



Parks Canada Basic Impact Analysis

1. Pathway Accessibility and Lighting Improvements at Fort George National Historic Site

The project will take place around the existing roadways, pathways, and buildings from the visitor parking lot to the Visitor Centre (VC) and public washrooms, and into and around the interior of the fort (Appendix 1).

2. PROPONENT INFORMATION

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3. PROPOSED PROJECT DATES

Planned commencement: August 2015
Planned completion: October 2015

4. INTERNAL PROJECT FILE

FGNHS-2015-03

5. PROJECT DESCRIPTION

Several roadway/pathway accessibility and lighting improvements are scheduled at Fort George National Historic Site. The majority of the project works will occur between August and October 2015, with the remainder taking place in the near future. The contractors will: harden the existing roadways/pathways with a new single stone chip seal asphalt surface or washed concrete; remove a redundant entrance path from the north side bus parking lot to the where it meets the town's trail; grade and landscape (seed) this old path area; maintain/widen portions of the pathways to a ~1.8m (6') width (i.e. widen near the 1815 Cottage and Powder Magazine) and roadways to ~2.4m (8'); redesign, extend, and reduce the slope angle of the pathway down to the Powder Magazine; remove the old lighting system components; and supply, service, and install the electrical system for the new LED lights along the roadway from the parking lot to the fort and onto several of the buildings (Appendix 1). This project will allow the national historic site (NHS) to: meet accessibility standards and guidelines for the roadway/pathway system; reduce the footprint at the site's entrance area; support the new and growing list of events/programs offered during the evening hours; reduce power usage/costs and intrusion on heritage resources; and improve site conditions (i.e. drainage), maintenance operations (i.e. snow and ice removal), occupational health and public safety, and visitor experience.

Stone dust materials will be removed from the redundant entrance path, the area will be graded/backfilled, and then landscaped (i.e. seeded as needed). Where roadways/pathways are to be widened, excavation will be necessary utilizing a grader and/or small excavator. The remaining roadways/pathways will be graded or topped up with the new materials to re-establish the original grade and drainage. The top up materials within the fort will consist of a new single stone chip seal asphalt surface, while outside the palisade walls they will either consist of the single stone chip asphalt or washed concrete (i.e. requires washing the day after it's poured to expose the textured pebble aggregate). Minimal backfilling may be required in some locations. Asphalt materials from the old roadway/pathway system will be reused where applicable. Other machinery/equipment required to complete these works may include a backhoe, bobcat, roller, asphalt machine, and concrete pumper, sanitation, and other trucks (i.e. to deliver stone chip asphalt/concrete materials).





For the lighting project, several (0.96m high) bollards will be placed adjacent to the roadway from the parking lot to a location near the fort's entrance, and flood/spot/strip lights will be placed on the buildings throughout the NHS. The bollards are 20cm in diameter, and constructed of aluminum, copper, and stainless steel. Underground wiring may need to be completed if electrical equipment is required (i.e. may use directional boring or plowing technique to implement the work). Concrete bases will be poured to anchor the bollard bases flush with the grade. Machinery/equipment required to complete these works may include ladders, hand tools, a mechanical lift, and trucks.

Contractors will use the public washroom facilities, and the visitor parking lot or Byron Street as a staging-storage area. Portions of the roadways, pathways, and buildings will be closed off while under construction. Foot traffic will be redirected into/around the fort and away from work areas in order to maintain the site's safety conditions.

6. VALUED COMPONENTS LIKELY TO BE AFFECTED

Fort George National Historic Site is a historic military structure that was the scene of several battles during the War of 1812. The fort consists of earthworks and palisades, along with internal structures, including an officer's quarters, blockhouses to accommodate other ranks and their families, and a stone powder magazine, which is the only original building on the site.

Most of the parade surface and fort is a reconstruction dating to the 1930s. Since that time, numerous utilities lines (i.e. some installed parallel to the roadways/pathways) and fort improvements have further disturbed the underlying archaeological resources. Parks Canada Agency (PCA) has found undisturbed culture layers intact at various depths beneath these fill and reconstruction layers, and there are no "cleared" archaeological areas.

Aspects of the project have the potential to have impacts on the cultural resources at the site, including its overall appearance and subsurface archaeological artifacts (Appendix 2). Due to the majority of the work taking place in previously disturbed areas around the roadways/pathways and buildings, it is unlikely there will be effects on the archaeology at these locations within the NHS. In addition, from a cultural resource management (CRM) perspective, the nature of the roadway/pathway surfaces and the hidden and/or subdued lighting are such that they will not detract from the historic appearance of the site.

Although the majority of the proposed works will not affect the cultural resources of the site, the Parks Canada Terrestrial Archaeology Representatives (PCTAR) and Southwestern Ontario Field Unit (SOFU) CRM Advisor have concerns for certain proposed aspects of the project:

- 1) In the area outside of the fort where the roadways/pathways and ramp extension near the visitor parking lot and VC will be upgraded, there are important undisturbed archaeological remains or cultural resources of national historic significance that have been noted (e.g. American trenches);
- 2) In the area where the proposed new electrical line may be placed from Blockhouse 1 to the Cottage, there are important buried cultural resources, including the 1815 House; and
- 3) The Powder Magazine is a cultural resource of national significance and any proposed works around this structure are of most concern. In 1993, the NHS attempted to remedy the pathway accessibility issue by lengthening the path, creating a switchback, and decreasing the slope. PCA excavated three test units to understand the stratigraphy of this area and found a 1937 fort reconstruction layer at ~40-50cm below the 1993 surface. This would indicate fills were used to increase the grade of the pathway at or since the reconstruction. *No excavation units have occurred off the pathway in the actual talus slope.*





These issues will be addressed with CRM/PCTAR input for mitigation measures as the project designs and/or plans for the possible laying of new washed concrete roadways/pathways, placement of new electrical lines, and redesign of the Powder Magazine pathway are further finalized.

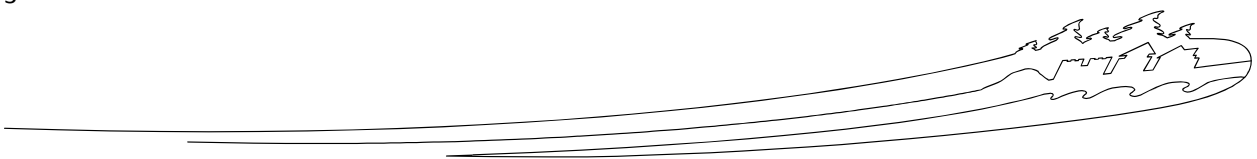
Overall, the project will improve the safety for staff and visitors, providing a uniform, stable, more easily maintained surface to get around on. Visitor experience and safety will improve with better accessibility for people with physical disabilities as well as for families wishing to use children’s wagons and strollers around the site (especially down to the hill to the Powder Magazine, which is currently too steep and potentially unsafe). The new lighting will allow for safer access around the fort during evening and overnight programming/events.

One of the main effects from the project will be to visitor experience while these temporary works take place. Visitors will need to be redirected away from the machinery/equipment for safety reasons, and the noise from the works may detract from the public’s enjoyment of the site.

Due to the timing/location/nature of the roadway/pathway/lighting works, it is not anticipated there will be any significant adverse effects on natural resources [i.e. wildlife, habitat, landscape features, species at risk (SAR), air/soil/water quality and/or water quantity, etc.] as long as the mitigation measures are adhered to.

7. EFFECTS ANALYSIS

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| <p>Potential Key Effects:</p> | <p><i>Components of the environment that may be affected:</i> The project environmental effects will vary depending on the type of work and where it is taking place within the national historic site.</p> |
| <p><i>Cultural Resources</i></p> | <p>Potential adverse effects to cultural resources, as well as the heritage values of the NHS during the project, which could be as a result of:</p> <ol style="list-style-type: none"> 1. Trampling/parking/vehicles/temporary facilities/equipment; 2. Use of cultural resources as supports for signage, and project-related machinery/equipment/infrastructure; 3. Damage to the landscape and landscape features in the case of an accidental spill of fuel, oil, diesel, chemicals, etc.; and 4. Adverse effects to the sense of place for the NHS from the noise, additional machinery/equipment/infrastructure, and the contractors on-site. <p>Potential adverse effects to unknown archaeological resources, resulting from:</p> <ol style="list-style-type: none"> 1. Trampling/parking/vehicles/temporary facilities/equipment; 2. Excavating/directional boring or plowing/grading/backfilling/paving/laying and washing concrete; 3. Puncturing the ground for the installation of signage or other items; and 4. Redesigning the pathway to the Powder Magazine (i.e. could potentially affect subsurface archaeological resources and/or the building). |
| <p><i>Flora, Fauna, Species at Risk</i></p> | <ol style="list-style-type: none"> 1. Trampling/destruction primarily in the mowed areas from equipment/machinery, parking, and people on-site; 2. Machinery/equipment that are not properly cleaned before going on-site, as well as soil/aggregate/other materials that are used for site preparation/construction could potentially introduce invasive and/or exotic species to the NHS; 3. Potential harm to wildlife from chemical use or accidental spill(s) (e.g. machinery and equipment fuel, diesel, concrete wastewater, etc.) (N.B. Concrete wastewater is considered deleterious substance under the <i>Fisheries Act.</i>); 4. Noise and human presence may disrupt wildlife in the area; 5. Access of wildlife to human food, garbage, and recycling; and |

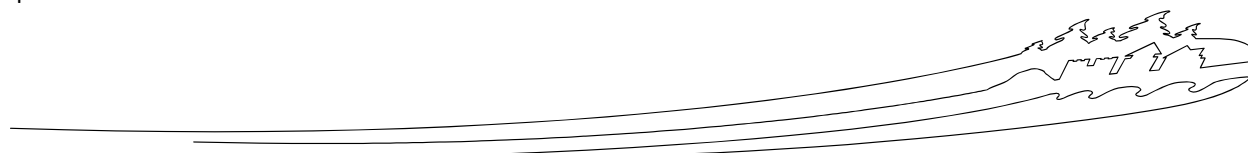




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| | <p>6. Adverse effects to small animals nesting, feeding, and/or sheltering around the NHS infrastructure. Barn swallows (<i>Hirundo rustica</i> – COSEWIC: THR) could potentially nest, take shelter, and/or feed around the NHS buildings. The little brown myotis (<i>Myotis lucifugus</i> – END), northern myotis (<i>Myotis septentrionalis</i> – END), and tri-colored bats (<i>Perimyotis subflavus</i> – END) could migrate through, feed, and take shelter around the NHS (i.e. in tree holes, around the buildings, etc.). These animals could be disturbed by nearby project works. It is possible, but not anticipated, that these SAR will be affected by this project.</p> |
| <p><i>Air & Soil Quality, Water Quality & Quantity (Surface/Ground), Drainage, Erosion</i></p> | <ol style="list-style-type: none"> 1. Potential for increased dust, greenhouse gas, and other exhaust emissions from the machinery/equipment used during works associated with the set-up, construction, and demobilization of the project; 2. Potential for soil/water contamination as a result of refuelling and accidental fuel/oil/diesel/oil-based asphalt/other chemical spills, concrete wastewater, and refuse. Generated concrete wastewater and other construction related sediments, chemicals, wastes (e.g. metals), and harmful substances may enter the soil, water, and nearby water bodies (~160-300m from the Niagara River/Lake Ontario) after rainfall events or watering procedures, which could result in impacts on soil and water qualities; 3. Temporary effects to soil quality and drainage due to compaction from machinery/equipment as well as from people on-site; 4. Soil compaction may result in reduced water/soil infiltration rates increasing surface runoff and potential siltation to surface water (e.g. in drainage systems during wet weather events); 5. Potential for erosion in areas where people have been redirected away from the construction work; and 6. Refuse from the project will add to waste generation and ultimately consume more landfill space. |
| <p><i>Visitor Experience, Safety, Socio-economics</i></p> | <ol style="list-style-type: none"> 1. Potential for short-term, negative effects to visitor experience as a result of the project (i.e. changes in the views, reduced access to certain areas in the NHS, noise from the project set-up, construction, and demobilization, and the presence of machinery/equipment/debris/contractors on-site). Some visitors may feel the work detracts from the NHS experience. Effects are expected to be temporary and could be used as a learning opportunity about how the NHS is working towards achieving long-term improvements to visitor experience and safety; 2. There is potential for an increased risk to the public and staff if the work area is not well fenced, signed, and/or closed off, and to the workers if they are not wearing personal protective equipment. The risks to occupational health and public safety increases with the movement of machinery/equipment/materials to and from the work area, heavy equipment operations, possible storage of materials on-site, handling of chemicals, exposure to inclement weather; and from accidents and malfunctions; and 3. Positive effects to visitor experience and socioeconomics may arise as a result of the NHS infrastructure/facility improvements (i.e. the new lights will better delineate the upgraded roadways/pathways, providing a more effective method of directing visitors around the fort). |

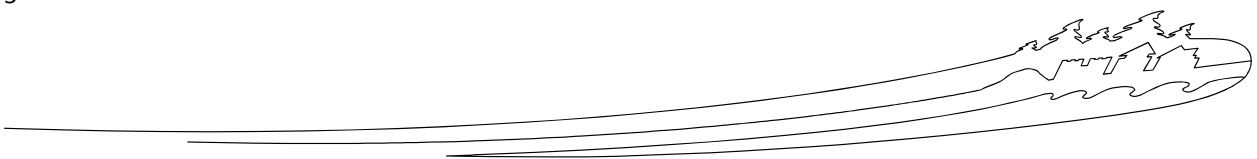
8. MITIGATION MEASURES

| Mitigation | |
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| <i>Cultural Resources</i> | <ol style="list-style-type: none"> 1. This is a NHS and must be treated as such. The contractors must recognize that all works at the NHS are subject to the <i>CRM Policy</i> and the <i>Standards and Guidelines for the Conservation of Historic Places in Canada</i>. When and where possible, cultural |



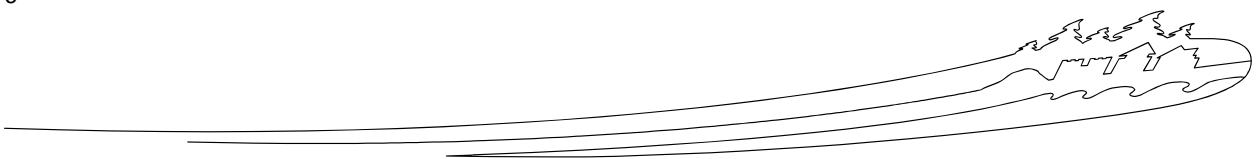


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| | <p>resources should be protected by specifically excluding them from the project works, preventing unauthorized access to them, and/or PCA staff diligently monitoring them;</p> <ol style="list-style-type: none">2. Under PCA’s direction, areas with known cultural resources (including archaeological resources and historic objects) will be demarcated and protected to prevent unauthorized access and adverse effects from the project’s works. This may include flagging tape, above-ground fencing, or other temporary structures, padlocks, and/or signage to avoid sensitive areas as indicated by PCA officials and/or archaeologist;3. Excavation, directional boring or plowing, grading, backfilling, paving, laying/washing concrete, and puncturing the ground for the installation of light posts or any other items is prohibited without an assessment or discussion with a CRM functional specialist, except in areas that have been reviewed by an archaeologist (i.e. to ensure that no adverse effects to subsurface cultural resources). Non-intrusive temporary fencing, signage, or structure stabilizing mechanisms (that do not puncture the ground) are recommended;4. The project locations/types of works will be reviewed by PCA CRM specialists to ensure they will not cause significant adverse effects to cultural resources and the overall commemorative integrity of the site (e.g. type/size/location of new lighting will be minimally visible and not interfere with the heritage nature of the NHS);5. Use of cultural resources as supports for signage and machinery/equipment/infrastructure is strictly prohibited;6. Care will be taken when operating heavy machinery/equipment. If the work has the potential to cause soil compaction in areas not previously assessed by an archaeologist, an archaeologist should be contacted to provide direction about how to mitigate impacts on potential archaeological resources;7. If archaeological resources are uncovered during the project (e.g. anything out of the ordinary, artifacts, wood, stone from possible foundations), then the contractors will isolate the specific area and restrict access until a PCA archaeologist is notified to provide further direction. Additional mitigation measures may be provided to prevent any damage to these resources. Remediation activities may be required;8. Should the remains of ancient persons be discovered, work will stop and the remains shall be protected. A knowledgeable PCA representative shall be notified and the <i>Management Directive 2.3.1 for Human Remains, Cemeteries, and Burial Grounds</i> will be followed;9. Contractors shall protect subsurface infrastructure, historical features, profiles, and ground features as directed by a PCA representative; and10. Adhere to the PCTAR and SOFU CRM Advisor’s recommendations regarding: any expansions of the roadways/pathways beyond their existing footprints/gravel bed depths; any new electrical line placements for the LED lighting system; and the redesign of the pathway to the Powder Magazine:<ol style="list-style-type: none">a. Conduct in-depth CRM/PCTAR investigations of the currently unknown aspects of the project once they are designed and planned in detail. Specifically the powder magazine pathway redesign will undergo a Cultural Resource Impact Analysis (CRIA);b. Staff vehicles should to park outside of the fort whenever possible to prevent ruts on the parade surface;c. Heavy equipment and construction vehicles should remain on the established path surfaces as much as possible, or preferably off-site (i.e. in the visitor parking lot or Byron Street area);d. The use of a pump-crete or directional pump will help to move the concrete to the precise locations while the vehicle stays on the road or in the parking lot. |
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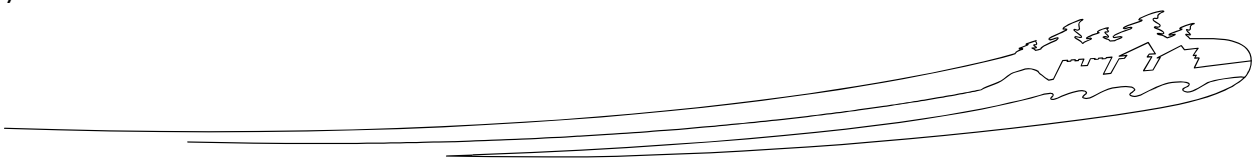


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| | <p>Alternatively, wheel barrelling the cement into place along the extant pathways will help decrease concerns regarding the additional vehicular traffic on-site;</p> <ul style="list-style-type: none"> e. If the construction excavations are limited to the 150mm depth noted in Ainley’s report, then there may be limited archaeological concern within the interior of the fort; however, an archaeologist should be present during the excavations in case cultural resources are uncovered; f. Caution must be taken to remove <u>only</u> the extant gravel bedding on the redundant pathway from the bus parking lot to the town trail. Excavation must stop above the undisturbed soil; g. The 9-16” of gravel noted in the other roadways/pathways will be adequate protection for the cultural resources from the planned (re)paving or washed concrete and bollard light/electrical line installation works as long as they <i>follow the current path’s footprint and do not exceed the extant gravel bedding</i>; h. To avoid impact on cultural resources for the proposed new electrical line from Blockhouse 1 to the Cottage, archaeological mitigation should be sought prior to the work, particularly if entry/exit pits are dug for boring/plowing. Once a final method and depth of excavation are known, the PCTAR will do a final assessment for archaeological mitigation; and i. Attempt to build up (i.e. not dig down) to correct the pathway slope to the Powder Magazine and keep within the footprint of the extant path. |
| <p><i>Flora, Fauna, Species at Risk</i></p> | <ol style="list-style-type: none"> 1. No vegetation is to be removed from the site (except for portions of lawn that require removal to expand the roadways/pathways); 2. Machinery/equipment/contractors will be restricted to the defined work area to minimize any further impacts to the surrounding vegetation. Any significant damage to the surrounding manicured lawns or vegetation will be restored to prior or better site conditions by the contractor under the direction of the PCA staff. In the case of herbaceous or woody vegetation, native species should be used; 3. Machinery/equipment should be properly cleaned before going on-site, and only clean, local soil/aggregate/other materials should be utilized to avoid the potential introduction of invasive and/or exotic seeds to the NHS; 4. Any materials that pose a hazard to wildlife must be stored in secured buildings or containers as directed by PCA; 5. All concrete waste water must be collected from the site and prevented from entering any drainage system (i.e. storm water drains) or water body (i.e. creek, river, lake); 6. Contractors must notify PCA staff immediately of any problem wildlife encounter; 7. The feeding, enticement, or harassment of wildlife is prohibited; 8. PCA staff will monitor for wildlife during the project. When possible, wildlife will be given the opportunity to escape the work area to the surrounding area to seek new shelter. If any wildlife is discovered that cannot escape quickly enough, then all work in the immediate area will cease until the PCA representative is consulted; 9. Garbage and recycle receptacles should be utilized to prevent wildlife access to waste products; and 10. PCA staff will hold a briefing to inform contractors of the potential SAR that may be encountered during project. It is illegal to harass or harm SAR. PCA will inform contractors of the requirements they must undertake should SAR be encountered during the project (e.g. protective measures such as the use of barriers). |
| <p><i>Air & Soil Quality, Water Quality & Quantity</i></p> | <ol style="list-style-type: none"> 1. Use of ethanol blended fuel/biodiesel is encouraged for all machinery/equipment; 2. Vehicles, machinery, and equipment must not be left to idle; 3. During all relevant phases of structure/component removal and construction, surfaces will be wetted to minimize dust as appropriate; 4. Dust from excavations should be monitored and controlled; |





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| <p>(Surface/ Ground), Drainage, Erosion</p> | <ol style="list-style-type: none"> 5. The operating, refueling, and maintenance of construction machinery/equipment, and the handling and storage of toxic materials (e.g. fuels) will be carried out in such a way as to avoid contamination of soils and water; 6. PCA will determine if a Spill Response Plan must be provided by the contractor prior to the commencement of work. If required, then this plan will be subject to the approval of the site. The contractor is responsible to have appropriate containment, spill kit, and clean up equipment on-site in accordance with the approved Spill Response Plan to ensure a rapid response to any spill. Report spills to Environment Canada – Environmental Emergencies (613-239-6065), the Ontario Ministry of the Environment and Climate Change – Spills Action Centre (1-800-268-6060), and Parks Canada Agency; 7. All refueling of the machinery/equipment is restricted to designated areas (over an impermeable, paved area, if available) and will be at least 30m from any drainage system (i.e. storm water drains) or water body (i.e. creek, river, lake); 8. Use new or well-maintained machinery/equipment, preferably fitted with fully functioning emission control systems/mufflers/exhaust systems, engine covers, etc., to avoid introducing pollutants to the site; 9. Control the disposal or runoff of water into any drainage system (i.e. storm water drains) or water body (i.e. creek, river, lake) containing harmful substances and sediment at all open excavation areas, disturbed areas, stockpiled or excavated materials, and construction watering or dewatering activities. Only clean material, free of particulate matter, shall be placed in the water; 10. In work areas, should there be a significant rain event, silt curtains or screens must be installed in adjoining drainage ditches in order to control siltation. If silt screens are required, then they must be checked daily to ensure they are in good working condition; 11. As concrete leachate is alkaline and highly toxic to fish and other aquatic life, ensure that all works involving the use of concrete, cement, mortars, and other Portland cement or lime-containing construction materials will not deposit (directly or indirectly) sediments, debris, concrete, leachate concrete fines, wash, or contact water (including precipitation) into or about any drainage system (i.e. storm water drains) or water body (i.e. creek, river, lake); 12. Provide containment facilities for the wash-down water from concrete delivery trucks, concrete pumping equipment, and other tools and equipment; 13. All concrete wash water will be disposed of in a location where it will not enter any drainage system (i.e. storm water drains) or water body (i.e. creek, river, lake); 14. Prevent any water (including precipitation) that contacts deleterious uncured or partly cured concrete (during activities like exposed aggregate wash-off, wet curing, or equipment washing) from directly or indirectly entering any drainage system (i.e. storm water drains) or water body (i.e. creek, river, lake); 15. Cast in place concrete materials must remain isolated from water (especially precipitation) inside sealed formed structures until cured (~48-72 hours); 16. Isolate and hold any water (including precipitation) that contacts uncured or partly cured concrete until the pH is between 6.5 and 8.0 pH units, and the turbidity is less than 25 nephelometric turbidity units (NTU), measured to an accuracy of +/- 2 NTU; 17. Storage of hazardous materials must comply with the <i>Canadian Environmental Protection Act</i>; 18. Store all fuels and chemicals 30m from any drainage system (i.e. storm water drains) or water body (i.e. creek, river, lake) in secure areas on impermeable pads/surfaces; 19. Potentially hazardous wastes will be separated from normal waste through segregation of storage areas and proper labeling of containers; |
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| | <p>20. All compounds used for this project shall be utilized and stored according to the manufacturers' Product Technical Data Sheets, stating guidelines and methods for proper use and storage;</p> <p>21. No waste is permitted to be buried or burned on-site; and</p> <p>22. Recyclable materials and all waste debris shall be removed from the work area and disposed of off-site, in accordance with all federal, provincial, and municipal regulations, to appropriate disposal facilities licensed to receive them.</p> |
| <p><i>Visitor Experience, Safety, Socio-economics</i></p> | <p>1. There will be short-term minor impacts on staff, visitors, and other contractors accessing the NHS due to the influx of contractor machinery/equipment/ vehicles and project construction. Appropriate signage and area closures will be in place for higher risk works (e.g. excavating, paving, etc.). Circulation around the facilities (i.e. including wheelchair access) will be maintained to the greatest extent possible;</p> <p>2. The work will be conducted so as to minimize impacts on the interpretive programs;</p> <p>3. PCA staff will be briefed on the project so they can provide information to visitors;</p> <p>4. All works pursuant to the project shall be governed by and constructed in accordance with all laws of Canada and the Province of Ontario (e.g. <i>Canada Labour Code</i>, <i>Workplace Safety and Insurance Board of Ontario</i>, <i>Occupational Health and Safety Act</i>, <i>National Fire Code of Canada</i>);</p> <p>5. Access to PCA staff and representatives to the site will be maintained;</p> <p>6. Appropriate safety precautions and safe work practices will be implemented; and</p> <p>7. All stored/stockpiled materials will be kept in a safe and secure location for security and public safety reasons. All construction equipment will be secured to ensure public safety when workers are not present on-site.</p> |
| <p><i>General Effects</i></p> | <p>1. Contractors must comply with all federal, provincial, regional, and municipal legislation applicable at the NHS;</p> <p>2. Parking and access routes to the work area must only be in PCA designated areas;</p> <p>3. Vehicles are restricted to paved, graveled, and level-grass surfaces, or as directed by PCA officials; and</p> <p>4. Machinery/equipment/materials must be stored at a location approved by PCA.</p> |

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

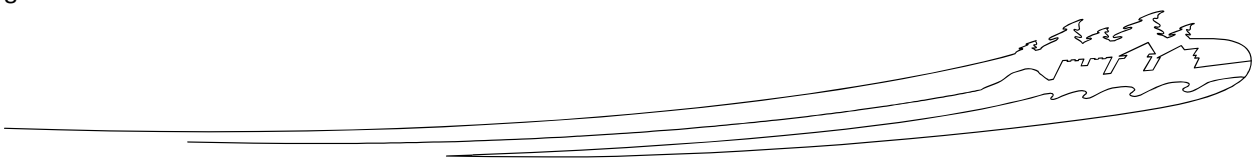
9 b) Indicate whether Aboriginal consultation was undertaken in relation to potential adverse effects of the proposed project:

- No
- Yes

10. SIGNIFICANCE OF RESIDUAL ADVERSE EFFECTS

Following the application of mitigation measures, residual effects to the natural and cultural environments are not expected to be significant. Positive residual effects are anticipated as a result of the provision of a safe visitor experience as well as the reduction of site's operational costs and maintenance issues.

1. Minor, short-term impacts on wildlife and visitor experience during the physical works;
2. Slight increase in greenhouse gas emissions from machinery/equipment;
3. Some increase in sediment concentration in surface runoff to the creek/river/lake/drainage systems from physical works/use of machinery/equipment;





4. Increased soil compaction from the use of heavy equipment;
5. Possibly some residual soil/water contamination from an accidental spill;
6. The immediate changes in national historic site's appearance from the new stone chip or washed concrete roadways/pathways and LED lighting system.

FOR CULTURAL RESOURCES:

- *In considering residual adverse effects to cultural resources, the cultural resource management advisor and/or CRM functional specialist supporting this analysis will evaluate the degree of change to determine significance:*
 - *No change*
 - **Negligible to minor changes (very minor changes/slight changes to the resource)**
 - *Moderate change (resource is clearly modified)*
 - *Major change (resource is totally altered and removed/destroyed)*

11. SURVEILLANCE

- Surveillance is not required
 Surveillance is required

As needed, PCA staff will be monitor the project to ensure the mitigation measures (i.e. particularly those for CRM/archaeology resources) of this Basic Impact Analysis are enforced, and to handle and note any situations as they arise.

12. FOLLOW-UP MONITORING

Follow-up monitoring is:

- not required
 legally required (e.g. under the *Species at Risk Act* or *Fisheries Act*)
 required in accordance with the *Parks Canada Cultural Resource Management Policy*

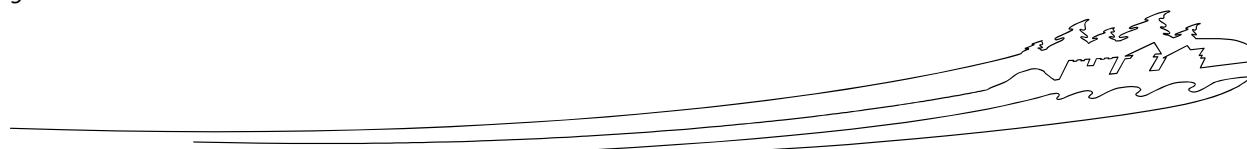
13. SARA NOTIFICATION

Notification is:

- not required
 required under the *Species at Risk Act*

14. EXPERTS CONSULTED

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| Department/Agency/Institution: Parks Canada Agency | | Date of Request: May 4-June 23, 2015 | |
| Expert's Name & Contact Information: Rachel Brooks & Stacey Taylor Archaeology & History Branch Heritage Conservation & Commemoration Directorate 111 Water Street East, Cornwall, ON, K6H 6S3 613-938-5762; rachel.brooks@pc.gc.ca 613-938-5794; stacey.taylor@pc.gc.ca | | Title: Archaeologists | |
| Expertise Requested: Expertise about the potential effects on the site's archaeological resources from the upgraded roadways/pathways, the removal and expansion of portions of the roadway/pathway system, and the addition of the new light bollards (i.e. along the roadway from the parking lot to the nearby the fort's entrance). | | | |
| Response: There are no issues with the standard paving of the roadway, pathway, and lighting improvements. The PCTAR needs to be consulted for further mitigation measures once the project | | | |





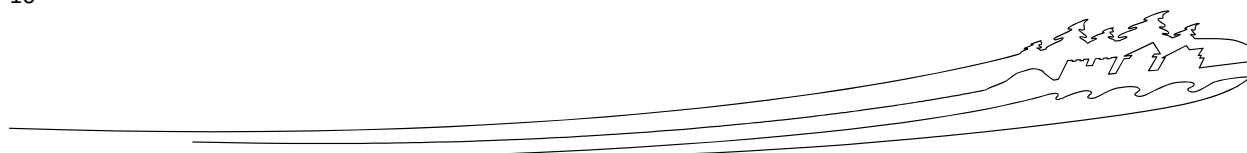
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| designs and/or plans for the possible laying of new washed concrete roadways/pathways/electrical lines, and redesigning of the Powder Magazine pathway are further finalized. | |
| Department/Agency/Institution: Parks Canada Agency | Date of Request: May 29-June 14, 2015 |
| Expert's Name & Contact Information: Robert Roe Woodside National Historic Site 528 Wellington Street North, Kitchener, ON, N2H 5L5 226-338-1907; robert.roe@pc.gc.ca | Title: CRM Advisor |
| Expertise Requested: Expertise about the potential effects on the site's cultural resources from paving of the roadways/pathways and the addition of the new LED lighting to the fort. | |
| Response: There are no issues with the standard paving of the roadway, pathway, and lighting improvements. A CRIA will be required once the Powder Magazine pathway is redesigned. | |

15. ATTACHMENTS

- Appendix 1 – Photos and Site Plans
- Appendix 2 – Effects Identification Matrix

16. NATIONAL IMPACT ASSESSMENT TRACKING SYSTEM

- Project registered in tracking system
- Not yet registered





17. 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:

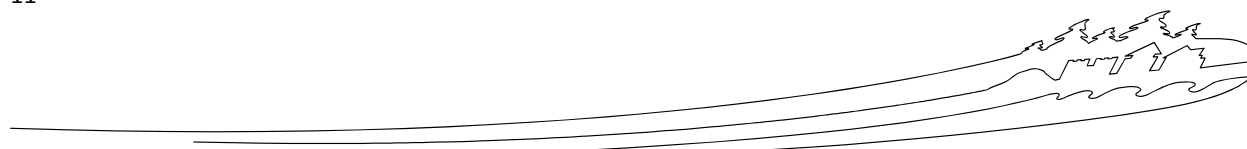
- There are no residual adverse effects to species at risk and therefore the SARA-Compliant Authorization Decision Tool was not required*

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*

18. RECOMMENDATION AND APPROVAL

| | |
|---|-------------------------|
| <p>Prepared by: Kelly Scott Resource Management Officer II – EA Coordinator, Point Pelee National Park</p> | <p>Date: 2015-06-25</p> |
| <p>Recommended by: Walter Willms Technical Service Officer, Niagara National Historic Sites</p> | <p>Date: 2015-06-26</p> |
| <p>Approved by: Jarred Picher Field Unit Superintendent, Southwestern Ontario Field Unit</p> | <p>Date:</p> |
| <p>Signature:</p> | |





Appendix 1: Photos and Site Plans



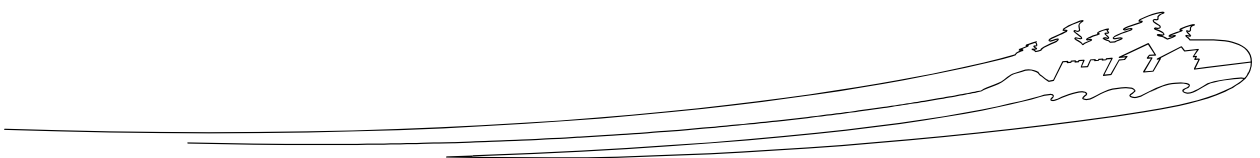
From parking lot facing toward the Visitor Centre and public washroom



Roadway leading to the Visitor Centre and public washroom (the town's trail intersects in the foreground)



Roadway facing back towards the parking lot





Pathway from bus parking lot to be removed



From staff parking lot facing the Visitor Centre, public washroom, and fort entrance



Roadway into the fort facing blockhouses and officers' quarters





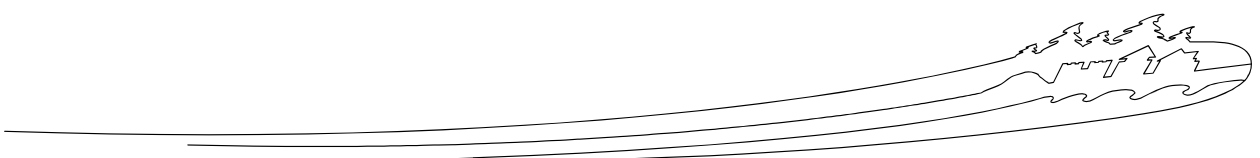
Roadway into the fort facing fort's entrance, cottage, and blockhouse

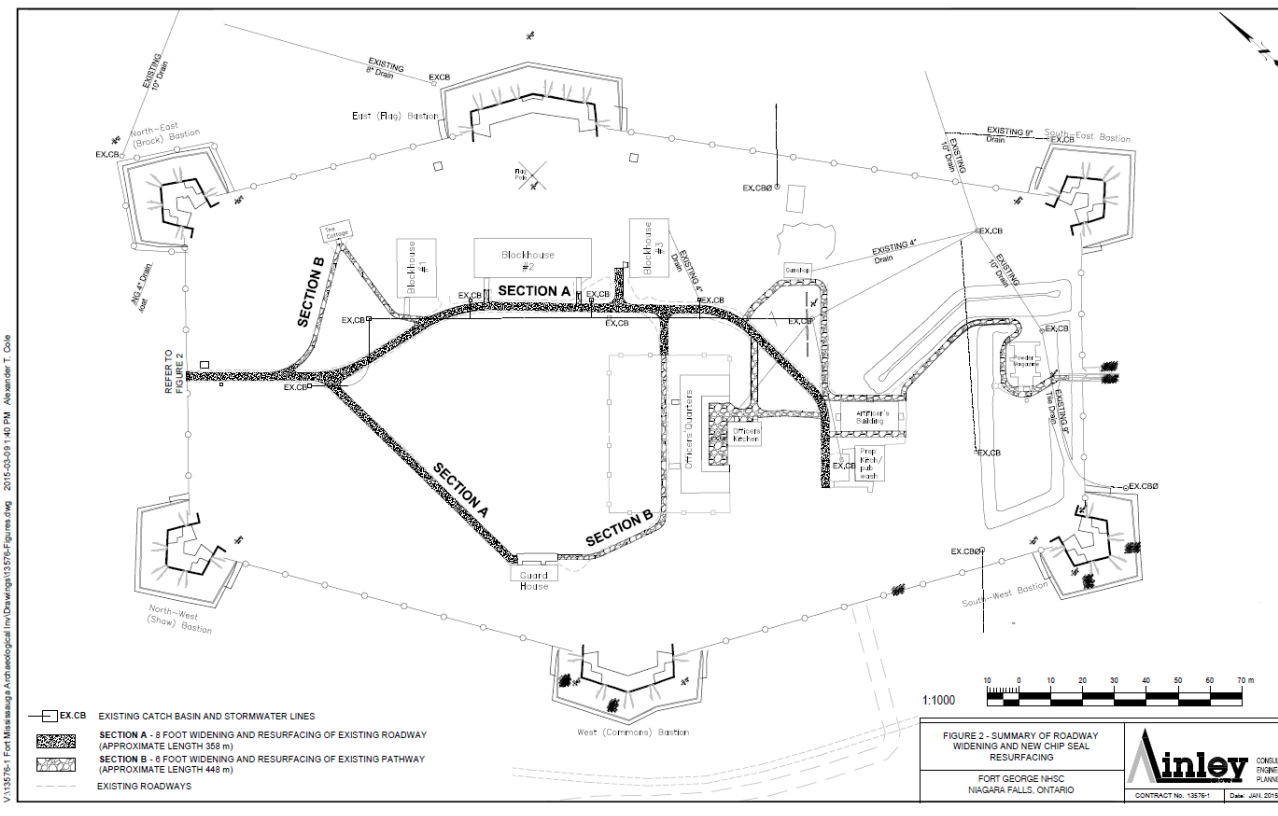
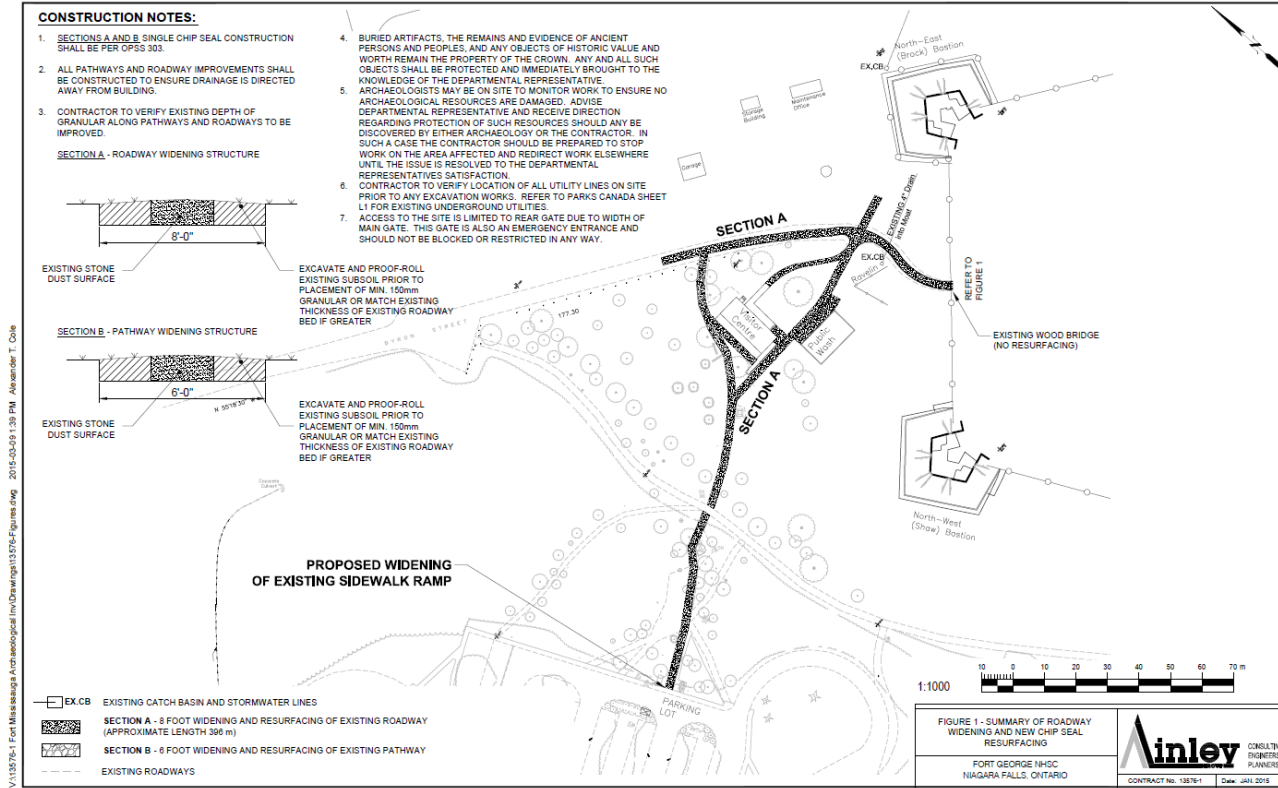


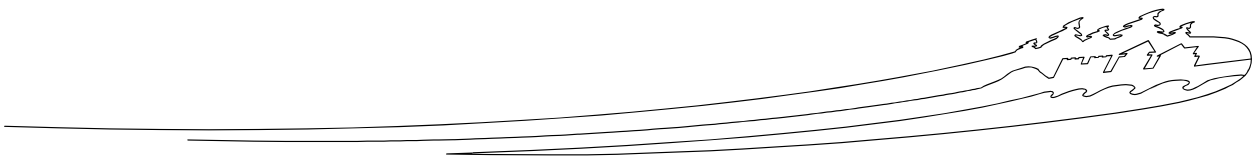
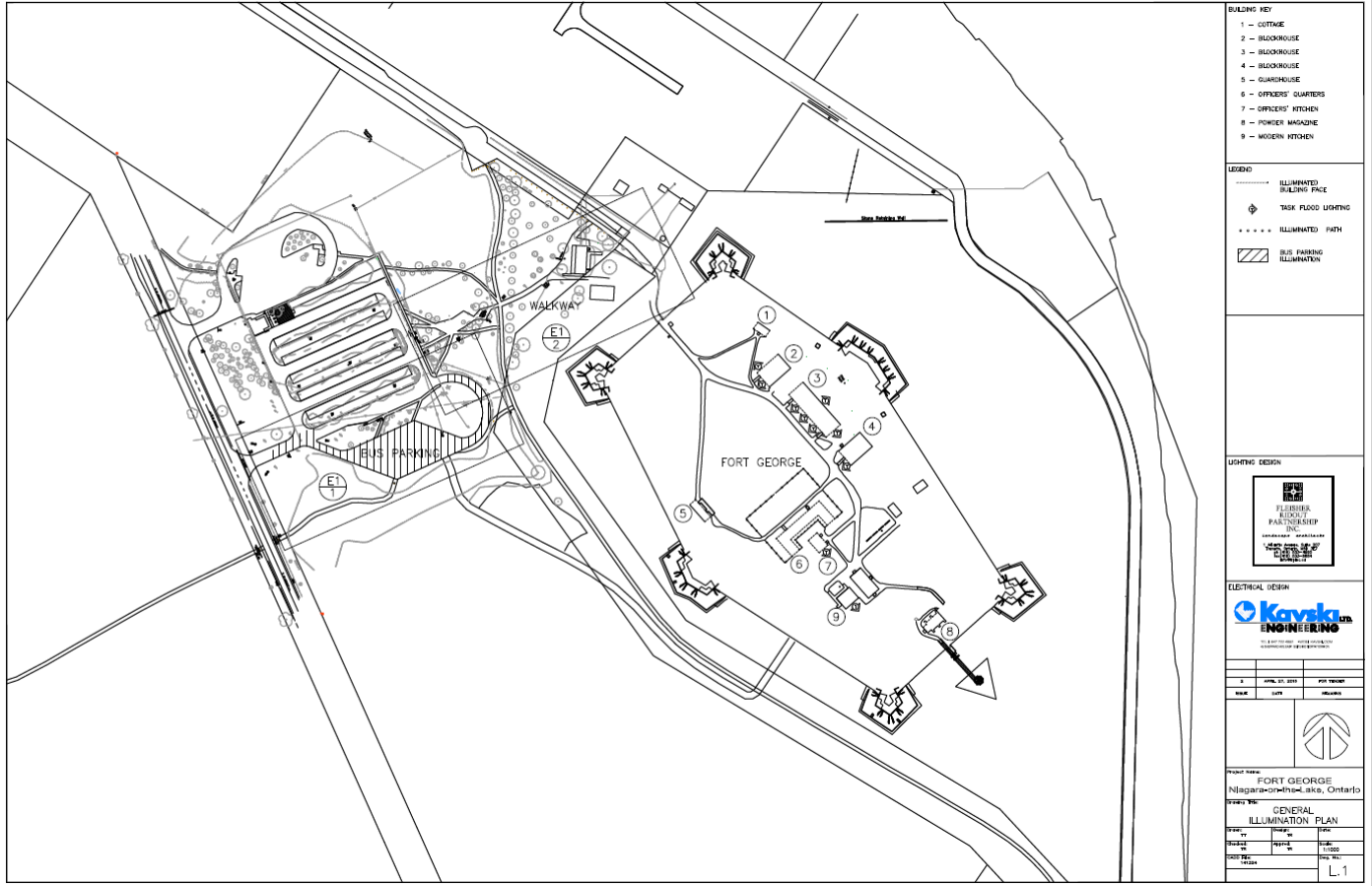
Powder magazine



Pathway down to powder magazine that is to be redesigned



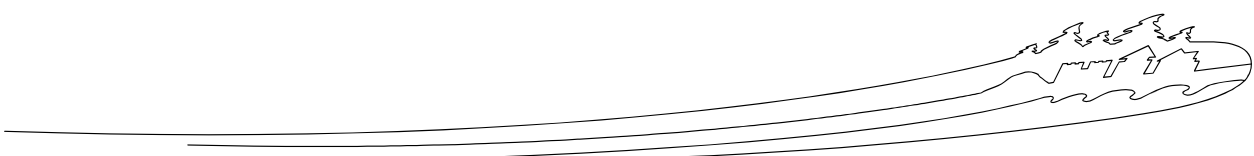






Appendix 2 Environmental Impact Analysis Tool: Effects Identification Matrix

| A. Direct Effects | | | | | | | | | |
|---|--|--|--------------------------|--|--------------------------------|--------------------------------|--------------------------|--------------------------|--------------------------|
| X – Indicates a potential scoped in effect – could be positive or negative in nature | | 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) | Cultural resources | Archaeology | |
| Phase | Examples of Associated Activities/Works | | | | | | | | |
| Project Components | Preparation / Construction / Operation / Decommissioning | Supply/Storage of Materials | <input type="checkbox"/> | X | X | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | Set-up/Use/Removal of Temporary Facilities | <input type="checkbox"/> | X | X | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | Removal of Old and Placement of New Lighting Systems | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X | X | X |
| | | Excavation | X | X | X | <input type="checkbox"/> | <input type="checkbox"/> | X | X |
| | | Grading | X | X | X | <input type="checkbox"/> | <input type="checkbox"/> | X | X |
| | | Backfilling | X | X | X | <input type="checkbox"/> | <input type="checkbox"/> | X | X |
| | | Directional Boring or Plowing | <input type="checkbox"/> | X | X | <input type="checkbox"/> | <input type="checkbox"/> | X | X |
| | | Paving/Concrete Work | X | X | X | <input type="checkbox"/> | <input type="checkbox"/> | X | X |
| | | Drainage | <input type="checkbox"/> | <input type="checkbox"/> | X | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | Seeding | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | Use of Equipment/Machinery | X | X | X | X | X | X | X |
| | | Transport of Materials/Equipment/Machinery | X | X | X | X | X | X | X |
| | | Waste Disposal/Recycling | X | X | X | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | Wastewater Disposal | <input type="checkbox"/> | <input type="checkbox"/> | X | <input type="checkbox"/> | X | <input type="checkbox"/> | <input type="checkbox"/> |
| | | Use of Chemicals | X | X | X | X | X | X | X |
| | | Maintenance | X | X | X | <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"/> |





| B. Indirect Effects (all phases) | | | | | | | |
|--|---|---|------------------------------------|---|--------------------------|---------------------------------------|--------------------------|
| X – Indicates a potential scoped in effect – could be positive or negative in nature | | 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 and landforms</u> lead to adverse effects on... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X | X | X |
| | 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"/> | X | X | X |
| | 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"/> |

