheduled to be removed during this project. All wood (decking, handrails, abutments) and steel material will be removed from site and disposed of at an approved waste facility outside of Parks Canada. Each site will be restored according to the design presented in Appendix II (Goose River Trail Decommissioning & Restoration revised 99% design). The banks will be shaped to have a 2:1 slope and areas closest to the brooks will be armored with rip rap. Rock ballast, located in the old bridge abutments at Second Mile Brook, will be salvaged and reused for this purpose. Areas above the rip rap will be covered with erosion control blankets and planted with local vegetation harvested from the adjacent forest.

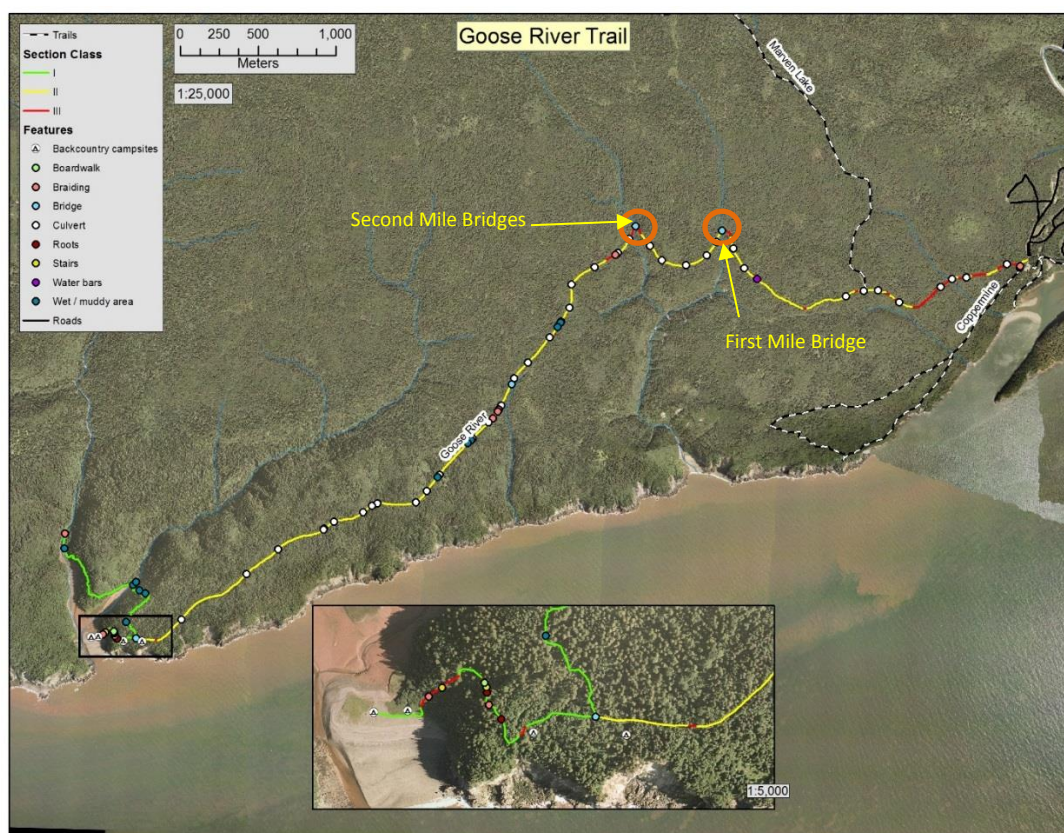



Figure 21: Bridge Locations along Goose River Trail

## 8. Monitoring

Although there is a requirement to conduct long term monitoring outside of this project, short term monitoring will be conducted during the course of the project by both park  contractor representatives to ensure that the restoration activities are conducted in such a way to reduce negative impacts to the environment and promote natural restoration of the site.





## Parks Canada Zoning

Parks Canada uses a zoning system to help support the park vision and management objectives by identifying the degree of ecosystem and cultural resource protection that is required and the area's ability to provide and sustain different types of visitor experience opportunities in the long term. As such, zoning is a valuable tool in the translation of general policy into park-specific application (Fundy National Park Management Plan, 2011).

There are four zoning areas represented in Fundy National Park (Figure 22); Zone I-Special Preservation (yellow), Zone II-Wilderness (green), Zone III-Natural Environment (brown) and Zone IV-Outdoor Recreation and Park Road area (purple). The Goose River Trail Decommissioning and Restoration project (area outlined in red, Figure 22) fall within the Zone II-Wilderness area which is designated to provide a high level of protection for large areas that well represent a natural region and that will be conserved in a wilderness state. Perpetuation of ecosystems with minimal management intervention is encouraged. Visitors experience the remoteness of such zones in ways that are compatible with maintaining the wilderness character such as hiking and backcountry camping. Motorized access and circulation within this zone is not permitted and infrastructure is restricted to rudimentary facilities such as hiking trails and backcountry campsites. The majority of the park (88%) is designated a Zone II – Wilderness area (Fundy National Park Management Plan, 2011).

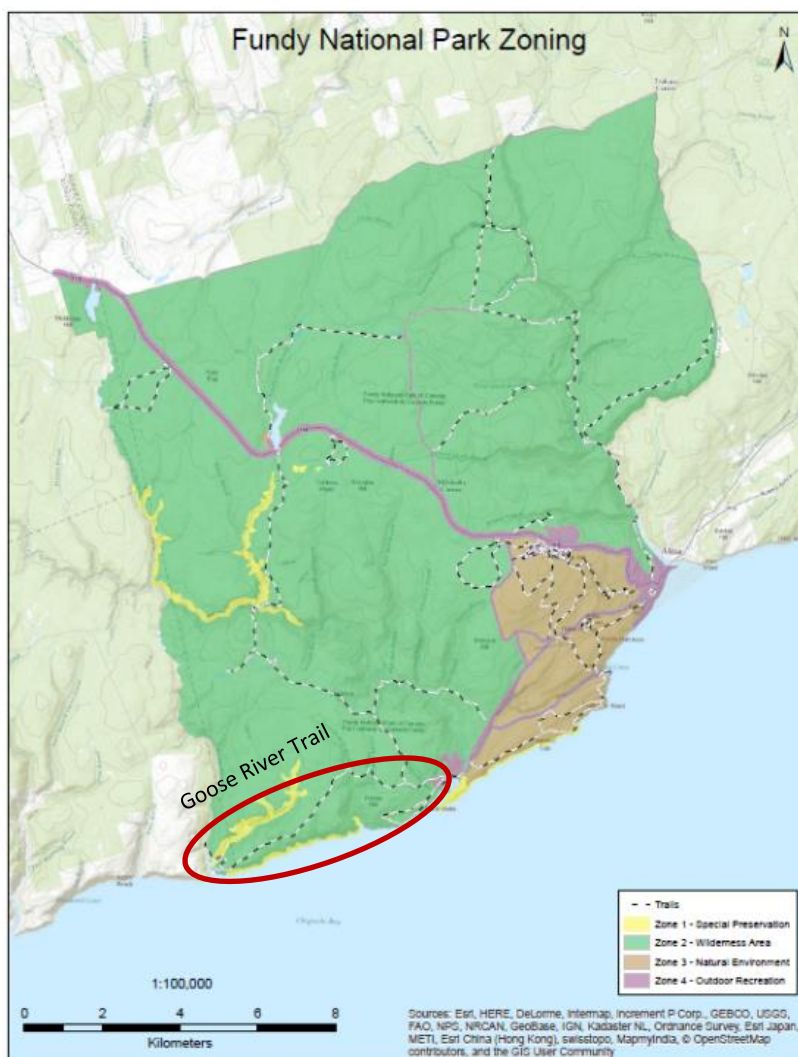


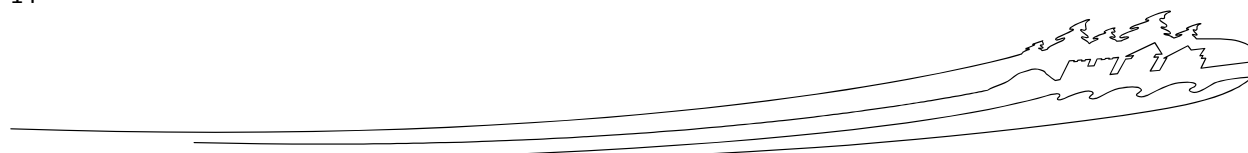
Figure 22: Fundy National Park Zoning Designation Map

## Project Timing

This project is expected to go to tender in August 2018. Following the tender period the successful contractor will provide a more detailed construction schedule. The anticipated construction dates will be from September 2018 to November 2018.

## Other Departments Involved

This project was referred to the Department of Fisheries and Oceans-Fisheries Protection Program (DFO-FPP) for review. DFO-FPP concluded that if the proposed project plans are implemented in the manner,







and during the timeframe, described in the Review application, the proposed Goose River Decommissioning and Restoration scope of work will not result in serious harm to fish or prohibit effects on listed aquatic species at risk (Appendix III- DFO Authorization Response). As such, an authorization under the Fisheries Act or a permit under the Species at Risk Act (SARA) is not required. However, if project plans should change or if information was omitted from the original Review application a further assessment will have to be conducted.

All federal, territorial, provincial and municipal requirements must be applied during the Goose River Decommissioning and Restoration project. In addition, mitigation measures included in this document must be implemented to reduce or eliminate potential environmental impacts to aquatic species and habitat.

## **6. VALUED COMPONENTS LIKELY TO BE AFFECTED**

The Effects Identification Matrix located in Appendix I identifies valued components likely to be affected by this project. The valued components most likely to be impacted include air, soil/landforms, water/hydrology, flora, fauna, cultural resources and visitor experience.

### **Air**

Air quality is influenced by the concentrations of air contaminants in the atmosphere. Air contaminants are emitted by both natural and anthropogenic sources and are transported, dispersed, or concentrated by meteorological and topographical conditions. Air contaminants eventually settle or are washed out of the atmosphere by rain and are deposited on vegetation, livestock, soil, water surfaces, and other objects. In some cases, contaminants may be redistributed into the atmosphere by wind.

The nearest air quality monitoring stations are located in Saint John and Moncton, NB. Both stations monitor sulfur dioxide (SO<sub>2</sub>), total reduced sulphur (TRS), ground level ozone (O<sub>3</sub>), nitrogen dioxide (NO<sub>2</sub>) and fine particulate matter (FPM). The current Government of Canada air quality health index rate both stations as low risk ([https://weather.gc.ca/airquality/pages/provincial\\_summary/nb\\_e.html](https://weather.gc.ca/airquality/pages/provincial_summary/nb_e.html)).

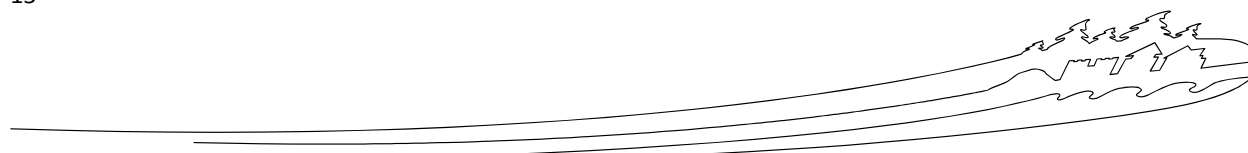
### **Soil/landforms**

Located in the Maritime Acadian Highland Region of Canada, Fundy National Park encompasses seven different biophysical land classifications, a system used to differentiate ecologically significant segments of the land surface with similar patterns of landscape, vegetation and drainage (Hirvonen and Madill, 1978). Two land classifications are represented in the Goose River Trail Decommissioning and Restoration project, the River Valleys (deep-cut, steep-sided river valleys and coastal cliffs) and the Upland Plateau (gently rolling, bedrock-controlled with few abrupt changes).

Most of Fundy National Park is underlain by volcanic sedimentary rock and associated intrusive rocks of late Precambrian age (termed the Eastern Volcanic Belt of the Coldbrook group). The soil material covering these rocks is generally less than one meter thick and is dominated by sandy or gravely loam that is augmented with small amounts of organic and disturbed soil components. The soils are coarse in texture and typically well drained (Cook & McKay). The Goose River road/trail bed consist of local soils that is currently compacted from years of use.

### **Water/Hydrology**

A watershed consists of all of the land that drains into a river, lake, or any other body of water. Healthy watersheds support a rich diversity of species, including humans, whose lives depend on the complex interactions between water, geology, soils, vegetation, and wildlife (US National Park Service). A small





section of the existing Goose River Trail travel through the Mile Brook watershed, the rest of the trail is located in unnamed catchment areas that discharge directly into the Bay of Fundy (Figure 23). The trail crosses a number of streams and brooks, some are known to be fish bearing while others provide habitat and food for a number of aquatic species including insects and invertebrates. Due to the steep river valleys, streams and brooks are subject to fast flowing water especially during snow melt or heavy rainfall events where the area is prone to flash flooding. In such cases, evidence of scouring, erosion and movement of soil and vegetation have been apparent and such occurrences have the capability to change the formation and character of waterways.

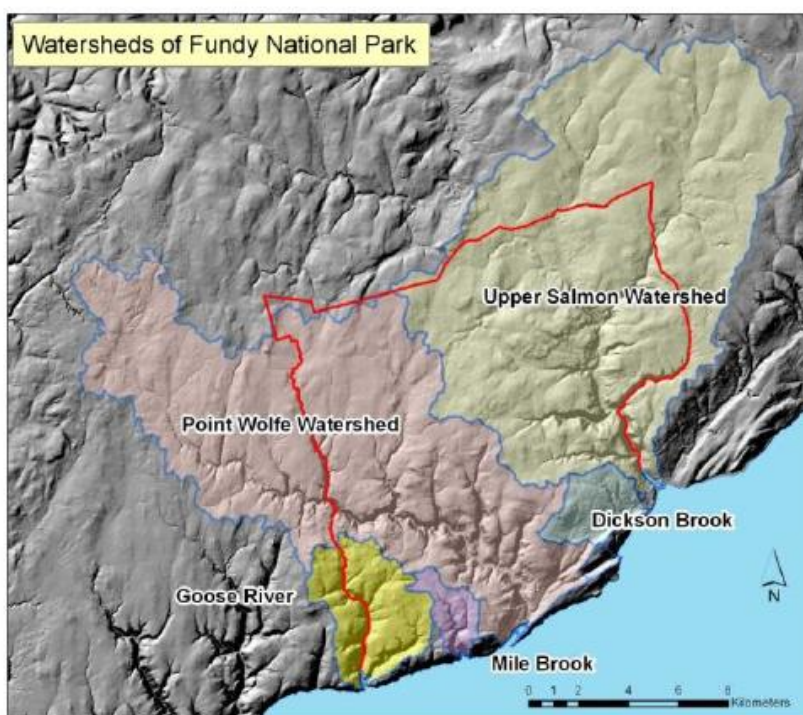
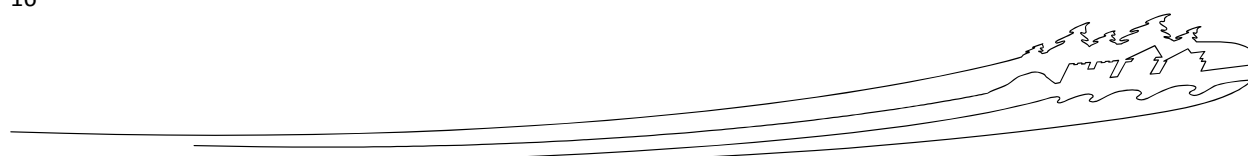


Figure 23: Watersheds of Fundy National Park

## Flora

With new species being identified each year, Fundy National Park is now home to some 800 plus species of vascular plants (fern, clubmosses, flowering plants), 270 plus bryophytes species (mosses and liverworts), and more than 400 species of lichens. Additionally, mixed stands of sugar maple (*Acer sacharum*), yellow birch (*Betula alleghaniensis*), white birch (*Betula papyrifera*), american beech (*Fagus grandifolia*), red spruce (*Picea rubens*), and balsam fir (*Abies balsamea*) dominate the landscape within the proposed Goose River Decommissioning and Restoration project.

Pure stands of conifer are rare in Fundy National Park, but red spruce, which can live 200 years or more, can be found here. The park harbours some of the last pure stands of red spruce in eastern North America (Parks Canada, 2007). The existing forest has trees of a variety of age classes. In 2005, the world's oldest living red spruce tree, which is now over 465 years old, was located in Fundy National Park along the Rossiter Brook River Valley. The tree is located in a Zone I special preservation area (Figure 24). This project is not expected to have an impact on this particular tree but could potentially impact other red spruce trees along the Goose River Trail.





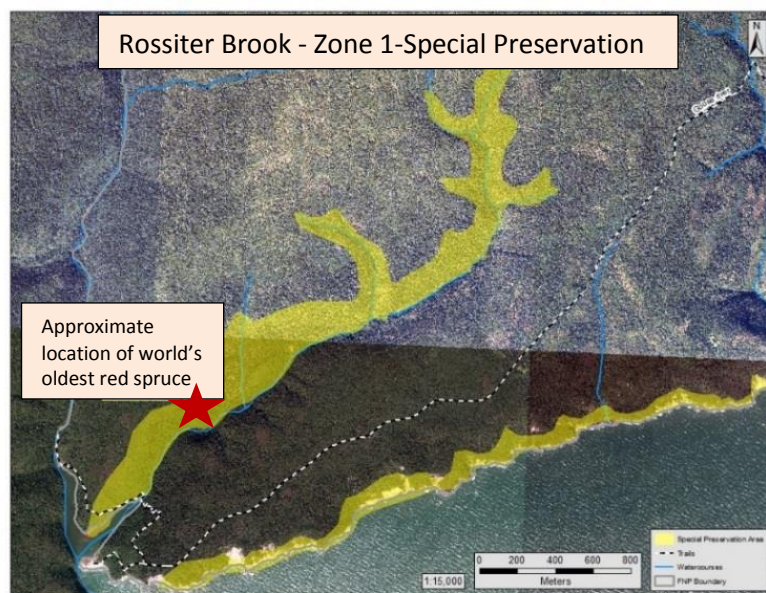


Figure 24: World's Oldest Living Red Spruce Tree - Rossiter Brook River Valley

In 2015, the Atlantic Canada Conservation Data Centre was contracted by Fundy National Park to conduct a vascular plant survey to identify rare, endangered or species of concern along the existing Goose River Trail and the proposed trail corridor for the Trail Revitalization project. The results of the survey reported 318 vascular plant species (258 native and 60 exotic) with 8 records of 7 provincially rare vascular plant species. Of the 318 species observed, 17 are new additions to the flora list for Fundy National Park (13 native and 4 exotic), including three provincially (NB S-Rank) rare species: Flattened Oat Grass (*Danthonia compressa*, S1, May Be at Risk), Long-leaved Starwort (*Stellaria longifolia*, S2, Sensitive) and Plantain-Leaved Sedge (*Carex plantaginea*, S2S3, Sensitive).

In addition to the above survey, a "Survey of the Rare Vascular Flora of Fundy National Park" was conducted by Bagnell and Bishop in 2001. Over the years other plant surveys have been conducted in the park. Figure 25 identifies all known plant species of concern, all of which are located outside of the project limit for the Goose River Trail Decommissioning and Restoration project.

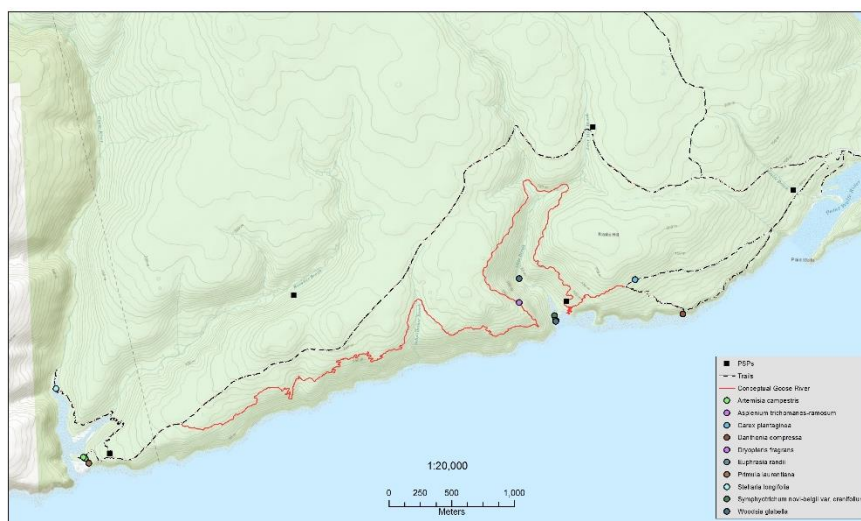


Figure 25: Location of Rare Vascular Plant Species

Four wet boggy/swampy areas were identified along the existing Goose River Trail (Figure 26). Vegetation in these areas are sensitive species associated with wetland habitat and differ from plant species located along the rest of the trail. These areas require additional consideration during the decommissioning and





restoration project. Currently, natural water flow in these micro boggy/swampy habitats is interrupted and collected in roadside ditches and directed away from natural habitat located on the downslope side of the Goose River Trail. Decommissioning and restoration of the trail corridor in these areas must attempt to restore natural drainage patterns and site specific vegetation.

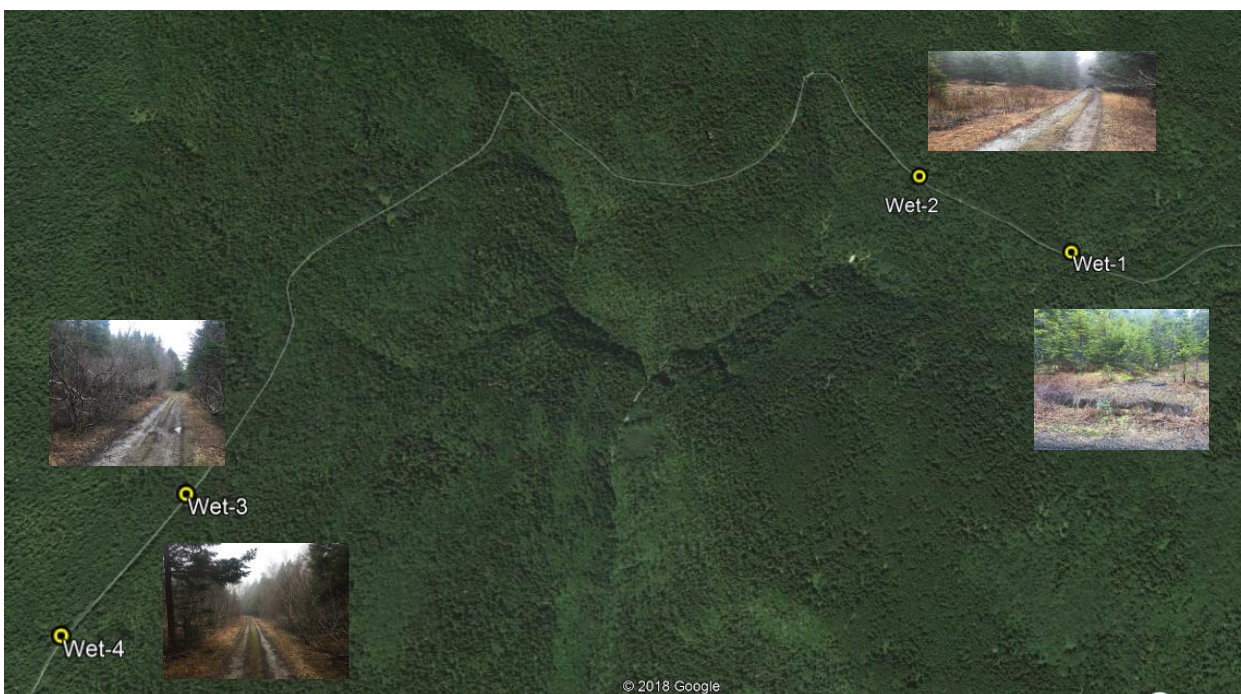


Figure 26: Wet Boggy/Swampy Areas Located Along Goose River Trail

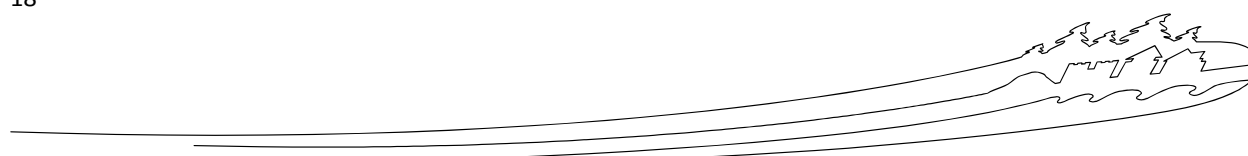
## Fauna

### Mammals and Avifauna

Over 38 species of mammals reside in Fundy National Park. These mammal populations are diverse and are representative of the natural food chain, with animals ranging from top carnivores to lower herbivores and scavengers. The terrestrial animals that are most likely to be encountered include moose (*Alces alces*), coyote (*Canis latrans*), white-tailed deer (*Odocoileus virginianus*), black bear (*Ursus americanus*), beaver (*Castor canadensis*), muskrats (*Ondatra zibethicus*), marten (*Martes americana*), porcupine (*Erethizon dorsatum*), bobcat (*Lynx rufus*), mink (*Mustela vison*), and fishers (*Martes pennanti*).

Fundy National Park is well positioned on the Atlantic migration route, and over 260 bird species have been identified in the park or on the adjacent bay (Parks Canada, 2007), 95 of these species are known to nest in the park. Common species in the park include many types of warblers, pileated wood-peckers (*Dryocopus pileatus*), juncos (*Junco hyemalis*), and white-winged crossbills (*Loxia leucoptera*). A common resident of Fundy's forests is the ruffed grouse (*Bonasa umbellus*). The peregrine falcon, which was extirpated by the time the park was established in 1948, has been successfully reintroduced. (Cook & McKay, 2010).

It is anticipated that several trees and organic material will have to be removed during the decommissioning and restoration of the Goose River Trail. To avoid the most critical period of the migratory bird season, which is May 1<sup>st</sup> through August 31<sup>st</sup>, trees and ground material should be removed outside of this period. However, if work is scheduled on this project during the critical period, a breeding activity survey must be conducted a maximum of 7 days prior to any work commencing. Should breeding







activity or an active nest be identified during the survey, the area must be left undisturbed with a suitable buffer zone established and maintained until the young have permanently left the vicinity of the nest.

### Fish and Herpetofauna

Brook trout (*Salvelinus fontinalis*) is the only known fish species found in inland waterways located within the Goose River Trail corridor. Inner Bay of Fundy Atlantic salmon (*Salmo salar*), an endangered species protected under SARA, can be found in the Point Wolfe and Upper Salmon rivers. Over the last 15 years, Fundy National Park has played an intricate role in the Inner Bay of Fundy Atlantic Salmon Recovery program. The scope of work included in this project is not expected to have an impact on the Atlantic salmon population or habitat. At present, the American eel (*Anguilla rostrata*) is listed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) as threatened. Although there are no records of American eel within the project limits it is possible that this species could be present in some of the brooks and streams, especially downstream of the site.

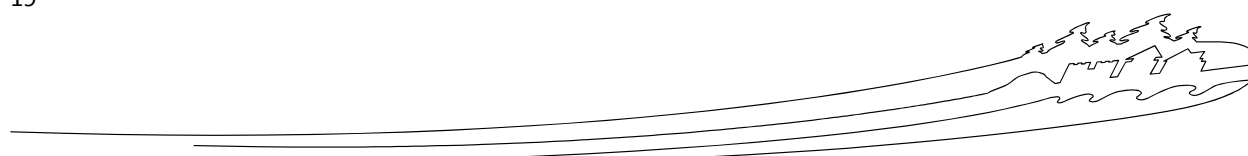
Eighteen species of reptiles and amphibians have been identified in the park. Five of these species are considered rare; these include the Leopard frog (*Lithobates pipiens*), the Ring-neck snake (*Diadophis punctatus*), the Four-toed salamander (*Notophthalmus viridescens*), northern Dusky salamander (*Desmognathus fuscus*), and the Blue-spotted salamander (*Ambystoma laterale*). These species are not known to exist within the limits of this project.

### **Cultural/Aboriginal Resources**

Although Fundy National Park is thought to fall within the traditional territory of both the Mi'kmaq and Wolastoqiyik (Maliseet) Peoples, no physical evidence related to their use or occupation of the park has been found. The Mi'kmaq, Wolastoqiyik (Maliseet), and Peskotomuhkati Aboriginal Peoples have a long history in Fundy National Park and its greater ecosystem (Fundy Biosphere) region and consider the area as part of their traditional territory, a landscape woven by a labyrinth of water, over which they travelled extensively on its rivers, lakes and coastlines. These people co-occupied the region in permanent villages and semi-permanent, seasonal encampments, for purposes such as salmon fishing. To date, little archaeological evidence of past aboriginal use has been found in the park, perhaps largely due to the fact that the sites preferred for traditional encampments in this rugged landscape were also the same sites appropriated for construction of logging mills and modern communities whose activities have obliterated the archaeological record. In addition, other nearby locations, known to have been used until well within living memory, such as Indian Island near Mary's Point, are slowly being lost to coastal erosion and sea-level rise (Cook and McKay, 2010).

The Project location, New Brunswick, is located in lands governed under the Peace and Friendship Treaties of 1725-1779. On July 15, 1976, the Mi'gmaq and Maliseet Peoples of New Brunswick petitioned Her Majesty Queen Elizabeth regarding their traditional Aboriginal rights and lands. At that time, Canada was already funding research for the New Brunswick Indians' asserted claim, but it was not accepted for negotiation until after the 1999 Marshall decision. On September 17, 1999, the Supreme Court of Canada found that the Treaties of 1760-61 affirmed the rights of the Mi'kmaq and Maliseet signatories to hunt, fish and gather to the extent of a "moderate livelihood". Canada subsequently resolved to begin a longterm process that considered both the Aboriginal and treaty rights of the First Nations in New Brunswick (ATRIIS).

The closest First Nation Reserve (Fort Folly Indian Reserve No.1) is located approximately 48 km northeast of project area. The second closest First Nation Reserve (SOEGAO Indian Reserve No.35) is located





approximately 55 km northwest of the project area. The project is not anticipated to have any potential infringement on Aboriginal rights and interest due to its limited scope of work.

During the early 1800's several areas within the park were settled by those seeking to carve a living from the rugged landscape. Logging operations and other activities such as fishing, farming and hunting became the way of life and brought settlement to locations along the coast and the interior. According to 1862 "Topographical Map of Westmorland and Albert Counties" several homestead locations were inventoried along the current Goose River Trail.

Park staff compiled an inventory of physical remains for many of the homestead properties that once delineated Fundy National Park. Details on foundations (homesteads, barns and outbuildings), dams, sawmill ruins, and bits and pieces of what once shaped settlements have been georeferenced and sketched. A number of cultural resources are located along the Goose River Trail and fall within the vicinity of the proposed decommissioning and restoration project (Figure 27). These sites range from a depression in the ground to stone wall structures and date back to the early 1800's. These sites were once occupied by land owners who made a living from logging and farming operations. The schoolhouse foundation, 11E140A (Appendix IV) located just west of Schoolhouse Brook, was once a building that provided schooling to children of families along the Goose River Trail.

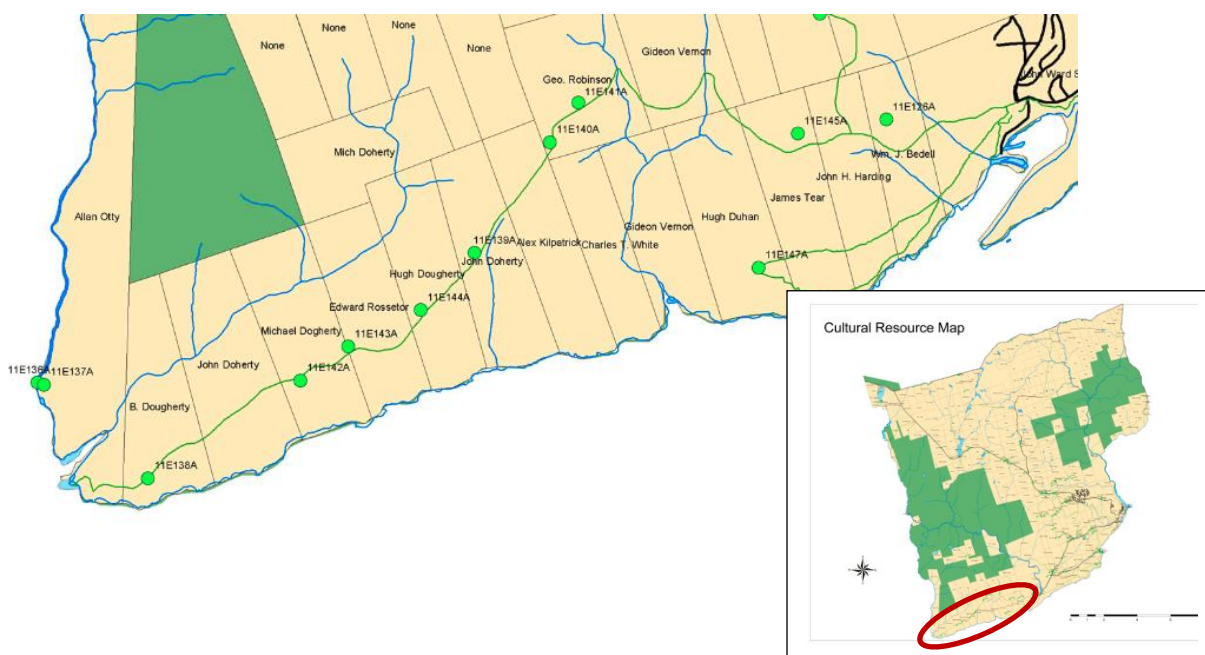


Figure 27: Cultural Resources Located Adjacent to the Goose River Trail

There are no records to indicate a previous archaeological survey along the Goose River Trail and surrounding area. An Archaeological Overview Assessment (AOA) and a Cultural Resource Impact Analysis (CRIA) were requested for this project to evaluate the archaeological potential and the potential impacts of the proposed scope of work on known or potential archaeological resources. Results of both assessments have yet to be determined. However, André Miller, the Parks Canada Federal Infrastructure Investments Archaeologist assigned to this project, indicated via teleconference on July 25, 2018, that







there is enough evidence to suggest that an Archaeological Impact Assessment (AIA) will be required to further investigate archaeological potential within the project area. Result of the AOA, AIA and CRIA will be added to this BIA as an addendum and all identified mitigation measures will be implemented throughout the project as required.

### Visitor experience

Trail use has been identified as the number one activity attracting visitors to Fundy National Park. The park offers a number of trails that provide access to many amazing places: plunging waterfalls, secluded beaches and rugged coastline vistas. With over 100 km of trails ranging from short treks to multi-day adventures, the park trail network provides something for all levels of experience including easy, moderate and difficult challenges.

For a number of years, trail use data was captured with infrared trail counters which had been installed on most of the park trails. Daily averages were collected for the peak visitor season (July-August) and the data used to develop reliable estimates for annual use for each trail. In 2010, a trail counter was installed on the Goose River Trail just east of the Marven Lake junction (Figure 28). A total of 1075 counts were recorded at this site with an average of 12 per day. Given the location of the counter, it is difficult to determine the destination of the user. In 2016, infrared and bike trail counters were installed on the Goose River Trail, just west of the Marven Lake junction (Figure 28). In addition, a counter was placed just west of the park boundary on the Fundy Footpath (Figure 26). The counters inside the park recorded 4594 people and 467 bicycle hits. A total of 1056 hits were recorded on the counter located on the Fundy Footpath. It is difficult to determine if the count represent one way or round trip occurrences. It is more likely that the Fundy Footpath counter captured one way trips.

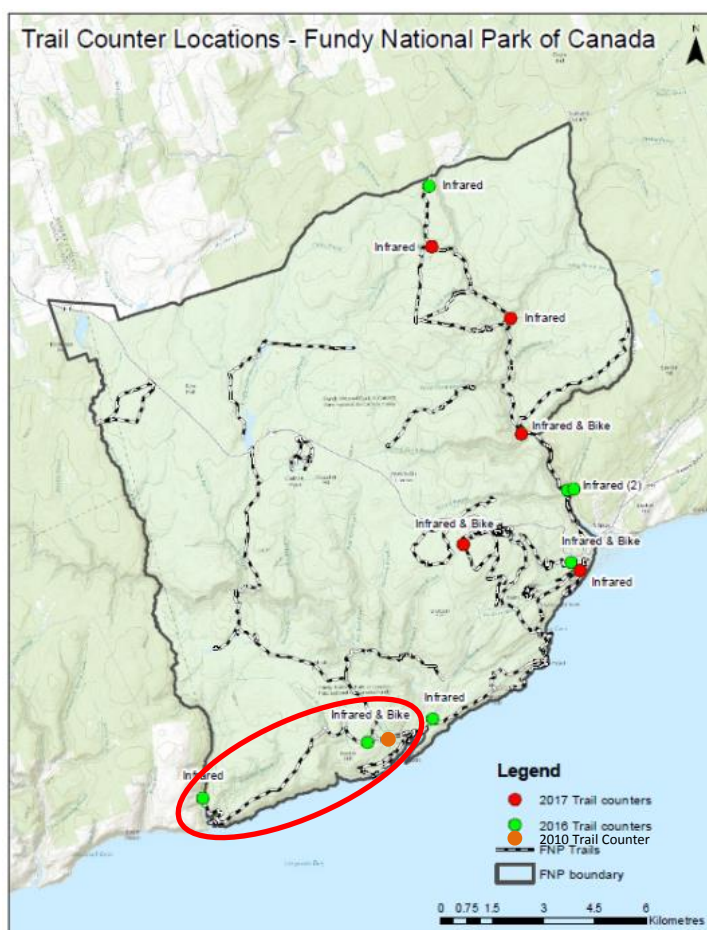


Figure 28: Location of Trail Counters along Goose River Trail

The existing Goose River Trail connects Fundy National Park with the Fundy Footpath, a remote and challenging hiking trail along the rugged Bay of Fundy coastline that runs from the western boundary of Fundy National Park to the Big Salmon River, east of Saint Martins, New Brunswick. In addition, the Trans Canada Trail, a nationwide system of trails connecting Canada's unique and diverse landscapes,





encompasses a number of trails in the park including the Upper Salmon River, Moosehorn and the Goose River.

To better appreciate Fundy National Park's wilderness the park offers backcountry camping. In total there are eight backcountry campsites available with three located at Goose River, 2 on the bluff and one on the beach. Site 6 located on the beach is designated for groups and can accommodate up to eight adults. Parks Canada provides a pit privy and fire wood for all three sites. Each year the sites at Goose River are available from May to October. Table 1 below identifies combined user nights for all three sites for the 2015-2017 seasons.

Goose River Campsite User Nights

May to October	2017	2016	2015
Campsites 4, 5 & 6	564	587	483

It is anticipated that the new coastal Goose River Trail will be open for use before this project is to commence. However, if for some reason there is a delay in the opening of the new trail, creating an overlap in work between the Trail Revitalization and the Goose River Decommissioning and Restoration projects, there may be a requirement to close the existing Goose River Trail. This closure could negatively impact or disrupt trail services and directly impact our partners (Fundy Footpath & Trans Canada Trail) and the enjoyment and experience of those using the Fundy National Park's trail system.

## 7. EFFECTS ANALYSIS

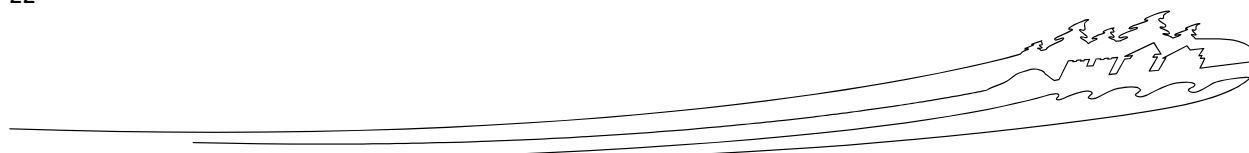
Described below is a list of effects that could potentially impact the identified valued components at risk.

### Soil/landforms

- Potential runoff, erosion, sedimentation from excavation activities and exposed soils.
- Soil compaction from the movement of machinery.
- Potential loss or damage of native flora if equipment travels outside of trail corridor.
- Potential loss or damage of native fauna.
- Possible disturbance or destruction to aquatic and terrestrial habitat.
- Potential damage or change to waterways during removal of culverts and bridges and during the installation of drainage swales and grade reversals.
- Potential impact to landscape and visual aesthetics.
- Dust particle pollution.
- Introduction of building materials potentially harmful to the environment.
- Potential contamination of soil and/or water.
- Introduction of non-native or invasive species from import material (i.e., topsoil, rock).

### Water

- Potential runoff, erosion and sediment release into waterways adjacent to project site.
- Potential contamination of water if vehicles and equipment leak fluids.
- Potential change in water level.







- Potential alteration or damage to the natural water flow or drainage.
- Possible disturbance or destruction to aquatic and terrestrial habitat.
- Potential introduction of dust particles and debris during construction activities.
- Possible damage or change to water drainage.

#### **Flora**

- Potential loss or damage of native flora from vehicle travel, excavation and trenching.
- Potential decrease in flora diversity.
- Possible disturbance, destruction or fragmentation to habitat.
- Introduction of non-native or invasive species through the movement of seed from other areas of the park or outside the park.
- Air pollution from exhaust or movement of dust particles.
- Introduction of building materials that could be potentially deleterious to flora habitat.
- Potential runoff, erosion and release of sediment outside of trail corridor.
- Potential contamination of soil from potential machinery fluid leakage.
- Potential impact to the landscape.

#### **Fauna**

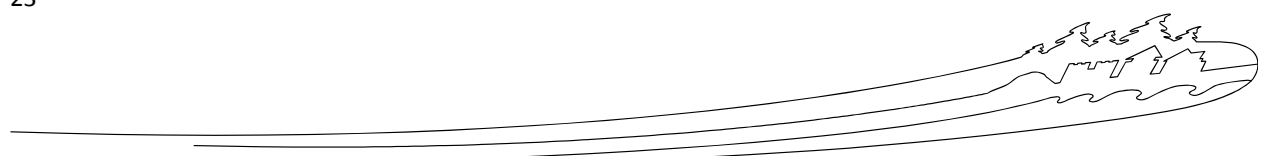
- Possible damage or loss of native fauna in areas requiring clearing, excavation and backfilling.
- Potential decrease in fauna diversity.
- Possible disturbance, destruction or fragmentation to aquatic and terrestrial habitat.
- Possible disruption to nest or denning activity.
- Possible loss of food supply.
- Potential change in water level.
- Possible damage or change to water drainage.
- Air pollution from exhaust or movement of dust particles.
- Noise disturbance.
- Wildlife corridor disruption.
- Introduction of building materials that could be potentially deleterious to fauna habitat.
- Potential runoff, erosion and release of sediment downstream.
- Potential contamination of water from potential machinery fluid leakage.

#### **Cultural/Aboriginal Resources**

- Unidentified cultural/aboriginal resources could be directly impacted by construction activities.
- Deviating from the original scope of work could result in negative impact to cultural resources located along the existing Goose River Trail.

#### **Visitor Experience**

- Construction activities along the trail system, especially during peak season can have an adverse effect on visitor experience.





- Inadequate signage, alerting visitors of construction activities, can affect visitor experience and create safety concerns. Without barriers, visitors may wander into an active construction site without knowing the dangers and safety concerns.
- Insufficient camouflaging of closed sections of trails can confuse users and direct them in an area where they are not permitted access.
- Work scheduled on the Goose River Decommissioning and Restoration project may require some disruption in the normal availability of the trail if there is a delay in the opening of the new trail along the coast. As a result, backcountry camping at Goose River could be affected as well as the flow of traffic along the Trans Canada Trail and the Fundy Footpath connection.

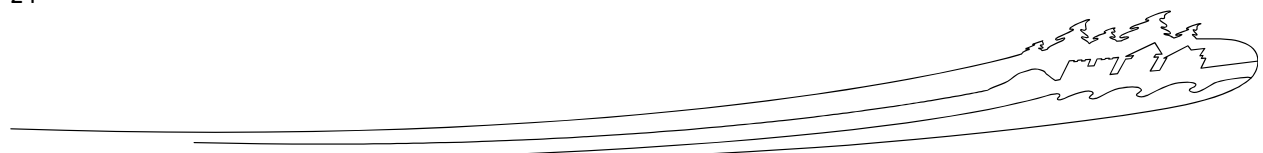
## 8. MITIGATION MEASURES

### General

1. All activities pursuant to the project shall be governed by and carried out in accordance with the Canada National Parks Act and Regulations and with all other laws of Canada and the Province of New Brunswick.
2. The Project Manager is responsible to ensure all parties receive a copy of this BIA and have it handy at all times.
3. The Trail Decommissioning and Restoration Contractor is required to notify the Project Manager of the proposed work schedule at least one week in advance of potential start up.
4. A pre-construction meeting will be held on-site and attended by the Trail Decommissioning and Restoration Contractor, the Parks Canada Project Manager, and the Environmental Assessment Officer. The meeting is to ensure construction personnel are aware of the environmental concerns, laws, rules and regulations in Fundy National Park.
5. All project personnel shall be given copies of the mitigation measures and have them handy at all times.
6. An emergency contact list with phone numbers to be compiled and posted in a conspicuous location at the construction/project site.
7. Site access and the work area will be defined by Parks Canada with the Trail Decommissioning and Restoration Contractor prior to initiating project activities. Work will be confined to the identified disturbance footprint.
8. During construction phases, provide barricades, signs, and/or fencing as required to protect the public. Site access during construction must be restricted to authorized personnel only.
9. A designated Environmental Assessment Officer shall be kept informed of project scheduling and will be notified of changes at all times.
10. Ensure an Environmental Protection Plan that highlights procedures is in place before the project begins and have materials readily available for use in the event of a silt release.

### Design

1. Restoring a trail is just as complex as constructing a new trail. A detailed design must be in place before decommissioning and restoration commences and approved by designated Parks Canada staff.
2. Access to the trail should be prohibited by the public. This can be accomplished by posting signage and blocking or disguising the sightline to the closed trail. Ensure that there is a seamless intersection between the new trail and the closed trail at the end of the project.





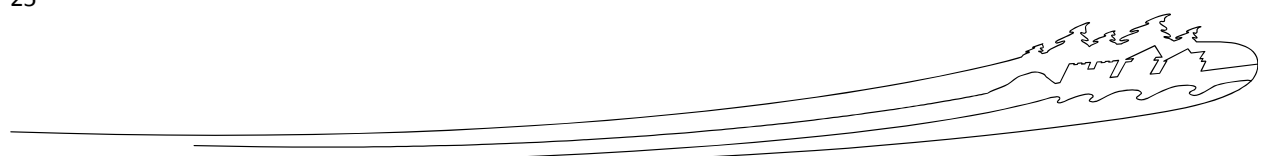


3. Where possible, stay within the boundaries of the existing footprint (trail tread). If it is necessary to work beyond the existing footprint, ensure the least amount of disturbance to vegetation, water and soil and reduce the probability of severing root systems and undermining trees.
4. Decommissioning and restoration activities should follow a layout design that ensures natural drainage patterns are preserved and restored. The Trail Manual for Parks Canada provides good guidance.
5. Drainage features (e.g., rolling grade dips) must be incorporated into the trail restoration design to facilitate the movement of water across the trail and away from the site. This will reduce water flow down the trail and prevent erosion of soil material.
6. Where possible, reshape the existing area to the original contour. Use a clinometer or any other preferred tool to measure slope above and below the trail to obtain an average. As the re-contouring is proceeding, compare the re-contour slope to your average hill side slope.
7. Prepare a revegetation plan including planting and seeding of native species/seed mixtures to enhance the natural diversity reflective of the adjacent forest.
8. Work must be scheduled to avoid periods of heavy precipitation and wet soil conditions.

## Soil & Landforms

### Re-contouring & Scarification

1. Keep excavation to a minimum and reduce disturbance to ground surface and vegetation. This will minimize disturbance and disruption to plant communities and wildlife habitat.
2. If soil becomes saturated during extreme wet weather, operations shall be suspended until soil conditions are more favourable.
3. Keep soils at their current location unless they are placed in an area that will be actively managed.
4. Where only a partial trail removal is required, ensure outsloping of the trail surface to improve natural drainage and reduce the risk of erosion.
5. Where complete outsloping of the trail cannot be accomplished, install cross drains through outside berms to convey runoff across the trail rather than running down the trail to reduce the risk of erosion (Apply Hydrology/Water Quality mitigation measures).
6. All exposed soils must be stabilized as soon as possible in order to control sediment runoff during and after decommissioning and restoration. In partial re-contouring, unstable fill must be removed from the outside edge of the road and placed away from springs or areas that have a potential for landsliding.
7. Eliminate berms or depressions on resurfaced trail area to reduce the collection of runoff and erosion of soil. Ensure that the interface between the natural slope and the re-contoured fill is smooth and free of any ridges or depressions.
8. Remove raised trail tread surfaces that are located in low-lying flat wetland habitats (environmentally sensitive sites) to restore connectivity between areas on either side of the trail.
9. Hardened trail/road surfaces should be completely scarified or tilled to a depth of at least 20 centimeters to promote vegetation rooting and reduce runoff. Leave the soil surface uneven (pitted) to promote regeneration.
10. Side-casting of organic debris should be avoided whenever possible. If unavoidable, loose organic debris can be broadcasted downhill without creating piles. Broadcasted material should be evenly spread to a thickness of 25 millimeters or less; ensure that vegetation is uncovered (e.g., on grassy slopes gently rake grass to stand back up).
11. Placement of fill during re-contouring will be spread and compacted in lifts against the cutbank until the desired slope is achieved on both sides of the trail.





12. The project will not result in wasteful and inefficient use of non-renewable resources. Where possible, trail decommissioning and restoration must utilize excavated mineral and topsoil material from trail/road bed excavation or from the re-route construction. However, if this is not possible, use only clean fill and topsoil free of any contaminants, invasive and non-native species from a local source, approved by Parks Canada, to minimize hauling distance.

### **Borrow Pits**

1. If fill material is required, borrow pits can be established in suitable soil within 10 meters from the edge of the trail or as close to the trail as possible and screened from view. Pits cannot exceed 1 meter (L) x 1 meter (W) x 2 meters (D). Any deviation from these parameters must be approved by a park representative.
2. Suitable borrow sites are areas that can withstand soil removal without having any negative effect on surface flow.
3. Scout for suitable soil deposits with a hand auger; look for average grade deposits (mounds) with a minimal organic layer and vegetation cover.
4. Borrow pits will not be located within 30 meters of a waterway.
5. Do not locate borrow pits adjacent to tree root-balls.
6. Do not disturb soils from tipped up roots-balls of fallen trees as they provide micro-habitat for small mammals and increase structure and plant diversity.
7. Salvage and stockpile vegetation removed from the top of borrow pit for later decommissioning of exhausted borrow pits. Place the salvaged vegetation in a secure shaded location and keep them moist by covering them with wet burlap.
8. Create only a single access trail to the borrow pit to minimize off trail impact. If necessary, flag access route to borrow pit when in use.
9. Flag and record locations of active borrow pits for future use and eventual restoration.
10. Restore borrow pits when exhausted by grading the pit area to the natural contour of the adjacent land, fill with soil waste material and cover with stockpiled organic material before revegetating with native plant or seed mixtures approved by Parks Canada. Camouflage /disguise the area and any access trails with boulders, dead wood or by planting small trees.
11. Ensure borrow pits are secure and do not provide a hazard to the workers, public or wildlife.

### **Rock Harvest & Placement**

1. Rocks of various size can be harvested from the trail or adjacent to the trail for the purpose of constructing cross drains, armouring, check dams, corraling, riparian stabilization, installing barrier to trail corridors and naturalizing closed sections of trail. Machinery must stay within existing trail corridor while harvesting rock.
2. When placing rock on scarified trail surfaces, excavate holes 1/3 the thickness of the rocks, locate them perpendicular to the fall line, refill the soil around the rocks and tamp it so that they look like they have always been there.

### **Contaminated Soil**

1. Excavated soil that is suspected of or known to be contaminated (e.g., fuel, oil) is to be placed in covered bins or stockpiled and covered with plastic until the material can be transported to an approved treatment disposal facility. Copies of delivery slips from approved treatment facility must be submitted to a Parks Canada representative.

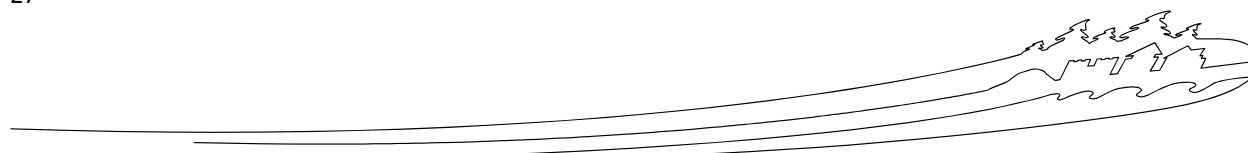






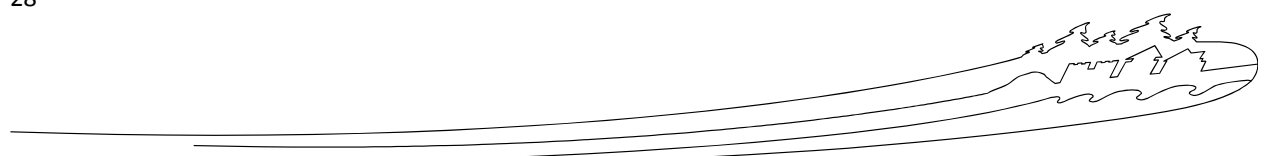
## Hydrology / Water Quality

1. In the province of New Brunswick, instream work shall be conducted within the authorization window between June 1<sup>st</sup> and September 30<sup>th</sup>. All proposed work must respect timing window to protect fish, including their eggs, juveniles, spawning adults and /or the organisms upon which they feed.
2. A Department of Fisheries and Oceans (DFO) – Fisheries Protection Program Project Review must be completed if there is a requirement for instream work or work adjacent to waters that feed directly into fish bearing waterbodies. All mitigation measures and guidelines provided as a result of the review must be implemented during the project.
3. Conduct instream work during low flow periods and not when flows are elevated due to local rain events or seasonal flooding. Low flow periods usually occur in late summer in Fundy National Park.
4. Ensure contingencies are in place for occurrence of unexpected high flow conditions during decommissioning and restoration activities.
5. Minimize the extent and duration of work within watercourses and bank areas.
6. Existing (altered) drainage patterns will be restored to pre-disturbance natural flow patterns. Where practical, slopes will be returned to the natural contour to allow free flow of surface runoff and to increase groundwater flow.
7. If work is required on flowing streams (e.g., remove a culvert) it will be necessary to temporary divert the flow (e.g., coffer dam, diversion channel) to keep the work site in the dry and prevent the movement of sediment downstream.
8. To prevent pooling and failure, removal of wet crossings must begin at the downstream end of the site.
9. Monitor local weather forecast and avoid excavation near watercourses when there is heavy rainfall events predicted.
10. Stone pitching and rock armouring must be installed to allow free flow of water through the crevasses.
11. If no longer required for surface water runoff, inboard ditches will be backfilled to the contour of the adjacent natural slope to provide subsurface relief of ditch memory.
12. Before backfilling of inboard ditches, decompact base of ditch and mix rock with soil along the base to promote seepage.
13. Reshaped and backfilled ditches should be planted with natural vegetation to accelerate regeneration and to provide stabilization.
14. In some cases where pre-disturbance patterns cannot be restored, restoration work may require the realignment of a stream segment. Consult with park representatives for a thorough review of drainage systems.
15. If rock reinforcement/armouring is required to stabilize eroding or exposed areas, ensure rock is installed at a similar slope to maintain a uniform bank/shoreline and natural stream/shoreline alignment.
16. Install drainage features/cross drains (e.g., rolling grade dips, swales, waterbars) across trail to shed water of trail tread surface without running down the trail to reduce the risk of erosion. In areas where seasonal seeps run across the trail, cross drains should be armored with natural rip rap to prevent erosion.
17. Drainage features/cross drains (e.g., rolling grade dips, swales, waterbars) will only be placed where they can be drained into a natural depression.
18. Placement and frequency of drainage features/cross drains (e.g., rolling grade dips, swales, waterbars) must be based on the grade of the existing trail and the soil type.
19. Restored trail surfaces must be shaped so that runoff drains away from the re-contoured areas.
20. Do not use watercourse beds for borrow material below the normal high water mark.
21. Do not dump excavated fill, waste material, slash or debris in watercourse.
22. Aquatic species and habitats can be greatly affected by runoff sediment. Protect exposed slopes and reduce surface erosion and the amount of sediment entering waterways.





23. Cuts and fills near waterways are to be stabilized, and ditch run-outs constructed to prevent entry of silt into waterways. In the vicinity of stream banks, maintain and preserve as much of the existing vegetation as possible.
24. Do not skid logs or construction materials across waterways.
25. Do not operate equipment in waterways. Temporary crossings must be placed outside of wetted areas and constructed of materials free of contaminants. If crossing is expected to be used during periods of flooding, structures should be placed outside of high water mark.
26. Locate temporary crossings at straight sections of the watercourse, perpendicular to the bank whenever possible. Avoid crossing on meander bends, braided streams, alluvial fans, or any other area that is inherently unstable and may result in the erosion or souring of the bed.
27. It may be necessary to use bank and bed (if area is dewatered) protection (e.g., swamp/blast mats, pads) if minor rutting is likely to occur.
28. Minimize the removal of natural woody debris, sand or other materials from banks, shoreline or bed of waterbodies below high water mark. If material is removed, set it aside and return it to the original location once restoration activities are completed.
29. Re-contour the stream bank edges and approach ways and prevent sedimentation by grading slopes in the direction away from the watercourse and never into the stream itself.
30. No rock, silt, cement, grout, asphalt, petroleum product, lumber, vegetation, domestic waste, or any deleterious substance shall be placed or allowed to be dispersed into any stream, river, pond, wetland, lake or other watercourse.
31. Infrastructure including bridges, culverts and any another material including underlying geotextile fabric, gabion baskets, abutments and fill must be removed from the stream during trail restoration and disposed of as required by a designated park representative (apply Infrastructure mitigations measures).
32. Mitigation measures must be in place to reduce the introduction of sediment into waterways during culvert and bridge removal and during scarification of the trail surface.
33. Restore bed and banks of the watercourse to the original contour and gradient. If the original gradient cannot be restored due to instability, a stable gradient that does not obstruct the natural water flow should be restored.
34. When culverts are removed, cross ditches or channels must be constructed on the trail (right of way) to maintain adequate drainage.
35. Avoid disturbance to slopes, if unavoidable ensure adequate erosion protection measures are used.
36. Installation of check dams may be necessary to stabilize steep sections. Check dams should be constructed of natural materials such as logs and rock. Ensure that check dams are keyed into the bottom and side of the restored trail section.
37. Do not bury springs and seeps with re-contouring fill. These areas should remain free draining and be reconnected to the drainage network. It may be necessary to install a cross drain to facilitate the natural flow of the spring or seep.
38. When rock material is used in or near a watercourse:
  - Use clean durable non-ore-bearing, coarse granular aggregate material that is appropriately sized to resist displacement during peak flood events.
  - Do not obtain rocks from below the high water mark of any watercourse.
  - Do not use acid-generating rock or rock that fractures and breaks down easily.
  - Install rock at a similar slope to maintain a uniform stream bank and natural stream alignment.
  - Ensure rock does not constrict the natural stream width.
39. Explosives should not be detonated in or near fish habitat.



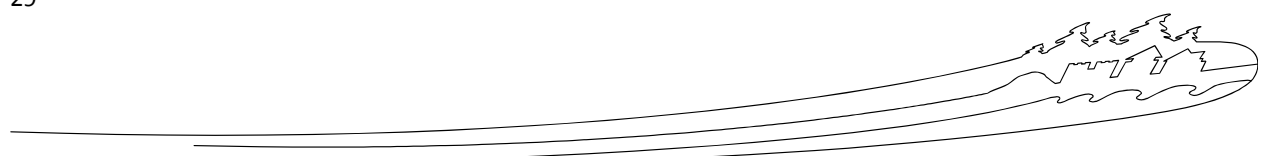




## Flora

### General

1. The Project Manager must set project limits prior to the start of decommissioning and restoration. No trees and vegetation will be cut or removed outside these limits unless approved by the park representative.
2. A vegetation inventory must be conducted prior to decommissioning and restoration activities to determine the presence, abundance and distribution of native vegetation species.
3. If a rare plant or tree species is located within the project limits, a plan to avoid the species should be implemented. If the restoration activity doesn't allow for the species to be avoided, mitigation measures will be incorporated into the design/specification to reduce negative impact.
4. Protect trees and plant species of high ecological, heritage or cultural value; all clearing or salvage activities must be flagged and pre-approved by designated Parks Canada staff.
5. Measures shall be taken to protect vegetation within the project limits that are not intended for removal. The park representative must be informed if there is a requirement to remove unmarked vegetation.
6. Retain a 30 meter vegetated buffer, from the high water mark of waterbodies and a 15 meter buffer from steep slopes. If clearing is required within the buffer zone, conduct minimal selective clearing by hand to ensure soil stability and prevent run off. In sloped areas, buffers should increase in width as the slope increases.
7. Minimize equipment travel outside of existing road/trail corridor. Equipment shall be stored within the project limits.
8. Equipment operators shall take extreme caution to avoid striking vegetation, including trees and tree bark that is outside of the restoration corridor.
9. Where practical, clear trees in a phased approach provided timing windows for critical wildlife life stages can be respected. Ideally, trees should not be cut until construction reaches them, in case last-minute adjustments are necessary. However, it may be necessary to pre-cut trees to avoid the local migratory bird breed season.
10. The felling of trees with obvious wildlife use (e.g., snags with cavity nests, trees with stick nests) must be avoided wherever possible; if unavoidable, designated Parks Canada staff approval is required.
11. When felling trees, precautions must be taken to minimize damage to surrounding vegetation.
12. If over half of a tree needs pruning, it is recommended to cut it down.
13. Trees should be cut at ground level and do not leave pointed stumps. If clearing is conducted during winter in snow cover, return to site after snow melt to flush cut stumps as required.
14. Prune limbs close to the tree trunk. For a clean cut, make a shallow undercut first, then follow with the top cut. This prevents the limb from peeling bark off the tree as it falls. Do not use an ax for pruning.
15. All cut wood is the property of Parks Canada; consult with designated Parks Canada staff to determine appropriate cutting methods, use and disposal of cut wood and other plant material.
16. If wood debris is chipped, spread thinly within the surrounding forest with space between the chips to ensure native vegetation can grow and re-establish; spreading too thick may result in growth suppression and fire hazard.
17. Any planting or seeding must be done using native plants/seed mixtures approved by Parks Canada.
18. Where practical, ground vegetation and trees, regardless of diameter at breast height (DBH), growing within the trail/road footprint that is scheduled for decommissioning and restoration will be salvaged and incorporated into the revegetation plan.





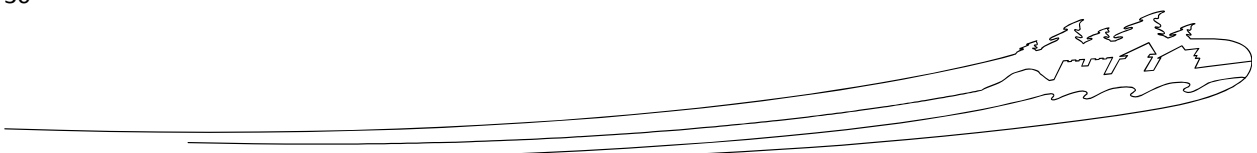
19. Store salvaged vegetation on already disturbed areas to minimize disturbance area.
20. It may be necessary to place blast mats or mud mats to minimize damage to vegetation.
21. Use caution when mounting signs to trees. Ensure signs are obvious to travelers and legible from the tread or use a post. Mount signs to trees with plated lag screws and plated washers, rather than spikes. This way, the sign can be periodically loosened to accommodate tree growth. Leave a gap between the sign and the tree to allow for the growth. Do not use copper nails as they are toxic to trees. Signs mounted to galvanized metal posts are preferred over tree mounts. Post should be driven into the ground rather than dug.

### Roots

1. Efforts will be taken to minimize damage to tree roots by ensuring root systems remain intact.
2. Protect roots of trees to drip line to prevent disturbance or damage. Avoid traffic, dumping or storage of material over root zone.
3. Where necessary, use hand tools to scarify compacted soil between exposed roots to a minimum depth of 200 millimeters to improve infiltration of moisture, which feeds the tree and allows for root growth.
4. Cover exposed roots with a shallow (50 – 70 millimeters), porous mulch to allow water and gases to exchange between the air and soil. A local natural mulch is preferred. Consult with designated Parks Canada staff if this is not possible.
5. If there is a requirement to walk or ride over exposed root, cover the roots (e.g., rocks, temporary boardwalk) to reduce direct contact.

### Plant Salvage, Harvest, Transplant

1. Understand the soil conditions to better plan which species of native vegetation is appropriate for a particular site.
2. Prepare the restoration site for planting before digging out the transplant material to reduce the time the plants remain out of the ground. Holes need to be refilled and disguised after transplants are removed from natural environment.
3. Where planting is required, initiate as soon as possible after scarification is completed to minimize erosion and the opportunity for non-native species to become established.
4. When planting a section of the trail or re-planting for landscaping purposes, use only native species or seed mixtures (approved by a park representative) that are well suited to the environment and appropriate for transplanting.
5. Where possible, use local vegetation, found within or adjacent to the project limits, to naturalize decommissioned trails/roads. Vegetation occurring in the region in which they evolved are already adapted to local physical and biotic processes (climate, soils, water levels, drought, frost, interact with other local species, etc.) increasing the potential success of transplant regeneration.
6. Make sure to dig up live plants from random locations, so as to not leave a new uncovered area.
7. Machinery is not permitted outside of existing trail corridor to harvest vegetation. Any harvest beyond reach of corridor must be done manually.
8. Harvested plants and trees should be transplanted in the spring or fall of the year, or better, when the plant is fully dormant. Otherwise, transplant shock is likely.
9. When harvesting vegetation for transplant, dig a circle around the drip line of the selected plant, drive the shovel vertically as far as you can. Use the shovel to lift the plant. If there are deep roots still attached, use pruning clippers to cut them cleanly. Ensure that enough soil is taken to contain the root mass.







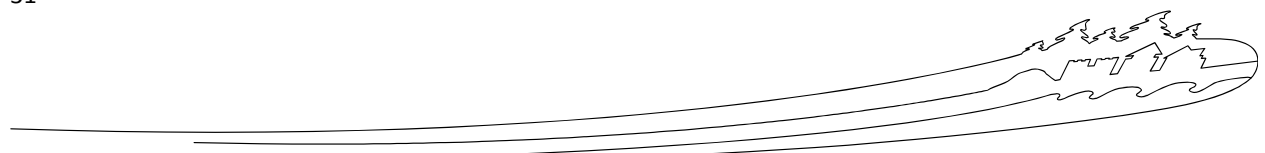
10. Transplant material (plants, shrubs and trees) should be replanted shortly after harvest. If for some reason the transplanting cannot be done immediately, the vegetation will be kept in a shaded place and watered for a period of 24 hours. If plants cannot be planted within the 24 hour period, a temporary plant bed will be built and vegetation will be planted in bed until they can be placed in their permanent location.
11. Dig a generous hole for transplant material, approximately 70 millimeters deeper and 100 millimeters wider than the root ball. Loosen the soil in the base of the hole so that roots can penetrate easily.
12. Soil at the base of the dug hole must be moist at time of transplanting, if necessary add water to ensure moisture level is adequate for transplanted species. In addition, if natural moisture are low, return to site to add water until vegetation becomes established.
13. Insert the root ball of the transplant such that the base of the stem is 5 millimeters below the surrounding terrain. This will leave a small depression to collect water.
14. Backfill hole after plant placement and tamp soil to eliminate air pockets around the roots.
15. Mulch should be applied to transplanted vegetation to protect against cold, heat and drought.

#### **Naturalization with Local Organic Material**

1. On heavily compacted trail surfaces it may be necessary to add organic material to the scarified surface to improve soil quality for vegetation growth. It is best to use material or soil that is local to the area so that it would have a similar composition of the adjacent soil.
2. If seeding is required, spread seed evenly across selected areas during a time when adequate soil moisture and site conditions allow for successful germination and growth.
3. Scatter native seed over soil and lightly rake them into the soil before covering with organic debris.
4. Down woody debris, located adjacent to the trail/road will be placed on restored trail surfaces to provide micro habitat for wildlife and accelerate natural regeneration.
5. Transplant nursery logs, a partially rotted log on which native plants have started to grow, to increase plant survival and add to the naturalization of the area.
6. Organic debris such as leaves, needles, twigs, seeds and duff will be removed from the inboard ditch, cutbank and embankment before scarification and reshaping of trail/road. This material will be stockpiled out of the way for later use as a mulch on the scarified trail/road surface to promote rapid revegetation.
7. If necessary, organic debris can be collected from adjacent forest provided it doesn't make a scar or disrupt the ecological function of the area.
8. Slash generated from vegetation removal will be placed in the adjacent forest to decay over time or incorporated into the site rehabilitation. Place branches with cut ends facing away from the trail. All work will be done with the goal of having a low aesthetic impact on the landscape.

#### **Riparian Vegetation**

1. Removal of riparian vegetation should be kept to a minimum and undertaken when absolutely necessary.
2. Combined maintenance activities (e.g., mowing, brushing, topping, slashing) will affect no more than one third of the total woody vegetation, such as trees and shrubs, within 30 meters of the high water mark in any given year.
3. Use existing trails, roads or cut lines wherever possible to avoid disturbance to the riparian vegetation and prevent soil compaction.





4. When practical, prune or top the vegetation instead of grubbing/uprooting.
5. Ensure canopy vegetation immediately adjacent to waterbodies is maintained unless deemed a hazard.
6. When practical, alter riparian vegetation by hand. If machinery must be used, operate on land and minimize disturbance to the banks of the waterbody.
7. Restore banks to original condition should any damage occur.
8. When altering a tree on the bank of a watercourse, ensure the root structure and stability are maintained.

### **Invasive Alien Species**

Invasive alien species, all equipment and materials must be clean and free of any contaminants and non-native species (apply Invasive Alien Species mitigation measures).

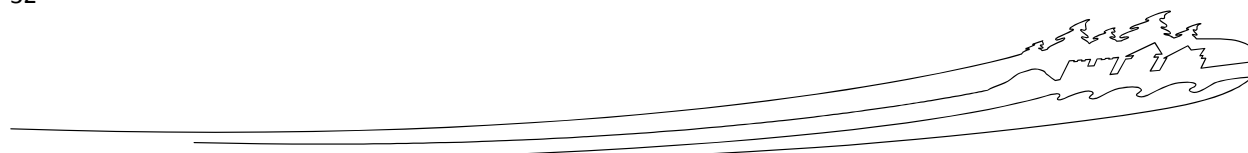
## **Fauna**

### **General**

1. Determine if there are any rare species or habitats within the project limits. If so, work must be scheduled to when the species have migrated or when the work activities have less of an impact to the species or habitat.
2. Schedule activities to avoid critical wildlife life stages (breeding, nesting, denning, roosting, rearing, migration). Consult with designated Parks Canada staff to discuss localized wildlife concerns.
3. On-site personnel must be made aware of and report any incidental sightings of species at risk immediately to designated Parks Canada staff.
4. Designated Parks Canada staff must be alerted immediately to any potential wildlife conflict (e.g., aggressive behaviour, persistent intrusion), distress or mortality. In the case of aggressive behaviour or persistent intrusion, stop work and evacuate the area.
5. Never approach or harass wildlife (e.g., feeding, baiting, luring).
6. Minimize the time excavations remain open and cover or fence when left unattended to reduce the potential for wildlife injury.
7. On-site workers must receive any required wildlife awareness training, according to field unit policy.
8. All wildlife attractants must be secured (e.g., petroleum products, human food, recyclable drink containers and garbage) within wildlife-proof containers, a secure building or vehicle. Keep food waste separate from construction waste and remove daily; if daily removal is not possible, secure until it can be removed.
9. Notify designated Parks Canada staff immediately should wildlife gain access to the above mentioned attractants.

### **Birds/Mammals**

1. To avoid the risk of nest destruction, the Contractor must avoid vegetation clearing during the most critical period of the migratory bird breeding season, which is May 1<sup>st</sup> through August 31<sup>st</sup>. Follow [Reducing Risk to Migratory Birds](#) guidance from [Environment and Climate Change Canada](#), including avoiding vegetation clearing during site-specific migratory bird timing windows.
2. In the event that vegetation clearing is to take place inside the May 1<sup>st</sup> to August 31<sup>st</sup> window, a qualified biologist must inspect the area prior to construction activities to ensure there will be no adverse impacts on migratory birds (e.g., nest surveys, exclusion zones for located nests, area avoidance). The Environmental Assessment Officer will give directions on when work can commence or resume.





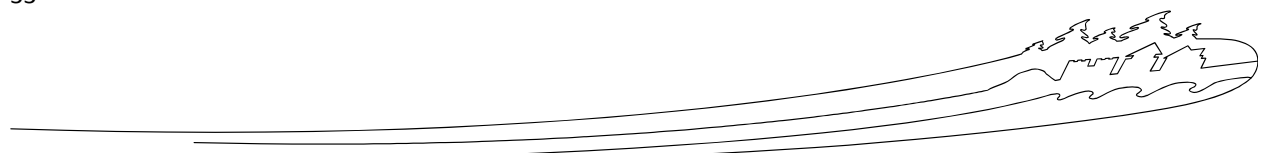
3. Should active nests, dens, roosts or calving areas be discovered, stop work and contact designated Parks Canada staff immediately for direction.
4. Conduct trail decommissioning and restoration activities during daylight hours, avoiding critical foraging times (dusk and dawn).
5. Feeding wildlife is not permitted. All work sites must be kept free of edible and other garbage that could attract or harm wildlife.
6. Before cutting trees, knock their trunks repeatedly with a stick (or similar object) to awaken hibernating mammals.
7. Wildlife dispersal or migration may be temporarily altered during construction. Ensure that alternate routes adjacent to the work area, suitable for wildlife movement, remain open during decommissioning and restoration activities.
8. If wildlife is observed at or near the work site, allow the animal(s) the opportunity to leave the work area and move away from areas of potential conflict.

### **Fish**

1. Apply Hydrology/Water Quality mitigation measures.
2. All trail decommissioning and restoration projects shall be designed to have minimum effects on fish and fish habitat.
3. If required, obtain proper permits or authorization from Fisheries and Oceans Canada.
4. Consult with the Environment Assessment Officer or park representative if a fish rescue effort or removal is necessary.
  - Install barrier nets to isolate fish from the work area. Daily inspections must be conducted to ensure barriers are functioning properly.
  - Removal of fish from work area by multiple passes with an electrofisher by a certified technician trained in the use and safety of the machine.
  - Fish passage monitoring must be maintained to ensure no fish are entering the work zone.
  - Maintain a continuous flow of water from the upstream to the downstream via diversion channels or pumping (work area to be in the dry during construction).
  - During and after rain events, barriers need to be inspected, maintained and repaired. If barriers collapse, repeat the above steps.
  - In addition, all advice and mitigation measures provided by Fisheries and Oceans Project Review will be implemented during the course of this project.
5. Every effort must be taken to minimize erosion and reduce turbidity in streams. Mitigation measures and erosion control features shall be in place to control and reduce sediment from the rehabilitation site entering waterways. Disturbed soil adjacent to any waterway shall receive evenly distributed mulch coverage to reduce erosion.
6. Disturbed riparian areas will be vegetated with native species to restore ecological function to habitats within and adjacent to waterways.

### **Amphibians**

1. Suitable habitat for sensitive amphibians shall be documented during the initial planning stages. Sensitive amphibian habitat will be avoided. If unavoidable, authorization from designated park representative must be obtained before decommissioning and restoration activities begin or resume. Identification of sensitive amphibian habitat during decommissioning and restoration activities must







be reported immediately to the Environmental Protection Officer or park representative and activities will cease until approval to resume is granted by the park representative.

### **Wetland Habitats**

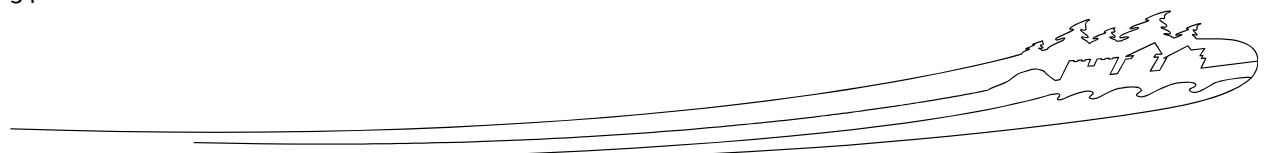
1. All efforts must be taken to restore ecological function to wetland habitats including restoration of natural water drainage patterns.
2. Wetland habitats such as marsh, riparian and vernal pools will not be filled with excavated material from the trail decommissioning and restoration project.
3. Equipment will work within the existing trail alignment and only previous affected areas will be treated.
4. Where possible, remove raised tread trail, boardwalk and any other trail surfaces/structures constructed over wetland habitat.

### **Invasive Alien Species**

1. Consult the Best Management Practices on How to Reduce the Spread of Invasive Plants in Fundy National Park (draft 2015).
2. All invasive plant species found within the project limits shall be immediately reported to the park representative. The removal of such invasive plants shall be carried out in accordance to the Fundy National Park Invasive Plant Action Plan.
3. Minimize ground disturbance and vegetation removal, as practical and within project requirements.
4. Minimize bare soil exposure (e.g., cover stockpiled material with tarps, plant native species, cover with natural mulch/ground coverings).
5. Stabilize and revegetate disturbed areas as soon as possible with native plants, soil and seed mixtures approved by designated Parks Canada staff. If there is insufficient time remaining in the growing season, stabilize the site to prevent erosion and vegetate the following spring.
6. Equipment may facilitate the movement and of spread of invasive plants by moving invasive plant seeds from infested areas. Contractors are responsible to pressure wash/steam clean equipment before entering the park or moving from an infested area within the park.
7. Hand tools, footwear and clothing must be cleaned between work sites to prevent cross contamination and reduce the risk of invasive alien species introduction.
8. All soil, gravel, construction lumber, erosion and sediment control products (e.g., straw, mulch), or other applicable materials from outside the protected heritage place must be from a certified weed-free source.
9. Ensure that organic material (e.g., topsoil, borrow, fill material, gravel) taken from the construction site is free of invasive alien species before using in other parts of the protected heritage place.
10. Materials to be used on restoration projects must be stored in areas free of invasive plant species. Monitor disturbed and revegetated areas for several growing seasons to ensure that native vegetation is growing successfully and invasive alien species spread is prevented.

### **Machinery/Equipment**

1. Work associated with site preparation and rehabilitation will rely on minimal amount of heavy machinery use and be fairly brief. Consequently, noise pollution will be minimized and will not significantly influence park visitors or wildlife.
2. All mechanical construction equipment should be properly maintained, in good operating order, and fitted with standard air emission control devices and spark arrestors prior to arrival on site. Detection of leaks, exhaust or other issues must be fixed immediately or work will be suspended until repairs can be made.





3. During decommissioning and restoration, any required cleaning of tools and equipment must be done greater than 30 meters from waterbodies to prevent the release of wash water that may contain deleterious substances.
4. Equipment operators must be fully trained and experienced.
5. 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).
6. The crossing of any watercourse by construction equipment, or the use of such equipment within waterbodies must be approved by designated Parks Canada staff. If approved:
  - Consult with designated Parks Canada staff prior to project start-up, to determine single entry and exit points for any watercourse crossings.
  - Use small scale equipment when at all possible (e.g., mini excavator, ATV,)
  - Use established/constructed fords when available.
  - Protect access points (e.g., swamp mats, pads).
7. Avoid using equipment in sensitive sites. Use hand tools instead or use equipment with low bearing weight, low PSI tires, or rubber tracked vehicles or access matting where feasible to minimize soil compaction and ground disturbance.
8. When water crossings are not required, operate machinery above the high water mark to minimize disturbance to banks and watercourse.
9. Daylight operation of all mechanized equipment will be respected.
10. Minimize idling of engines, contingent on operating instructions and temperature consideration, to reduce noise and emissions.
11. Keep dry leaves and twigs cleared from radiators and other hot spots on equipment.
12. All equipment and vehicles should have an appropriately sized fire extinguisher easily accessible and firefighting hand tools should be on-site.
13. Fueling of vehicles or equipment will not be permitted within 30 meters of any watercourse or critical habitat. Increase the 30 meter buffer depending on level of risk and site specific conditions.
14. Refueling (e.g., excavators, tracked loaders, chainsaws, generators) must not take place in locations where runoff could carry contaminants into drainage pathways. If not on compacted ground, an absorbent pad, tarp or portable berm must be placed beneath or around the machine to capture small spills.
15. Consider using bio-degradable chain oil/vegetable oils in chainsaws, especially when working within 30 meters of waterbodies.
16. If operating chainsaws directly over or adjacent to waterbodies is unavoidable, use measures such as tarps to trap and prevent debris from entering the waterbody as much as possible.
17. 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 150% of the volume of fuel in the generator.

### **Storage and Handling of Fuels and Hazardous Fluids**

1. Develop a Spills Prevention and Response Plan and keep a copy on site at all times.
2. Prevent the release of hazardous substances into the environment, including but not limited to, petroleum products and their derivatives, antifreeze or solvents.
3. All on-site personnel must be briefed on reporting requirements for hazardous materials spills. In the event of a spill, the designated park representative must be notified immediately and action taken to clean the spill in accordance with the Provincial Spill Reporting Regulation. If the park representative is unavailable contact Jasper Dispatch (1-877-852-3100). In addition, the Contractor is required by law to report all toxic spills and petroleum spills >20 litres to Environmental Emergency / Canadian Coast Guard at 1-800-565-1633.





4. A spill contingency response kit including sorbent material and berms to contain 110% of the largest possible spill (e.g., fuel or other toxic liquids) related to the work must be available on site at all times. On-site personnel must be aware of its location and trained in its use. Any contaminants must be recovered at source and disposed according to applicable laws, policies and regulations.
5. Cleanup, repair and rehabilitation resulting from any spill shall be to the satisfaction of the park representative.
6. Fuel storage shall be located a minimum of 30 meters from any watercourse or critical habitat. Depending on level of risk and site specific conditions the 30 meter buffer can be increased if required.
7. Ensure fuels are stored overnight under lock and key in a Parks Canada approved enclosure.
8. Minimize quantity of hazardous materials on site to that absolutely necessary to perform the work.
9. Where possible, use paints and stains that are certified by Environment Choice logo (<http://www.environmentalchoice.com/>) or equivalent, with minimal harmful chemicals/heavy metals and low volatile organic compounds (VOCs).
10. If preserved wood is used, use the appropriate wood preservative that will minimize environmental impacts, particularly by following the guidelines by Western Wood Preservatives Institute for use of wood preservatives in aquatic environments. In addition, The Parks Canada Guidelines for the Use, Handling and Disposal of Treated Wood will be applied where possible to mitigate environmental impacts.
11. Disposal of debris or waste into any drain, and/or waterway, is strictly prohibited.
12. Any hazardous material/waste is to be stored, handled, transported and disposed of in compliance with the Canadian Environment Protection Act, Transportation of Dangerous Goods Act and Workplace Hazardous Materials Information System (WHMIS). Disposal shall be at an approved provincial waste management site and proof of disposal provided to the Project Manager.
13. Any hazardous waste or contaminated material uncovered during excavation/construction, must be investigated, source identified, removed and disposed of outside the protected heritage place at an approved facility. Disposal documentation must be provided to designated Parks Canada staff.
14. Dispose of all waste materials at an appropriate provincial waste/recycle facility.

### Infrastructure

1. All infrastructure including bridges, abutments, boardwalks, culverts, stairs, railings, benches and docks designed to provide passage over waterways and along the trail must be removed from the trail during decommissioning and restoration of the area.
2. Confine work area to the existing footprint of the item to be decommissioned and restored.
3. Do not exceed the weight capacity when travelling over bridges or boardwalks with equipment.
4. Any activities related to the demolition and removal of infrastructure must not interfere with the flow of water (e.g., use tarps to capture debris).
5. Any infrastructure waste that enters a waterway must be immediately retrieved, provided worker safety is not compromised, and if removal can be done without excessive disturbance of bottom sediment.
6. When removal of protective coating is required implement the following:
  - Remove paint or protective coating in a manner that prevents paint, paint flakes, primer, solvent or other waster material from entering the watercourse and dispose at an approved waste facility.
  - When feasible, use tarps to trap and prevent falling debris, spills or drips from entering the watercourse.
7. If bridges, piers, abutments or culverts are to remain, implement the following:







- Remove debris from within culverts and around bridges and abutment with hand tools where feasible. If machinery is required, operate from land and minimize damage to banks of the watercourse.
  - Limit removal of accumulated material (e.g., branches, stumps, woody materials, garbage) to areas within the culvert, immediately upstream of the culvert and to that which is necessary to retain culvert function and water flow. For bridges, only remove debris necessary to protect piers and abutments.
  - Remove accumulated material and debris slowly to allow clean water to pass, to prevent downstream flooding and reduce amount of sediment-laden water going downstream.
8. Where culverts are removed, construct drainage channels to facilitate the flow of water, ensure inlet and outlet areas are restored to withstand hydrological flow of specific watersheds.
  9. Ensure any holes or depressions left from removal of infrastructure are filled.
  10. Treated wood must be handled, stored and disposed of according to the Parks Canada Guide for the Use, Handling and Disposal of Pressure Treated Wood 2009 or contact the Parks Canada Environmental Management Team for advice.
  11. Minimize the number of saw cuts made to treated wood in the field. If unavoidable, cut treated wood away from waterbodies and over traps to catch debris; cuttings; sawdust and other treated wood waste material from entering waterbodies.
  12. All cuttings, sawdust and other treated wood waste material must be collected and disposed of at an approved disposal facility.
  13. Treated wood must not be burnt or left onsite to decay.
  14. Where possible, waste materials from infrastructure removal shall be re-purposed or recycled (e.g., benches, building material, steel beams) or disposed of in an appropriate waste facility outside of Fundy National Park.
  15. Reclaimed building material or waste material will be stored at least 10 meters from the high water mark.
  16. To reduce the risk of leaching of chemicals, stocked waste material such as pressure treated lumber must be covered until transportation is arranged for the removal to an approved facility outside of Fundy National Park.
  17. Stabilize shoreline or bank disturbance by any activity associated with the project.
  18. In consultation with the designated park representative, rehabilitate the site to a natural condition similar to that of the adjacent area.

### Cultural Resources

1. An Archaeological Overview Assessment (AOA) is required to evaluate the potential for archaeological resources to occur within the project study area. The results of the AOA may trigger the requirement for an Archaeological Impact Assessment (AIA), a more detailed assessment.
2. Consult with the Project Manager if there is a requirement to deviate from approved decommissioning and restoration plans. Any changes to the scope of work must be submitted to Parks Canada's Terrestrial Branch for further review.
3. Cultural resources found within the project limits will be identified in the field and all decommissioning and restoration activities are to avoid known or potential archaeological sites.
4. Apply any mitigation measures that may have been previously identified by a Parks Canada archaeologist and/or other conservation specialist (e.g., cultural landscapes or landscape features of heritage value) for the immediate area of work.
5. Stockpiled material must not be permitted to damage or bury known cultural resources.
6. Vehicular access routes and staging areas will be restricted to present-day roadways, parking lots, exposed bedrock areas and significantly disturbed areas. If this is not possible, the use of protective



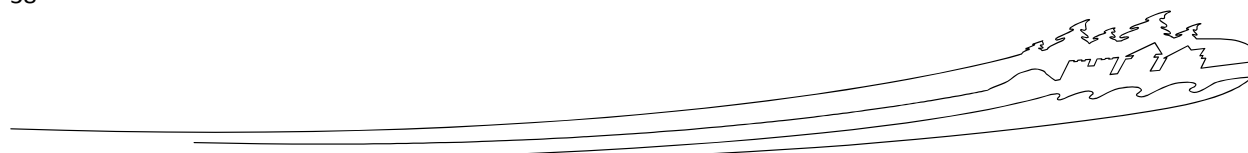


covering such as geotextile protective mats with wood chip lift or granular “A” gravel is required. All protective measures employed must be removed following the decommissioning and restoration activities and the area restored to a pre-construction state. Excavation is not permitted during installation or removal of protective covering.

7. Cease work immediately and contact the designated Parks Canada representative if a significant feature (e.g., structural remains and/or artifact concentrations) is encountered during decommissioning and restoration activities. Leave encountered features in place and mark the location (e.g., with prominent flagging). The park representative will contact Parks Canada’s Terrestrial Archaeology section for advice and assessment of significance, which will in turn determine the requirement to mitigate the find.

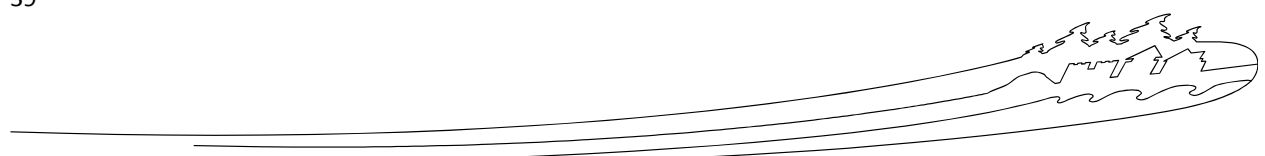
### Erosion Control

1. Before the project begins, develop and implement an Erosion and Sediment Control Plan, as part of the Environmental Protection Plan for the site. Erosion and sediment control measures will be maintained until all disturbed ground has been permanently stabilized. The plan should, where applicable, include:
  - Installation of effective erosion and sediment control measures before starting work to prevent surface runoff from carrying sediment off-site or into any waterway. (e.g., silt fences, blankets).
  - Manage water flow onto the site as appropriate as well as filter water being pumped/diverted from the site; silt laden water must not be pumped directly into a waterbody (e.g., pump/divert water to a vegetated area 30 meters from the waterbody, to a constructed settling basin or other filtration systems).
  - Regular inspection and maintenance of erosion and sediment control measures and structures during the course of restoration. The structures should be maintained by repairing structural problems or damages and by removing accumulated sediment at regular intervals and disposing the sediment at an approved location.
  - Removal of temporary erosion and sediment control products, especially non-biodegradable materials, when the site is stabilized and materials are no longer required.
2. Maintain effective sediment and control measures until revegetation of disturbed areas is achieved.
3. Divert upland surface runoff away from exposed areas.
4. Construct check dams or similar devices in drainage swales and ditches.
5. Minimize slope length and gradient of disturbed areas. Backslopes must be sloped to a 45 degree angle or less or to match existing side slopes.
6. Cover erodible soils with mulch, vegetation or rip-rap.
7. The Contractor Staff will maintain a stockpile of appropriate erosion and environmental protection materials (e.g. silt fences, straw bales, wood chips, clean rock fill and aggregate base course) on site and have it readily available at all times for use in the event of a silt release. Workers must be knowledgeable in the function and installation of all materials.
8. Select erosion and sediment control products that correspond with the nature and duration of the project.
9. Use erosion and sediment control products made of 100% biodegradable material (e.g., jute, sisal or coir fiber) when possible. Ensure backing materials are also biodegradable.
10. Schedule operations to avoid wet, windy and rainy periods or very dry periods that may increase erosion and sedimentation.
11. In areas prone to erosion, install erosion and sediment control measures before starting work, especially within 30 meters of a waterbody.
12. Phase activities whenever possible to limit duration of soil exposure.
13. Immediately stabilize disturbed/exposed areas, shoreline or banks, preferably through revegetation, with native species approved by designated Parks Canada staff. If there is insufficient time remaining in the growing season, the site should be stabilized, (e.g., cover exposed areas with erosion control





- blankets to keep soil in place) and/or vegetated the following spring; maintain effective sediment and erosion control measures until revegetation of disturbed areas is achieved.
14. Temporarily stabilize sections of road/trail where sediment is currently migrating from the site until permanent restoration can occur.
  15. On disturbed slopes where soil erosion is a greater concern, spread seeds, plant vegetation, spread mulch or use erosion control mats for stabilization.
  16. It is recommended to install erosion control mats (or equivalent product) in areas where trail grade is 15% or greater to provide stabilization and reduce the risk of erosion until vegetation becomes established.
  17. Securing pins for erosion control mats must be a biodegradable product.
  18. Use sediment and erosion control products that reduce potential for wildlife entanglement when possible. These options include:
    - Net-less erosion control blankets made of excelsior or loose mulch and unreinforced silt fence.
    - Netting with a loose-weave wildlife safe design.
  19. Areas that are not prone to erosion need contouring and can be scarified to prepare the site for planting or natural regeneration.
  20. Wood bark or wood chips prepared from on-site debris can be used as a mulch or temporary ground cover to prevent sheet erosion and promote seed germination.
  21. Leaf litter collected from the adjacent area can be spread evenly over open soil to aid in soil stabilization.
  22. Hay mulch may contain non-native or invasive seed therefore it is not permitted in Fundy National Park. It is recommended to use locally grown straw mulch on exposed soils in the park.
  23. In open areas, scatter brush and down woody debris to create micro-habitats for wildlife and seed germination. In addition, the decomposition of wood debris provides valuable nutrients to the soil. Ensure large clumps of brush are pulled apart and spread evenly on restored surface.
  24. Consider removing and maintaining sod mats for improved revegetation success and erosion control; disturbed areas should be reclaimed with topsoil.
  25. Cover spoil piles with biodegradable mats or tarps or plant them with native grass or shrubs approved by Parks Canada.
  26. Topsoil separation is required; stockpile topsoil away from subsoils and spoil material and more than 30 meters away from waterbodies, drainage features and/or the top of steep slopes.
  27. Store excavated soils on tarps to limit damage to underlying vegetation and cover with weighted tarps if left for an extended period of time.
  28. Excess organic material will be distributed on the restored trail tread or other existing un-vegetated areas.
  29. Large tree trunks or logs must be placed perpendicular to the slope to break up surface runoff and catch fine sediment. These trunks or logs should be keyed (1/3 buried) into the soil or behind something to prevent them from rolling down slope.
  30. Minimize the amount of dust created by restoration activities on adjacent vegetation and waterbodies and reduce the impact to air quality. Use suppression methods to reduce dust in sensitive areas as required to control off-site migration of dust particles.
  31. Do not begin excavations that cannot be closed in within one day as wet weather approaches.
  32. Ensure fine materials being transported are covered with tarps or equivalent material.
  33. Use appropriate sediment control materials including covering tarps, polyethylene sheeting or vegetative cover to prevent erosion from rain or wind.
  34. Cover devegetated areas if heavy rains are expected in erosion prone locations.





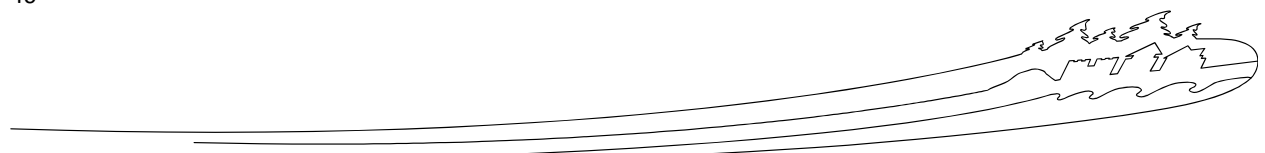


### Access/Staging/Laydown

1. Access for emergency response, fire suppression and site maintenance must be reflected in the trail decommissioning and restoration operation plan.
2. Whenever possible, only existing roadways/trails or disturbed areas shall be used for site access and travel within the site to minimize damage to vegetation and reduce soil compaction or erosion. Any new access trails must be preapproved by the park representative prior to start of work.
3. Staging and parking areas for material and equipment must be identified, including duration of use, within an existing disturbed footprint (e.g., roadway, gravel surface, previously disturbed area with high resiliency).
4. Material drop sites (via foot, vehicle, helicopter or boat) must be approved by designated Parks Canada staff.
5. When transporting material via helicopter:
  - Obtain an aircraft access permit from Fundy National Park to use, land and take off a helicopter within the park.
  - Choose a drop point that is open and easily accessible from the decommissioning and restoration site and that will minimize travel to and from the site.
  - Plan multiple drop sites at strategic locations to avoid doubling back on the trail to distribute materials.
6. All access trails must be rehabilitated to the satisfaction of the park representative, before the site is vacated after project completion.
7. Consider transporting materials when the ground is still frozen to minimize compaction and damage to vegetation. If not possible, consider the use of rig mats or other appropriate measures to minimize impacts.
8. Minimize as much as possible new disturbances by locating equipment in previously disturbed areas.
9. Control access to the site before, during and after rehabilitation activities.
10. Post interpretive signage (e.g., Closed to Restoration) to educate the public of the rehabilitation project and to alert of changes in regular travel corridors.
11. If necessary, place barriers to deter unnecessary traffic until the site stabilizes.
12. Ensure transition area between junction of new and old trails (< 60 meters) are seamless and unrecognizable to the user to prevent directed or temptation of further use on closed/restored sections of trail. Use icebergs (natural objects embedded into the ground such as logs - horizontal and vertical, rocks, planted vegetation, brush, spread of organic litter) to disguise and discourage further trail access.

### Facilities/Waste

1. Leave No Trace wilderness ethic principles shall be communicated to/observed by all decommissioning and restoration crews.
2. Temporary washroom facilities must be provided on the construction site unless permission has been granted by the park authority to use existing washroom and campground (site) facilities.
3. Store food, garbage and other smelling products in sealed containers. Pack all garbage out from the site daily, unless permanent garbage facilities exist at the site. Garbage structures must minimize the opportunity for wildlife to feed from the garbage.
4. Daily maintenance of the site shall be done to ensure that it is free from accumulations of waste, debris and garbage.
5. Any refuse such as old culverts, logging cables, pressure treated lumber, or other garbage uncovered during restoration activities must be collected and disposed of at an approved waste facility outside of Parks Canada.
6. Remove all construction materials from site upon project completion (e.g., refuse material, waste petroleum, construction material).

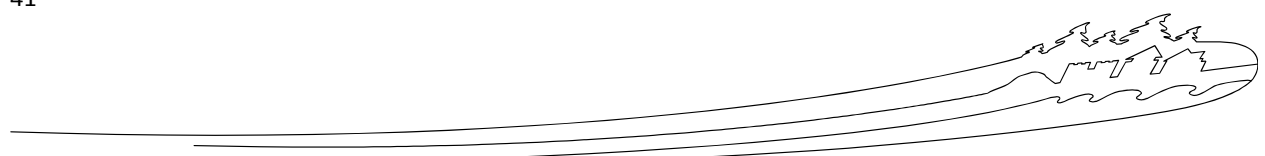




7. Biodegradable flagging tape and pin flags must be collected and disposed of as required when the project is complete.
8. The Contractor will be responsible for a complete site cleanup including restoration of exposed and damaged areas (roads, trails, driveways, day use areas, landscaping), to the satisfaction of the park representative, before the site is vacated after project completion.
9. Fires are only permitted in approved structures at designated sites within the park.

### **Safety**

1. Before the project commences, a project safety plan must be in place and Occupational Health and Safety (OHS) Attestation forms submitted and approved. In addition, for Parks Canada staff, job specific Safe Work Practices must be developed or identified indicating work activities and use of tools and equipment. Proper safety procedures must be followed throughout the duration of the project as per applicable municipal, provincial, and federal regulations.
2. If possible, schedule construction activities outside peak visitor season.
3. The Project Manager is responsible to take necessary precautions to ensure there is no safety concerns related to visitors of the park.
4. Site access must be restricted to authorized workers only. Trails or sections of trails requiring rehabilitation will be closed to public access. Consider temporary detours or re-routes as appropriate.
5. If closing the area is not possible, maintain a safe working distance between work activities and visitors; consider the use of lookouts or detours to manage traffic through the hazard area.
6. Interpretive signage should be posted to educate the public on the purpose and nature of the project, work to be completed and expected date of completion. Information should be positive and focus on the benefits of rehabilitation.
7. If there is a threat to public safety, the area must be declared closed to public access. Public closure notices must be placed at trailheads and other visitor use areas including East and West Gate Visitor Reception Centres.
8. As much as possible, schedule noisy activities to minimize impact to visitors, especially around townsites, campgrounds and other high visitor use areas.
9. Onsite work crews must comply with all applicable health/safety regulations, including use of appropriate protective equipment. In addition, employees must be trained in health and safety protocols (e.g., safe work practices, emergency response).
10. When working in steep terrain conditions use experienced operators who are knowledgeable in the limitations of the equipment.
11. Workers in contact with hazardous materials must be provided with and use appropriate personal protective equipment.
12. The Contractor must determine the exact location of all existing buried utilities before commencing work.
13. The Contractor must provide and maintain signs, flashing warning lights and other devices required to indicate construction activities or other temporary and unusual conditions resulting from the project.
14. Secure and clearly mark unattended safety hazards (e.g., excavations, unsecured decking on bridge, debris piles) with fencing, warning signs, area closures or combination thereof.
15. Immediately contact the Project Manager if non authorized persons are encountered within the active work site.
16. Every construction vehicle or work crew must have a first aid kit readily available.
17. In the project safety plan identify location and coordinates of nearest helipad for backcountry sites where delayed emergency response is anticipated.
18. Blasting is not permitted unless authorized by the park representative.





## Monitoring

1. Scheduled year to year monitoring is essential to determine the success of site restoration, if further action is required (e.g., additional planting) and to see if the trail or site has been reopened by users. In addition, success of different techniques and treatments should be evaluated for future reference.
2. Erosion control, particularly on steep slopes, must be monitored during and after completion of the project to ensure ongoing stabilization of the site. Only after the site is stabilized should the erosion control features be removed (e.g., silt fences, ditch checks).
3. Monitoring during and after decommissioning and restoration will improve invasive species detections efforts.

## 9. PUBLIC/STAKEHOLDER ENGAGEMENT & ABORIGINAL CONSULTATION

- 9 a)** Indicate whether public/stakeholder engagement was undertaken in relation to potential adverse effects of the proposed project:
- ☒ No
- ☐ Yes (describe the process to involve relevant parties and indicate how comments were taken into consideration).
- 9 b)** Indicate whether Aboriginal consultation was undertaken in relation to potential adverse effects of the proposed project:
- ☒ No
- ☐ Yes (Consultation with the Assembly of First Nations' Chiefs in New Brunswick).

## 13. SIGNIFICANCE OF RESIDUAL ADVERSE EFFECTS

This project intends to reduce existing disturbance footprint and restore ecological function to ecosystems adjacent to the Goose River Trail. However, actions required to accomplish the work could potentially have a negative effect on the environment. If mitigation measures, described in this report, are followed and carried out, all environmental effects are likely to be minor in nature and have insignificant impact. Although the potential exist for short term environmental effects during the project, the level of disturbance is expected to be localized and of low magnitude. Parks Canada concludes that this project is not likely to contribute to significant adverse environmental effects in the short or long term.

## 11. SURVEILLANCE

- ☐ Surveillance is not required
- ☒ Surveillance is required (Daily surveillance is required for this project with focus on water protection, erosion control, cultural resource protection, flora and fauna protection, construction within the allowable footprint, equipment use and maintenance, impact to visitor experience.)

## 12. FOLLOW-UP MONITORING

Follow-up monitoring is:

- ☐ not required
- ☐ required by legislation or policy (indicate basis of requirement – e.g. required by the *Species at Risk Act*; *Fisheries Act*, or the [Parks Canada Cultural Resource Management Policy](#))
- ☒ required to evaluate effectiveness of mitigation measures and/or assess restoration success

## 13. SARA NOTIFICATION







Notification is:

- ☒ not required  
☐ required under the *Species at Risk Act* (outline the nature of and response to any notification).

#### 14. EXPERTS CONSULTED

Include Parks Canada experts. Add as many entries as necessary for the project.

Department/Agency/Institution: Parks Canada Agency	Date of Request: 2018-07-06
Expert's Name & Contact Information: Pat McKinley pat.mckinley@pc.gc.ca	Title: Visitor Experience Coordinator
Department/Agency/Institution: Parks Canada Agency	Date of Request: 2018-04-02
Expert's Name & Contact Information: Shirley Butland shirley.butland@pc.gc.ca	Title: A/Impact Assessment Officer
Department/Agency/Institution: Parks Canada Agency	Date of Request: 2018-05-17
Expert's Name & Contact Information: Neil Vinson neil.vinson@pc.gc.ca	Title: Resource Management Officer
Department/Agency/Institution: Sustainable Trails Ltd.	Date of Request: 2018-05-10
Expert's Name & Contact Information: Bill Goulding billgouldingst@gmail.com	Title: Senior Project Manager / Consultant
Department/Agency/Institution: Public Works Government Service of Canada (MHPM-Consultant)	Date of Request: 2018-04-11
Expert's Name & Contact Information: Kevin Conley Kevin.Conley@pwgsc-tpsgc.gc.ca	Title: PWGSC Landscape Architect
Expertise Requested: 1) Park Use, 2) Environmental, 3) Cultural Heritage, 4) Plant Inventory, 5) Sustainable Trail Design in Restoration, 6) Project Design	
Response: 1) Park Use by PM, 2) Environmental considerations and mitigation measures by SB, 3) Cultural Heritage by SB, 4) Plant Inventory by NV, 5) Sustainable Trail Design in Restoration by BG 6) Project Design by KC	

#### 15. DECISION

Taking into account implementation of mitigation measures outlined in the analysis, the project is:

- ☒ not likely to cause significant adverse environmental effects.  
☐ likely to cause significant adverse environmental effects.

#### FOR SARA REQUIREMENTS:

- ☒ There are no residual adverse effects to species at risk and therefore the SARA-Compliant Authorization Decision Tool was not required

**OR**, the SARA-Compliant Authorization Decision Tool was used and determined:





- ☐ There is no contravention of SARA prohibitions
- ☐ Project activities contravene a SARA prohibition and CAN be authorized under SARA
- ☐ Project activities contravene a SARA prohibition and CANNOT be authorized

## 16. RECOMMENDATION AND APPROVAL

(Add additional blocks as required)

<b>Prepared by:</b> Shirley Butland Acting Impact Assessment Officer - Parks Canada Agency	Date: 2018-07-11
<b>Recommended by:</b> Doug Watson Project Manager - Parks Canada	Date: 2018-04-15
<b>Approved by:</b> Julie M. LeBlanc New Brunswick South Field Unit Superintendent	Date:
Signature:	

## 17. ATTACHMENTS

Appendix I: Environmental Impact Analysis Tools: Effects Identification Matrix  
 Appendix II: Goose River Trail Decommissioning & Restoration Design  
 Appendix III: Department of Fisheries & Oceans Canada – Fisheries Protection Program Response  
 Appendix IV: Cultural Resources - 11E140A – School House, Goose River Trail

## 18. NATIONAL IMPACT ASSESSMENT TRACKING SYSTEM

- ☐ Project registered in [tracking system](#)
- ☒ Not yet registered (CEAA 2012 requires PCA submit a report to Parliament annually. EIAs must be entered in the tracking system **by the end of April** to enable reporting.

## 19. REFERENCES

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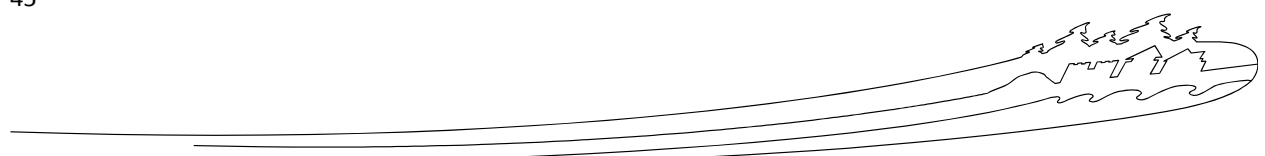
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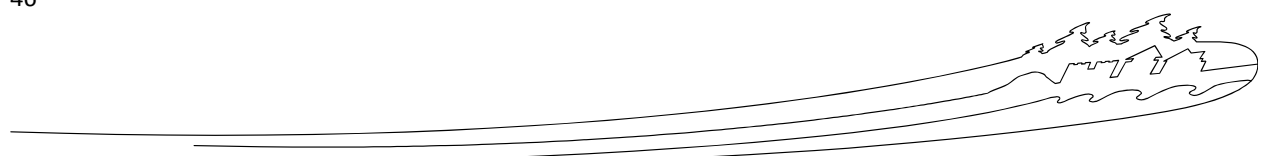
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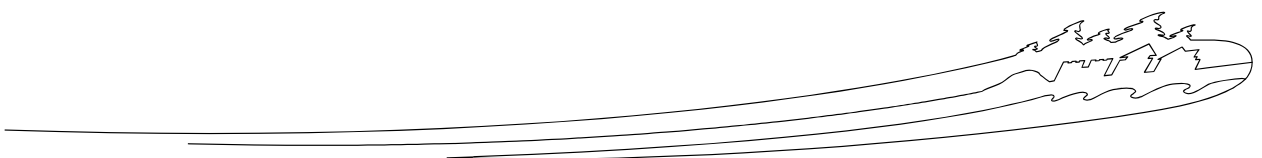




## Appendix I: Environmental Impact Analysis Tools: Effects Identification Matrix

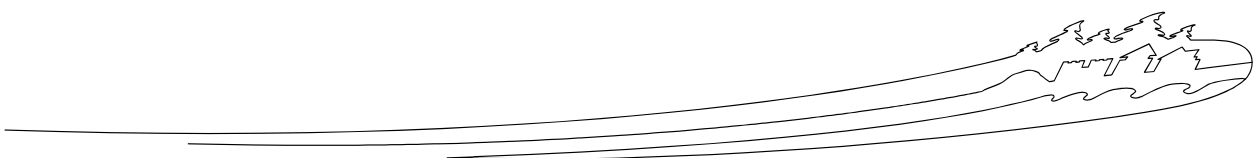
**Section A** focuses on direct effects of the project and **Section B** on indirect effects that are caused by changes to the environment.

A. Direct Effects									
			Valued components potentially directly affected by the proposed project						
			Natural Resources					Cultural Resources	
			Air	Soil & landforms	Water (surface, ground, crossings, etc.)	Flora (specify, including SAR)	Fauna (specify, including SAR)	Homestead Foundations	Visitor Experience
Phase	Examples of Associated Activities								
Project Components	Preparation / Construction / Operation / Decommissioning	Supply and storage of materials	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Burning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Clearing	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Demolition	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Disposal of waste	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Blasting/ Drilling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Dredging	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Drainage	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Excavation	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Grading	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Backfilling	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Use of machinery	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Transport of materials/ equipment	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Building of fire breaks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Use of Chemicals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Set up of temporary facilities	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Other...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>





A. Direct effects continued									
			Valued components potentially affected by the proposed project						
			Natural Resources				Cultural Resources		
			Air	Soil & landforms	Water (surface, ground, crossings, etc.)	Flora (specify, including SAR)	Fauna (specify, including SAR)	Homestead Foundations	Visitor Experience
Phase	Examples of Associated Activities								
Project Components	Preparation / Construction / Operation / Maintenance	Waste disposal	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Bridge Construction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Wastewater disposal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Planting	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Vehicle Traffic	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Other...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

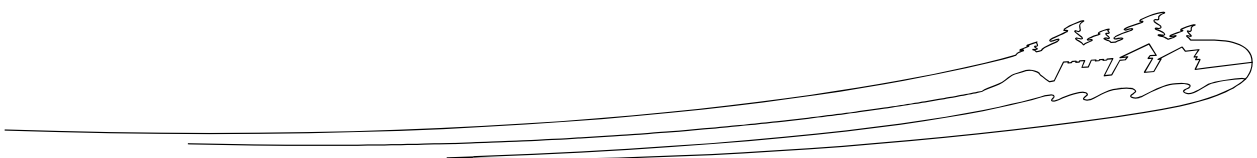


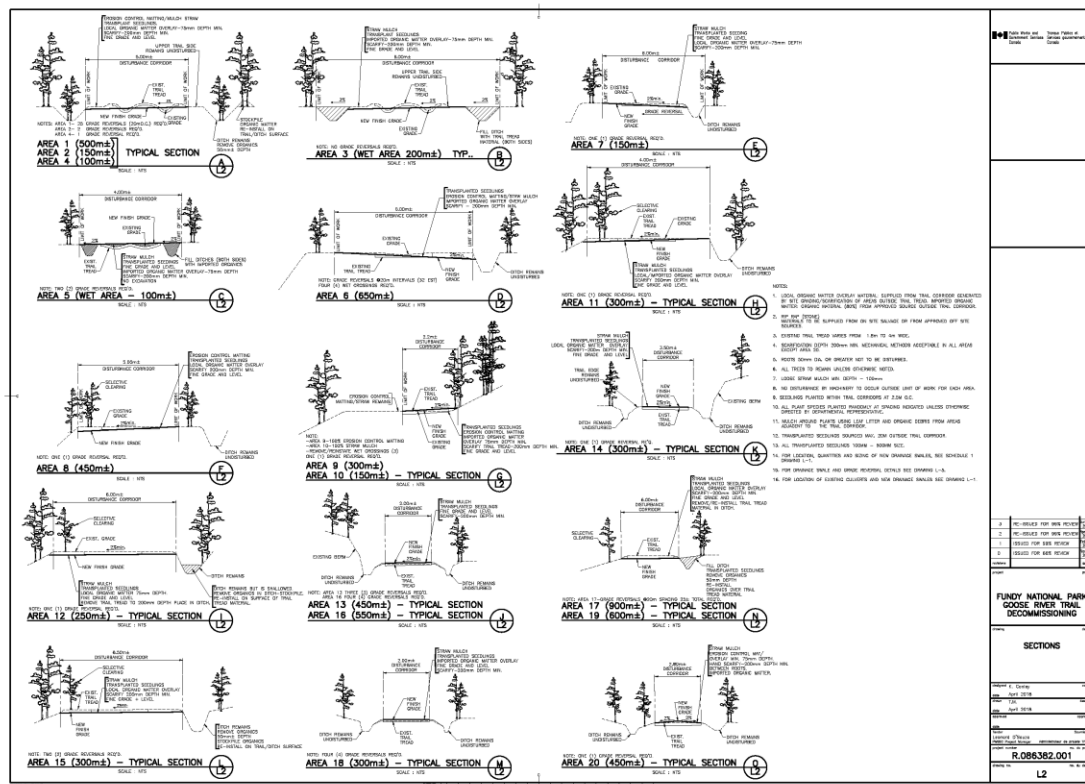


**Section B** of the matrix should be used to identify potential indirect effects that may result from impacts of the project to components of the environment you have identified on the preceding pages (see Section A - direct effects to natural resources). Consideration of indirect effects is required under CEAA 2012 Sections 5(1)(c) and 5(2)(b), and by the PCA mandate. For example:

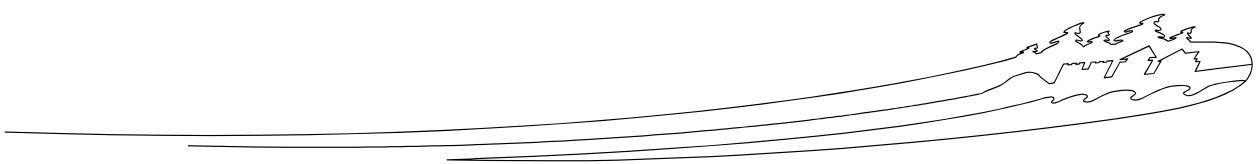
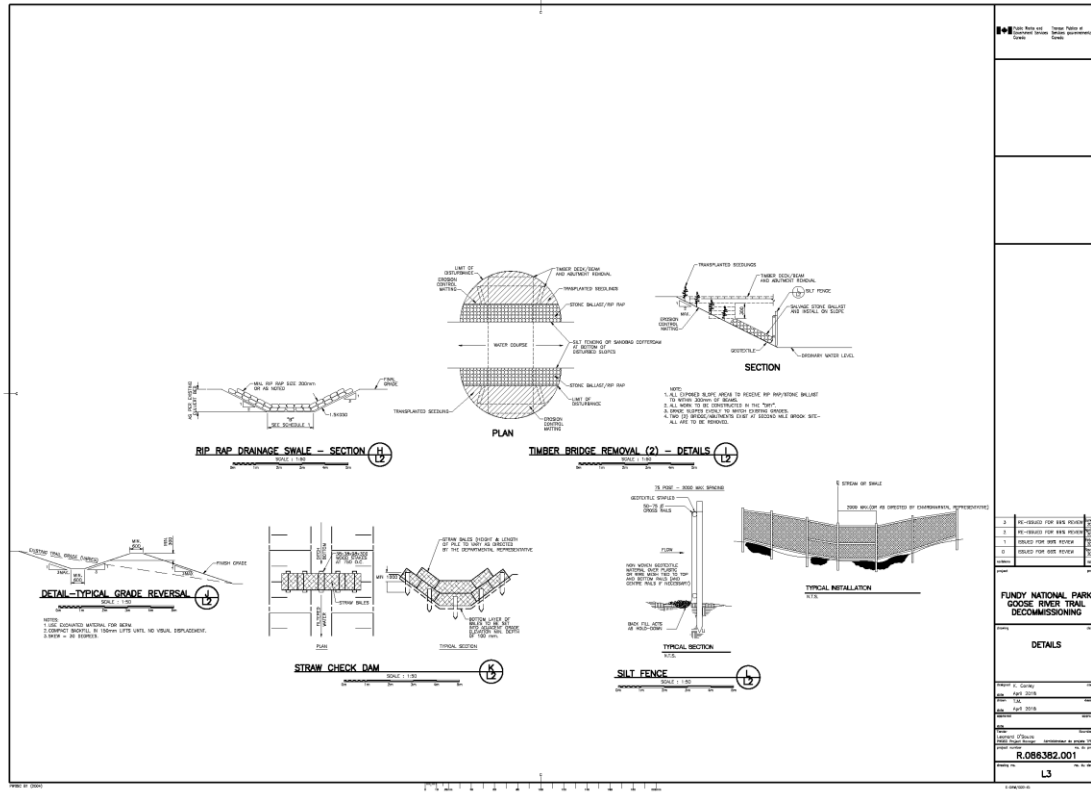
- if the proposed project could lead to adverse effects to water quality and quantity, could this then effect the quantity and quality of water resources (e.g. potable water) used by an Aboriginal community?
- could there also be adverse socio-economic effects to a community that relies on recreational fishing tourism?
- could changes to the environment (e.g. digging, clearing) affect visitor access, opportunities, or safety?

B. Indirect Effects (all phases)							
<p>You may wish to change the components listed under the headings to specify the natural or resources that are priority considerations for your PCA site or for the specific project being reviewed.</p>		Impacts as a result of changes to the environment					
		With respect to non-Aboriginal peoples:	With respect to Aboriginal peoples:		With respect to visitor experience		
		Health and socio-economic conditions	Health & socio-economic conditions	Current use of lands and resources for traditional purposes	Access & services	Recreation & accommod'n opportunities	Safety
Phase	Natural resource components affected by the project						
Preparation /construction operation /implementation/decommissioning	Could impacts to <u>air</u> lead to adverse effects on...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Could impacts to <u>soils</u> and <u>landforms</u> lead to adverse effects on...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Could impacts to <u>water</u> (e.g. surface, ground water and water crossings) lead to adverse effects on...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Could impacts to <u>flora</u> (including SAR) lead to adverse effects on...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Could impacts to <u>fauna</u> (including SAR) lead to adverse effects on...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Other...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



[illegible]







### Appendix III: Department of Fisheries & Oceans Canada – Fisheries Protection Program Response



Fisheries and Oceans Canada    Pêches et Océans Canada

Fisheries Protection Program  
343 Université Avenue  
P.O. Box 5030  
Moncton, New Brunswick  
E1C 9B6

JUL 04 2018

Our file  
18-HGLF-00159

Mr. Jason Keys  
Environmental Specialist  
Public services and Procurement Canada  
33 Weldon Street  
Moncton, New Brunswick  
E1C 0N5

**Subject: [First Mile Brook, Second Mile Brook & School House Brook – Fundy National Park – Removal of Culverts] – Serious Harm to Fish and Prohibited Effects on Listed Aquatic Species at Risk Can Be Avoided or Mitigated**

Dear Mr. Keys,

The Fisheries Protection Program (the Program) of Fisheries and Oceans Canada (DFO) received the proposal on June 28, 2018. We understand that the proponent (Parks Canada) proposes to:

- Remove two timber bridges spanning the First Mile and Second Mile Brooks and a culvert from School House Brook as a component of the Goose River Trail decommissioning.
- Remove various structures dedicated to seasonal and surface water control.

Our review considered the following information:

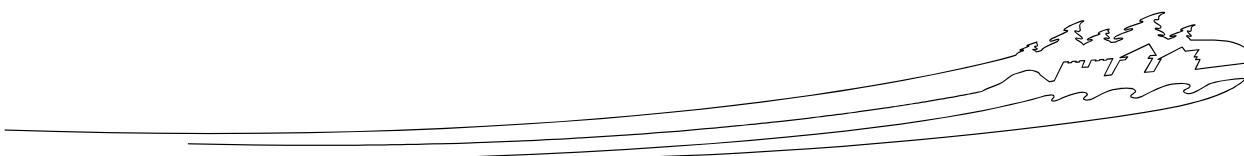
- The Request for Review, including attached plans and photos, dated June 27, 2018.

The proposal has been reviewed to determine whether it is likely to result in serious harm to fish which is prohibited under subsection 35(1) of the *Fisheries Act* unless authorized. The proposal has also been reviewed to determine whether it is likely to affect listed aquatic species at risk, any part of their critical habitat or the residences of their individuals in a manner which is prohibited under sections 32, 33 and subsection 58(1) of the *Species at Risk Act*, unless authorized.

Provided that plans are implemented in the manner, and during the timeframe, described, the Program has determined that the proposal will not result in serious harm to fish or

Canada

.../2





Mr. Keys

- 2 -

18-HGLF-00159

prohibited effects on listed aquatic species at risk. As such, an authorization under the *Fisheries Act* or a permit under the *Species at Risk Act* is not required.

Should plans change or if you have omitted some information in the proposal, further review by the Program may be required. Consult our website (<http://www.dfo-mpo.gc.ca/pnw-ppe/index-eng.html>) or consult with a qualified environmental consultant to determine if further review may be necessary. It remains the proponent's responsibility to avoid causing serious harm to fish in compliance with the *Fisheries Act*, and avoid prohibited effects on listed aquatic species at risk, any part of their critical habitat or the residences of their individuals in compliance with the *Species at Risk Act*.

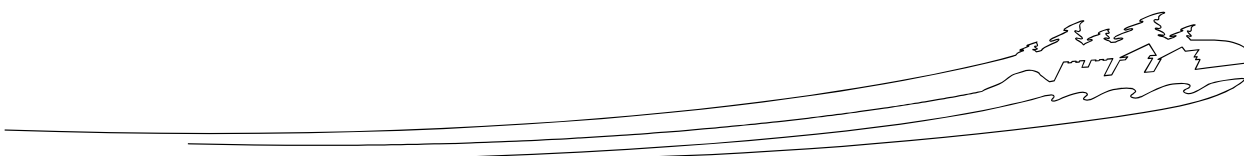
It is also the proponent's *Duty to Notify* DFO if they have caused, or is about to cause, serious harm to fish that are part of or support a commercial, recreational or Aboriginal fishery. Such notifications should be directed to <http://www.dfo-mpo.gc.ca/pnw-ppe/violation-infraction/index-eng.html>.

It remains the proponent's responsibility to meet all other federal, territorial, provincial and municipal requirements that apply to the proposal.

If you have any questions with the content of this letter, please contact George Brown at our Moncton office at (506) 851-6501 or by email at [George.Brown@dfo-mpo.gc.ca](mailto:George.Brown@dfo-mpo.gc.ca). Please refer to the file number referenced above when corresponding with the Program.

Yours sincerely,

George P. Brown  
A / Team leader, Triage and planning unit  
Fisheries Protection Program





APPENDIX IV: Cultural Resources - 11E140A – School House Foundation, Goose River Trail

