



## Parks Canada Basic Impact Analysis Template

### 1. PROJECT TITLE & LOCATION

FII Fence Renewal at Fort Walsh National Historic Site of Canada, Southwest Saskatchewan.

### 2. PROPONENT INFORMATION

#### **Project Manager** | Chef de projet

Project Delivery Services West | Execution de projets de l'ouest

Asset Management and Project Delivery | Gestion des actifs et execution des projets

Parks Canada Agency | L'Agence Parcs Canada

310-101 22nd Street E

Saskatoon, SK S7K 0E1

#### **National Historic Site and Visitor Experience Manager**

Fort Walsh and Fort Battleford

Parks Canada / Government of Canada

PO Box 278, Maple Creek, SK, S0N 1N0

#### **On site contact - Asset Support Technician**

Fort Walsh National Historic Site

### 3. PROPOSED PROJECT DATES

Planned commencement: 2018-12-01

Planned completion: 2019-03-31

**4. INTERNAL PROJECT FILE #** SSFU-2017-010-FW

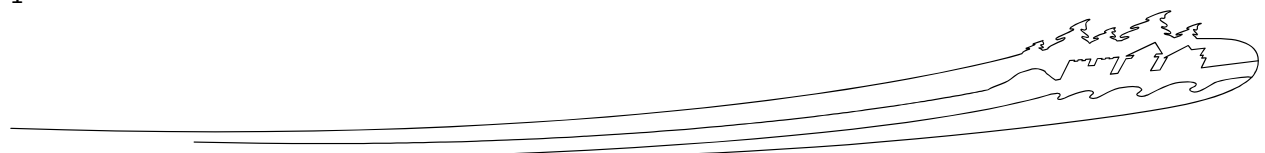
### 5. PROJECT DESCRIPTION

#### Project Area

The Cypress Hills extend about 50 km in an east-west orientation, at between about 1,170 m and 1,375 m, and are the most elevated area on the Canadian prairies. Vegetation in the region consists of about 50% grassland, 45% woodland, and 5% wetland. Woodland vegetation is characterized by lodgepole pine (*Pinus contorta*) forest in dry, high elevation areas and white spruce (*Picea glauca*) forest with more substantial understory in lower lying, wetter areas. Trembling aspen (*Populus tremuloides*) predominate at middle elevations but can be found throughout the area.<sup>1</sup> Understory species in the region are

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<sup>1</sup> Willis, C.K.R. and R. M. Brigham. 2005 Physiological and ecological aspects of roost selection by reproductive female hoary bats (*Lasiurus cinereus*). Journal of Mammalogy 86(1):85-94.





predominantly willow, saskatoon, chokecherry, red-osier dogwood, pincherry and gooseberry<sup>2</sup>. The location of Fort Walsh in relation to Maple Creek and Cypress Hills Interprovincial Park is shown in Figure 1 a and b.

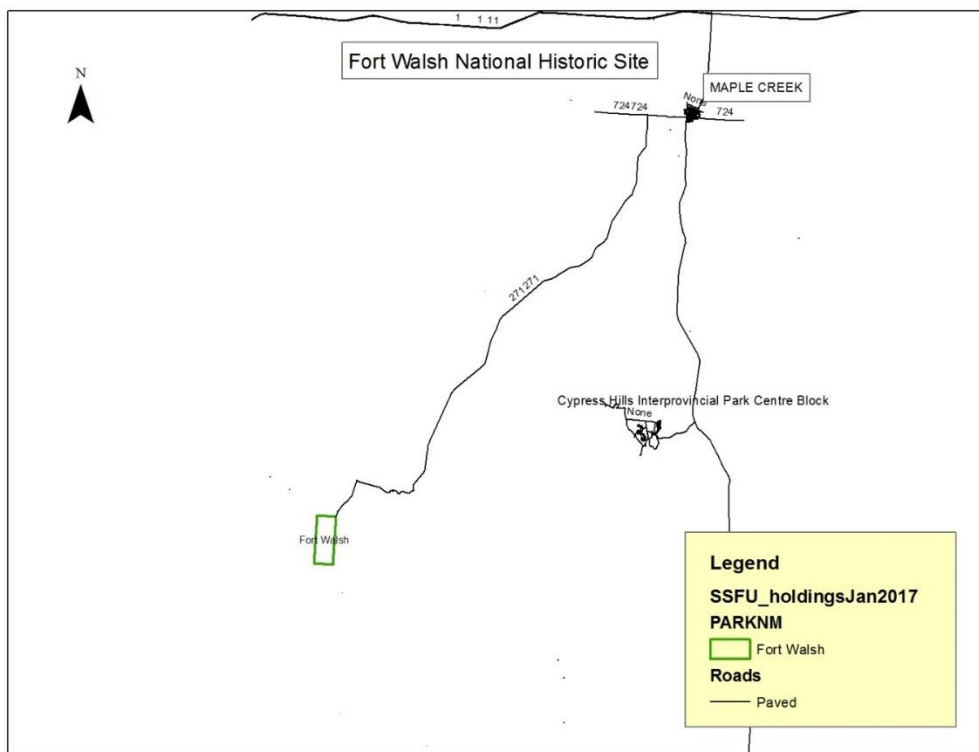
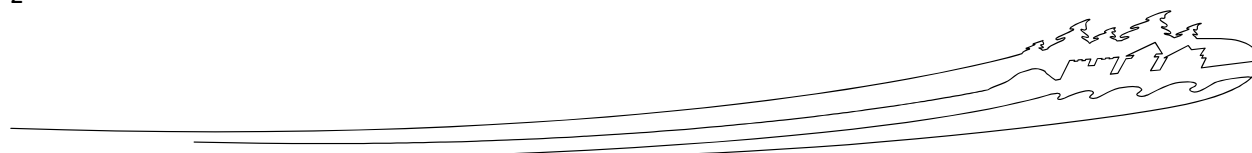


Figure 1a: Map of Fort Walsh and surrounding area.

<sup>2</sup> Action, D., Padburry, G. and C. Stushnoff. 1998. Ecoregions of Saskatchewan. Regina: Saskatchewan Environment and Resource Management and the Canadian Plains Research Centre.



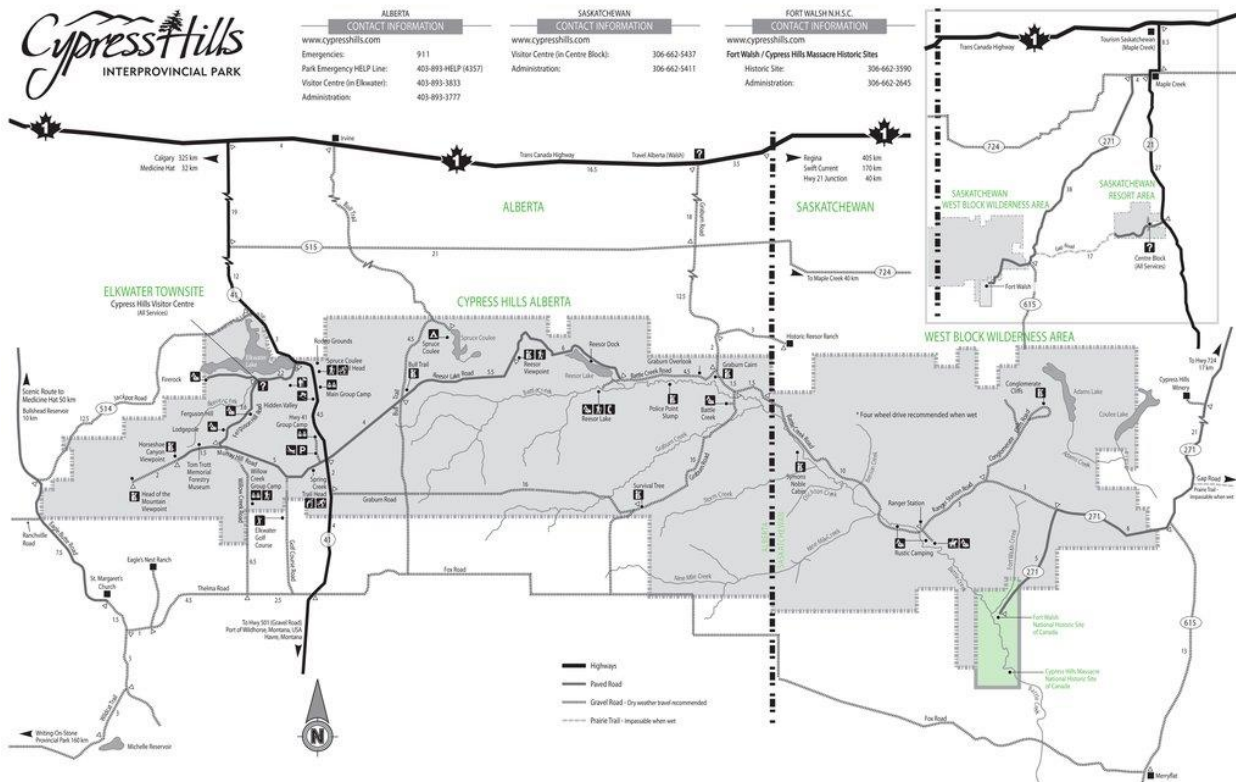


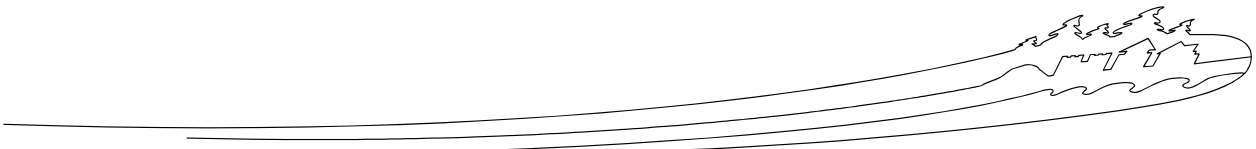
Figure 2b: Map of Fort Walsh and surrounding area.

### Project Area

The project area will include a buffer of 5 meters on either side of the perimeter fence line at Fort Walsh that is shared with three land owners including Little Pine First Nation, Brett Gaff, and Frank Nuttal over 9369m. The border shared with Cypress Hills Interprovincial Park will be cleared to 15 meters on the Fort Walsh side and 5 meters on the provincial side for 1973m (Figure 2a).

### Project Activities

Within the buffer surrounding the fenceline, removal of vegetation surrounding the fence line and replacement of the old fence and gates will occur (Figure 2b). Clearing vegetation will facilitate fence replacement and act as a fireguard for Fort Walsh. The perimeter fence has been in place for up to 50 years. Equipment for tree and brush clearing, fence removal, and fence installation will be required. Chainsaw removal of large-diameter trees will occur. Access trails to the work area will also be required for vehicles and machinery and may require mowing for fire prevention. Of the 11.3 km of fence, roughly 3.8 km travels through treed corridors with the remaining fence line going through mixed grass prairie. The fence line crosses Battle Creek (and tributary) 3 times.



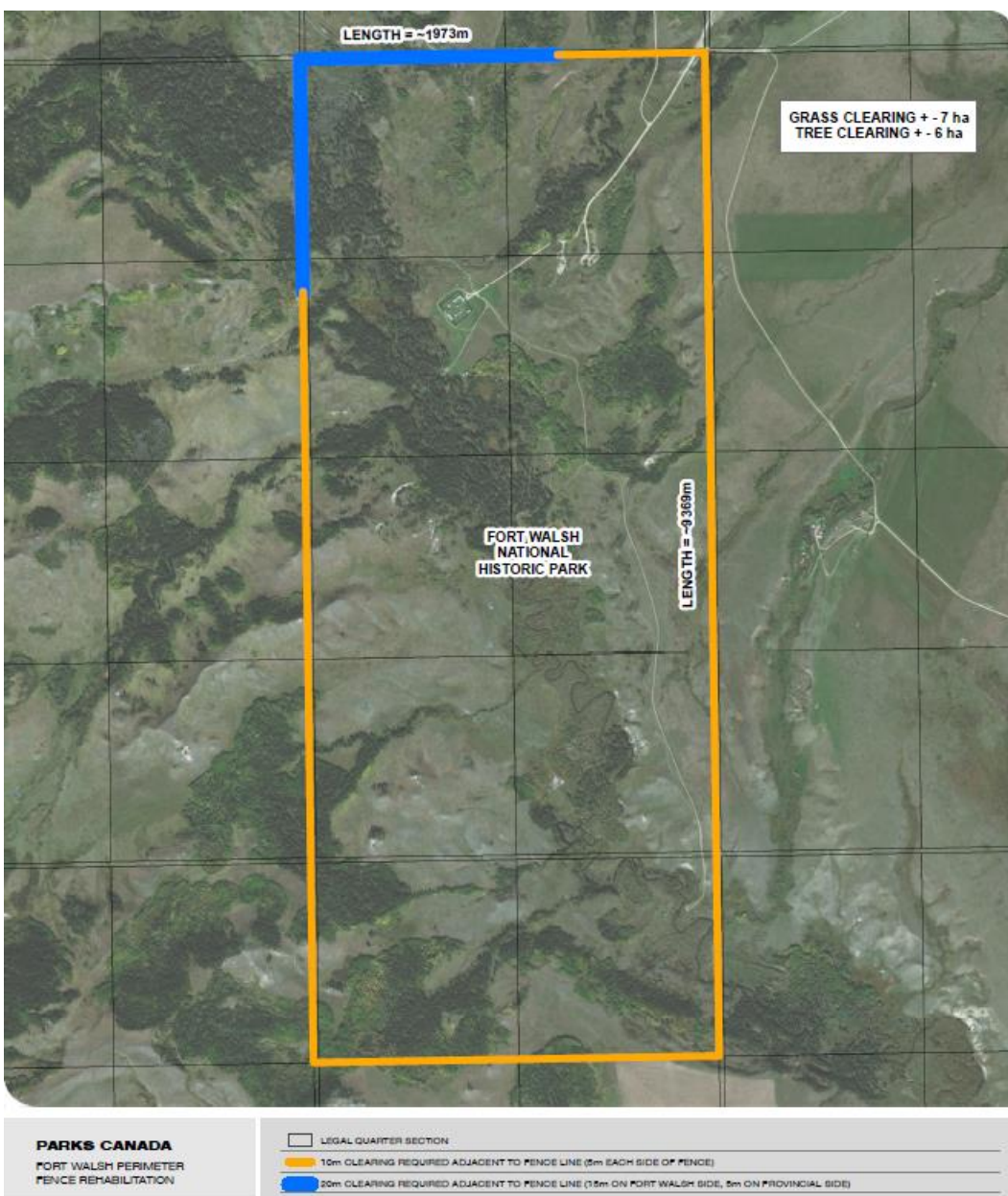
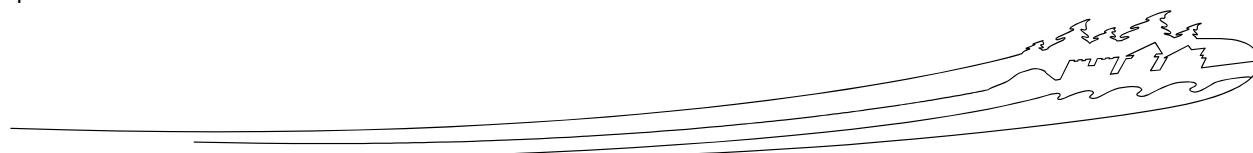


Figure 3a: Boundary of Fort Walsh where fence is to be replaced.





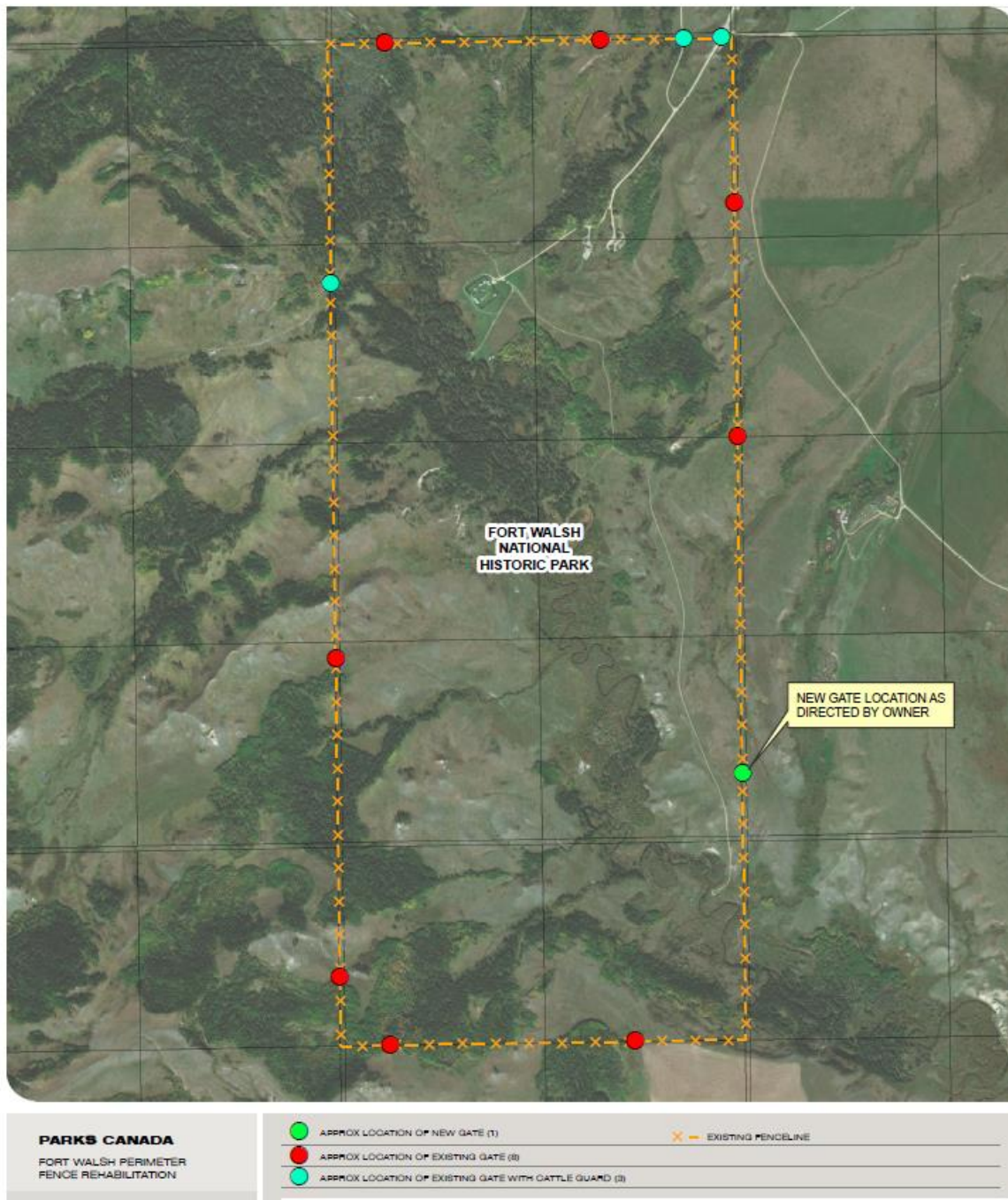
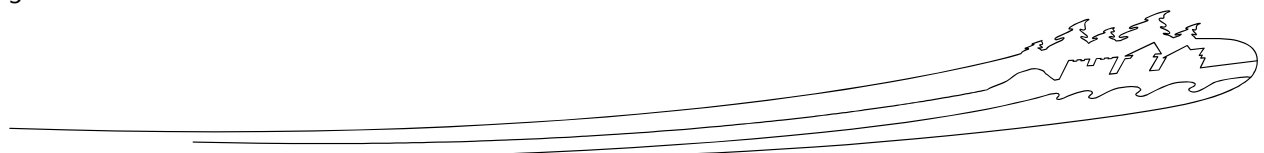


Figure 4b: Boundary of Fort Walsh where fence is to be replaced including gates.

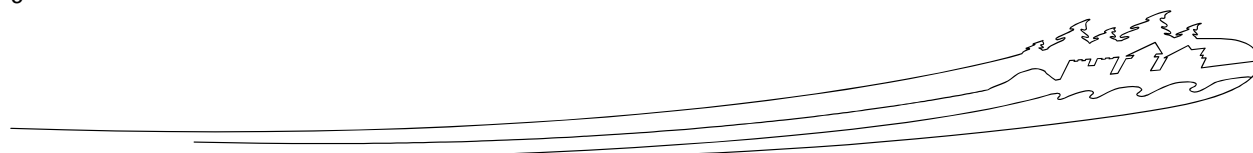
## 6. VALUED COMPONENTS LIKELY TO BE AFFECTED

Table 1: Identifies valued components that were considered for this analysis, which components are likely to be impacted, the geographic area for each component (spatial scale) and what time period potential impacts are expected (temporal scale).



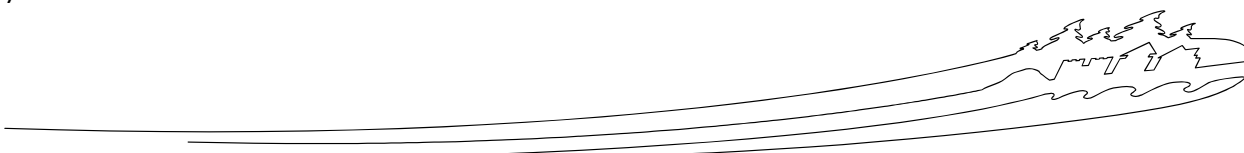


Valued Component	Potential Project Impacts	Spatial / Temporal Scale of Impacts
<b>Air</b>	<ul style="list-style-type: none"> <li>Decreased ambient air quality (i.e. from dust, emissions, etc.)</li> <li>Increased ambient noise levels</li> <li>Increased levels of CO<sub>2</sub> and other pollutants</li> </ul>	Areas in and around work area / temporary
<b>Water</b>	<ul style="list-style-type: none"> <li>Reduced water quality due to increased erosion, sedimentation, transportation of debris and contamination (i.e. from leaks, spills, etc.)</li> </ul>	Areas where work is in or adjacent to water / long-term
<b>Soils and Landforms</b>	<ul style="list-style-type: none"> <li>Soil compaction and rutting</li> <li>Soil contamination</li> </ul>	Areas in and around work area / temporary
<b>Vegetation</b>	<ul style="list-style-type: none"> <li>Damage to and/or removal of vegetation in immediate or adjacent areas</li> <li>Introduction and/or spread of non-native species</li> </ul>	Areas in and around work area / damage and destruction of vegetation for project construction will have short-term impacts, removal of trees will have long term impacts if the area will be maintained as a fireguard. Introduction and/or spread of non-native species has long-term impacts
<b>Wildlife</b>	<ul style="list-style-type: none"> <li>Wildlife sensory disturbance</li> <li>Creating a barrier to wildlife movements</li> <li>Damage to nests /disruption of nesting/non-compliance with the Migratory Birds Convention Act (MBCA)</li> <li>Mortality from project activities</li> </ul>	Areas in and around the work area / temporary and long-term impacts
<b>Species at Risk</b>	<ul style="list-style-type: none"> <li>Harming or destruction of residences or individuals</li> </ul>	The spatial and temporal scale of impact will vary by species. See effects analysis section.
<b>Cultural Resources</b>	<ul style="list-style-type: none"> <li>Work will occur near areas of cultural significance</li> </ul>	Areas in and around the work area / long-term impacts





<b>Visitor Access and Services</b>	n/a	
<b>Viewscapes and Essence of Place</b>	<ul style="list-style-type: none"> <li>Impacts to viewscape and soundscape</li> </ul>	Areas in and around work area / temporary, fireguard in treed areas is unlikely to be seen by visitors.
<b>Public Safety</b>	<ul style="list-style-type: none"> <li>Increased fire risk with operation of vehicles and machinery</li> <li>Increased fire risk with slash piles</li> </ul>	Areas in and around work area as well as a much larger area if a wildfire gets away/ temporary during project activities.
<b>Stakeholders</b>	<ul style="list-style-type: none"> <li>Impacts to areas outside of Parks Canada lands.</li> </ul>	Areas in and around work area / mostly temporary during project activities, some longterm impacts if areas outside park lands are to be maintained as a fireguard.





## 7. EFFECTS ANALYSIS

### 7.1. Air

The majority of impacts to air quality and noise levels will occur during vegetation and tree removal. Dust creation is unlikely because soil disturbance will be minimal and all or part of the clearing will occur in winter. The clearing work will be temporary, and emissions will be limited to the timeframe of the clearing. Emissions during work will be minimal due to small scale equipment and limited large pieces of equipment.

### 7.2. Water

In water work other than crossing streams is not anticipated. Work near water will be mitigated by following the Department of Fisheries and Oceans measures to avoid causing harm listed in the mitigation measures below.

### 7.3. Soils and Landforms

Clearing will not remove all vegetation down to the soil and a layer of mowed underbrush or grass will remain. Rutting or compaction has the potential to occur, however, avoiding work in wet conditions or conducting work during the winter when there is snow cover will reduce any rutting or compaction.

### 7.4. Vegetation

While mature stands and snags offer valuable habitat for wildlife, the vast majority of forest in the Cypress region is over 100 years old, creating a homogenous stand of aging trees susceptible to disease and increased risk of extreme fire behavior. Removal of trees and brush associated with this project is not expected to negatively impact the vegetation community.

Due to below average precipitation rates and heavy fuel loads, fire risk is very high and expected to continue to be high into the fall. Activities should be coordinated with the SSFU Fire operations Coordinator and on site staff to ensure mitigations are in place to reduce fire risk.

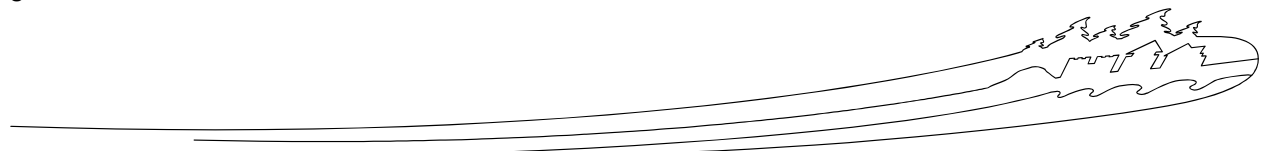
### 7.5. Wildlife

#### Bats

Five species of bats are known to occur in the Fort Walsh/Cypress Hills area: big brown bats (*Eptesicus fuscus*), hoary bats (*Lasiurus cinereus*), Silver-haired bat (*Lasionycteris noctivagans*), Eastern red bat (*Lasiurus borealis*), and little brown myotis (*Myotis lucifugus*)<sup>3</sup>. Some activities associated with this project have the potential to impact habitat required for bat life stages. Tree removal may remove preferred maternity roosting habitat for some species. There is limited data available, however, some data for the maternity roosts of Silver-haired bats exist (Figure 3) none of which will be impacted by the proposed clearing. Hoary bats select white spruce trees for summer maternity roosts<sup>4</sup>, silver-haired bats tend to prefer larger Poplars (*Populus spp.*) with heart rot or excavated cavities (Shelby Bohn, personal

<sup>3</sup> Willis, C.K.R. and R.M. Brigham. 2003. New Records of the Eastern Red Bat, *Lasiurus borealis*, from Cypress Hills Provincial Park, Saskatchewan: A response to climate change? Can. Field-Nat. 117:651-654.

<sup>4</sup> Willis, C.K.R., C.M.. Voss and R.M. Brigham. 2006. Roost selection by forest-living female big brown bats (*Eptesicus fuscus*). J. Mammal. 87:345-350.







communication), and both big brown bats and little brown myotis tend to prefer older stands of trembling aspen (*Populus tremuloides*)<sup>5</sup>, likely due to the increased prevalence of available cavities<sup>6</sup>.

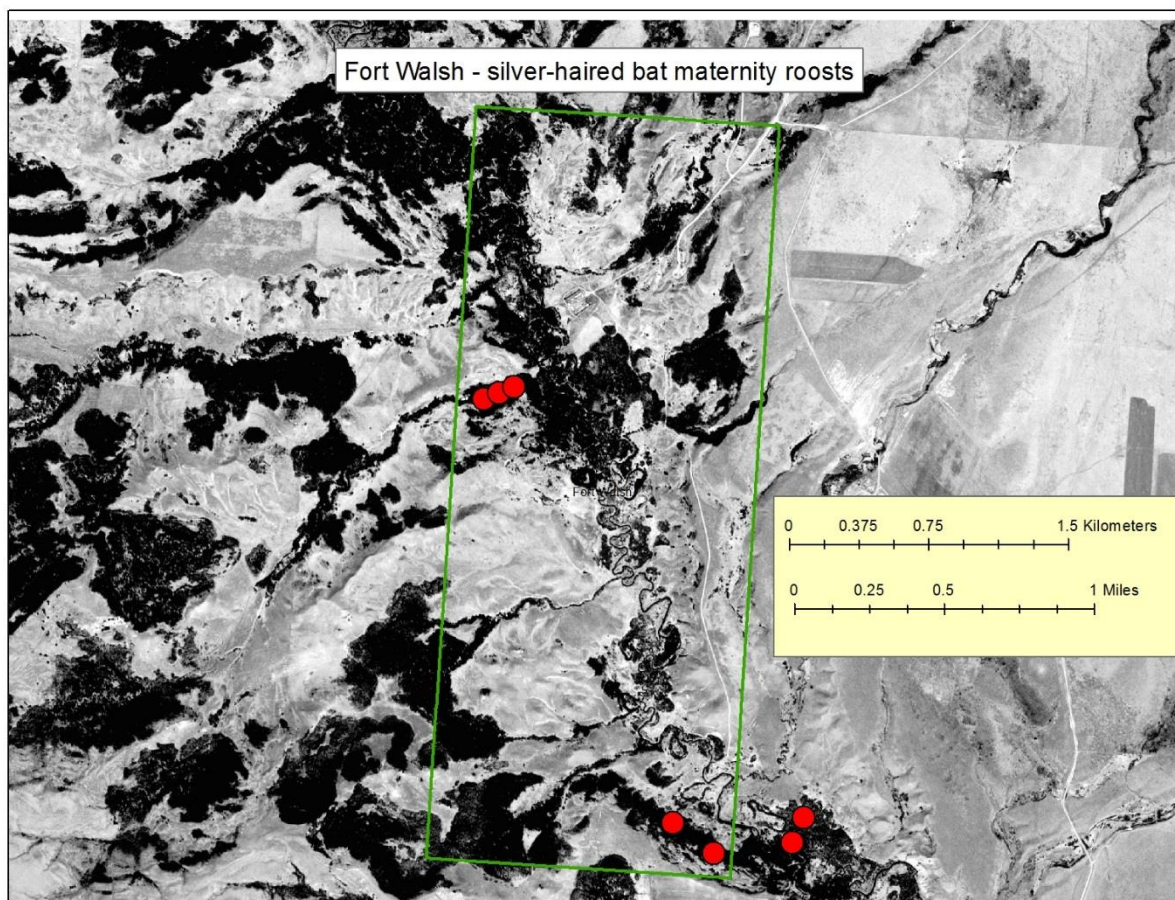


Figure 3. Locations of silver-haired bat maternity roosts.

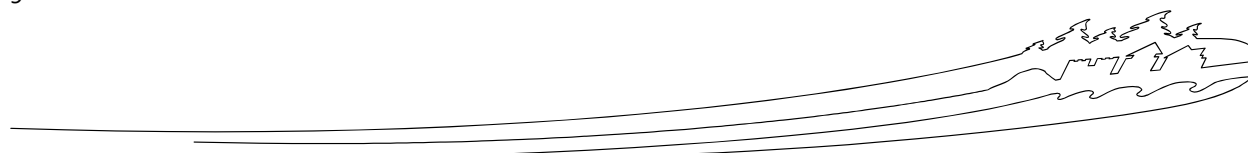
Hibernacula are not likely to be impacted by the project, as trees are unlikely to offer sufficient winter shelter (too cold, too variable)<sup>7</sup>. Hoary bats, silver-haired bats and Eastern red bats migrate south for winter<sup>8</sup>. Big brown bats and little brown myotis are considered short-distance migrants, with distances of migration typically dependant on the proximity of suitable hibernacula. Migration dates for either long or short distance migrants are not well documented, but generally pregnant females can be expected in southwestern Saskatchewan in May and young weaned sometime in July (may be weather dependent). This is relatively consistent with Parks Canada's National Best Management Practices for Management of Bat Maternity Roosts in Built Assets, which assumes a potential gestation and young-rearing window across Canada of April 15 - September 1.

<sup>5</sup> Kalcounis, M.C. and R.M. Brigham. 1998. Secondary use of aspen cavities by tree roosting big brown bats. *Journal of Wildlife Management* 62:603-611.

<sup>6</sup> COSEWIC. 2013. COSEWIC assessment and status report on the Little Brown Myotis *Myotis lucifugus*, Northern Myotis *Myotis septentrionalis* and Tri-colored Bat *Perimyotis subflavus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xxiv + 93 pp.

<sup>7</sup> Klüg-Baerwald, B.J., C.L. Lausen, C.K.R. Willis and R.M. Brigham. Home is where you hang your bat: winter roosting selection by prairie-living big brown bats (*Eptesicus fuscus*). *Journal of Mammalogy* 98: 752-760. doi 10.1093/jmammal/gyx039

<sup>8</sup> Encyclopedia of Saskatchewan





Little brown myotis was listed as Endangered under Schedule 1 of the Species at Risk Act (SARA) through an Emergency Order in 2015. Hibernacula and maternity roosts are both considered critical for the species' survival and recovery, however, there was insufficient information at the time of posting to identify this critical habitat in Saskatchewan. Increased anthropogenic noise/activities and removal of roosting habitat would negatively impact maternity roosts. It is not expected that project activities will impact hibernacula for this species. Timing project activities outside of the estimated pup-rearing window (May-July), and/or checking trees slated for removal for preferred habitat characteristics (species, DBH, signs of heart rot or cavities) will reduce the likelihood of impacting this species during project activities.

### Migratory Birds

The *Migratory Birds Convention Act* (MBCA) prohibits the disturbance, destruction, or taking of a nest, egg, or nest shelter of a migratory bird. Tree removal and the use of vehicles and machinery for this project during the nesting window may disturb or destroy nests, eggs and/or individuals. Roughly 246 bird species may occur in the Cypress Hills region<sup>9</sup>. The average nesting window for the 47 species known to nest in forest habitat in this area is April 8 – August 24, while the average nesting window for the 76 species known to nest in open habitats in this area is April 13 – August 24<sup>10</sup> (Figure 4).

Vegetation clearing will need to take place during the fall/winter so impacts to nesting birds are non-existent. The majority of vehicle and machinery activity for work related to fence replacement will be

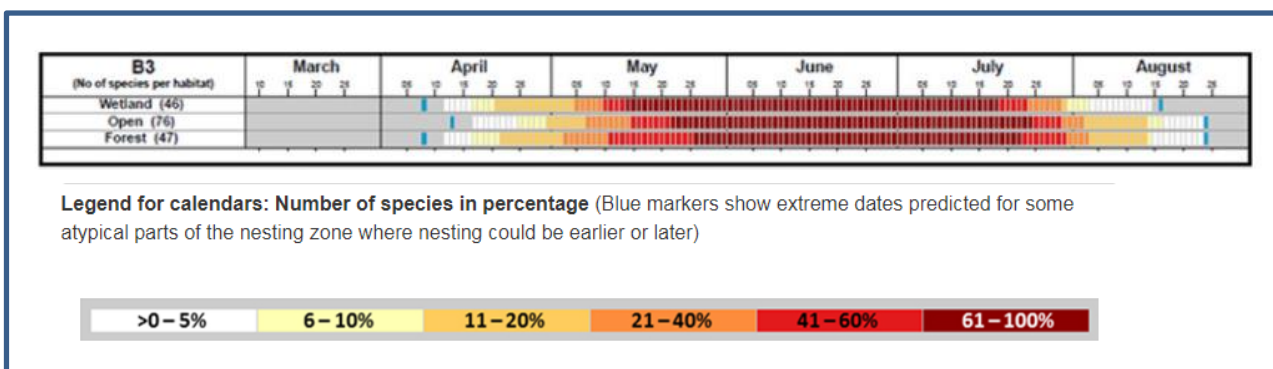
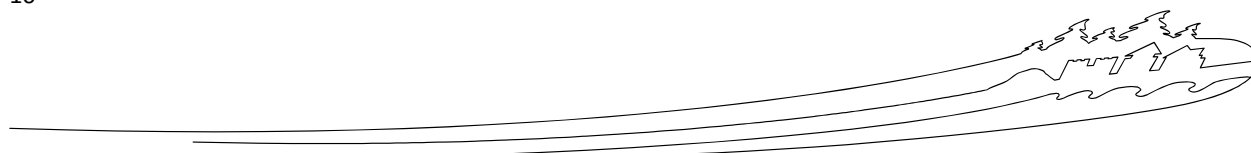


Figure 4. Average nesting calendars from Environment and Climate Change Canada's website [https://www.ec.gc.ca/paom-itmb/default.asp?lang=En&n=4F39A78F-1#\\_01\\_3b](https://www.ec.gc.ca/paom-itmb/default.asp?lang=En&n=4F39A78F-1#_01_3b).

restricted to existing roads, trails, and the fence line, limiting the overall area of impact and reducing the likelihood of accidental take of birds/nests/eggs. Mitigations will be required when accessing fence line in hard to access areas or steep topography, where alternate/seldom used trails or new trails may be required to bring in equipment.

<sup>9</sup> Action, D., Padbury, G. and C. Stushnoff. 1998. *Ecoregions of Saskatchewan*. Regina: Saskatchewan Environment and Resource Management and the Canadian Plains Research Centre.

<sup>10</sup> Environment and Climate Change Canada Nesting Calendars in zone B, technical information for planning purposes covering Prairie, Boreal Taiga Plains and Northwestern Interior Forest, [https://www.ec.gc.ca/paom-itmb/default.asp?lang=En&n=4F39A78F-1#\\_fig01](https://www.ec.gc.ca/paom-itmb/default.asp?lang=En&n=4F39A78F-1#_fig01)





The trees being removed as part of the project will be a small proportion of forested area and is not expected to significantly impact the overall availability of mature forest/snag habitat for birds. Only those trees and shrubs within the buffer area on either side of the fence line will be removed.

Migratory birds that also have species at risk status under Schedule 1 of the Species at Risk Act (SARA) are addressed in the next section.

### Ungulates

The fence will conform to wildlife friendly standards, with the bottom wire being 18" above the ground to allow animals as large as pronghorn to pass underneath, and the top wire a maximum of 42" above ground, low enough for large ungulates and their calves to jump over. The top and bottom wires will be smooth (barbless) and there will be 12" between the top two wires.

### **7.6. Species at Risk**

The List of Species found on Schedule 1 of SARA by Protected Heritage Area lists species legally protected under the Species at Risk Act (SARA) that are reported and confirmed by reliable sources as being present and regularly occurring in Parks Canada sites. The species listed on Parks Canada's Biotics Web Explorer (accessed here: [http://www.pc.gc.ca/apps/bos/BOSQ7\\_E.asp](http://www.pc.gc.ca/apps/bos/BOSQ7_E.asp)) for Fort Walsh are:

- **Sprague's pipit** (*Anthus spragueii*), status Threatened Schedule 1
- **Northern leopard frog**, western boreal/prairie population (*Lithobates pipiens*), status Special Concern Schedule 1

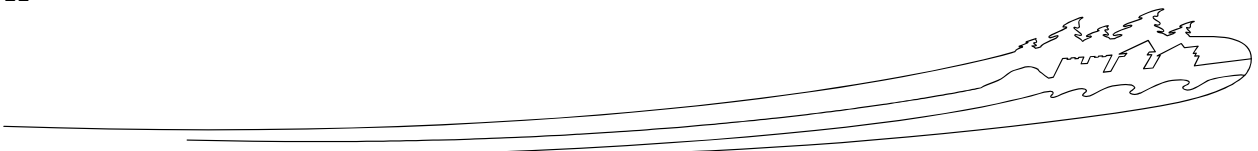
Additionally, critical or important habitat is identified in the Fort Walsh area for the following species at risk:

- **Ferruginous hawk** (*Buteo regalis*), status Threatened Schedule 1

### Sprague's pipit

Sprague's pipit is a passerine bird endemic to North American mixed grass prairies of the northern great plains. It is designated as Threatened under Schedule 1 of the Species At Risk Act due to significant declines in populations in Canada as well as a contraction of its range at the periphery. No critical habitat has been identified in the area, however there are occurrence reports of this species in the Fort Walsh area. The use of vehicles and machinery for this project during the nesting window may disturb or destroy nests, eggs and/or individuals.

Pipits are ground nesters that prefer native prairie with standing grass 10-30 cm tall, an adequate layer of residual vegetation from previous growing seasons, limited woody vegetation and limited invasion by exotic grasses. They are less abundant near roads, and require areas of suitable habitat >65 ha that have





small edge:interior habitat ratios<sup>11, 12, 13</sup>. Some research shows pipits are less abundant near crop edges as well<sup>14</sup>.

Risk of impacting this species as a result of this project appear low. Adult and fledged individuals should not be adversely effected by project activities, and there is no critical habitat in or adjacent to the work area. Standard mitigations to avoid work in the bird breeding window and to reduce fire risk (ie – mowing) will further reduce the likelihood of encountering a nest during work.

### Ferruginous hawk

Draft critical habitat has been provided by Environment and Climate Change Canada (see Figure 5 below). Overlap of potential habitat with the project area is small, occurring only along the southern-most border nearer to the eastern edge. Ferruginous hawks are associated with open prairie landscapes, nesting on a variety of structures as well as cliffs and on the open ground. Nesting and brood rearing typically occur from mid-May to mid-July<sup>15</sup>. The population east of the Rocky Mountains rely primarily on Richardson's ground squirrels for prey. Due to the project location along periphery habitat and the ability to time work outside of the breeding window, significant adverse effects to this species and its habitat is not expected as a result of the project.

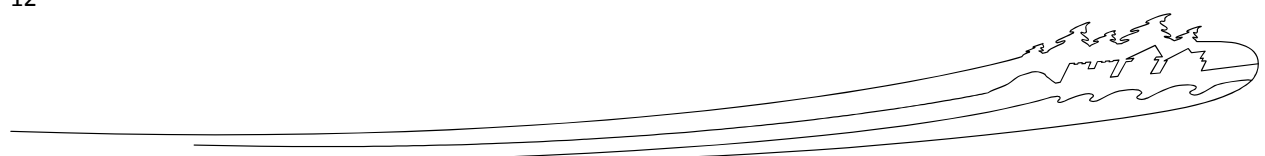
<sup>11</sup> Environment Canada. 2012. Amended Recovery Strategy for the Sprague's Pipit (*Anthus spragueii*) in Canada. *Species at Risk Act* Recovery Strategy Series. Environment Canada, Ottawa. vi+ 44 pp.

<sup>12</sup> Sutter, G.C., S.K. Davis, and D.C. Duncan. 2000. Grassland songbird abundance along roads and trails in southern Saskatchewan. *Journal of Field Ornithology* 71: 110–116.

<sup>13</sup> Davis, S.K. 2004. Area sensitivity in grassland passerines: Effects of patch size, patch shape, and vegetation structure on bird abundance and occurrence in southern Saskatchewan. *Auk* 121: 1130–1145.

<sup>14</sup> Sliwinski, M. S., and N. Koper. 2012. Grassland bird responses to three edge types in a fragmented mixedgrass prairie. *Avian Conservation and Ecology* 7(2): 6. <http://dx.doi.org/10.5751/ACE-00534-070206>

<sup>15</sup> Species description for Ferruginous Hawk on Birds of North America online, <https://birdsna.org>, accessed August 15, 2017.



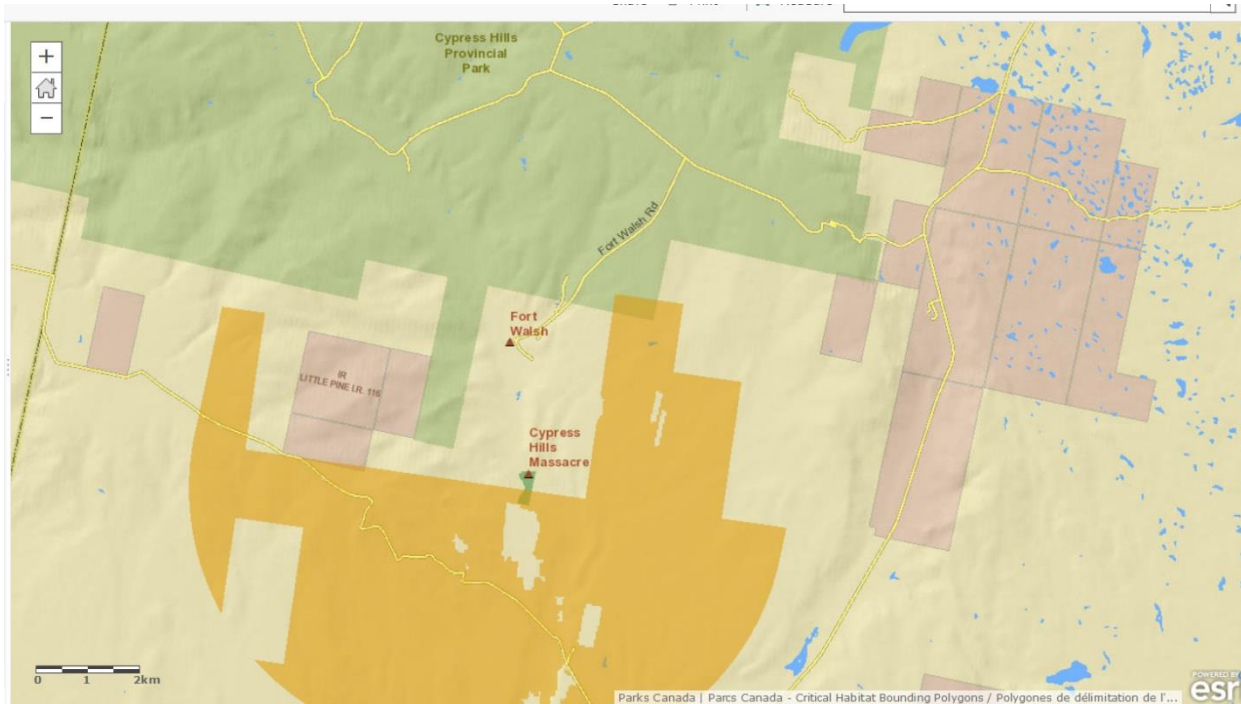


Figure 5: draft critical habitat in and near Fort Walsh for Ferruginous Hawk, listed as Threatened under Schedule 1 of SARA.

### Northern leopard frog

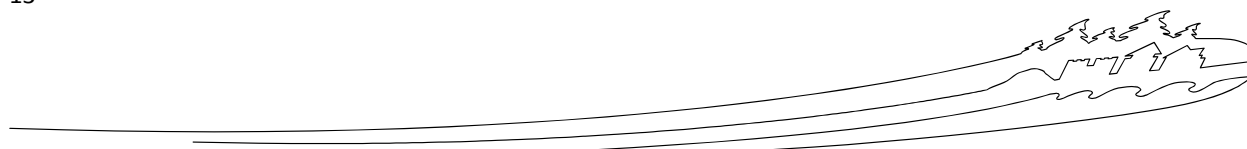
Northern leopard frog are listed as a species of special concern under SARA. Although not protected under SARA, important habitat for this species has been identified in the proposed South of the Divide Multi-Species Action Plan<sup>16</sup>, and in the project area is an 8 km buffer following the Battle River (Figure 6). The use of vehicles and machinery for this project has the potential to impact individuals of this species by accidental road mortality and disrupting breeding behaviours.

Northern leopard frogs require cold, deep, well-oxygenated water bodies that do not freeze to the bottom for winter habitat. From wintering sites, leopard frogs travel up to 1.6 km to breed in shallow, warm waters that preferably have some degree of permanence, are non-acidic, have emergent vegetation, and contain no predatory fish. Males attract mates by calling, which may be drowned out by loud anthropomorphic noise. Breeding behaviour is crepuscular or nocturnal, occurring over a few days between April and June shortly after ice thaw when air and water temperatures reach 10°C. Post-breeding, leopard frogs may disperse up to 8 km from breeding ponds to forage in moist riparian or upland areas, avoiding areas of sparse vegetation. Foraging behaviours are also crepuscular or nocturnal.<sup>17</sup>

While leopard frogs can be found in a wide range of habitats, large overland movements are typically seasonal, associated with migrations to and from winter and summer habitat, and follow more mesic corridors. Foraging typically consists of shorter distance crepuscular or nocturnal movements within a

<sup>16</sup> Environment and Climate Change Canada 2016. Action Plan for Multiple Species at Risk in Southwestern Saskatchewan: South of the Divide [Proposed]. Species at Risk Act Action Plan Series. Environment and Climate Change Canada, Ottawa. xi + 127 pp.

<sup>17</sup> Environment Canada. 2013. Management Plan for the Northern Leopard Frog (*Lithobates pipiens*), Western Boreal/Prairie Populations, in Canada. Species at Risk Act Management Plan Series. Environment Canada, Ottawa. iii + 28 pp.







home range, with larger movements outside of that home range limited to rainy nights<sup>18</sup>. Heavy rains lasting over many days may encourage mass dispersals of frogs<sup>19</sup>. Much less movement is made during the day, when frogs typically shelter in the grass, under leaf litter, cavities or crevices, often near to ephemeral water bodies (preferring water bodies that do not support predatory fish)<sup>20</sup>.

Avoiding the operation of vehicles and machinery during crepuscular (twilight) and nocturnal (nighttime) hours, as well as during prolonged rain events, will avoid times when frogs are most active, reducing the likelihood of road mortality and disrupting breeding behavior. Extra precautions will be required when working near waterways, such as driving vehicles slowly, applying standard erosion control measures to avoid sedimentation of breeding ponds, and spill prevention/response plans to prevent environmental contaminants entering aquatic habitat or other sensitive areas. After mitigations, this project is not expected to have significant adverse effects on northern leopard frogs or habitat.

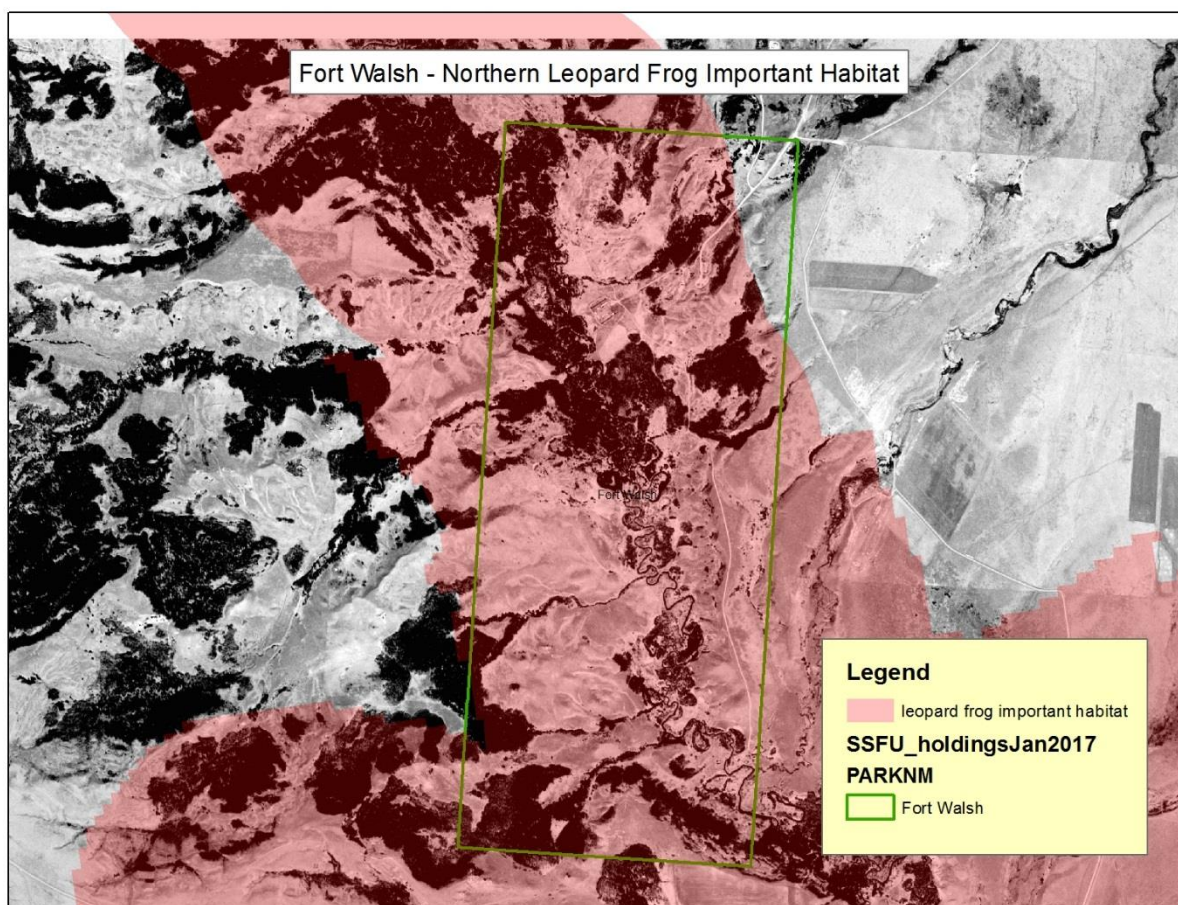
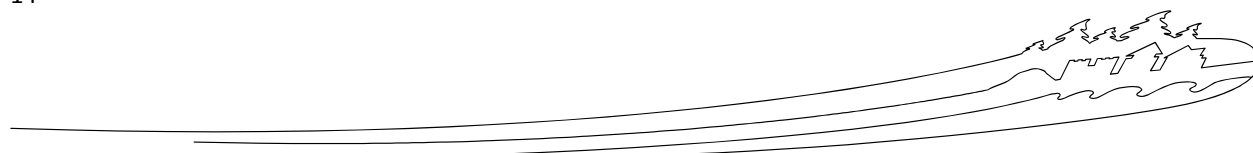


Figure 6: Identified important habitat in and near Fort Walsh for the northern leopard frog, a species listed as Special Concern under Schedule 1 of SARA.

<sup>18</sup> COSEWIC. 2009. COSEWIC assessment and update status report on the Northern Leopard Frog *Lithobates pipiens*, Rocky Mountain population, Western Boreal/Prairie populations and Eastern populations, in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 69 pages (pp.)

<sup>19</sup> Dole, J.W. 1965b. Summer movements of adult Leopard Frogs, *Rana pipiens* Schreber, in Northern Michigan. Ecology 46:236-255.

<sup>20</sup> Dole, J.W. 1965b. Summer movements of adult Leopard Frogs, *Rana pipiens* Schreber, in Northern Michigan. Ecology 46:236-255.







### Mountain Sucker

The Mountain Sucker is an aquatic species listed as threatened in SARA and may occur in the Battle River. Critical habitat is not designated in the vicinity of Fort Walsh and the spawning period of late spring and early summer can easily be avoided. Therefore threats to this species are negligible.

### **7.7. Cultural Resources**

A Cultural Resource Impact Analysis has been submitted for this project. Any concerns related to cultural resources will be highlighted there. As long as any restrictions regarding identified sites are adhered to and any sites that are found accidentally are left in place and reported immediately, impacts to cultural resources are minimal.

#### **Fort Walsh & Cypress Hills Massacre National Historic Sites of Canada**

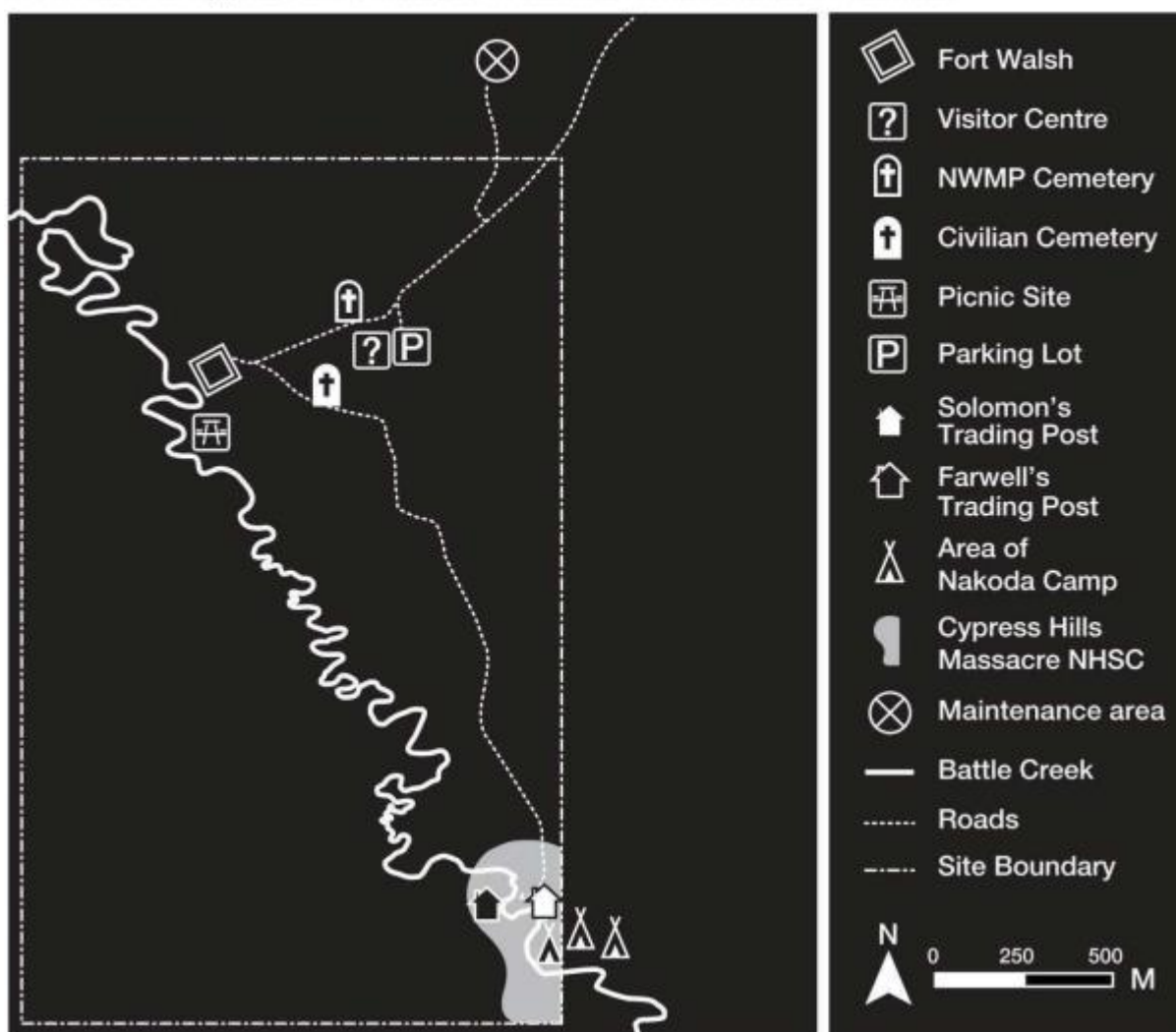
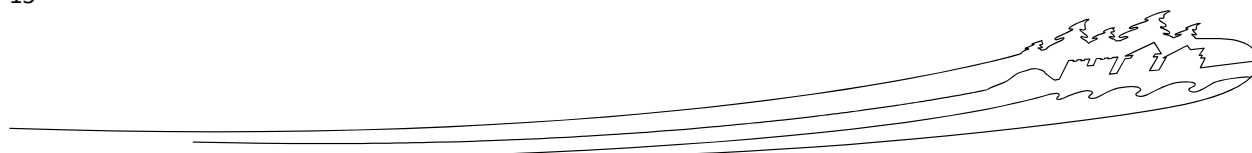


Figure 7: Rough map showing potential areas of importance.

### **7.8. Viewscapes and Essence of Place**

The fence line and newly cleared fireguard/buffer is surrounding the perimeter of Fort Walsh so will not be easily accessible by or in sight of visitors.





### 7.9. Public Safety

There will be an increased fire risk with operation of vehicles and machinery off of designated roads. This can be mitigated by mowing areas to be accessed during fire season, leaving space in between slash piles and forest, and having fire fighting equipment on site.

### 7.10. Stakeholders

Impacts to areas outside of Parks Canada lands can be mitigated by coordinating with neighbours who share the fence line. At this time this has already taken place. Land owners who own bordering lands and who have given their consent to the project include: Little Pine First Nation, Brett Gaff, Frank Nuttal, and Cypress Hills Interprovincial Park. The same mitigations will apply to areas being cleared outside of Parks Canada land.

## 8. MITIGATION MEASURES

Mitigations have been created specifically for this project as well as taken from Best Management Practices documents for Common Activities, Trails, and Vegetation Removal. Parks Canada guidance on migratory birds and bats is also used.

### Work Site Conditions/Staging/Laydown

1. Workers will need to undergo an environmental briefing and familiarize with the mitigations before project start up.
2. 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).
3. Vehicle and equipment use is limited to clearing area, existing roadways, trails, disturbed areas or other areas as approved by designated Parks Canada staff for site access, travel within the site and construction activities (e.g., sawing wood).
4. Clearly mark work site access and restricted areas with stakes, biodegradable flagging tape or other means; remove when project is completed.
5. Keep disturbance footprint as small as possible and limit vehicle access to essential vehicles only.

### Equipment Operations

6. Equipment must be properly tuned, clean and free of contaminants, in good operating order, free of leaks (e.g., fuel, oil or grease), and fitted with standard air emission control devices and spark arrestors prior to arrival on site.
7. During construction, 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.
8. Equipment operators must be fully trained and experienced.
9. Operate machinery above the High Water Mark to minimise disturbance to the banks and waterbody.
10. Use low pressure or rubber tracked equipment or access matting where feasible to minimize soil compaction and ground disturbance.
11. Minimize idling of engines, contingent on operating instructions and temperature consideration.
12. Machinery (e.g., excavators, bobcats, chainsaws, generators) must be stored, maintained and refuelled on a flat surface, outside the drip line<sup>21</sup> of trees and a minimum of 30 meters from waterbodies, as measured from the High Water Mark. Refueling must take place on a tarp or portable berm, or on compacted ground.

<sup>21</sup> The area defined by the outermost circumference of a tree canopy where water drips from and onto the ground.





13. Consider using bio-degradable chain oil/vegetable oils in chain saws, especially when working within 30 meters of waterbodies.
14. If operating chain saws 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.
15. 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.

#### **Site Clean-up and Waste Management**

16. All wildlife attractants must be secured (e.g., petroleum products, human food, recyclable drink containers and garbage) in wildlife-proof containers, a secure building or vehicle. When possible, keep food waste separate from construction waste and remove daily.
17. Contain and stabilize waste material (e.g., construction waste and materials, vegetation) at a minimum of 30m from a waterbody.
18. Burning is not permitted within the protected heritage place unless approved by Parks Canada.

#### **Spill Response Plans and Hazardous Material Management**

19. A Spill Response Plan should be developed prior to work starting.
20. Follow all applicable regulations and codes for the management and handling of hazardous waste.
21. Identify and handle all toxic/hazardous materials as required under the Canadian Environmental Protection Act, Transportation of Dangerous Goods Act and Workplace Hazardous Materials Information System.
22. Dispose of contaminated materials at provincially or territorially certified disposal sites outside of Parks Canada land.
23. Spill containment equipment must be present on-site. A spill contingency response kit including sorbent material and berms to contain 110% of the largest possible spill related to the work must be available on site at each location of potential spills (sites where equipment is working and at re-fuelling, lubrication, and repair locations).
24. All spills must be contained and cleaned-up as soon as it is possible to safely do so. In the event of a major spill, all other work must stop until the spill has been adequately contained and cleaned up.
25. Notify the designated Parks Canada staff and the emergency contact immediately of any spill.
26. Petrochemical products, paints and chemicals must be stored a minimum of 30 meters away from waterbodies and, if left overnight, they must be secured.
27. All construction sites must be equipped with containers suitable for the secure, temporary storage of hazardous wastes, separated by type.
28. If hazardous waste or potentially contaminated material is uncovered during excavation / construction, work must stop and excavated materials must be secured onsite in a manner that prevents contamination of the surrounding environment, including leaching. The designated Parks Canada staff must be contacted for further direction.

#### **Invasive Alien Species:**

29. All construction equipment from outside the Parks Canada protected heritage place must be washed outside the site prior to arrival to minimize risk of introducing invasive weed species.





Proof that this mitigation was applied may be requested before equipment is permitted into the protected heritage place.

30. All soil, gravel, untreated construction lumber, erosion and sediment control products (e.g., hay, straw, mulch), or other applicable materials from outside the protected heritage place must be approved by the designated Parks Canada staff.
31. Organic material (e.g, topsoil, borrow and fill material, gravel) taken from the construction site will not be used in other parts of the protected heritage place unless approved by the designated Parks Canada staff.
32. Minimise bare soil exposure.
33. Where re-vegetation is required, use weed-free salvaged topsoil, native plants and seed mix approved by designated Parks Canada staff.

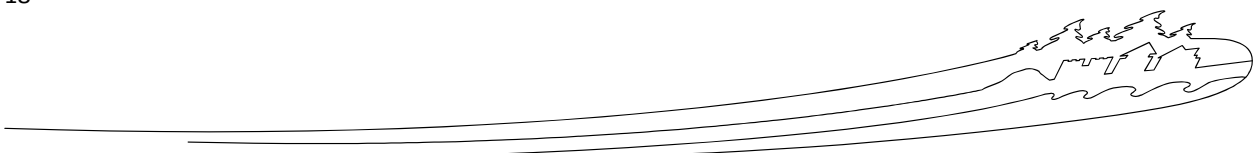
### **Wildlife**

34. Schedule activities to avoid critical wildlife life stages (breeding, nesting, denning, roosting, rearing, migration). Avoid tree/brush removal from April 8 – September 1 to minimise likelihood of accidental destruction or damage to birds' nests/eggs and bat maternity roosts. If clearing is required during this time period, nest/maternity roost sweeps must be conducted.
35. Avoid driving motorised vehicles off of designated roads and trails from May 1 – July 31 to minimise likelihood of accidental destruction or damage to birds' nests/eggs.
36. Should active nests, dens, roosts or calving areas be discovered, stop work and contact designated Parks Canada staff immediately for direction.
37. Conduct trail activities during daylight hours, avoiding critical foraging times (dusk and dawn).
38. Minimize the time excavations remain open and cover or fence when left unattended to reduce the potential for wildlife injury.
39. Never approach or harass wildlife (e.g., feeding, baiting, luring).
40. 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.
41. 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.
42. The fence will conform to wildlife friendly standards, with the bottom wire being 18" above the ground to allow animals as large as pronghorn to pass underneath, and the top wire a maximum of 42" above ground, low enough for large ungulates and their calves to jump over. The top and bottom wires will be smooth (barbless) and there will be 12" between the top two wires.

### **Work Near Water**

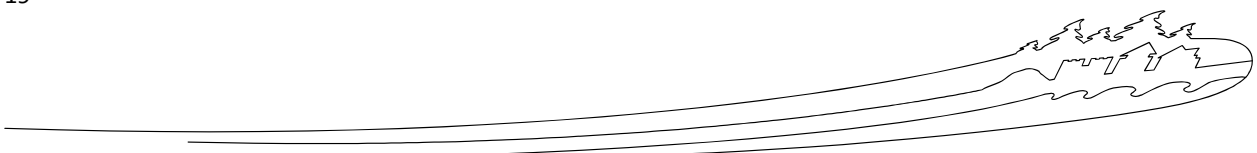
Work near any of the fish bearing creeks will abide by the following measures to avoid harm to fish and fish habitat identified by DFO.

43. Time work in water to respect timing windows to protect fish, including their eggs, juveniles, spawning adults and/or the organisms upon which they feed. For this area, no in water work should take place between October 1 - May 31 to protect spawning fish and developing eggs and fry. Work overtop of the ice is permissible during this timeframe as long as any debris is cleaned up.





44. Schedule work to avoid wet, windy and rainy periods that may increase erosion and sedimentation
45. Plan activities near water such that materials such as paint, primers, blasting abrasives, rust solvents, degreasers, grout, poured concrete or other chemicals do not enter the watercourse.
46. Develop a response plan that is to be implemented immediately in the event of a sediment release or spill of a deleterious substance and keep an emergency spill kit on site.
47. Ensure that building material used in a watercourse has been handled and treated in a manner to prevent the release or leaching of substances into the water that may be deleterious to fish.
48. Develop and implement an Erosion and Sediment Control Plan for the site that minimizes risk of sedimentation of the waterbody during all phases of the project. Erosion and sediment control measures should be maintained until all disturbed ground has been permanently stabilized. The plan should include:
  - Installation of effective erosion and sediment control measures before starting work to prevent sediment from entering the water body.
  - Measures for containing and stabilizing waste material (e.g., dredging spoils, construction waste and materials, commercial logging waste, uprooted or cut aquatic plants, accumulated debris) above the high water mark of nearby waterbodies to prevent re-entry.
49. Clearing of riparian vegetation should be kept to a minimum.
50. Minimize the removal of natural woody debris, rocks, sand or other materials from the banks, the shoreline or the bed of the waterbody below the ordinary high water mark.
51. Immediately stabilize shoreline or banks disturbed by any activity associated with the project to prevent erosion and/or sedimentation, preferably through re-vegetation with native species suitable for the site.
52. If replacement rock reinforcement/armouring is required to stabilize eroding or exposed areas, then ensure that appropriately-sized, clean rock is used; and that rock is installed at a similar slope to maintain a uniform bank/shoreline and natural stream/shoreline alignment.
53. Remove all construction materials from site upon project completion.
54. Ensure that machinery arrives on site in a clean condition and is maintained free of fluid leaks, invasive species and noxious weeds.
55. Whenever possible, operate machinery on land above the high water mark, on ice, or from a floating barge in a manner that minimizes disturbance to the banks and bed of the waterbody.
56. Limit machinery fording of the watercourse to a one-time event (i.e., over and back), and only if no alternative crossing method is available. If repeated crossings of the watercourse are required, construct a temporary crossing structure.
57. Use temporary crossing structures or other practices to cross streams or waterbodies with steep and highly erodible (e.g., dominated by organic materials and silts) banks and beds. For fording equipment without a temporary crossing structure, use stream bank and bed protection methods (e.g., swamp mats, pads) if minor rutting is likely to occur during fording.
58. Wash, refuel and service machinery and store fuel and other materials for the machinery in such a way as to prevent any deleterious substances from entering the water.





### Clearing

- 59. When felling trees, precautions must be taken to minimise damage to surrounding vegetation.
- 60. 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.
- 61. When possible, conduct work when the ground is frozen or under a condition (such as snowfall) that limits ground compaction. If not possible, consider the use of rig mats or other appropriate measures to minimise impacts.
- 62. Protect roots of trees outside of the buffer to prevent disturbance or damage.

### Wildfire

- 63. Ideally, time tree removal and fence construction in non-fire season (November 1 to Mar 31) because there is less risk of large fires during these times of the year. Ideal conditions would have a small amount of snow that will stay on the ground.
- 64. If activities cannot be timed during the aforementioned time of year. Then machinery will be equipped with fire suppression equipment and a water source should be on site.
- 65. Mowing areas around the fenceline is another possible option for fire suppression and should be discussed with Parks Canada.

### Visitor Experience and Safety

- 66. As much as possible, schedule noisy activities to minimise impacts to visitors, especially around high visitor use areas.
- 67. Close and mark the work site with appropriate signage while active construction, repair or maintenance is underway; consider temporary detours or reroutes as appropriate.
- 68. Secure and clearly mark unattended safety hazards (e.g., excavations, debris piles) with fencing, warning signs, area closures or combination thereof.
- 69. Visitor access trails and roads outside the construction area must be free of construction materials, waste, machinery and equipment.

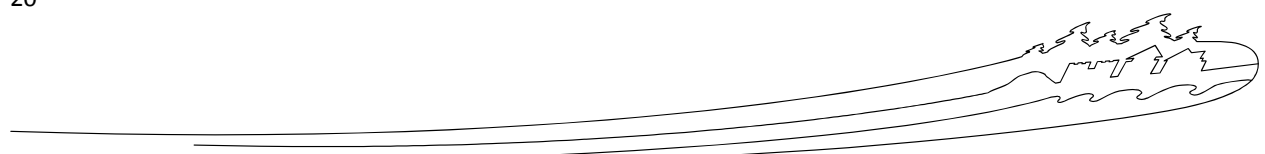
### Cultural Resources

- 70. 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.
- 71. Avoid known and potential archaeological sites.
- 72. If cultural resources are encountered, work must cease in the immediate area and designated Parks Canada staff notified.

## 9. OTHER Considerations

Check all that apply

- ☐ Public/stakeholder engagement
- ☒ Aboriginal engagement or consultation –Little Pine First Nation was consulted.
- ☒ Surveillance
- ☒ Follow-up monitoring, required to evaluate effectiveness of mitigation measures and/or assess restoration success







☐ Follow-up monitoring, required by legislation or policy (indicate basis of requirement e.g. required by the *Species at Risk Act*)

☐ SARA Notification

## 10. 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.

*NOTE: If the project is identified as likely to cause significant adverse effects, CEAA 2012 prohibits approval of the project unless the Governor in Council (Cabinet) determines that the effects are justified in the circumstances. A finding of significant effects therefore means the project CANNOT go ahead as proposed.*

### FOR SARA REQUIREMENTS:

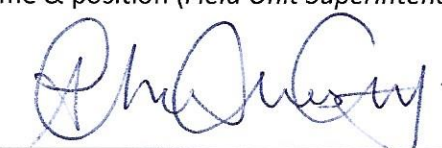
- ☒ There are no residual adverse effects to species at risk and therefore the SARA-Compliant Authorization Decision Tool was not required

**OR**, the SARA-Compliant Authorization Decision Tool ([Appendix 2](#)) 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

## 11. RECOMMENDATION AND APPROVAL

(Add additional blocks as required)

<b>Prepared by:</b> EIA author (name & position): Nils Lokken A/Environmental Assessment Officer, Species at Risk research conducted by Krista Cairns	Date: 31/10/2018
<b>Recommended by:</b> Functional manager of the project (name): Kaylee Beck, National Historic Site and Visitor Experience Manager	Date: 1/11/2018
<b>Approval signature:</b> Name & position ( <i>Field Unit Superintendent, Director of a Waterway</i> ): 	Date:

## 12. 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.*)

**\*\*\*Ensure that all required mitigation measures and conditions (e.g. follow-up monitoring requirements) are included in project permits and authorizations\***



