



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

Cyprus Lake Road Recap – Phase II – 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

Phase II of Project

Planned commencement: 2016-09-06
Planned completion: 2016-12-31

4. INTERNAL PROJECT FILE

BNP-16-03

5. PROJECT DESCRIPTION

This project is to recapitalize Cyprus Lake Road from the Highway to Cyprus Lake, excluding the recently upgraded sections at the front kiosk and campground office (see Figure 1). Cyprus Lake Road is the access point for BPNPs busiest visitor node, the Grotto, with 150K visitors annually. The length of Cyprus Lake Road being upgraded in this project is approximately 5.3km. The current roadway (tar and chip) is in a moderate condition with many sections in a state of disrepair. The function of the roadway is adequate, but has little to no shouldering, short sightlines and services a mix of vehicles and some bicycles traffic. Phase I of this project was the upgrade of the road from the Office to P1.

Work covered under Phase 2 of this project:

- Clearing and grubbing form edge of existing asphalt to a distance of 1.2m or 1.8m (see Figure 2), including the removal of all existing stumps and identified boulders.
- Existing top course (tar & chip) to be removed, resurface using recommended asphalt mix and depth (two lifts with tack coat, mix to be determined).
- Maintain and reuse existing roadbed where reasonable.
- Provide a small shoulder (0.6m) and provide a consistent and safe side slope to existing ground.
- Provide traffic calming measures at specific locations or as applicable (see project specifications document).
- Provide short (~ 75m) paved shoulders at ~1 km intervals to provide safe bicycle or emergency vehicle passing areas (see Figure 3).
- Replace and resize culverts as necessary (see project specifications document).
- Replace and add signage, including pavement markings, as necessary.
- Construction of road is designed to accommodation two (2) eco passage structures at designated locations (i.e., no road crown, raised road, etc.) (see Figure 1).
- Installation of two (2) eco passage structures at designated locations (see Figure 1).





- Create artificial turtle nesting areas at designated locations (see Figure 1).
- All turning radii to accommodate oversized vehicles and vehicles with trailers at trailer pump out and future boat wash station.
- Run power cable from pole in maintenance yard to trailer pump out area (see Figure 1).
- Placement of permanent benchmarks.

The renewed roadway should:

- Provide safe access for visitors by implementing proper road shoulders, appropriate sloping, and clearly delineated the right of way.
- Ensure the environmental integrity of lands surrounding the project are protected.
- Include measures to slow traffic to the design speed based upon the roadway geometry and specific site conditions as the site dictates.
- Maintain the experience of the existing roadway and attempt to incorporate existing natural features where it is safe to do so.
- Decrease road mortality, particularly herptiles, including several SAR.

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. Newly created road shoulders without vegetation will be susceptible to erosion (see mitigations). Particular attention must be paid to ensure that no improvised turn-around or parking areas 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. Several species of conservation concern occur within 10m of the road edge including, Hill's Pondweed (*Potamogeton hillii*, Special Concern), Ram's-head Lady's Slipper (*Cypripedium arietinum*, G3), Round-leaved Ragwort (*Packera obovata*, S3), and Cooper's Milkvetch (*Astragalus neglectus*, S3)); however, by following the mitigations outlined in this document it is not expected that this work will impact these species 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 (*Sistrurus catenatus*, Threatened), Eastern Milksnake (*Lampropeltis Triangulum*, Special Concern), Eastern Ribbon Snake (*Thamnophis sauritus sauritus*, Special Concern), Snapping Turtle (*Chelydra serpentine*, Special Concern)) 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.

Species at Risk: The recovery strategies for Massasauga and Eastern Whip-poor-will (*Antrastomus vociferous*, Threatened) identify the area where the project will occur as possible critical habitat.

Specific to Massasauga

The recovery strategy for the Massasauga 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 0.01% of this area present in the park. In addition, this area has is heavily disturbed and an evaluation of the habitat suitability within the project area was conducted on May 12, 2015 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 and barrier fence 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 section).





Specific to Eastern Whip-poor-will

The area is heavily disturbed (i.e., a road) and is not suitable nesting and/or foraging habitat for this species and therefore would not be considered to be critical to the survival or recovery of the species. In addition, the project timing further reduces the potential for any negative impacts to this species (outside breeding season – late May to mid-August (Environment Canada 2015)).

Cultural Resources: Given the scope of work, an Archaeological Overview Assessment (AOA) will be completed as part of this Basic Impact Analysis (BIA). The AOA will determine whether an Archaeological Impact Assessment (AIA) such as shovel testing or alternate mitigation measures will be required; the findings from the AOA, and subsequent AIA if required, will be attached as Appendix 4 and any mitigations added to the mitigations section prior to project commencement.

Visitor Experience: There may be some minor impacts to the visitor experience during this phase of the project, such as minor traffic delays and the site aesthetics during construction, 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, emergency by-passes, proper road shoulder sloping, etc.).

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 improve the road design and safety standards. With the road improvements, excessive vehicle speeds may become an issue but traffic calming mitigations will be installed to restrict this.

Cumulative Effects: This project is not expected to significantly impact the ecological integrity of Bruce Peninsula National Park. Although and the terms and conditions governing the activities planned for Phase II of the project 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, roadkill prevention signs and speed reduction measures) should 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 100 m from all waterbodies using appropriate spill containment equipment (e.g., impermeable spill pad) and a spill kit is at hand.
8. Use maintenance compound for fueling and turning around all large/heavy machinery and as the project staging area (see Figure 2).
9. Environmental spill response equipment must be available and used as needed (i.e., absorbent spill blankets, fuel spill kits, etc.).
10. 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.





11. 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.
12. Clean the construction site daily, with a complete site cleanup upon project completion.
13. Cover or use water to wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.

Water:

14. Install effective sediment control measures (e.g., turbidity curtain, silt fences, sediment bags, etc.) before starting work to prevent sediment from entering any watercourse.
15. Sediment controls need to be inspected on a daily basis during project and deficiencies must be rectified immediately upon detection.
16. Control measures to prevent soil erosion into watercourses will need to remain in place until area has sufficient vegetation coverage (80%) to stabilize the site. If erosion controls need to be left on site beyond project work they are to be made of biodegradable material (e.g., straw, coir, bar, wood fibre, etc.).
17. Avoid in water work from March 15th to July 15th to protect fishes.
18. Dispose of all debris and waste appropriately, and none in drains, ditches and waterways.
19. If rock material is required to stabilize eroding inlets and outlets it will be:
 - Appropriately sized and clean;
 - Do not obtain rock from below the ordinary high water mark of any waterbody;
 - Do not use rock that is acid generating or fractures and deteriorates quickly when exposed to the elements;
 - Install rock at similar slope to maintain natural stream alignment and bank;
 - Ensure the rock does not comprise the ability for fish to pass through the channel.

Vegetation:

20. 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
21. Parks staff will survey the area to be cleared for
 - Small seedlings/trees (<1m) that can be transplanted elsewhere in the park.
 - Plants to collect seed from to sow either adjacent to the disturbed area, in the disturbed area following the project work, or suit habitat elsewhere in the park.
22. Removed stumps will be taken from the site for disposal.
23. Where culvert replacement/upgrades are required, Resource Conservation staff 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 installation of culvert upgrade structures (e.g., barrier to funnel/guide wildlife).
24. Ensure heavy machinery is maintained within the project footprint.
25. Uprooted stumps will be taken from the site for disposal (e.g., maintenance burn pile or dump).
26. Dispose of vegetation debris:
 - a) Chipping – The majority of forest material removed for this project (< 8" dbh) can be processed through a mechanical wood chipper and dispersed uniformly throughout and adjacent to the disturbed area. Do not pile debris as it not only provides an undesired visual for visitors, but poses a wildfire fuel risk.
 - b) Scattering – Larger materials (> 8" dbh) will be scattered adjacent to the project footprint. Vegetation will be cut into manageable sections and drag a minimum 3m into the nearby forest and placed so as to minimize the impact to the visitor experience (i.e., parallel to road, no fresh cut ends sticking out)
 - c) Removal – In addition to stumps, other vegetation material can be taken offsite for disposal (e.g., dump or chipped and piled in maintenance compound) to prevent high fuel loadings, negative impacts to visitor experience, or in areas with sensitive habitat (i.e., wetlands on both side of road).
27. Disturbed areas (e.g., gravel shoulders) are to be planted using a seed mixture identified by park staff (see Appendix 2), as soon as possible to prevent erosion and limit the potential for invasive to become established. If there is insufficient time remaining in the growing season, or work done outside the





growing season, the area should be stabilized (e.g., erosion controls) and planted the following spring. Method of planting (e.g., hydro-seeding, terraseeding, etc.) to follow the advice of Park Staff (see Appendix 2 for this project).

Wildlife

28. Report any wildlife mortality during construction to the surveillance officer.
29. Complete grubbing between May 15th and October 15th to limit the potential to disturbed hibernating snakes.
30. Install Ecopassages at locations determined by the Resource Conservation team (see Figure 1 for approximate locations- exact locations will be benchmarked and staked - See Project Specifications Document).
31. Avoid direct impacts to fauna during construction by halting work and relocating any encountered animals a safe distance away. Because of the potential for an encountered snake or turtle to be a species at risk (i.e., Massasauga, Eastern Milksnake, Eastern Ribbon Snake, or Snapping Turtle), notify a surveillance officer and delay work until advised otherwise.
32. Install wildlife crossing/roadkill prevention signage and other traffic calming measures (i.e., reduce speed signs, speed bumps, etc.) to inform visitors to reduce speed and mitigate the potential for roadkill. See project specifications for more details on those measures being installed.
33. Install material for turtle nesting at location selected by park staff (see Figure 1 for approximate locations- exact locations will be benchmarked and staked). See Appendix 3 for nesting material specifications and basic design.

Health and Safety

34. Ensure public safety at all times including off hours.
35. 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 changes; the Parks Canada project monitor shall review 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.
36. The Contractor shall provide a minimum of 24 hours notification for any lane closures.
37. 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.
38. Maintain access to property including overhead clearances for use by emergency response vehicles.
39. 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.).
40. Wear the appropriate personal protective equipment (PPE).
41. Employ and assign to Work, competent and authorized representative as Health and Safety Coordinator.

Cultural Resources

42. Keep all machinery within the disturbed footprint (i.e., on the former road).
43. If significant features (e.g., high artifact concentrations, special finds, pit features, cairns) are encountered, work should cease in the immediate area, the work area in relation to the findings photo documented and geo-referenced, and Parks Canada's Terrestrial Archaeology (PCTAR) section informed. The PCTAR will provide advice and assessment of significance that will in turn determine what will be required to mitigate the chance find.

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. Furthermore 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 all phases of this project are completed it should improve the safety of the road for the visitor and reduce the risk of roadkill, particularly for herpetofauna.

11. SURVEILLANCE

Surveillance is not required

Surveillance is required (provide details such as the proposed schedule and the focus of inspections) - *See attached surveillance schedule for details.*

12. FOLLOW-UP MONITORING

Follow-up monitoring is:

not required

Although not required, some follow up monitoring will be conducted by the Resource Conservation staff to assess the effectiveness of the mitigations and determine if any improvements are needed and to provide data to determine if similar mitigations could be effective elsewhere in the park.

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:

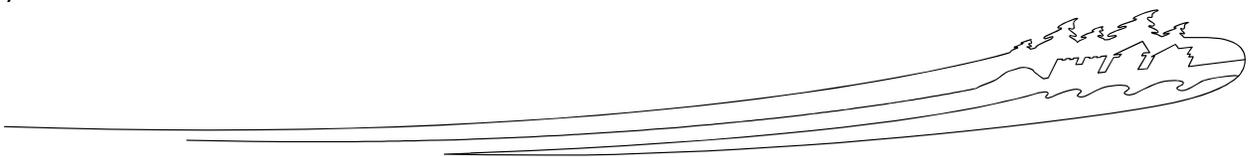
not required

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: February 10 th , 2016
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





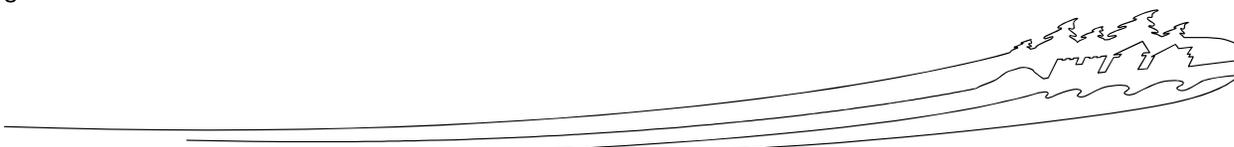
Expertise Requested: Review of the draft BIA
Response: Looks good. May want to just double check the mitigations of BMPs for roadways, highways, parkways and related infrastructure.

Department/Agency/Institution: Parks Canada	Date of Request: February 10 th , 2016
Expert's Name & Contact Information: Gary Allen 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	Title: Species Conservation Specialist
Expertise Requested: SAR advice- Massasauga, Hill's Pondweed, Eastern Whip-poor-will, Snapping Turtle, etc.	
Response:	

Department/Agency/Institution: Parks Canada	Date of Request: February 4 th , 2016
Expert's Name & Contact Information: Lynda Villeneuve 30 rue Victoria/ Street, 3rd floor/ 3e étage, Room/ pièce 110 (Destination Code/ code de destination PC-03-P) Gatineau (Québec) Telephone (819) 420-9210 Lynda.Vileneuve@pc.gc.ca	Title: Policy Advisor, Cultural Resources / Conseillère en politiques, ressources culturelles Cultural Heritage Policies Branch / Direction des politiques sur le patrimoine culturel Conservation and Commemoration Directorate/ Direction générale de la conservation et de la commémoration du patrimoine
Expertise Requested: Need for archeological assessment	
Response:	

Department/Agency/Institution: Parks Canada	Date of Request: February 10 th , 2016
Expert's Name & Contact Information: Barbara Leskovec 30 rue Victoria/ Street, 3rd floor/ 3e étage, Room/ pièce 121 (Destination Code/ code de destination PC-03-P) Gatineau (Québec) Telephone (819) 420-4815 barbara.leskovec@pc.gc.ca	Title: Federal Infrastructure Investments Archaeologist/ Archéologue - Investissement pour les infrastructures fédérales Archaeology and History Branch/ Direction de l'archéologie et l'histoire Conservation and Commemoration Directorate/ Direction générale de la conservation et de la commémoration du patrimoine
Expertise Requested: Mitigation measures for archaeological resources	
Response:	

Department/Agency/Institution:	Date of Request:
	Title:





Expertise Requested:
Response:

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 EA Specialist BPNP/FFNMP	Date: 2016-02-10
Recommended by: Functional manager of the project (name):	Date: YYYY-MM-DD
Approved by Katherine Patterson Georgian Bay Ontario East Field Unit Superintendent	Date: YYYY-MM-DD
Signature:	

17. REFERENCES

Environment Canada. 2015. Recovery Strategy for the Eastern Whip-poor-will (*Antrostomus vociferus*) in Canada [Proposed]. Species at Risk Act Recovery Strategy Series. Environment Canada, Ottawa. v + 59 pp

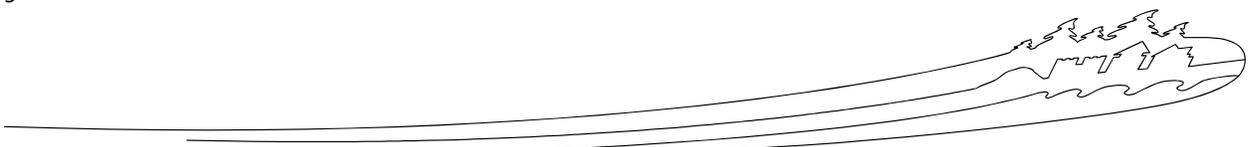
Harvey, D., A.M. Lentini, K. Cedar and P.J. Weatherhead. 2014. Moving Massasaugas: Insight into rattlesnake relocation using *Sistrurus c. catenatus*. *Herpetological Conservation and Biology* 9(1):67-75.

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*****



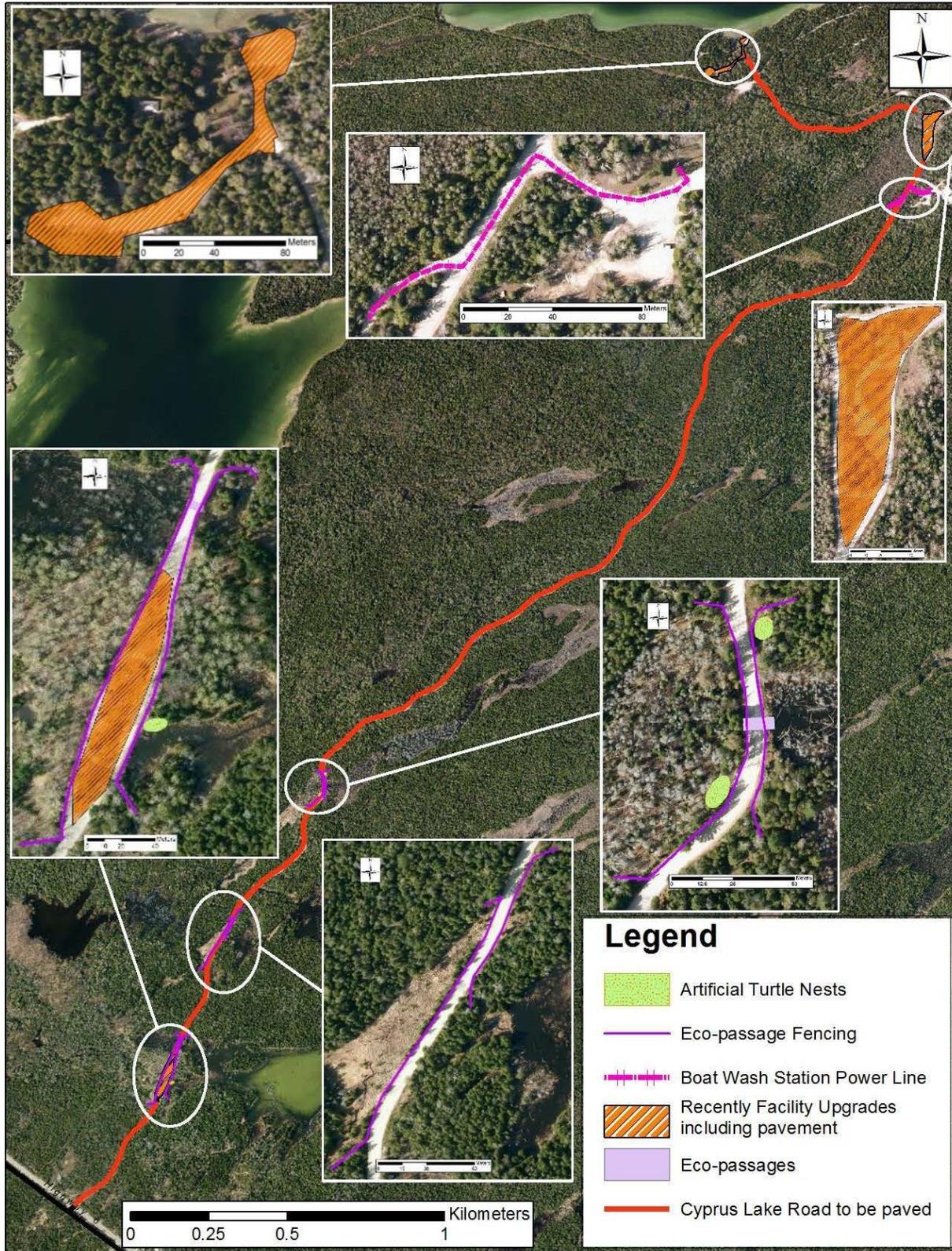


Figure 1: Project overview map showing the portion of Cyprus road to be paved, recently facility upgrades (no paving required) and the approximate locations of eco-passages, fencing, artificial turtle nesting sites and power cable for boat wash station.



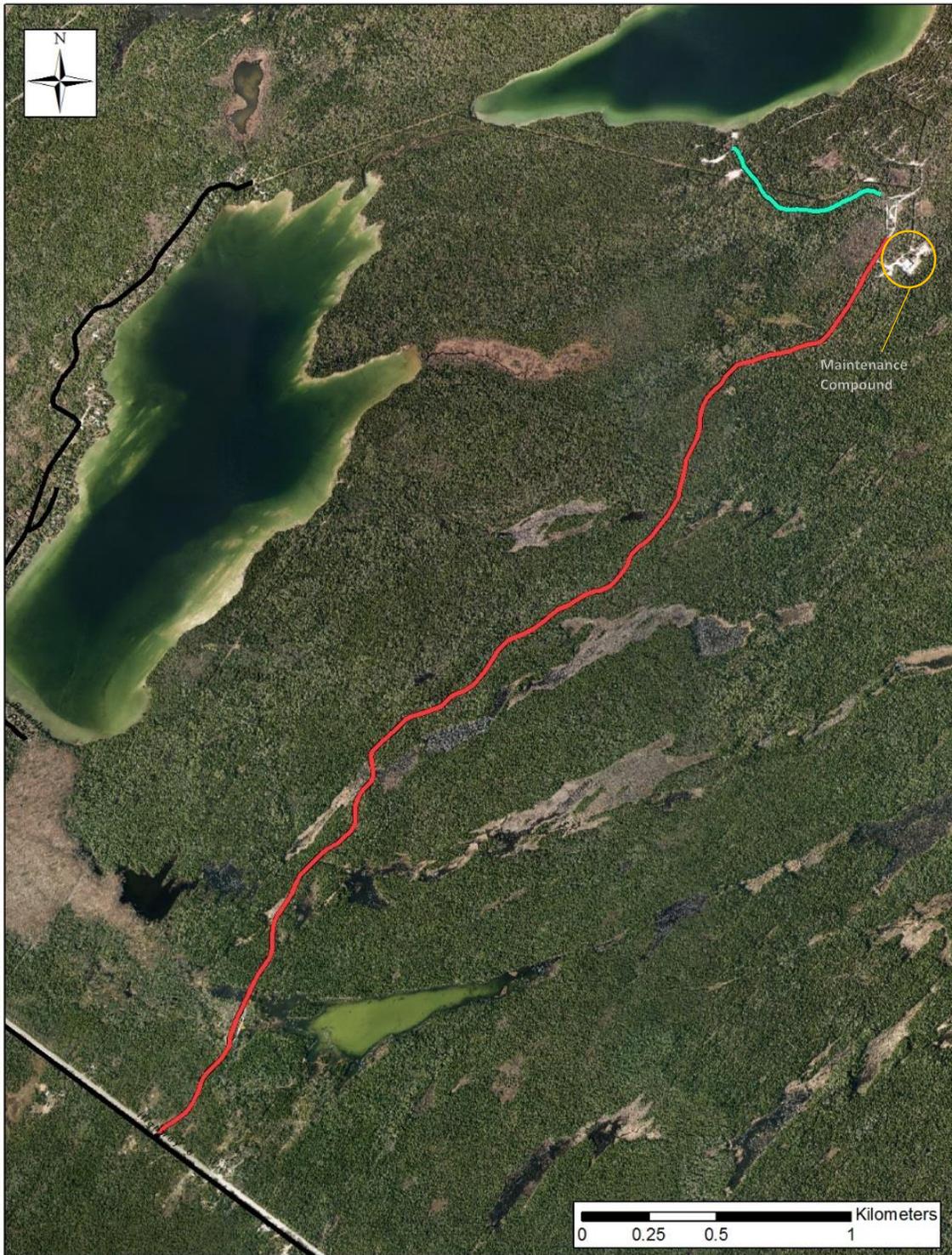
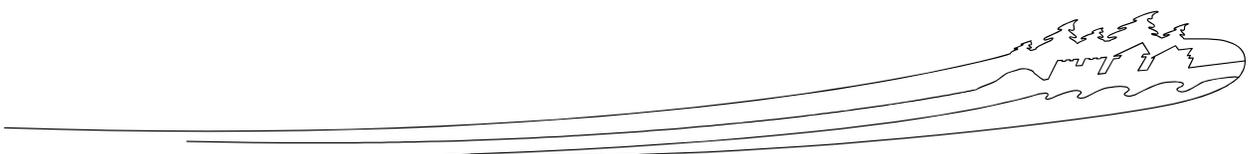


Figure 2: Map showing the section of road to be brushed and grubbed a distance of 4ft (-) or 6ft (-) from edge of the existing asphalt. Map also indicates the location of Maintenance Compound where large vehicles can turn around and serve as the project staging area.



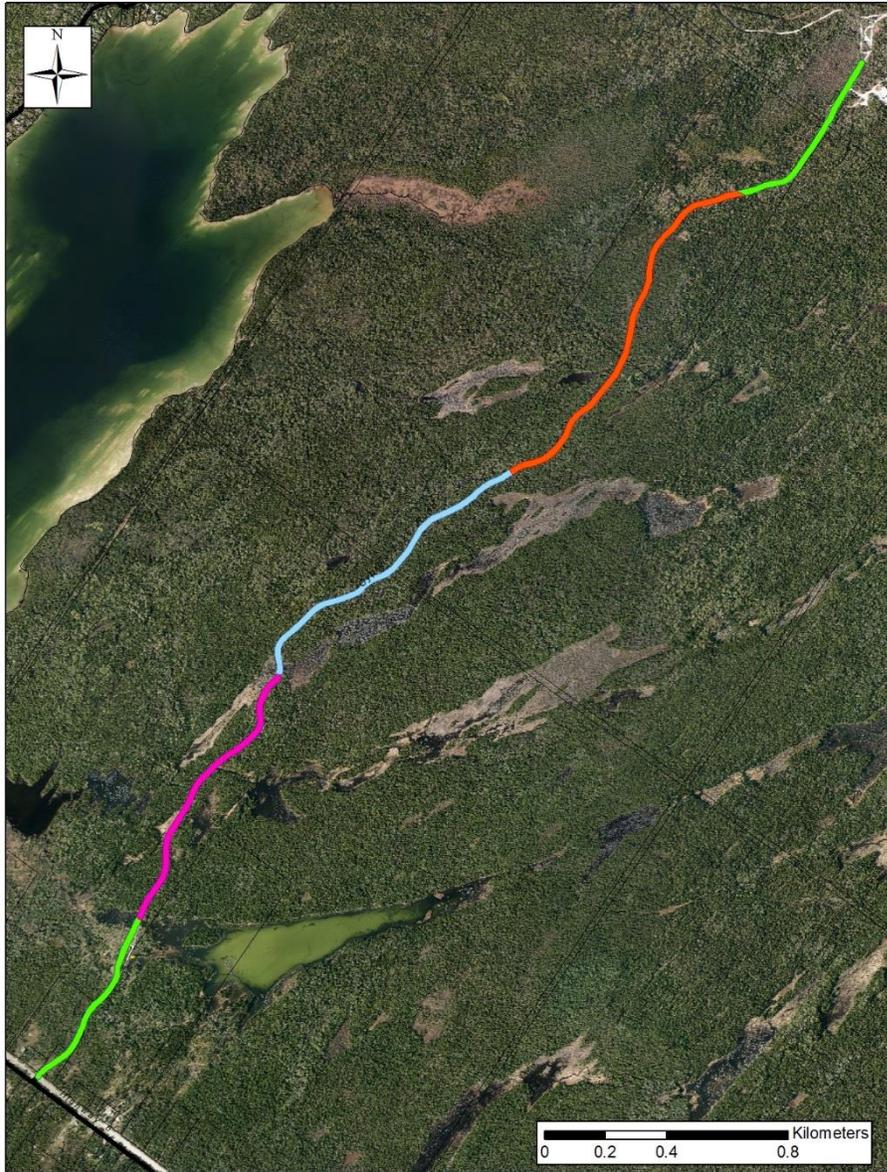


Figure 3: Map indicating sections of the road where portions of the shoulder will be widened and paved for bicycles to use to allow vehicles to pass or to enable a vehicle to pull over safely and allow emergency vehicles to pass. Portions of the road in green (-) will not have a bypass, all other colours indicate sections of the road where one bypass, on each side of the road, will be created. The exact locations of bypass will be determined by park staff on site, benchmarked, staked and exact location provided in the project specification document.





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									
<p>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.</p>		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)	Archaeological Resources	Insert heritage values	
Phase	Examples of Associated Activities								
Project Components	Preparation / Construction / Operation / Decommissioning	Supply and storage of materials				X		X	
		Burning							
		Clearing				X	X	X	
		Demolition			X	X	X	X	
		Disposal of waste							
		Blasting/ Drilling						X	
		Dredging							
		Drainage							
		Excavation		X		X	X	X	
		Grading		X			X	X	
		Backfilling							
		Use of machinery	X	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									
		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)	Archaeological Resources	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		X	X	X	X	X	
		Use of Chemicals							
		Active fire stage							
		Prescribed burn cleanup							
		Planting				X		X	
		Culling							
		Vehicle Traffic					X		
		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 CEAA 2012 Sections 5(1)(c) and 5(2)(b), and by the PCA mandate. For example:

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

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

Terraseeding™ will be used to rapidly re-establish vegetation along the disturbed road shoulders. Terraseeding™ is method of seeding large areas with a calibrated compost and seed mixture and is applied by pneumatic blower (i.e., seeding with soil). This technique enables the rapid establishment of vegetation over a variety of terrains and is compatible with a many native wildflower species requiring seed to soil contact to germinate. The compost also provides some interim erosion control while the vegetation establishes, which can be enhanced if needed (i.e., slope >3:1, areas adjacent to a watercourse) by adding tackifiers to the mixture (i.e., EcoBlanket®).

Growing medium specifications:

Particle size - 99% passing through a 25mm sieve.

Organic Soil - All organic components within the growing medium must be derived from well composted greenwaste organic matter and meet the Canadian Council of Ministers of the Environment's (CCME) definition for Type "A" Compost and produce by sites who meet or exceed MOE Compost Regulation 101

Quality Assurance - A proof of compost quality meeting CCME guidelines by an approved laboratory shall be submitted to the proponent for approval prior to installation.

The seed mixture consist of two main components- the custom roadside and a nurse crop mixes. The purpose of the nurse crop is to rapidly grow and prevent other non-native invasive species from becoming established, while not suppressing native plants sown. The nurse crop species may be exotics that are considered 'acceptable' (i.e., short-lived, will not re-seed themselves or suppress native plant growth), as they are only temporary, until the desired native plants become established. The seeds for the custom mix will consist of native species suitable for the habitat being seeded, complement the existing vegetation community, and be derived from a seed source adapted to the bioregion. Seed will be incorporated into the compost medium to achieved the desired application rate (kg/ha). Seeding should occur in the spring to be most effective.

Bruce Peninsula, Custom Native Seed Mix For Emmet Lake Road

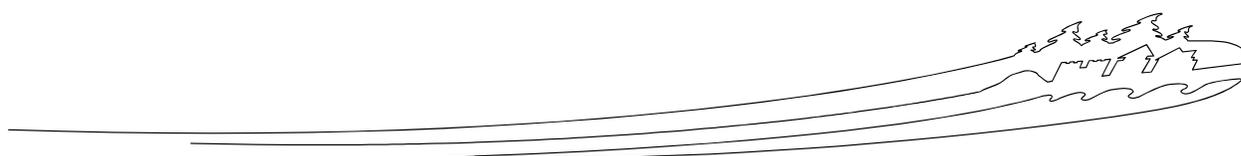
Road Length- 8 km

Shoulder average width- 1.22m

Total Area- ~2 ha

Custom Roadside Mix – overall seeding rate of 10 kg/ha

Scientific Name	Common Name	kg/ha	project kg
<i>Andropogon gerardii</i>	Big Bluestem	3.00	6.00
<i>Asclepias syriaca</i>	Common Milkweed	0.08	0.16
<i>Aquilegia canadense</i>	Columbine	0.02	0.04
<i>Doellingeria umbellata</i>	Flat-topped White Aster	0.02	0.04
<i>Elymus canadensis</i>	Canada Wild Rye	1.00	2.00
<i>Elymus hystrix</i>	Bottlebrush Grass	2.00	4.00
<i>Elymus trachycaulus</i>	Slender Wheatgrass	2.00	4.00
<i>Fragaria vesca</i>	Woodland Strawberry	0.10	0.20
<i>Oenothera biennis</i>	Evening Primrose	0.30	0.60
<i>Panicum virgatum</i>	Switch Grass	0.35	0.70
<i>Schizachyrium scoparium</i>	Little Bluestem	1.00	2.00
<i>Solidago juncea</i>	Early Goldenrod	0.01	0.02
<i>Solidago nemoralis</i>	Old Field Goldenrod	0.02	0.04
<i>Solidago ptarmacoides</i>	Upland White Goldenrod	0.05	0.10
<i>Symphyotrichum ericoides</i>	Heath Aster	0.01	0.02
<i>Symphyotrichum laeve</i>	Smooth Aster	0.02	0.04
<i>Symphyotrichum novae-angliae</i>	New England Aster	0.02	0.04
Subtotal		10.00	20.00





Nurse Crop Mixture

Scientific Name	Common Name	kg/ha	project kg
<i>Avena sativa</i>	Oats	10.00	20.00
<i>Lolium multiflorum</i>	Annual Rye Grass	10.00	20.00
Subtotal		20.00	40.00





Appendix 3 Artificial Turtle Nesting Mounds

To limit the impact of road mortality on small fauna, especially herptiles, the park will be installing eco-passages with a barrier fence to guide individuals to the passage. While this will limit the ability of these species to get onto park roads there may be need of additional mitigations that will address some of the underlying reasons why the species were using roads. Female turtles suffer particularly high levels of road mortality when migrating to an appropriate nesting and likewise when the hatchlings emerge. An additional mitigation will be the creation of artificial turtle nesting mounds in areas where:

- 1) It was common of turtle nest to be found in the road shoulder and will no longer have access to do so;
- 2) Historic routes to nesting areas no longer exist (i.e., barrier fence in high traffic areas) and individuals may be challenged to find the eco-passage to gain access.

The two turtle species targeted through this work at the park are Midland Painted Turtle (*Chrysemys picta marginata*) and Snapping Turtle (*Chelydra serpentina*). Although, high nest-site fidelity is common in freshwater turtles (Freedberg *et al.*, 2005; COSEWIC 2008), many species have shown flexibility in nest-site selection (Schwarzkopf and Brooks 1987; Spencer and Thompson 2003) and have been found to use artificial nest mounds in other studies, including the two target species (Patterson *et al.*, 2013). Nesting habitat is critical to the conservation of turtles and the creation of additional habitat in suitable locations, without the risk of road mortality, can only increase hatching success. It should be considered that as a result of certain life traits (i.e., late age of maturity and nest site fidelity), it may take several years for nest site to be used ().

Nest Mound Specifications: The following recommendations are from MA Division of Fisheries and Wildlife 2007, Paterson *et al.*, 2013; and Toronto Zoo 2015.

Location: South to south-west facing
 Minimal vegetation cover
 Nearby ground vegetation for hatchling protection
 If possible, mounds should be created near existing/confirmed nesting sites.
 Mounds to be within 300m of wetland edge.
 If possible construct more than one mound per location

Materials and Specifications:

Material Mix: All material will be 'clean' fill (i.e., fresh crushed) to limit the introduction of weeds in to the area.

Dimensions:

Construction: Mounds will be constructed from the road way by using a mechanic hoist to lift prefilled gravel bags into location. All work must adhere to the timing windows identified in this BIA and the appropriate mitigations applied. The nesting mound composition was selected to mimic the texture, drainage, and friability of the road shoulders as turtle nests are commonly found in this material throughout the park. Once suitable locations have been selected:

1. Vegetation cleared and stumps removed. This work will be minimal given that one of the criteria for a site to be suitable is minimal vegetation cover. Small shrubs and herbaceous cover may be transplanted to the area adjacent to the mound to provide cover for the gravid females and newly emerged hatchlings. Small tree suitable of transplanting should be taken off site and used elsewhere in the park.





2. Install landscape fabric/filter cloth over the area where the mound will be created. This will prevent/delay the growth of vegetation on the site.
3. Using a mechanical hoist arm, take prefilled gravel bags and lower them over the site and release from the bottom. Continue until landscape fabric/filter cloth is covered with at least $\geq 50\text{cm}$ material. The area of the nest mound will vary depending on site, but each should provide a minimum $2\text{m} \times 2\text{m}$, relatively level, surface at the top of the mound.
4. Site cleanup.

Nest Monitoring and Protection: The level of monitoring and protection the park is able to accomplish will depend on staffing levels and priorities. Long-term the park would like to establish a citizen science project to assist with monitoring.

Most nesting occurs in the late afternoon or evening, although, Snapping turtles are known to nest at dawn. Predation on turtle nest is typically quite high. Common nest predators found the park would be raccoons (*Procyon lotor*) and red fox (*Vulpes vulpes*); however, coyote (*Canis latrans*) and striped skunk (*Mephitis mephitis*) have also been known to predate turtle nests (COSEWIC 2008###). Risk of predation for turtle nests is greatest during the first 48 hours. Therefore to provide the best protection, sites should be monitored each night from 20:00 to 24:00 during the nesting season (mid May – late June) and inspected again in the early morning (i.e., 7:00-8:00) for Snapping Turtles activity. Wire mesh cages can be installed over created nest to prevent predation.

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