



Parks Canada Basic Impact Analysis Template

Instructions for this form are available (see the [Guidance and Tools section](#) of the Parks Canada Impact Assessment intranet site or request from Parks Canada impact assessment staff).

1. PROJECT TITLE & LOCATION

Emmett Lake Road Brushing and Tree Removal – Bruce Peninsula National Park

2. PROPONENT INFORMATION

Bruce Peninsula National Park & Fathom Five National Marine Park,
120 Chi sin tib dek Road, Tobermory Ontario N0H 2R0
519-596-2233 ext. 237
Brandon.Golden@pc.gc.ca

3. PROPOSED PROJECT DATES

Planned commencement: 2015-09-15
Planned completion: 2015-10-15

4. INTERNAL PROJECT FILE #

BPNP-15-05

5. PROJECT DESCRIPTION

The access to Halfway Log Dump Parking Lot from Highway No. 6 is approximately 7.9 kilometers; ~6.9 kms on Emmett Lake road and ~1.0 kms on Halfway Log Dump road (see Figure 1). The existing road is of a granular stone base and has eroded to underlying bedrock in many places, causing extensive washboard effect and making it difficult to impossible to grade. The road has inconsistent lane widths and is restricted to 2.m – 2.5m in some areas with no discernable shoulders. Trees, tree stumps and rock outcrops are immediately adjacent to the travelled lanes present a safety hazard and often undermine the integrity of the road surface. In many areas there is a steeper than 1:1 sloping from the edge of roadway to adjacent ground with several drop-offs over a metre in height. Several culverts along the roadway are failing with small sink holes evident in the roadway.

Specific Project Objectives are:

1. Provide an addition of 8" of granular road base to be placed, graded, and compacted.
2. Establish a consistent lane width of 2.6m with an extending side slope with a goal of 3:1, but with a situation based understanding that this is not achievable in many areas.
3. Clear along roadway of trees, stumps and rock outcrops that pose a safety threat. Rocks and boulders would be shoved to beyond treeline. The width of this clearing would vary based upon existing conditions and the side slope required for roadway stability.
4. Replace and extend culverts as needed (based on condition). Some culverts being replaced will be design to better serve as eco passage to herptiles inhabiting the area, maintain water flow and minimize impact on wetland areas.
5. Roadway to maintain the experience of driving through a 'tree canopy' and a truly rural driving experience.





6. VALUED COMPONENTS LIKELY TO BE AFFECTED

See Appendix 1

7. EFFECTS ANALYSIS

Air: The short-term use of heavy equipment and power tools will generate exhaust that could impact air quality, however, these impacts are temporary and not foreseen to be a threat to the local flora, fauna, or visitor experience. Similarly, the road dust generated by construction activities is considered to be temporary and not significant.

Soil: Localized disturbances and impacts (e.g., compression, erosion, etc.) to the soil from the use of heavy machinery and grubbing (stump pulling). It is thought that these impacts will have a negligible effect on the ecological integrity of the area as this work will primarily occur in an already disturbed area and even where new disturbances will occur the soils are extremely thin or non-existent. Particular attention must be paid to improvised turn-around or parking areas which may extend beyond the development footprint. Project-related chemicals, wastes, and harmful substances may enter the soil, which may impact soil quality (see mitigations below).

Water: Where the work comes within few meters of open water (e.g., stream, wetland, etc.), project related chemicals, wastes, by-products and harmful substances may enter the water impacting quality (see mitigations). In addition, due to the karst process on the peninsula, spills of the aforementioned substances that occur on soils have the potential to affect ground water quality.

Flora: This project will result in vegetation removal along the edge of the road. Several mitigations need to be followed to limit the impact of this work. There are provincially and federally listed, as well as other rare species and located near/adjacent to the road (i.e., Lakeside Daisy (*Tetaneuris herbacea*), Cain's Twisted Moss (*Tortula cainii*), Hill's Pondweed (*Potamogeton hillii*), and Cooper's Milkvetch (*Astragalus neglectus*)); however, it is not expected that this work will impact these species either because the work will have negligible impact on their habitat and poses no significant threat to the species' populations. There is the possibility that non-native flora may take advantage of the disturbed conditions or be introduced and spread during the work.

Fauna: There is the potential for direct mortality to wildlife during construction operations (i.e., heavy equipment operation, grubbing, and tree removal). The removal of vegetation could harm or kill wildlife living in/on it (e.g., invertebrates, salamanders). There is some uncertainty about whether larger animals may be affected by the removal; however, this should be limited given the area of the project and the timing windows for the work to be completed in (see mitigations). Any required handling to remove fauna from the work area would result in short-term disturbance. Several species at risk do occur in the area, such as Massasauga Rattlesnake (*Sistrurus catenatus*), Eastern Milksnake (*Lampropeltis triangulum*), Eastern Ribbon Snake (*Thamnophis sauritus sauritus*), Snapping Turtle (*Chelydra serpentina*) and could be impacted. Road kill is a concern, particularly in areas associated with wetlands, poor visibility or higher speeds. There will be a short-term impact as a result of the noise, fumes and activity levels associated with the work that could disturb nearby wildlife, although these are not expected to be a major threat to fauna.

Specific to Massasauga

The recovery strategy for the Eastern Massasauga Rattlesnake (EMR) has not precisely designated areas as critical habitat on the Bruce Peninsula. Currently, the strategy identifies areas within which critical habitat may be found and has provided general biophysical descriptions of it. From the 2015 Recovery Strategy the following biophysical descriptions were given to identify habitat that could function as critical habitat on the Bruce Peninsula.

- Hibernation site attributes

- On the Bruce Peninsula, sites are typically located in forested areas (dense and sparse forest) on karst topography with fissures extending to ground water (Eastern Massasauga Recovery Team 2005, Harvey and Weatherhead 2006b); in addition, Harvey and Weatherhead (2006) found that hibernacula tended to have southern exposures, which along with the vegetation cover, may assist in moderating extreme weather conditions and temperatures.

- Gestation & Basking site attributes





- Sites are typically found in areas of low canopy cover, such as forest openings, areas of bedrock outcropping, alvars, and along the shorelines of water bodies.
 - Characterized by the presence of large table rocks (typically 1 x 1.5 m), flat (usually no more than 0.30m thick) with portions lying slightly raised off the substrate or perched so that an opening exists underneath.
 - They are usually surrounded on several sides by grass or low-lying shrubs.
 - In areas devoid of large, flat table rocks, functionally equivalent rock piles, raised cobble beaches, old tree stumps, earth mounds, brush and debris piles, may be used.
- **Foraging & Mating site attributes:**
- Sites where physical and vegetative structures support populations of small rodents, the snake's principal prey. These include marshes, fens and swamps, fields and grasslands, sparse forests, as well as edge habitats, such as the periphery of alvars and rock outcrops. In heavily forested areas, the edges of human created clearings, such as hydro lines, railway lines, and road edges may be particularly favoured (e.g., Harvey and Weatherhead 2006).

In the Bruce Peninsula region, lots of the above natural habitats remain and some low intensity, localized developments resulting in minimal habitat loss and/or fragmentation are unlikely to destroy critical habitat or negatively impact the species (Parks Canada Agency 2012, Eastern Massasauga Recovery Team 2005). The proposed activity occurs within the area which critical Massasauga habitat is found (see Figure 4 of Parks Canada Agency 2012); however, the scope of this work represents only 0.02% of this area present in the park. In addition, an evaluation of the habitat suitability within the project area was conducted on May 28 and found that no habitat feature meeting the above biophysical descriptions will be destroyed through this project. The park database contains records of Massasaugas and other snake species of conservation interest (e.g., Eastern Ribbon Snake, Eastern Milksnake) in the proposed project area. The area adjacent to the existing road may be used by these species, but we expect negligible or no impact on these species from the proposed development if the proper mitigations are followed (see list below). In fact, this project will take steps to address road mortality, which is a significant source of mortality on the Bruce for Massasaugas and other herptile fauna and can lead to genetically isolated populations of the species (Parks Canada Agency 2012). Improved culvert design and installation of other ecopassages at key points along the road will reduce the risk of road mortality and genetic fragmentation from current levels. As well, new signage warning visitors of the potential to cause roadkill will help increase awareness of the threat and better educate our visitors. Therefore, there will be an overall improvement for Massasaugas and other herptiles through this work (See Wildlife Mitigations).

Cultural Resources: Given the scope of the work an archeological assessment will be completed as part of this Basic Impact Analysis (BIA); however, it is unlikely that any cultural artifacts are present in the area where the work is to occur (i.e., topography, not a natural portage route, shallow soils, etc.). The findings from this report are attached and found that there is no significant archeological.

Visitor Experience: There may be some minor impacts to the visitor experience during this phase of the project, due to the machinery, work crews, and the temporary aesthetics, but the work will have a net positive effect on visitor experience by reducing safety risks and improving road conditions (i.e., less pot-holes that area damaging to vehicles).

Public Safety: There are some minor inherent risks associated with the project (e.g., heavy machinery on the road, felling trees, etc.), but longer-term the work will improved the road design and safety standards. With the road improvements, excessive vehicle speeds may become an issue.

Cumulative Effects: This project is not expected to significantly impact the ecological integrity of Bruce Peninsula National Park. The terms and conditions governing the activities outlined in the Basic Impact Analysis (BIA) will serve to prevent, to the greatest extent possible, the activities from jeopardizing the survival or recovery of the SARA *Schedule I* species in the park. In addition, several improvements to the road design (e.g., addition of





ecopassages and better designed culverts, roadkill prevention signs, speed reduction measures) will improve the quality of habitat for some species, including several listed under *Schedule I* of SARA.

8. MITIGATION MEASURES

Demolition/Construction

1. Use silt screen and erosion control around open water areas prior to any physical work.
2. Limit all vegetation removal and impacts to the identified footprint.
3. Use clean fill (i.e., fresh crushed) to mitigate introduction of invasive plants.
4. Pressure wash equipment, including heavy assets, prior to deployment to work in area (i.e., to remove invasive seeds).
5. Install signage to warn the public about construction and traffic control measures where appropriate.
6. Fuel all machinery ensuring no spills or leakage. Ensure spill containment equipment is used (e.g., impermeable spill pad), spill kit at hand and personnel are trained in their use.
7. Refuel all handheld equipment on a hardened area at least 50 m from all waterbodies using appropriate spill containment equipment (e.g., impermeable spill pad) and a spill kit is at hand.
8. Use parking area for fueling all large/heavy machinery and project staging (see Figures 1-3).
9. Use designated turn around areas for large/heavy machinery (see Figures 1-3).
10. Environmental spill response equipment must be available and used as needed (i.e., absorbent spill blankets, fuel spill kits, etc.).
11. Ensure machinery is in good working order and free of leaks. 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 Service.
12. Report any fuel spills immediately to the surveillance officer and the Ontario Ministry of the Environment, Ontario Spills Action Center (1-800-268-6060), Environment Canada at 613-239-6065, and to Parks Canada Dispatch at 519-596-2702.
13. Clean the construction site daily, with a complete site cleanup upon project completion.
14. Cover or use water to wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.
15. Road design
 - If one side of the road has a rock outcrop that impacts the ability to expand the road to the desired width, rather than removing/breaking the rocks, the road will be extended further to the side without the rock obstruction (see Figures 1-3, accompanying photos and project specifications document)
 - If along one side of the road there is open water (e.g., wetland, stream, etc.) the road will be expanded to the opposite side to attain the necessary width (see Figures 1-3, accompanying photos and project specifications document).
 - If there is open water on both sides, the road will be top dressed with gravel to a maximum of (8"), as side slope stability will allow. The slope grading and lane width shall remain relatively unchanged (top dress may widen it slightly). To address safety concerns, a 15 km/hr speed limit sign will be posted indicating a narrow road lies ahead (see Figures 1-3, accompanying photos and project specifications document).
 - If, as a result of the current road, achieving the proper graded slopes would require large impacts to the surrounding area (i.e., currently very steep high road side) the road will be top dressed with gravel to a maximum of (8"), as side slope stability will allow. The slope grading and lane width shall remain relatively unchanged (top dress may widen it slightly). To address safety concerns, a 15 km/hr speed limit sign will be posted indicating a narrow road lies ahead (Figures 1-3, accompanying photos and project specifications document).

Water:

16. Refuel handheld equipment (e.g., chainsaw) on a hardened area at least 100 m from all waterbodies using appropriate spill containment equipment (e.g., impermeable spill pad) and a spill kit is at hand.
17. Use silt screen and erosion control around open water areas prior to any physical work.





18. Sediment control needs to be inspected on a daily basis and deficiencies must be rectified immediately upon detection.
19. Avoid in water work from March 15th to July 15th to protect fishes.
20. Replacement culverts are to be at the same elevation as existing culvert as the flora has adapted to the conditions.
 - Several culvert require modifications to enable the passage of fishes and other aquatic organisms (i.e., fish ladders). See project specification document for specific details.
 - Culverts will allow for proper drainage and not be easily obstructed by beavers.
21. Dispose of all debris and waste appropriately. Avoid drains, ditches and waterways.

Vegetation:

22. Do not widen the road beyond what occurs with the 8" top dress within the alvar (see Figure 1-3) to mitigate potential impacts to Lakeside Daisy and Cain's Twisted Moss.
23. Ensure heavy machinery is not parked or driven on sensitive habitats (e.g., Alvar and east end of Bartley Lake pullover). This area is identified on Figure 1-3 and will be pointed out at the project start-up meeting.
24. Limit the gravel on the Bartley Lake pullover, so not to excessively cover the area where Cooper's Milkvetch grows. This area is identified on Figure 1-3 and will be pointed out at the project start-up meeting.
25. Removed stumps will be taken from the site for disposal.
26. Where culvert replacement/upgrades are required or ecopassage and support structures (e.g., barrier to funnel/guide wildlife) being installed, a departmental representative will survey the area for the presence of Hill's Pondweed and notify the contractor so as to avoid unintentional impacts (i.e., trampling) during the work.
27. Dispose of vegetation debris:
 - Cut vegetation debris greater than 6" dbh into manageable sections and drag a minimum 3m into the forest and place to minimize the impact to the visitor experience (i.e., parallel to road, no fresh cut ends sticking out).
 - Chip and spread vegetation debris less than 6" dbh uniformly over the disturbed area ort taken and stored at the maintenance compound at Cyprus Lake.
 - Avoid piling debris as it not only provides an undesired visual for visitors, but poses a wildfire fuel risk.

Wildlife

28. Report any wildlife mortality during construction to the surveillance officer.
29. Conduct vegetation clearing in the late summer (after August), fall, winter or early spring months (prior April 5th) to prevent impacts to nesting birds. Trees must be inspected by Resource Conservation staff prior to cutting.
30. Complete grubbing between May 15th and October 15th to limit the potential to disturbed hibernating snakes.
31. Install ecopassages at locations determined by the Resource Conservation team to enable act as wildlife corridors.
 - Barrier structures will be created to funnel/guide wildlife to the ecopassages and keep them off the road. For additional details (i.e., ecopassage dimensions, elevation, cover, etc.) see the attached project specifications document.
32. Avoid direct impacts to fauna during construction by halting work and relocating any encountered animals a safe distance away. If a SAR listed snake or turtle (see fauna section of effect analysis) is encountered, stop all work, notify surveillance officer and delay work until snake is removed.
33. Install wildlife crossing/roadkill prevention signage to inform visitors to reduce speed and mitigate the potential for roadkill (see Figures 1-3, accompanying photos and project specification document for locations and sign type).





- 34. Install other traffic calming measures (i.e., reduce speed signs, speed bumps, etc.) and locations identified by Parks Canada Project lead and the resource conservation representative (see Figure 1-3 and project specification document for locations and sign type).
- 35. Avoid road grading between May 1st and Sept. 30th to limit impacts to Snapping Turtle nests.
- 36. Install material for turtle nesting at locations selected by the Resource Conservation staff (see Figure 1-3). For additional details on nesting materials and design see project specifications. An accompanying volunteer program will be created by park staff to install cage to prevent predation of turtle nest at the new sites.

Health and Safety

- 37. Ensure public safety at all times including off hours.
- 38. The "Traffic Control Plan" and the installation of all devices should be continuously reviewed and updated to reflect the current stage of construction. The departmental representative may review minor and major changes. The construction foreman shall provide the current "Traffic Control Plan" to the departmental representative upon request on the site at any time during the construction of the project.
- 39. The Contractor shall provide a minimum of 24 hours notification for any lane closures.
- 40. The Traffic Controls shall be implemented in conformance to the Ministry of Transportation's Book 7: Ontario Traffic Manual – Temporary Condition. The Contractor shall provide a minimum of two flagmen to direct vehicles for all lane closures.
- 41. Maintain access to property including overhead clearances for use by emergency response vehicles.
- 42. Provide measures for protection and diversion of traffic including provision of flagpersons, erection of barricades, erection of warning and directional signage (i.e., posted speed limits, speed bumps, etc).
- 43. Wear the appropriate personal protective equipment (PPE).
- 44. Employ and assign to Work, competent and authorized representative as Health and Safety Coordinator.
- 45. Install traffic calming measures and warning signs (i.e., reduce speed signs, speed bumps, sharp corner warning, etc.) and locations identified by Parks Canada Project lead (see Figure 1-3 and project specification document for locations and sign type).

Cultural Resources

- 46. Keep all machinery within the disturbed footprint.
- 47. In the event that unusual materials are unearthed during excavation, all work will halt, contact the Project Manager who will immediately reported to a Parks Canada CRM specialist.

9. PUBLIC/STAKEHOLDER ENGAGEMENT & ABORIGINAL CONSULTATION

- 9 a) Indicate whether public/stakeholder engagement was undertaken in relation to potential adverse effects of the proposed project:
 - No
 - Yes (describe the process to involve relevant parties and indicate how comments were taken into consideration).
- 9 b) Indicate whether Aboriginal consultation was undertaken in relation to potential adverse effects of the proposed project:
 - No
 - Yes (describe the process to involve relevant parties and how the results were taken into consideration).
 - The project has been discussed at several meetings with the SON's Park Team. Futhermore the project and the basic impact analysis have been reviewed by independent consult hired SON.

10. SIGNIFICANCE OF RESIDUAL ADVERSE EFFECTS





No residual adverse effects are expected from this project. Once complete, this project should improve the safety of the road for the visitor, reduce the risk of roadkill and improve habitat connectivity, particularly for herpetofauna, and has the potential for a citizen science program to engage and connect our visitors/community members (i.e., turtle nested cages program to prevent predation at newly created nesting sites).

11. SURVEILLANCE

- Surveillance is not required
- Surveillance is required (provide details such as the proposed schedule and the focus of inspections)
 - For details see surveillance checklist found here;
 - H:\RC_Administrative\Environmental_Assessments\Project_Files\BPNP EAs\2015 BPNP EA and EIA\BPNP-15-05, Emmett Lake Road Recap\Documents\for

12. FOLLOW-UP MONITORING

Follow-up monitoring is:

- not required- Although not legally required, follow-up monitor of ecopassages and turtle nesting areas will be conducted to assess species use and effectiveness to determine if these mitigations will be suitable of these measures and if any further improvements are necessary
- 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* (outline the nature of and response to any notification).

14. EXPERTS CONSULTED

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

Department/Agency/Institution: Parks Canada	Date of Request: 2015-07-10
Expert's Name & Contact Information: Mark Yeates Natural Resource Conservation Branch Parks Canada 1800 Walkley Road, Ottawa, Ontario. K1H 8K3 Tel. (613) 993-2125, ext 280 Mark.Yeates@pc.gc.ca	Title: Environmental Assessment Specialist
Expertise Requested: BIA review	
Response: Email response My comments on this one are quite similar to those from the Cyprus project. I am also going to attach two BMP's on routine vegetation maintenance as well as on old DFO ops statement on culverts. You might want to use some of the mitigations in those documents if you think it is pertinent to your project.	

Department/Agency/Institution: University of Guelph	Date of Request: 2015-06-10
Expert's Name & Contact Information:	Title: Species Conservation Specialist





<p>Neil Rooney Assistant Professor Saugeen Ojibway - University of Guelph Faculty Partnership School of Environmental Sciences University of Guelph Guelph, Ontario 519.824.4120, ext. 53920 www.uoguelph.ca/ses Fax: 519.837.0756 (Alexander Hall) • Fax: 519.837.0442 (Bovey)</p>	
<p>Expertise Requested: On entire project- consultant hired by SON</p>	
<p>Response: See appendix 3 for response.</p>	

<p>Department/Agency/Institution: Parks Canada</p>	<p>Date of Request: 2015-05-18</p>
<p>Expert's Name & Contact Information: Gary Allen Species Conservation Specialist Species Conservation and Management, Natural Resource Conservation Parks Canada Agency 1800 Walkley Road Ottawa, Ontario K1A 0M5 Telephone (613) 993-2125 ext 281 Fax (613) 993-9796 Gary.Allen@pc.gc.ca</p>	<p>Title: Species Conservation Specialist</p>
<p>Expertise Requested: BIA review with a focus on SAR</p>	
<p>Response: Phone call and email- coordinated response with Joanne Tuckwell</p>	

<p>Department/Agency/Institution: Private Consultant- Archeologist</p>	<p>Date of Request: 2015-05-28</p>
<p>Expert's Name & Contact Information: Dr. Bill Fitzgerald dr_dig@xplornet.com</p>	<p>Title: Species Conservation Specialist</p>
<p>Expertise Requested: Archeological Assessment of the project</p>	
<p>Response: No concerns with the project.</p>	
<p>Department/Agency/Institution: Parks Canada</p>	<p>Date of Request: 2015-05-19</p>
<p>Expert's Name & Contact Information: Joanne Tuckwell Species Conservation Specialist Species Conservation and Management, Natural Resource Conservation Parks Canada Agency 145 McDermot Ave</p>	<p>Title: Species Conservation Specialist</p>





Winnipeg, Manitoba R3B 0R9 Telephone (204) 984-2416 Fax (204)-983-0031 Joanne.Tuckwell@pc.gc.ca	
Expertise Requested: BIA review with a focus on SAR	
Response: See response in appendix 3.	

15. DECISION

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

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

FOR SARA REQUIREMENTS:


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

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

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

16. RECOMMENDATION AND APPROVAL

(Add additional blocks as required)

Prepared by: Cavan Harpur A/Resource Conservation Manager	2015-07-10
Approved by: Katherine Patterson Georgian Bay Ontario East Field Unit Superintendent	YYYY-MM-DD
Signature: 	2015-09-16

17. ATTACHMENTS

- Appendix- 1: Environmental Impact Analysis Tools: Effects Identification Matrix
- Appendix - 2: SARA-Compliant Authorization Decision Tool
- Appendix – 3: Responses from experts consulted
- Appendix -4: Archeological assessment report

Harvey, D., A.M. Lentini, K. Cedar and P.J. Weatherhead. 2014. Moving Massasaugas: Insight into rattlesnake relocation using *Sistrurus c.catenatus*. *Herpetological Conservation and Biology* 9(1):67-75.

Harvey, D. and P.J. Weatherhead. 2006. Hibernation site selection by Eastern Massasauga Rattlesnakes (*Sistrurus catenatus catenatus*) near their northern range limit. *Journal of Herpetology* 40(1):66-73.





Parks Canada Agency. 2012. Recovery Strategy for the Massasauga (*Sistrurus catenatus*) in Canada [Draft]. Species at Risk Act Recovery Strategy Series. Parks Canada Agency. Ottawa. vii + 35pp.

18. NATIONAL IMPACT ASSESSMENT TRACKING SYSTEM

Project registered in tracking system

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

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





Figure 1- Figure showing the portion of Emmett Lake Road and Halfway Log Dump Road where work beyond brushing and gravelling is to occur. See figures 2 and 3 and accompanying photos for work descriptions at each point.



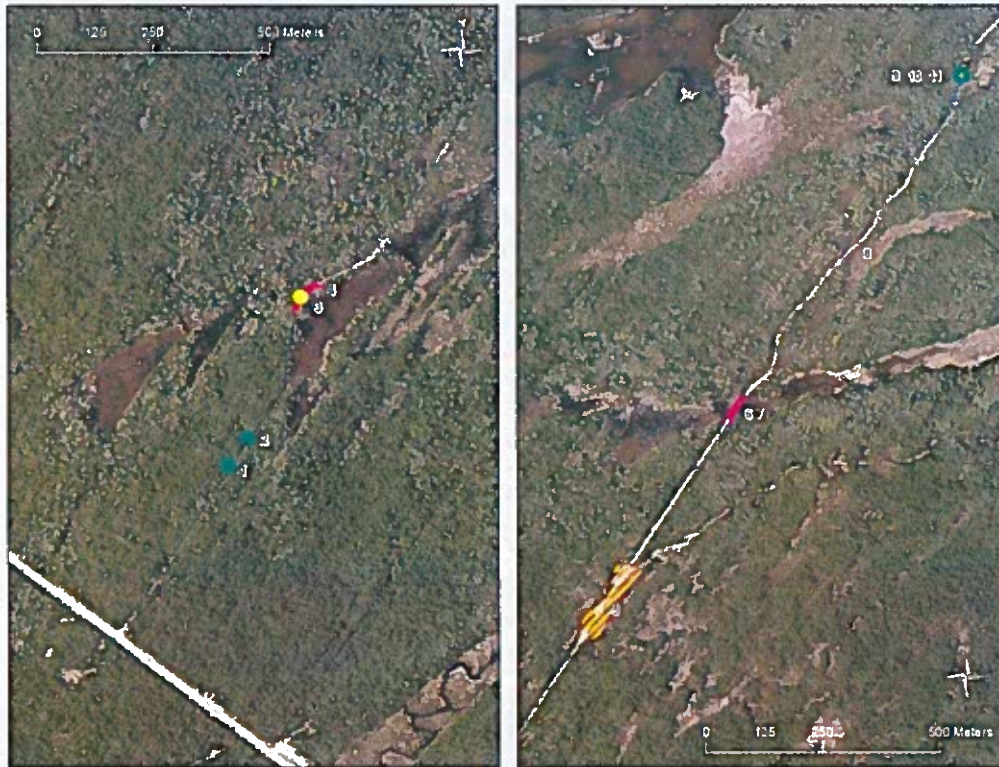


Figure 2- Identifies key points on Emmett Lake Road where additional road work beyond brushing and gravelling is required, as well as area where vehicle access is restricted.

Point	Description
1	Rock out crop. See Photo 1
2	Rock out crop. See Photo 2
3 and 4	Ecopassage and fencing. See Photos 3 and 4
5	Vehicles use restricted to roadway.
6 and 7	Ecopassage and fencing. No road widening- limited additional gravel and caution signage needed See Photos 5.
8	No road widening- limited additional gravel and caution signage needed. Possible eco-fencing.
9-11	Fish ladder for culvert end on the northwest side of road. Road widen should be done on northwest side to avoid wetland. Possible eco fencing on northwest side along wetland. See photo 6.





Figure 3- Identifies key points on Emmett Lake Road where additional road work beyond brushing and gravelling is required, as well as area where vehicle access is restricted.

Point	Description
12	Vehicles use restricted to roadway (i.e. don't drive on pullover area).
13	Fish ladder on culvert on northwest side of road.
14	Rock out crop. Road should be graded to limit of solid rock. See Photo 7.
15 and 16	Banks too steep to create stable shoulders. Limited road widening and caution signage needed. See Photos 8 and 9.
17	Designated turn around area for large vehicles.
18 and 19	Two ecopassages and fencing to be installed. Two turtle nesting areas created on each side of road.
20	Designated turn around area for large vehicles.

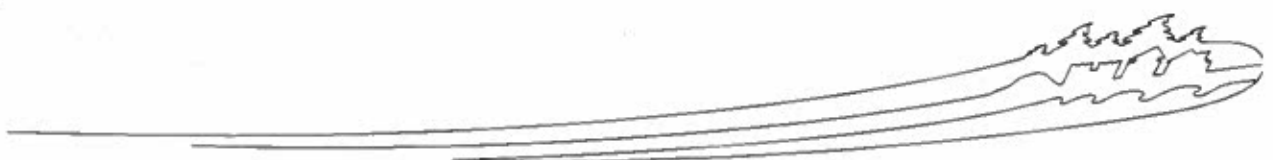




Photo1- Photo of rock outcrop at point 1. Shot taken facing southwest (i.e., traveling towards the highway). Red arrow showing rocks that will need to be moved further into forest edge.



Photo 2- Photo of rock outcrop at point 2. Shot taken facing northeast (i.e., traveling away from the highway). Red arrow showing rocks that will need to be moved further into forest edge.



Photo 3- Photos series showing the southeast side of the road where an ecopassage and fencing are to be installed (points 3 (ecopassage) and 4 (fencing)). Red lines indicate a rough path for the fencing to follow and the red arrow identifies the culvert.



Photo 4- Shows the northeast side of the road at location 3 and 4. Red lines indicate a rough path for the fencing to follow and the red arrow identifies the culvert.



Photo 5- Photo series for points 6 and 7 showing the present culvert and approximate location for eco-fencing. An ecopassage will be installed near the location of the culvert. Red lines indicate a rough path for the fencing to follow. First photo is taken heading towards highway 6, the last one is taken heading away.





Photo 6 - Photo of location 9 to 11. First photo taken heading toward Highway 6, second photo is of culvert on northwest side of road and the third is of the culvert on the southeast side. The culvert exit/entrance on the northwest side has a deep plunge pool that fish are enable to pass at lower water levels, therefore, a fish ladder should be installed in enable passage.



Photo 7- Photo for point 14 showing the rock out crop that should be graded into it. Photo taken traveling away from the highway.



Photo 8- Photo for point 15 showing the steep drop off on the northwest side of the road (1st photo). Road should be widen to the other side (2nd photo) where the shoulder is not steep.



Photo 9- Photos for point 16 showing the steep drop offs on both sides of the road. Road widen will be limited to maintain shoulder stability and caution signage installed. Photos taken heading away from highway.





Appendix 1 Environmental Impact Analysis Tools: Effects Identification Matrix

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

A. Direct Effects		Valued components potentially directly affected by the proposed project							
<p><i>You may wish to change the components listed under the headings to specify the natural or cultural resources that are priority considerations for your PCA site or for the specific project being reviewed.</i></p>		Natural Resources				Cultural Resources			
		Air	Soil & landforms	Water (surface, ground, crossings, etc.)	Flora (specify, including SAR)	Fauna (specify, including SAR)	Insert heritage values	Insert heritage values	
Phase	Examples of Associated Activities								
Project Components	Preparation / Construction / Operation / Decommissioning	Supply and storage of materials							
		Burning							
		Clearing				X	X		
		Demolition							
		Disposal of waste							
		Blasting/ Drilling							
		Dredging							
		Drainage							
		Excavation		X		X	X		
		Grading		X			X		
		Backfilling							
		Use of machinery	X	X		X	X		
		Transport of materials/ equipment							
		Building of fire breaks							
		Use of Chemicals							
		Set up of temporary facilities							
Other...									





A. Direct effects continued									
<p><i>You may wish to change the components listed under the headings to specify the natural or cultural resources that are priority considerations for your PCA site or for the specific project being reviewed.</i></p>		Valued components potentially affected by the proposed project							
		Natural Resources					Cultural Resources		
		Air	Soil & landforms	Water (surface, ground, crossings, etc.)	Flora (specify, including SAR)	Fauna (specify, including SAR)	Insert heritage values	Insert heritage values	
Phase	Examples of Associated Activities								
Project Components	Preparation / Construction / Operation / Decommissioning	Waste disposal							
		Wastewater disposal							
		Maintenance							
		Use							
		Use/Removal of temporary facilities							
		Use of Chemicals							
		Active fire stage							
		Prescribed burn cleanup							
		Planting							
		Culling							
		Vehicle Traffic							
		Other...							





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

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

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





Appendix 2: SARA-Compliant Authorization Decision Tool

- This tool is for use when the BIA has determined that project activities will lead to residual adverse effects to THR, EN, or EX species at risk (i.e. even after mitigation measures are applied, there are effects to individuals, residences or critical habitat of THR, EN or EX species at risk).
- This tool provides a structured process to determine if a SARA authorization is required, if it can be issued, and how to issue it.
- Guidance for each question is provided within the form and should be deleted from the final version.
- Consultation with a representative of the Species Conservation and Management (SCM) team is encouraged to help ensure consistent application of this tool.

Part A – Does a SARA authorization need to be considered for this activity?
1. Will the activity lead to residual adverse effects that contravene a SARA prohibition for a listed endangered (En), threatened (Th) or extirpated (Ex) species at risk, its residence or its critical habitat? (Clearly indicate if the activity will affect one/or more listed species).
SARA prohibitions: s.32 - Cannot: kill, harm, harass, capture, or take individuals; possess, collect, buy, sell or trade individuals or parts of individuals; s.33 – Cannot damage or destroy residences; s.58 – Cannot destroy any part of critical habitat; s.80 - Cannot carry out an activity that is prohibited under a protection order.
<input type="checkbox"/> Yes. Residual adverse effects of the activity will contravene a SARA prohibition.
Document how activities will contravene a SARA prohibition. Then continue to Question 2.
2. Is the activity authorized under S. 83 of SARA?
<input type="checkbox"/> Yes. A SARA authorization is NOT required. The activity is authorized in a recovery strategy or action plan;
OR
<input type="checkbox"/> Yes. A SARA authorization is NOT required. The activity is required for public safety, health or national security AND authorized by or under another Act of Parliament.
<u>Document below:</u>
<ul style="list-style-type: none"> • The specific section of the published recovery strategy or action plan that makes reference to section 83 of SARA
OR
<ul style="list-style-type: none"> • Why the activity is needed for public safety, health or national security and reference the Act of Parliament under which the activity is authorized (<i>you MUST consult a member of the <u>SCM team</u> if you plan to use the section 83 exception</i>).
If all activities that would contravene a SARA prohibition are already authorized under SARA s.83, check the first box in Part D and submit for approval.
<input type="checkbox"/> No. A SARA authorization is required. Continue to Part B.





<p>Part B – Is the activity eligible for authorization under SARA? ****Complete ONLY if you have answered NO to Question 2, above****</p>
<p>3. Does the activity fall into one of the following three categories?</p> <p>Select the appropriate box (check only one) and continue to Question 4 OR, if the proposed activity DOES NOT fit in any of the three categories below the activity CANNOT be authorized, and you can check the second box in Part D and submit for approval.</p> <p><input type="checkbox"/> The activity is scientific research related to the conservation of the species and conducted by qualified persons; OR</p> <p><input type="checkbox"/> The activity benefits the species or is required to enhance its chance of survival in the wild ; OR</p> <p><input type="checkbox"/> Affecting the species is incidental to the activity (i.e. the purpose of the activity is not to engage in an activity that is prohibited under SARA (e.g., kill, harm, harass...an individual; destroy a residence or critical habitat). For example, fishing for a listed species cannot be permitted, but accidental by-catch may be.</p>
<p>4. Alternatives that would reduce the impact(s) on the species have been considered and the best solution adopted</p> <p>Document below and continue to Question 5. <i>This question is an additional requirement to the questions in the BIA template.</i></p> <ul style="list-style-type: none"> Identify and explain all reasonable alternatives considered to reduce the impact(s) on the species (alternatives to the project and alternative means of carrying out the project, including a “no action” alternative). This explanation must demonstrate that the best solution has been adopted.
<p>5. All feasible measures must be taken to minimize the impact of the activity</p> <p>Ensure that the mitigations identified in Section 8 of the BIA template to address effects to species at risk are as comprehensive as possible, and continue to Question 6.</p>
<p>6. Will the activity jeopardize the survival or recovery of the species?</p> <p><i>Document here your analysis of whether the activity will jeopardize survival or recovery of the species. The analysis must consider and refer to relevant SARA recovery documents (e.g. COSEWIC status reports, recovery strategies, action plans), and/or Parks Canada Detailed Assessments for the species, if available. In particular, refer to the population and distribution objectives, the threats to the species, and the identification of critical habitat (including the location, amount - if available, biophysical attributes, and the activities likely to destroy).</i></p> <p>NOTE: <i>If the BIA determines there are no alternatives or mitigation measures that can prevent destruction of critical habitat or non-compliance with a protection order, you MUST consult a member of the SCM team for further advice.</i></p> <p><input type="checkbox"/> Yes. The activity CANNOT be authorized.</p> <p>Check analysis with the SCM team. Then check the second box in Part D and submit for approval. ENSURE THIS CONCLUSION IS TAKEN INTO CONSIDERATION IN SECTION 10 OF THE BIA TEMPLATE (SIGNIFICANCE OF RESIDUAL ADVERSE EFFECTS) AND DOCUMENTED IN THE BIA TEMPLATE, SECTION 15 – DECISION.</p> <p><input type="checkbox"/> No. The activity CAN be authorized. Complete explanation and continue to Part C.</p> <p>Clearly document how you considered potential jeopardy to the survival or recovery of the species. Check analysis with the SCM team.</p>





Part C - Prepare the SARA authorization and posting explanation

7. Prepare the authorization

The authorization will be issued using the EIA process and SARA s.74

Issue the SARA authorization using the [template on the intranet](#) and complete Question 8 to prepare the posting for the [SAR Public Registry](#).

8. Provide description for posting

SARA requires that an explanation of why a SARA authorization is issued be posted in the SARA Public Registry in both official languages within 30 days of the authorization being issued. Prepare the explanation, using the information you entered in the BIA and previous sections of this Appendix. Your regional SCM representative will have the explanation translated and will publish it on the SARA registry.

Regional or Local Number:

Provide the authorization number issued by Parks Canada (in this instance, the file number of the EIA)

Purpose – select the answer indicated in Section 3 of this Appendix:

- Affecting the species is incidental to the activity; OR
- The activity is necessary or beneficial to the species, OR
- The activity is scientific research related to the conservation of the species and conducted by qualified persons

Description of the Activity

Provide a one-paragraph summary of the activity and how it will affect the listed species (using the information in sections 5 & 10 of the BIA template)

- Start Date of Authorization: XXX End Date of Authorization: XXX
- Issuing Authority: Parks Canada Agency
- Authority Used: (see section 7 of this Appendix)
- Location of Activity (province, territory or ocean): XXX
- Affected Species: *Limit your list to potentially affected species that are listed under SARA as Extirpated, Endangered or Threatened*

Pre-Conditions - limit your explanation to species for which the authorization will be issued:

Provide a half-page summary of proposed mitigation measures and the significance of residual effects (from the BIA) and provide summary of sections 4, 5 and 6 of this Appendix.

Contact Person(s)

Provide name and coordinates of a PCA contact.





Part D – SARA Authorization Decision	
Select the appropriate answer and continue to Part E.	
<input type="checkbox"/> This activity does not require a SARA authorization, as indicated in Questions 1 and 2.	
<input type="checkbox"/> This activity requires a SARA authorization but CANNOT be authorized because it does not fit into one of the three required categories (see response to Question 3) OR it does not meet one of the SARA pre-conditions (see responses to Questions 4-6).	
This activity meets the SARA authorization requirements; an authorization may be issued (see response to Questions 3-6). The residual adverse effects (effects remaining after mitigations have been applied) MAY contravene the following SARA prohibition:	
<input type="checkbox"/> s.32 - Cannot: kill, harm, harass, capture, or take individuals; possess, collect, buy, sell or trade individuals or parts of individuals;	
<input type="checkbox"/> s.33 – Cannot damage or destroy residences;	
<input type="checkbox"/> s.58 – Cannot destroy any part of critical habitat;	
<input type="checkbox"/> s.80 - Cannot carry out an activity that is prohibited under a protection order	

Part E – SARA Authorization Recommendation and Approval	
Prepared by (add additional blocks as required): Name & Position of Author(s), Collaborator(s), Reviewer(s):	Date: YYYY-MM-DD
Recommended by: Name & Position:	Date: YYYY-MM-DD
Decision Approval	
Name & Position (FUS/Director of a Waterway, or Delegate):	
Signature:	Date: YYYY-MM-DD





Appendix 3: Responses from experts consulted

Email Response from Joanne - 22/06/2015

Hi Cavan,

Gary sent this to me on Friday and I just read through it.

I agree that the outer route seems the best option. One very important aspect that seems to be missing from this document is any reference to the Massasauga and in particular, the critical habitat for the Massasauga. I think that given the situation at the BPNP, almost every project being considered will take place within possible critical habitat for the Massasauga. The bounding polygons for the Massasauga critical habitat cover almost the entire park. Within those polygons, certain biophysical attributes have to be met in order for the area to be considered "critical". This is where close communication with Gary is very important (he knows the snakes and he helped write the recovery strategy). Certainly, at this point in the history of the Massasauga recovery strategy and the critical habitat within that recovery strategy, we need the park to document its thinking about critical habitat. For each project, the park could ask itself:

- I. Is the area of the project within the bounding polygons for Massasauga critical habitat?
- II. If yes, does the area affected meet the biophysical attributes as listed in the draft recovery strategy?

I think that the answers to these questions need to be answered and documented in the BIA in every case. The 2nd question is often not easy to answer and might require a site visit and some help from Gary.

Is it true that these questions are not currently being asked at the park? The previous BIA that I saw from you last week regarding the Emmett Lake Road rehab also didn't address these questions in much detail (but at least it was mentioned).

The critical habitat itself is not finalized because the recovery strategy has not been signed off by the Minister and posted yet - but it will be soon. Regardless, we still need to protect the "draft" critical habitat. We have a lot of "draft" critical habitat for many species (think turtles) in our parks and we are treating it as though it is final and is protected. Parks Canada cannot be seen to be destroying critical habitat once it reaches a draft stage. We know that draft critical habitat often becomes final with very few changes (especially in the case of the Massasauga because PCA wrote the strategy).

In the case of this multi-use trail, I believe that the area would meet the biophysical attributes for Massasauga critical habitat. If that is the case, then an assessment of whether the trail will destroy that critical habitat needs to be made. Again, in this case, I don't imagine that the trail will lead to destruction of the critical habitat but the assessment needs to be made and documented. It all can go into the BIA for the project. There might also be a few simple mitigations that can be made to lessen the effects on the snakes and the habitat - such as using a light coloured gravel so that snakes find it less appealing for basking in the sun (therefore less likely to get run over by a bicycle).

Gary and I are in a working group that is currently working out the best way to assess whether an activity destroys critical habitat. We're making some progress and hope to have some helpful guidelines available by the end of this summer. In the meantime, we're happy to help you make that assessment and that's why Gary asked for this project as a possible case study. It seems as though this project will affect critical habitat but not destroy it. But, we need to use it as a case study and run it through our proposed process for making these determinations. It is important at this stage in implementation of the Species at Risk Act that we document all of our thinking. Gary will be in contact with you as he runs this example through our currently proposed process (which you haven't seen yet).

Cheers,
Jo

Joanne Tuckwell

Species Conservation Specialist | Spécialiste de la conservation des espèces

Species Conservation and Management, Natural Resource Conservation | Conservation et gestion des espèces, Conservation des ressources naturelles

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Conserve, Restore and Connect with Nature | Conserver, restaurer et se rapprocher de la nature





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ONTARIO AGRICULTURE COLLEGE
School of Environmental Sciences

Doran Ritchie
Land Use Planning Coordinator,
SON Environmental Office
25 Maadookii Subdivision
R.R. #5, Warton, ON
NOH 2T0

Dear Doran,

I was asked to provide a broad review of the proposed Emmett Lake Road Recapitalization (and associated Basic Environmental Impact Analysis) in the Bruce Peninsula National Park. I have reviewed the documents associated with the file, and conducted a site visit with you and Parks Canada personnel. The proposed work is intended to "... improve the road by creating consistent lane widths (to the extent possible), removing/mitigating hazards adjacent to the road (i.e., stumps, step shoulders, etc.), clearing site lines, introducing traffic calming measures, upgrading culverts, creating ecopassages, and improving the overall surface conditions of the road (i.e., reduce washboard and potholes)" (Parks Canada 2015). The proposed widening of the road will also, in places, require regrading of the roadside to avoid erosion problems in the future, extending the footprint of the project. That being said, the footprint of the proposed work is minimal. Any loss of edge habitat resulting from the project should be regenerated in short order. Further, creation of ecopassages should facilitate movement of fauna (particularly herptiles and reptiles) among habitats within the park.

Given the present approach proposed by Parks Canada, I have no objection to the project based on potential impacts to ecosystem structure and function. I would encourage continued dialogue with Parks Canada and the generation of specific ecological objectives associated with the project. Finally, I would also encourage the development of some type of follow up monitoring plan to test whether or not these objectives were met.

Please feel free to contact me if you have any further questions.

All the best,

Neil Rooney
Assistant Professor
Saugeen Ojibway - University of Guelph Faculty Partnership
School of Environmental Sciences
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Guelph, Ontario
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