

**Little Brother Lake Dam – Access Road Construction
BIA Assessment and NMS Updates**



BIA Mitigation Measure Number	Mitigation Measure Description	Included in Specification (Y/N)	Comments
General			
1	Inform PCA Environmental Authority (Environmental Assessment Officer), regarding any changes to project plans and/or scheduling. Any changes not assessed under this BIA will require approval from PCA and may require further mitigation measures.	N	To be included in resident inspection / contract administration agreement
2	Contractor is required to submit an Environmental Management Plan (EMP) to Parks Canada that outlines all the measures to be implemented by the contractor on the project site to eliminate or reduce environmental effects and address mitigation measures outlined in this BIA. In order to allow for the timely commencement of project activities, the EMP can be submitted as separate components as project details become available. The EMP, or its components, will be submitted in writing prior to implementation of project activities and must be accepted by Parks Canada.	Y	Section 01 35 43 Sub-section 2.2.2
3	Parks Canada's, Trent-Severn Waterway will outline all the prescribed mitigation measures in a construction start-up meeting with the project manager and the contractor, to ensure that all on-site personnel are aware of these mitigation measures.	Y	Section 01 35 43 Sub-section 2.1.3
4	The contractor is to ensure that all on-site personnel are aware of, and comply with the prescribed mitigation measures within this BIA.	Y	Section 01 35 43 Sub-section 2.1.3
5	Should conditions at the work site indicate that there are unforeseen negative impacts to fish, wildlife, or cultural resources, all works shall cease until the problem has been corrected and/or any required input can be obtained by Parks Canada or other relevant authorities. The Trent-Severn Waterway has the right to require that work be altered or ceased immediately.	Y	Section 01 35 43 Sub-sections 2.7.8.3 (Fish), 2.17 (Cultural), and 2.14 (Wildlife)
6	As per the Historic <i>Canal Regulations</i> applicable to lands administered by the Trent-Severn Waterway National Historic Site of Canada, a permit signed by Parks Canada's Ontario Waterways Director will be required to authorize the project work prior to commencement of project activities.	Y	Added to revised specifications Section 01 35 43 Sub-section 2.2.5.7
7	All materials and equipment used for the purpose of site preparation and project completion shall be operated and stored in a manner that prevents any deleterious substance (e.g. petroleum products, debris etc.) from entering the water. Ensure measures are in place to minimize impacts of accidental spills.	Y	Section 01 35 43 Sub-section 2.7
8	Store all oils, lubricants, fuels and chemicals in secure areas on	Y	Section 01 35 43

**Little Brother Lake Dam – Access Road Construction
BIA Assessment and NMS Updates**



BIA Mitigation Measure Number	Mitigation Measure Description	Included in Specification (Y/N)	Comments
	impermeable pads.		Sub-section 2.10
9	All machinery and equipment shall be clean, free of leaks, in optimal working condition.	Y	Section 01 35 43 Sub-section 2.1.3
10	Use well-maintained heavy equipment and machinery, preferably fitted with fully functional emission control systems/muffler/exhaust baffles, engine covers, etc.; machines shall not be left to unnecessarily idle in order to avoid emissions.	Y	Section 01 35 43 Sub-section 2.10
11	Vehicle and equipment re-fueling and/or maintenance shall be conducted off of slopes and away from the water at a recommended distance of 30 m if possible. If not possible this, fuelling sites will be as per Environmental Management Plan and mitigations to prevent substances from entering the water course applied.	Y	Section 01 35 43 Sub-section 2.10.4
12	A designated re-fueling depot will minimize the potential for extensive impacts at the site due to accidental releases of substances; proper spill management equipment shall be in place for fueling. Drip trays shall be placed under fuel-powered equipment.	Y	Section 01 35 43 Sub-section 2.10.4
13	Spill control and emergency plans will be in place prior to initiation of construction. A spills kit will be maintained on site and the contractor will ensure that adequate additional resources are available. Spills shall be reported as soon as possible to the Parks Canada Project Manager. The Ontario Ministry of Environment and Climate Change Spills Action Center, (1-800-268-6060) shall be notified, if required.	Y	Section 01 35 43 Sub-sections 2.13.8 and 2.2.4.5
14	In the event of a spill, remediation will be conducted immediately contain and clean up in accordance with Federal regulatory requirements and to the satisfaction of Parks Canada. Documentation of remediation, testing and results will be provided to Parks Canada.	Y	Added to revised specifications Section 01 35 43 Sub-section 2.13.2.8.5.
15	No tools, equipment, temporary structures or parts thereof, used or maintained for the purpose of this project, shall be permitted to remain at the site after completion of the project.	Y	Section 01 35 43 Sub-section 2.13.9
16	All erosion and sediment control measures shall be inspected daily to ensure they are functioning properly and are maintained and/or upgraded as required to prevent entry of sediment into the water.	Y	Section 01 35 43 Subsection 2.6.3 Remaining specifications revised to include <u>daily</u> inspections of erosion and sediment control measures.
17	If erosion and sediment control measures are not functioning properly, no	Y	Added to revised specifications

**Little Brother Lake Dam – Access Road Construction
BIA Assessment and NMS Updates**



BIA Mitigation Measure Number	Mitigation Measure Description	Included in Specification (Y/N)	Comments
	further work shall occur until the sediment and/or erosion problem is addressed to the satisfaction of Parks Canada.		Section 31 11 00 Sub-section 3.01.6
18	All disturbed areas of the work site shall be stabilized immediately and re-vegetated as soon as conditions allow. All exposed areas should be covered with erosion control blankets or other measures to keep the soil in place and prevent erosion until vegetated in the spring. Erosion and sediment control measures shall be left in place until all areas of the work site have been stabilized.	N	Not interpreted to apply per conference call with Parks Canada / PWGSC on March 20, 2019. Intended that site will naturally re-vegetate.
19	Avoid activities that could lead to erosion during excessively wet weather conditions; monitor forecasts for heavy rainfall watches & warnings. Environmental protection measures shall be checked after each extreme weather event.	Y	Section 01 35 43 Sub-section 2.8.6
20	Upon completion of the work all debris shall be completely removed and the area restored to its original state or better. Repair all damages to property due to project activities.	Y	Section 01 35 43 Sub-section 2.13.10
Soil and Landforms			
21	<p>Mitigations and Best Practices for road grading include:</p> <ul style="list-style-type: none"> • Gentle grades (1-4%) are desirable for proper drainage. Long, sustained grades should be avoided since they allow excessive runoff buildup in ditches and can lead to erosion; • Excavate cuts uphill to improve drainage and make material more workable. Complete ditches as cuts are being excavated; • Keep earth fills and earth cuts as shallow as possible, consistent with the geometric standard being constructed. A road surface about one meter above the original ground should be satisfactory for most roads, if the terrain is favourable; • Grade and crown the earth grade as it is being constructed, to shed water and minimize ponding in ruts. 	Y	<p>Drawings 302 and 401 – Two (2) rock check dams have been included in areas of steep slope (Station 0+730, 0+735).</p> <p>Section 31 23 33.01 Sub-section 3.07</p>
22	Culverts should be placed so that ten percent of their diameter is below the original ground elevation. A high culvert will cause ponding upstream and outlet erosion downstream. Too low a culvert will fill with sediment and may freeze over in the winter. A single larger pipe may be preferable to several smaller ones, because it should be less susceptible to blockage or icing.	N	Not interpreted to apply per conference call with Parks Canada / PWGSC on March 20, 2019. Design supercedes BIA mitigation.
23	Culvert length should be selected to ensure ends will not be blocked by	Y	Incorporated into design.

**Little Brother Lake Dam – Access Road Construction
BIA Assessment and NMS Updates**



BIA Mitigation Measure Number	Mitigation Measure Description	Included in Specification (Y/N)	Comments
	fill slopes.		
24	Rip rap should be placed on the upstream fill slope around the culvert inlet, to the top of the pipe, to prevent fill washout during high flow periods.	Y	Added to revised drawings.
25	If scour of the streambed downstream of the culvert is expected due to the high flow velocities, an erosion resistant apron or energy dissipater should be provided.	Y	Added to revised drawings.
26	Ditching should be carried out as part of earth grading, to encourage good drainage early and to minimize soil disturbance.	Y	Section 31 23 33.01 Sub-section 3.07
27	Ditches should be sized to handle the expected runoff from the area draining onto them. Large drainage areas may require deeper or wider ditches than are normally provided.	Y	See design drawings.
28	On all-weather roads, ditches should ensure that the water level is maintained at least one metre (three feet) below the road surface.	N	Not applicable – roads are not all-weather.
29	Cross culverts and off take ditches are required to ensure adequate roadside drainage.	Y	See design drawings.
30	Roadside ditches should not discharge directly into waterways; rather, off take ditches should divert flow into the bush so the water filters through natural vegetation before entering the waterway. Construction of diversion berms in the ditch-line may form part of the off take ditch scheme.	Y	See design drawings.
31	Interceptor ditches may be necessary to divert water away from steep cut or fill slopes.	Y	Section 31 23 33.01 Sub-section 3.07
32	Long roadside ditches on slopes over three percent may require check dams, intermediate cross culverts or ditches, to reduce flow velocity and water quantity if erosion is a problem.	Y	Drawings 302 and 401 – Two (2) rock check dams have been included in areas of steep slope (Station 0+730, 0+735).
Vegetation			
33	All disturbed areas of the work site shall be stabilized immediately with erosion protection. All exposed areas should be covered with erosion control blankets or other measures such as mulch to keep the soil in place and prevent erosion until vegetated in the spring.	N	Not interpreted to apply per conference call with Parks Canada / PWGSC on March 20, 2019. Exposed soils to be mulched – no further stabilization required.
34	Trees, shrubs and vegetation which are to remain throughout construction should be properly identified, delineated and protected. Delineate trees to be avoided with flagging tape or temporary fences.	Y	See drawing 202

**Little Brother Lake Dam – Access Road Construction
BIA Assessment and NMS Updates**



BIA Mitigation Measure Number	Mitigation Measure Description	Included in Specification (Y/N)	Comments
35	Where practical, the branches of the large trees should be trimmed back as the first option rather than cutting the entire tree.	Y	Section 31 11 00 Sub-section 3.03
36	Only cut trees using tools designed for tree cutting activities (e.g. chainsaw, brush saw).	Y	Added to revised specifications Section 31 11 00 Sub-section 3.03.3
37	Prune limbs close to the tree trunk. For a clean cut, make a shallow undercut first, then follow with the top cut. This prevents the limb from peeling bark off the tree as it falls. Do not use an axe for pruning.	Y	Added to revised specifications Section 31 11 00 Sub-section 3.03.4
38	Should any vegetation require chipping/mulching, the after product will be stored onsite for the duration of the project to supplement erosion and sediment control methods.	Y	Section 31 11 00 Sub-section 3.05
39	If there is insufficient time remaining in the growing season, the site should be stabilized (e.g., cover exposed areas with erosion control blankets to keep the soil in place and prevent erosion) and vegetated the following spring.	N	Not interpreted to apply per conference call with Parks Canada / PWGSC on March 20, 2019. Exposed soils to be mulched – no further stabilization required.
40	Cleared vegetation will be piled and extracted from a designated area, to be identified by PCA staff. Burning of cleared vegetation is not permitted on site.	Y	Section 31 11 00 Sub-section 3.05 Section 01 35 43 Sub-section 2.5
41	Do not place or throw blast rock or road material into the bush. This will limit damage outside the right-of-way and make the material available for fill or other uses.	Y	Section 01 35 43 Sub-section 2.13.9
Invasive Species			
42	To reduce the risk of introducing invasive species, all equipment must be thoroughly cleaned prior to coming to the site. Any machinery that appears to have not been cleaned will not be permitted on site. For additional information or guidance on how to properly clean equipment, see the Clean Equipment Protocol for Industry developed by the Ontario Invasive Plant Council and found here: http://www.ontarioinvasiveplants.ca/wp-content/uploads/2016/07/Clean-Equipment-Protocol-June2016-D3-WEB-1.pdf	Y	Added to revised specifications Section 01 35 43 Sub-section 2.20.1

**Little Brother Lake Dam – Access Road Construction
BIA Assessment and NMS Updates**



BIA Mitigation Measure Number	Mitigation Measure Description	Included in Specification (Y/N)	Comments
43	Mud, dirt and vegetation should be cleaned from clothing and footwear prior to entering the work site, and prior to leaving the work site.	Y	Added to revised specifications Section 01 35 43 Sub-section 2.20.2
44	Move only weed/contaminate-free materials into non-infested areas. Moving materials from one infested location to another within a particular zone may not cause contamination, but moving materials from infested to non-infested areas could lead to the introduction and spread of invasive plants.	Y	Added to revised specifications Section 01 35 43 Sub-section 2.20.3
45	Should an invasive species be encountered (or at least suspected), a photo and report of the specimen should be sent to Parks Canada's EA staff.	Y	Added to revised specifications Section 01 35 43 Sub-section 2.20.4
Wildlife			
46	The Site Specific EMP must demonstrate procedures for avoiding disturbance/harm to wildlife.	Y	Added to revised specifications Section 01 35 43 Sub-section 2.2.4.6
47	The nesting period may be as early as April 2 and as late as August 30, depending on species. For forest birds, which have the greatest potential to be disturbed, the primary nesting period (60-100% of species) falls between May 24th and July 22nd.	Y	Construction Contract Tender to include the requirement that work start no sooner than September 1 2019.
48	On a daily basis, an inspection or "sweep" of the work area shall be performed prior to commencement of project works and activities to ensure wildlife are not present in the work area (include in site checklist).	Y	Added to revised specifications Section 01 35 43 Sub-section 2.14.2
49	Field information regarding incidental encounters with wildlife (non-SAR wildlife) shall be compiled and reported on a daily basis.	Y	Added to revised specifications Section 01 35 43 Sub-section 2.14.3
50	For incidental encounters, the following information should be recorded in the field: a. Locations, dates and time of day where the species were encountered; b. Names of species encountered; c. Photographs of the species, if taken; d. Condition of animal.	Y	Added to revised specifications Section 01 35 43 Sub-section 2.14.4
51	If injured/dead wildlife are encountered report to PCA immediately. PCA may require retrieval and storage on ice of carcass for laboratory	Y	Added to revised specifications Section 01 35 43

**Little Brother Lake Dam – Access Road Construction
BIA Assessment and NMS Updates**



BIA Mitigation Measure Number	Mitigation Measure Description	Included in Specification (Y/N)	Comments
	testing.		Sub-section 2.14.5
52	All vehicles and equipment used by project personnel will follow any construction zone speed limits to reduce the risk of hitting wildlife, as enforced by the site supervisor.	Y	Added to revised specifications Section 01 35 43 Sub-section 2.14.6
53	Work areas will be kept clean and free of potential hazards to wildlife such as wire, cable, tubing, plastic, antifreeze or other materials that wildlife may eat or become entangled in.	Y	Added to revised specifications Section 01 35 43 Sub-section 2.14.7
54	Waste will be stored, handled, and transported in accordance with the Waste Management Plan, including storage of all solid waste in sealed, bear-proof containers.	Y	Added to revised specifications Section 01 35 43 Sub-section 2.14.8
55	Feeding of wildlife is prohibited.	Y	Added to revised specifications Section 01 35 43 Sub-section 2.14.9
Species at Risk			
56	Should any suspected species at risk – snakes or turtles and/or eggs be encountered during construction - project staging, implementation or demobilization - work would halt immediately and Parks Environmental Assessment Staff would be notified. The species must not be harmed or harassed. Stand back and allow the animal to leave the site. If the species does not leave or cannot leave the site, the contractor must immediately stop the works and contact the Departmental Representative and PCA's Environmental Assessment Officer (705-761-1634) immediately. Additional measures to avoid impacts may be required before work can restart.	Y	Added to revised specifications Section 01 35 43 Sub-section 2.14.1
Cultural Resources and Archaeology			
57	If unrecorded archaeological resources (e.g. structural features or artifact concentrations) are encountered during construction activities, work will cease in the immediate area, the findings photographed, and the Parks Canada Project Manager informed; contact the TSW, Peterborough Office at 705-750-4900. The Project Manager should then contact Parks Canada's Terrestrial Archaeology section for advice and assessment of significance, which will in turn determine what will be required to mitigate the find.	Y	Section 01 35 43 Sub-section 2.17
Air Quality and Noise			
58	Minimize the noise levels from construction activities by using proper muffling devices, in addition to appropriate timing and location of these activities to reduce or minimize the effect of noise on nearby residents,	Y	Section 01 35 43 Sub-section 2.16

**Little Brother Lake Dam – Access Road Construction
BIA Assessment and NMS Updates**



BIA Mitigation Measure Number	Mitigation Measure Description	Included in Specification (Y/N)	Comments
	recreational users, and wildlife.		
59	Comply with local by-laws.	Y	Added to revised specifications Section 01 35 43 Sub-section 2.16.3
60	The Departmental Representative or a Parks Canada Environmental Assessment Officer may stop a vehicle if they believe the vehicle is emitting excessive exhaust smoke or suspect that emission control equipment has been tampered with or removed.	Y	Added to revised specifications Section 01 35 43 Sub-section 2.16.4
61	Prior to the use of any explosives for rock removal (if necessary), pre-blast surveys are to be done for all residences within 500 m of the blasting area, and advanced blast notification is to be provided to these residents.	Y	Section 31 23 16.26 Sub-section 1.05
62	Monitor and mitigate public complaints by keeping a record of complaints and addressing any issues raised by the public.	Y	Section 01 35 43 Sub-section 2.16
63	Use well-maintained heavy equipment and machinery, preferably fitted with fully functional emission control systems/muffler/exhaust baffles, engine covers, etc.; machines shall not be left to unnecessarily idle in order to avoid emissions.	Y	Section 01 35 43 Sub-section 2.10
64	Keep idling of construction equipment to a minimum.	Y	Section 01 35 43 Sub-section 2.10
Waste Disposal			
65	Recyclable material and waste shall be removed from the site, in accordance with provincial and municipal regulations, to disposal facilities licensed to receive them.	Y	Section 01 35 43 Sub-sections 2.11 and 2.13