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12th Floor, 4900 Yonge Street  
Toronto, Ontario  
M2N 6A6  
Ontario

**SOLICITATION AMENDMENT  
MODIFICATION DE L'INVITATION**

The referenced document is hereby revised; unless otherwise indicated, all other terms and conditions of the Solicitation remain the same.

Ce document est par la présente révisé; sauf indication contraire, les modalités de l'invitation demeurent les mêmes.

**Comments - Commentaires**

**Vendor/Firm Name and Address  
Raison sociale et adresse du  
fournisseur/de l'entrepreneur**

**Issuing Office - Bureau de distribution**  
Regional Manager/Real Property Contracting/PWGSC  
Ontario Region, Tendering Office  
12th Floor, 4900 Yonge Street  
Toronto, Ontario  
M2N 6A6  
Ontario

<b>Title - Sujet</b> Ottawa, ON Hogs Back Fixed Bridge	
<b>Solicitation No. - N° de l'invitation</b> EQ754-190954/A	<b>Amendment No. - N° modif.</b> 003
<b>Client Reference No. - N° de référence du client</b> R.079166.009	<b>Date</b> 2018-08-10
<b>GETS Reference No. - N° de référence de SEAG</b> PW-\$PWL-003-2386	
<b>File No. - N° de dossier</b> PWL-8-41044 (003)	<b>CCC No./N° CCC - FMS No./N° VME</b>
<b>Solicitation Closes - L'invitation prend fin</b> <b>at - à 02:00 PM</b> <b>on - le 2018-08-23</b>	
<b>Time Zone</b> <b>Fuseau horaire</b> Eastern Daylight Saving Time EDT	
<b>F.O.B. - F.A.B.</b> <b>Plant-Usine:</b> <input type="checkbox"/> <b>Destination:</b> <input checked="" type="checkbox"/> <b>Other-Autre:</b> <input type="checkbox"/>	
<b>Address Enquiries to: - Adresser toutes questions à:</b> Dhanna, Sheila	<b>Buyer Id - Id de l'acheteur</b> pwl003
<b>Telephone No. - N° de téléphone</b> (416) 512-5855 ( )	<b>FAX No. - N° de FAX</b> (416) 512-5862
<b>Destination - of Goods, Services, and Construction:</b> <b>Destination - des biens, services et construction:</b> PWGSC/TPSGC Joseph Sheppard Building 32 4900 Yonge St. Toronto, ON M2N 6A6	

**Instructions: See Herein**

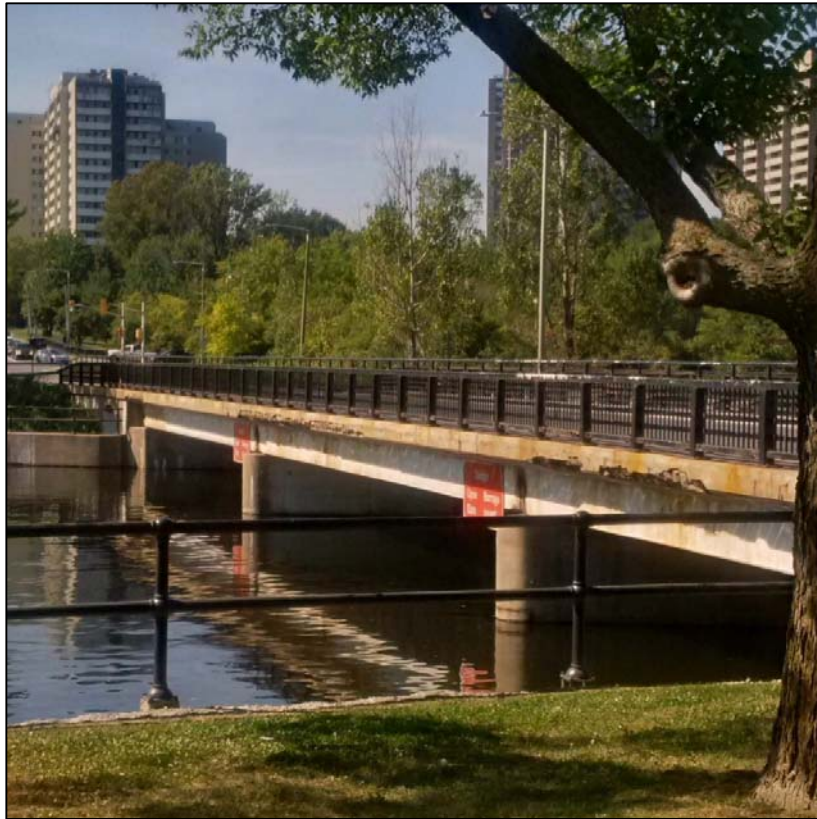
**Instructions: Voir aux présentes**

<b>Delivery Required - Livraison exigée</b>	<b>Delivery Offered - Livraison proposée</b>
<b>Vendor/Firm Name and Address</b> <b>Raison sociale et adresse du fournisseur/de l'entrepreneur</b>	
<b>Telephone No. - N° de téléphone</b> <b>Facsimile No. - N° de télécopieur</b>	
<b>Name and title of person authorized to sign on behalf of Vendor/Firm</b> <b>(type or print)</b> <b>Nom et titre de la personne autorisée à signer au nom du fournisseur/</b> <b>de l'entrepreneur (taper ou écrire en caractères d'imprimerie)</b>	
<b>Signature</b>	<b>Date</b>

# Basic Impact Analysis

## Appendix 2: Mitigation Measures

### Hogs Back Fixed Bridge and Dam Rehabilitation Rideau Canal Ottawa, Ontario



July 2018

## Basic Impact Analysis, Hogs Back Fixed Bridge and dam

### Appendix 2: Mitigation Measures

#### General

1. Inform the Departmental Representative and PCA's Environmental Authority (Environmental Officer, Rideau Canal in Smith Falls) 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.
2. Contractor is required to submit an Environmental Management Plan (EMP) to the Department Representative and 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 and the Departmental Representative.
3. It is recommended that an environmental professional(s) prepare the EMP or its component plans incorporating guidance found in PCA's Environmental Standards and Guidelines - Ontario Waterways (2017). The EMP will detail frequency of monitoring and list high-risk construction activities where an environmental professional must be onsite. Monitoring and testing should be adaptable to changing site conditions and will capture any event/incident for the length and scope of that event.
4. Parks Canada Environmental Authority will outline all the following mitigation measures in a construction start-up meeting with the contractor, to ensure awareness and understanding of these measures.
5. The contractor is to ensure that all on-site personnel are aware of, and comply with the prescribed mitigation measures within this BIA and any measures outlined within subsequent amendments to this BIA.
6. Should conditions at the work site indicate that there are negative impacts to fish, fish habitat, wildlife, cultural or visitor experience resources, all works shall cease until the problem has been corrected and Parks Canada's Environmental Authority staff have been consulted. The Parks Canada Agency has the right to require that work be altered or ceased immediately.
7. As per the Historic Canal Regulations applicable to lands administered by the Rideau Canal 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 the project.

#### Equipment and Site Condition

8. All machinery and equipment shall be clean, free of leaks, in optimal working condition.
9. 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.

10. Maintain equipment to avoid leakage of fuels and liquids. Ensure measures are in place to minimize impacts of accidental spills.
11. Operate machinery from stable location;
12. Spill control and emergency plans will be in place prior to initiation of construction; an emergency spill kit shall be kept on-site and employed immediately should a spill occur.
13. In the event of a spill, Parks Canada and the Ontario Spill Action Centre (1-800-268-6060) shall be notified immediately; remediation will be conducted immediately to 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.
14. Store all oils, lubricants, fuels and chemicals in secure areas on impermeable pads.
15. Refuelling of equipment and maintenance shall be conducted off slopes and away from water bodies on impermeable pads at least 30 meters away from any watercourse. In the event that the recommended distance from watercourses is not feasible or practical because of site conditions, proper storage/re-fuelling mats must be employed at the project site.
16. 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.
17. Drip trays shall be placed under fuel-powered equipment.
18. There shall be no discharge of chemicals and cleaning agents in or near aquatic habitats; all such substances shall be disposed of at a facility licensed to receive them.
19. 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.
20. All compressed air/fuel tanks shall be stored off to the side, away from on-going activity, and be adequately protected with an impact-protection barrier.
21. Any Above-ground Storage Tanks (ASTs) or other fuel storage tanks on site, are to be stored in compliance with Federal and Provincial storage tank requirements. Specifically ASTs are to be placed within a secondary containment system of adequate holding capacity, based on the volume of the AST. See: <https://www.canada.ca/en/environment-climate-change/services/canadian-environmental-protection-act-registry/publications/code-practice-storage-tank-systems/part-3.html>

#### Contamination

22. The contractor must follow soil/sediment sampling and testing (TCLP) protocols and criteria of the receiving site/disposal facility accepting materials.
23. It is recommended that the contractor include the possibility of encountering contaminants in various media (soil, groundwater, sediment) into account when creating their Health and Safety Plan and outlining any emergency measures and protective precautions required (e.g. the wearing of appropriate personal protective equipment (PPE)).
24. No excavation in the Mooney's Bay parking lot (staging area) shall occur as sub-surface contamination may be an issue here due to the past practice of boat servicing. There are additionally

potential archaeological concerns in this area. If excavation becomes necessary then PCA must be notified and additional review and mitigations may be required.

#### Erosion and Sediment control

**25.** Submission of an Erosion and Sediment Control Plan, as part of the EMP, demonstrating:

- A focus on erosion control primarily and sediment control secondary;
- Erosion and sediment controls will be tailored to the type of sediment found onsite (e.g. if clay is present, additional controls are necessary).
- The area to be controlled. In addition to the construction site, it is necessary to identify adjacent areas that could be negatively impacted by construction activities;
- Drainage areas and patterns based on pre-construction topography and construction design;
- The EMP will have as a principal to reduce the amount of sediment laden water produced. A focus on separating offsite and infiltrating water into the construction site from construction activities and sediment sources.
- How clean storm run-on will be diverted around the site and away from exposed areas;
- How sediment-laden run-off will be directed to detention or retention facilities on-site. Large drainage areas can produce a significant amount of run-off, resulting in a need for large detention or retention structures;
- Channels that are designed and constructed to the necessary design discharge;
- Temporary and permanent erosion control needs for all drainage channels;
- Consideration of project schedule in selecting, designing and laying out environmental controls;
- Consideration of seasonal requirements (for longer-term projects); select and design controls and practices for controlling erosion and sedimentation including shutdown periods.

**26.** The size of particles present in the sediment is a key consideration for selecting the appropriate sediment treatment option(s):

- If the sediment consists primarily of gravel or sand, which are relatively large particles, a single treatment using a more basic technology, such as a sediment trap or sediment bag, may be adequate.
- If the sediment consists of silt and/or clay, which are relatively small particles, the effluent will most likely need a more advanced technology, such as a filter press or chemical treatment with anionic flocculent and a filtration method.
- If the sediment consists of a large spectrum of particle sizes, the water may need primary treatment to remove larger particles, followed by secondary treatment to remove finer particles.

**27.** 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. If erosion and sediment control measures are not functioning, the sediment and/or erosion problem must be addressed to the satisfaction of Parks Canada.

28. Erosion and sediment control measures shall be left in place until all areas of the work site have been stabilized.
29. 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.
30. 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.
31. Sediment control measures and exclusion fencing must be removed in a way that prevents the escape or re-suspension of sediments.
32. A turbidity curtain will be maintained in the water around all working areas during construction to contain and control the suspension of fines. If water levels/conditions do not permit the flotation of a turbidity curtain, other measures as approved will be implemented.
33. Turbidity curtains should be placed as close to the coffer dam as possible to minimize area of potential impact of sedimentation.
34. Turbidity curtains should not be used as a primary or secondary settling area for dewatering activities. Supplementary sediment and erosion control measures should be installed prior to construction activities and should be added upon/reinforced as necessary.
35. The contractor will provide a marine grade turbidity curtain - Medium Duty Turbidity Curtain Specification US DOT Type 2 - across all areas where sediments can enter the watercourse. Turbidity curtains are to be anchored or weighted down along its length to form a continuous seal on the river bed with adequate flotation at water surface to prevent over spills of turbid water.
36. Flow dissipaters and/or filter bags, or equivalent, shall be placed at water discharge points to prevent erosion and sediment release.
37. Silt or debris that has accumulated around the temporary cofferdams shall be removed prior to their withdrawal. All cofferdam material will be removed from the watercourse upon decommissioning.
38. The contractor will maintain a standby supply of pre-fabricated sediment fence barriers, or an equivalent ready-to install sediment control devices.
39. Avoid activities that could lead to erosion during excessively wet weather conditions; monitor forecasts for heavy rainfall watches & warnings.
40. Environmental protection measures shall be checked after each extreme weather event.

#### Fish/Water Quality

41. No in-water work is permitted between March 15<sup>th</sup> and June 30<sup>th</sup> of any year to protect fish populations during their spawning and nursery periods. Should work be required within this window, additional permissions and mitigation measures may be required based on site-specific characteristics. Work beyond March 15<sup>th</sup> must be approved by PCA prior to work occurring, and may not be granted if conditions do not allow it.
42. Fish (and reptiles/amphibians if encountered) shall be rescued from areas that are going to be dewatered. Rescued fish shall be released back into the Rideau Canal.

- Parks Canada's Environmental Authority shall be advised 24 hours prior to fish rescue.
  - Minimize the length of time fish are out of the water.
  - Use appropriate equipment to remove any stranded fish in the dewatered area. As water levels drop in the work area monitor the deeper pool areas where fish are congregating. If safe to do so, Seine nets or Dip nets can be operated by field staff to remove the fish.
  - Contact PCA EA staff should there be any issues with fish removal.
  - Any fish found within the dewatered coffer dam areas will be documented by species, counted and removed and placed downstream if found in the downstream coffer dam and upstream if found upstream.
  - Round gobies or other invasive species found during dewatering activities shall be euthanized and not returned to the water system; this shall be reported to Parks Canada.
  - Sediment/turbidity curtains shall be deployed in a manner - e.g. moved in a direction from close to shore/structures outward - that prevent entrapment of fish inside the curtain.
- 43.** Ensure that there is a fish screen that complies with DFO Freshwater Intake End-of-Pipe Fish Screen Guideline when pumping in fish-bearing water to prevent impingement or entrainment of fish.
- 44.** All works shall be completed in the dry by de-watering the work area and diverting and/or pumping clean water such that it does not come in contact with the work zone within the cofferdam. A de-watering Plan shall be submitted, as part of an EMP, to PCA for review and acceptance prior to any dewatering.
- 45.** Any water containing a high level of silt or sediment will be treated by discharging to settling basins, vegetated areas or sediment traps prior to release to streams (to be identified in a Dewatering Plan).
- 46.** Activities causing turbidity or release of sediment will comply with the Canadian Council of Ministers of the Environment (CCME) Guidelines on Total Particulate Matter (see <http://ceqg-rcqe.ccme.ca/download/en/217>).
- 47.** Ontario Drinking Water Quality Guidelines cannot be exceeded (beyond parameters that currently exist) due to project activities.
- 48.** Discharges from the Work Area must be undertaken in such a way that scouring of the canal bed outside the Work Area does not occur.
- 49.** Only the working end of machinery shall directly enter the water. The working end of machinery will be clean and maintained free of leaks. Complete the in-water activity as quickly as possible to minimize the time equipment is in the water; do not leave equipment in water during breaks in work activity.
- 50.** Dewatering is staged such that clean is pumped back to the system and turbid water is managed through a waste water system.
- 51.** Only clean material free of fine particulate matter shall be placed in or near water where it has been previously planned and authorized.

52. In the event of a significant silting or debris caused by construction activities, the contractor will take appropriate measures to contain and mitigate the problem including the installation of additional downstream turbidity curtains.
53. Any stockpiled materials shall be stored and stabilized a safe distance away from any watercourse, drainage course or swales to prevent erosion and subsequent entry into the water body OR removed from the site, in accordance with all federal, municipal and provincial regulations.
54. Salt and other road chemicals should be properly stored in designated areas only, preferably in dry sheds to prevent infiltration of leachate to the water table and surface runoff.
55. Accumulated snow that may be contaminated with salt should be disposed of only at approved dumpsites or designated areas.
56. Snow containing salt or sand should never be dumped in, or allowed to melt and run off into watercourses.
57. Ice laden with sediment shall be removed from the project site or stored within an isolated area, with meltwater being treated for turbidity as necessary.
58. All concrete, sealants, or other compounds used for this project shall be utilized according to the appropriate Product Technical Data Sheet, stating guidelines and methods for proper use, and provided by the manufacturer of the product.

#### Concrete Usage

59. Unless specified and approved in contract documents, ensure that all works involving the use of concrete, cement, mortars, grout and other Portland cement or lime-containing construction materials are not deposited, directly or indirectly into any watercourse. Concrete materials cast-in-place must remain inside the formed structure. Containment facilities shall be provided for the wash-down of concrete equipment including concrete delivery trucks, concrete pumping equipment and hand tools. All concrete wash water will be captured and disposed of off-site in a location where it will not enter subsurface drains, waterbodies or storm drains. Water that contacts uncured or partly cured concrete shall be prevented from entering any watercourse or stormwater system. Use only non-toxic biodegradable form stripping agents.
60. Concrete leachate is alkaline and highly toxic to fish and aquatic life. Measures must be taken to prevent any incidence of concrete or concrete leachate from entering the watercourse. Maintain complete isolation of all cast-in-place concrete and grouting from fish-bearing waters for a minimum of 48 hours if ambient air temperature is above 0°C and for a minimum of 72 hours if ambient air temperature is below 0°C or until significantly cured to allow the pH to reach neutral levels.
61. At the discharge point into the watercourse, pH will be maintained between 6.5 and 9.0. Water with pH > 9 cannot be released directly back into the watercourse, but must be treated prior to release. Water with a pH ≥ 12.5 is considered toxic and treated as a hazardous waste under Ontario Regulation 347 of the Environmental Protection Act and wastewater in this condition must be removed from the site.



62. Ensure that all works involving the use of concrete will not deposit, directly or indirectly, sediments, debris, concrete, concrete fines, wash or contact water into or about any watercourse.
63. Concrete debris and dust generated as a result of various concrete work shall be removed in a way that will ensure material does not enter the waterway. All debris including unused aggregate/concrete rubble shall be completely removed and area restored to original state upon completion of work.
64. Concrete debris shall be placed into an enclosed container daily, or more frequently if required, in order to ensure that no debris escape or remain at the site.
65. In the event of a release of concrete or grout, Parks Canada and the Ontario Spill Action Centre (1-800-268-6060) shall be notified; 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.
66. Wash equipment away from water and provide containment facilities for the wash-down water from concrete delivery trucks, concrete pumping equipment, and other tools and equipment.
67. Geotextile or membranes (filter fabric) will consider the grain size characteristics of concrete sediment and shall be designed around the principals of maintaining sufficient hydraulic flow and prevention of particle movement through the material.
68. Monitoring of downstream areas, well outside the project site, during potential rock fissure grout injection will be required throughout the entire operation.
69. Additional environmental mitigation measures for concrete pours in a wet environment or in contact with a water body:
  - Ensure concrete forms are tight and no flow is occurring.
  - Isolate area with curtain or impermeable material specified for concrete particulates; ensure fish exclusion is followed.
  - Isolated area should be the minimum size required to complete task.
  - A CO<sub>2</sub> system must be installed and operating along the entire length of the isolated area. The tank shall be used to release carbon dioxide gas into an affected area to neutralize pH levels. Ensure sufficiently sized tanks for the concrete volumes used.
  - Workers shall be familiar with the use of the system.
  - Use of neutralizing acids is not permitted.
  - pH monitoring conducted immediately downstream of the isolated concrete pour.

#### Vegetation removal

70. Disturbance of vegetation must be limited to what is required for allowing reasonable completion of the project with minimal environmental impact.

71. 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.
72. Trees, shrubs and vegetation which are to remain throughout construction should be properly identified and delineated.
73. Where practical, the branches of the large trees should be trimmed back as the first option rather than cutting the entire tree.
74. When feasible, alter riparian vegetation by hand. If machinery must be used, operate machinery on land and in a manner that minimizes disturbance to the banks of the water body.
75. 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 when required.
76. Grubbing should not be conducted unless a suitable planting plan and Erosion and Sediment Controls are in place. Discuss with EA officer for suitable plans.
77. 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.
78. If over half of a tree needs pruning, in most circumstances it will be best to cut it down instead of pruning. Cut trees off at ground level and do not leave pointed stumps.
79. Native species are to be used for tree planting and/or ground cover with mulch to prevent erosion and to help seeds germinate.
80. If there is insufficient time (at least four weeks) in the growing season remaining for the seeds to germinate, or at risk of germinating and being damaged by frost, the site shall 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. Frost can occur as early as August 31st and late as June 25th.
81. Root systems of trees identified to remain should be properly delineated and fenced off, so as to protect the root systems from being crushed and impacted by machinery.
82. In the event that the installation of root-protectant fencing is not possible and/or ideal, alternative measures, as approved by PCA, must then be implemented. Such measures must provide a sufficient amount of soil compaction prevention with regards to the highest level of activity to occur within the immediate area of protection.
  - For areas of light-to-medium levels of traffic activity, a geotextile cloth shall be placed over the area of protection and covered with an 8 inch (at minimum) thick layer of mulch material.
  - Pins or staples must be used to secure the geotextile material to the ground.
  - For areas of medium-to-high levels of traffic activity, a geotextile cloth shall be placed over the area of protection and covered with an 8 inch (at minimum) thick layer of mulch material. The mulch material shall then be covered with 3/4 inch sheets of plywood.
    - The plywood will break down over time, and shall be replaced periodically to retain its effectiveness.
    - ¾ inch laminated large sheets of plywood are recommended for use.
    - Overtime, mulch material can degrade, move, or wash away. Mulch must be replenished as necessary in order to maintain a layer of 8 inch thickness at all times.

- Mulch material should not be permitted to pile against the trunk(s) or root flare(s) the tree(s), as this may lead to unwanted bark rot and oxygen deprivation, subsequently leading to the death of the tree(s).
- 83. Alternative methodology for soil-compaction prevention may be utilized (ex. blast mats), as reviewed and approved by PCA.
- 84. The success of all vegetative plantings shall be assessed through visual site inspections conducted at least once each spring and each fall for the first two growing seasons following planting. If at any time during the monitoring period any plantings are found dead or failing, mitigation measures shall be implemented to reduce the risk of future failure and the plants shall be replaced and monitored accordingly.
- 85. Native grasses, shrubs, etc. should be planted to match existing species growing on the sites.

#### Invasive Species

- 86. 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](http://www.ontarioinvasiveplants.ca/wp-content/uploads/2016/07/Clean-Equipment-Protocol_June2016_D3_WEB-1.pdf)
- 87. Any equipment or vehicles which are to be used in water, should be thoroughly cleaned before and after use of any visible mud, vegetation, mussels, etc.:
  - Vessels/equipment should be drained of standing water.
  - Vessels/equipment should ideally be cleaned with hot water (>50 °C) at high pressure water (>250 psi).
  - Vessels/equipment should be dried for 2 – 7 days in sunlight before transported between waterbodies.
  - Cleaning of vessels/equipment should be conducted away from waterbodies at a recommended distance of at least 30 m from the shoreline.
- 88. Mud, dirt and vegetation should be cleaned from clothing and footwear prior to entering the work site, and prior to leaving the work site.
- 89. Should an invasive species be encountered (or at least suspected) not identified in this BIA, a photo and report of the specimen should be sent to Parks Canada's EA Officer.
- 90. Use weed-free material (i.e. sand, gravel, etc.) for erosion control and stabilization.
- 91. Use weed-free seed and confirm that seed mix to be used for revegetation purposes does not (potentially) contain invasive plants.
- 92. Seed purchased commercially should have a label that states the following:
  - Species;
  - Purity: Most seed should be no less than 75% pure and preferably over 85% pure. The rest is inert matter, weed seed, or other seed;
  - Weed seed content: The tag should state NO invasive plants are present. Only certified weed-free seed should be used; and
  - Germination of desired seed: Germination generally should not be less than 50% for most species, although some shrubs and forbs will have lower percentages.

93. 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.
94. If removal of invasive species occurs, individuals will be disposed of appropriately, offsite to ensure no further propagation.
95. Workers should familiarize themselves with invasive species identified in this BIA that are potentially present within the work sit areas.
96. Follow the Ontario *Clean Equipment Protocol for Industry - Inspecting and cleaning equipment for the purposes of invasive species prevention*.

#### Wildlife

97. Site clearing/commencement of construction should be planned to occur outside of sensitive nesting times - April 12 to August 31. If this is not feasible, then the site must be inspected by a biologist prior to clearing, to check for the presence of nests.
98. The EMP must demonstrate procedures for avoiding disturbance/harm to wildlife and nesting birds.
99. Should conditions at the work site indicate that there are unforeseen negative impacts to wildlife, all works shall cease and Parks Canada EA Officer should be contacted immediately. The Rideau Canal has the right to require that work be altered or ceased immediately.

#### Species at Risk

100. The EMP must detail procedures (e.g. exclusion fencing) for preventing turtle entry/nesting within disturbed project gravels/soils during all stages of project activity;
101. Temporary reptile fencing, such as polythene/ woven geotextile secured with timber stakes, or material of a similar nature/function, should be installed completely around gravel stockpiles to prevent turtle nesting in the project area. Exclusion fencing should also be installed completely around stockpiled material (wood chips, gravel, earth, etc.) to prevent turtle nesting in the project area. Fencing shall not have mesh or netted backing. For guidance on how to plan and install exclusion fencing, refer to the document titled Species at Risk Branch, Best Practices Technical Note, Reptile and Amphibian Fencing, Ver. 1.1, developed by the Ontario Ministry of Natural Resources and Forestry:  
[http://files.ontario.ca/environment-and-energy/species-at-risk/mnr\\_sar\\_tx\\_rptl\\_amp\\_fnc\\_en.pdf](http://files.ontario.ca/environment-and-energy/species-at-risk/mnr_sar_tx_rptl_amp_fnc_en.pdf)
102. Synthetic plastic Erosion Control Blankets/Mats should not be utilized, particularly during nesting season, as they pose as an entrapment hazard to turtles. Fibre-based bio-degradable Erosion Control Blankets/Mats are only to be utilized.
103. Species at risk training shall be provided to all employees before they begin work on site (materials can be part of the Environmental Protection Plan). Employees must be able to identify potential species at risk and know the proper procedures to follow when they encounter a species at risk.
104. 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. Stop work immediately and contact

EA staff on how to proceed. Additional measures to avoid impacts may be required before work can restart. Stand back and allow the animal to leave the site.

- 105.** Minimize the disturbed area of the work site; clearly mark the work space.
- 106.** The active breeding/nesting season for Barn Swallow is generally considered to begin May 1st. Starting from this date, carry out nest "sweeps" twice daily to observe whether bird nest building activity is occurring in the work area (under the bridge and dam deck). Any observations of nests or nest building activity must be immediately reported to PCA. Should nesting activity be observed, PCA will relay whether deterrents are needed. Deterrent materials, which could include commercially available "bird scare tape" or "flash tape", should be on hand for May 1st in case quick deployment is required.
- 107.** Park on roads or disturbed areas only.

#### Noise /Air

- 108.** Adhere to local noise by-laws. Notify residents of planned activities that may cause disturbance and schedule them to avoid sensitive time periods.
- 109.** Monitor and mitigate public complaints by keeping a record of complaints and addressing any issues raised by the public.
- 110.** All on-site vehicles are expected to have a Drive Clean Emissions Report in compliance with O. Reg. 361/98: Motor Vehicles under the Environmental Protection Act, R.S.O. 1990, c. E.19. EA Officers 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.
- 111.** Use well-maintained heavy equipment and machinery, fitted with fully functional emission control systems/muffler/exhaust baffles, engine covers, etc.
- 112.** Machines shall not be left to unnecessarily idle in order to avoid emissions.

#### Cultural Resources

- 113.** Document the existing features that will be impacted by the project prior to their removal, restoration and/or rehabilitation.
- 114.** Any removals where profiles, sizes, or materials finishes are to be replicated, the material being removed must be documented and templated accurately.
- 115.** All removals are to be done in conformance with the drawings and specification documents.
- 116.** Ensure that all personnel working on site undergo a heritage induction to clearly identify the value of the place and how to avoid inadvertent impacts on cultural and archeological resources (known and unknown).
- 117.** Identify heritage components in the project area to ensure that inadvertent impacts do not occur.
- 118.** If, in the course of investigation or work, a cultural resource or character-defining element is damaged, CRM should be consulted immediately via the Parks Canada Project Lead for advice on how to proceed.
- 119.** When removing work for the purposes of replacement or repair, it is possible to uncover unanticipated materials or construction that may have historic significance or provide important evidence of previous construction techniques or materials. If unanticipated material or

construction is discovered during work, the project lead should stop the work, take photos, and consult with CRM for advice on how to proceed.

- 120.** When temporary structures and machinery are installed on a site, the contractor must safeguard the character-defining elements of the site (including landscape features). The contractor should bear in mind that at National Historic Sites, the recommended practice is to employ a minimal intervention approach, as defined in the Standards and Guidelines for the Conservation of Historic Places in Canada.

#### Archeological Resources

- 121.** If archaeological resources (i.e., artifacts pertaining to the construction of the canal, structural remains) are encountered, excavation should cease in the immediate area, photographs of the find(s) taken and the Parks Canada Project Lead be informed. The Project Lead 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.

#### Waste Disposal

- 122.** Recyclable material and waste shall be removed from the site, in accordance with all federal, provincial and municipal regulations, to disposal facilities licensed to receive them;
- 123.** Waste generated will be disposed according to regulations (i.e., O. Reg. 102/94 and O. Reg. 558/00, R.R.O. 1990, 347).

#### Floods/Extreme or inclement weather/Ice formation

- 124.** Undertake construction under normal weather conditions, to the extent possible, and design the project worksite to withstand variable weather conditions.
- 125.** Apply wet weather restrictions on construction activities to reduce surface run-off from exposed work areas and to minimize the risk of inundation.
- 126.** The work area shall be stabilized against the impacts of high flow/heavy rainfall events at the end of each workday.
- 127.** Work shall be suspended and the work area stabilized when there is a high probability of a rainfall event.