



# Parks Canada National Best Management Practices

## Works In and Around Waterbodies

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## Approved by

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## List of Definitions

High water mark (HWM): the usual or average level to which a body of water rises at its highest point and remains for a sufficient time so as to leave a mark on the land. (Fisheries and Oceans, 2015).

Waterbody: All aquatic ecosystems including lakes, ponds, rivers, streams, wetlands and canals. Some of these ecosystems may be dry during the summer months or frozen in the winter.

Near waterbodies and waterways: Areas beside these waterbodies, normally within 30 meters. They can include rich riparian ecosystems supporting vegetation that can tolerate damper conditions and occasional flooding, or they can be an artificial shoreline, a man-made wall or an erosion protection device.

Designated Parks Canada staff: The key contact within the field unit responsible for the project.

Sensitive features: Any areas designated by the Impact Assessment Officer or through the Impact Assessment process as locations that require additional care and consideration for project activities. Examples of sensitive features include but are not limited to nests, dens and roosts, locations of cultural resources, critical habitat or residences for species at risk, riparian areas, wetlands, wildlife corridors, rare ecotypes and areas of management concern.

## List of Acronyms

AOA: Archaeological Overview Assessment

AIA: Archaeological Impact Assessment

BIA: Basic Impact Analysis

BMP: Best Management Practices

CRIA: Cultural Resource Impact Analysis

DIA: Detailed Impact Analysis

DFO: Department of Fisheries and Oceans Canada

EIA: Environmental Impact Analysis

ESCP: Erosion and Sediment Control Plan

HWM: High Water Mark

IA: Impact Assessment

IAO: Impact Assessment Officer

PCA: Parks Canada Agency

PCB: Polychlorinated Biphenyl

SAR: Species at Risk

SARA: Species at Risk Act

## Introduction

The Best Management Practice (BMP) pathway is applied when there is a suite of routine, repetitive projects or activities, with well understood and predictable effects. This fulfils Park's Canada's obligations



under the *Canadian Environmental Assessment Act, 2012* as a manager of federal land (see the [Guide to the Parks Canada EIA Process](#)). The BMP maximizes efficiency through creation of a pre-approved impact assessment for the defined suite of projects or activities (hereafter referred to as projects), to which standard mitigation and environmental management measures can be applied.

National BMPs can be applied in the following ways:

- Direct application: Use as is as long as the proposed project falls within the scope of the BMP(s) and its application will ensure there are no significant residual adverse environmental effects.
- Application along with supplemental mitigations: *This will likely be the case when using a National BMP.* Slight modifications will likely be required to ensure all potential impacts are mitigated and to provide project-specific clarifications (e.g., critical timing windows, contact information, SAR considerations, which mitigations apply to the project and which ones do not apply).
- Application as part of a Basic Impact Analysis (BIA) or Detailed Impact Analysis (DIA): where one or more BMPs may not address all the potential adverse environmental effects of a proposed project, Field Units can apply sections of the BMP(s) as part of a BIA or DIA.
- Develop a Field Unit specific BMP: use the National BMP as a resource to create a BMP to address site-specific needs. In this case, the new Field Unit specific BMP must be signed off and approved by the Field Unit Superintendent.

The impact assessment officer (IAO) will review a proposed project and advise the functional manager of the project on if and how this BMP should be applied. The IAO's advice will be based on whether the project falls within the scope of the BMP, and whether application of the mitigation measures in the BMP will adequately address potential adverse effects of the project. The IAO will also be responsible for adding any required supplemental mitigations to ensure site specific considerations are addressed.

Project Managers are responsible to ensure all mitigation measures applicable to the project are added to the terms and conditions of any permit or contract issued for the project.

The IAO must ensure the project, IA pathway applied and determination are recorded in the [Parks Canada National Impact Environmental Assessment Tracking System](#).

## Scope of Application

Aquatic and riparian habitats are important environmental features, being biologically diverse, productive, and having rich ecological and visitor experience value. These areas can also be particularly prone to damage during construction and operation activities.

This “Works In and Around Waterbodies” BMP applies to activities and projects with no temporary or permanent increase in existing footprint below the High Water Mark:

- Erosion and Sediment Control
- Removal of terrestrial Vegetation
- Shoreline Stabilisation



- Temporary Diversion Channel/By-Pass
- Pumping Activities
- Fish and Herptile Salvage
- Concrete Works
- Painting, Staining and Resurfacing
- Wharves, Piers, Docks, Boathouses and Launch Ramps
- Small Mooring Activities

## Exceptions

Works and activities NOT covered by this BMP and which will require another Impact Assessment pathway or application of other BMP(s) include:

- Any new building or new construction within 30 meters of a waterbody.
- Projects that need a DFO review or projects that cannot avoid serious harm to fish in compliance with the *Fisheries Act*. Consult Parks Canada's factsheet for further guidance: [Fisheries Act Facts: Meeting the Requirements of the Fisheries Act for Projects In and Around Water](#) and the DFO self-assessment tool (<http://www.dfo-mpo.gc.ca/pnw-ppe/index-eng.html>).
- Work during critical wildlife timing windows (e.g., nesting season for migratory birds, herptile reproduction, nursing).
- Activities that have the potential to adversely affect the critical habitat, residences or individuals of a SARA-listed species.
- Work which may adversely impact any potential or established Aboriginal and Treaty rights or traditional use.

## Approved geographic area of application

This BMP is intended for use in all Parks Canada administered protected heritage places.

## Components of the environment that may be affected

### **Water Resources:**

- Contamination of a waterbody from machinery leaks or spills, discharges or spills of toxic or deleterious substances like concrete or cement (i.e. high alkalinity) products, equipment oils and fuels, and sediment which can kill aquatic organisms.
- Disturbance of streambed sediments resulting in increased sedimentation of waterbodies.
- The introduction of fine sediments directly from digging activity in the waterbody and indirectly from run-off from exposed soils can have severe negative impacts on all life stages of fish and other aquatic life and their habitats including<sup>1</sup>:
  - Reduction of the availability and quality of aquatic habitats through the in-filling of essential types of habitats (e.g., pools and riffles, spawning habitats);
  - Loss of interstitial spaces between spawning gravels used to shelter eggs, alevin, juvenile fish, and other aquatic organisms;

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<sup>1</sup> BC Ministry of Water, Land and Air Protection (2004)



- Impacts to species health through the clogging and abrasion of gills and smothering of eggs and juveniles;
- Reduction of water clarity and visibility which impairs the ability of aquatic life to find food, mates, and escape predators;
- Elimination of critical food items such as insects and aquatic invertebrates through smothering and loss of habitat; and
- Death of fish, amphibian, insects, vegetation and other aquatic organisms.

### **Soil/Land Resources:**

- Soil contamination from machinery leaks and spills, waste (e.g., garbage, litter, sewage).
- Operation of heavy machinery can result in soil compaction and modification of slopes, landforms and landscapes. Disturbed areas may become prone to soil erosion, loss of topsoil, exposure of subsoils and decreased bank stability, which may lead to increased sedimentation in waterbodies and facilitate the establishment of invasive species.

### **Flora and Fauna**

- Physical damage/loss of vegetation, contributing to: loss of fish, herptile or any wildlife habitat connectivity, increased flows and waterbody power, temporary or permanent loss or alteration of habitat (riparian and aquatic).
- Work in wetlands can lead to loss of wetland function as well as habitat fragmentation and a reduction in flood level protection. Work in wetlands may also result in the direct loss of rare plants as these areas have high potential for many rare plant species.
- Disruption to wildlife, (e.g. migration, or foraging times).
- Aquatic invasive alien species or parasitic disease (i.e whirling disease) can contaminate waterbodies via transportation of materials and equipment in the waterbody or between them prior to cleaning or inspection.
- Removal and/or destruction of riparian vegetation and shoreline woody debris may alter cover, food production, movement patterns and the structure of fish or herptile habitat.
- Disruption, displacement, injury or mortality of SAR and destruction or damage to their habitat.
- Most amphibians and some reptiles migrate to specialized aquatic areas to reproduce and many spend much of their lives in riparian areas. Shore stabilization works can create vertical barriers to amphibian and reptile movement, and may disturb the foreshore habitats required for breeding or basking.
- Potential impacts to salvaged animals in dewatering projects include: injury, stress, cannibalism, desiccation, and mortality. Increased mortality for herptiles can occur while crossing roads and other modified landscapes when attempting to return to capture sites.

### **Cultural Resources**

- Natural riparian areas as well as waterbodies have a high likelihood of cultural resource presence due to their proximity to water sources. Additionally, locations of engineering works may retain evidence for historical structures or the engineering works themselves may be or have elements of cultural resources. Work in these areas can:
  - a) Adversely affect the heritage value or character-defining elements of cultural resources (landscapes and landscape features, buildings and engineering works, archaeological sites, archaeological and historical objects) or a protected heritage place;



- b) Displace, impact, damage or destroy submerged and/or terrestrial archaeological resources (known or potential).

### **Visitor Safety and Experience**

- Reduced quality of visitor experience due to noise and presence of construction equipment.
- Reduced accessibility to portions of the site where work is taking place.
- Hazard to visitors and staff due to construction activities (e.g., heavy equipment and hand tool operation, tree removal).
- In-water works, shoreline works and related activities, silt curtains, mooring or swimming buoys can constitute a public safety hazard or hazard to navigation.

## **Mitigation Measures**

This BMP includes a broad range of mitigation measures and as such, the IAO must review the document carefully to determine which apply to the project. To use this document efficiently and reduce the overall size and scope of the mitigations to present to contractors and project managers, follow the recommendations below:

Step 1) Keep the mitigation modules that apply to the project expanded and collapse the others by clicking on the section titles. Within each selected module, review and delete any mitigations that may not apply.

Step 2) Review the National Common Activities BMP ([Appendix A](#)) and keep the mitigation modules that apply to the project expanded and collapse the others by clicking on the section titles. Within each selected module, review and delete any mitigations that may not apply.

Step 3) Review the [DFO Measures to avoid causing harm to fish and fish habitat including aquatic species at risk](#) and select applicable mitigations relevant to the project. Add those in the [Module 14: Supplementary Mitigations](#)

Step 4) Add any supplementary mitigation measures to [Module 14: Supplementary Mitigations](#). For example, details on site and project specific contacts such as the “designated Parks Canada staff” and critical wildlife timing windows or tables can be included in this section.

Step 5) Save the document or print a paper copy and include with the EIA determination record or project file.

*Choose all that apply to project. Each title is hyperlinked to the related section.*

1. [Project Planning](#)
2. [Common Activities](#)
3. [Erosion and Sediment Control](#)
4. [Removal of terrestrial Vegetation](#)





5. Shoreline Stabilisation
6. Temporary Diversion Channel/By-Pass
7. Pumping Activities
8. Fish and Herptile Salvage
9. Concrete Works
10. Painting, Staining and Resurfacing
11. Wharves, Piers, Docks, Boathouses and Launch Ramps
12. Small Mooring Activities
13. Supplementary Mitigations

APPENDIX A



# 1. Project Planning

*This module applies to all projects covered under this BMP.*

1. Clearly identify the Sensitive features specific to the site and adapt the project design and schedule accordingly (e.g., outside the restricted timing window).
2. All work and activities will comply with [DFO Measures to Avoid Causing Harm to Fish and Fish Habitat](#) and won't release deleterious substances to a waterbody. Every project will be assessed via the [DFO self-assessment tools](#).
3. In the case of future contradiction between measures listed in this BMP and in the DFO website, the DFO measures should be respected.
4. Maintain compliance with the [Species at Risk Act](#); identify species at risk, critical habitat and residences.
5. Maintain compliance with the [Migratory Birds Convention Act](#), consult the *Parks Canada Guidance on Managing Migratory Birds*.
6. Identify and protect important herptile habitats—such as aquatic breeding sites for amphibians, caves and seepage areas for salamanders, turtle nesting grounds, or snake hibernacula. If work must be completed during summer months, choose a time period that minimizes risk to all species at the site.
7. Use no treated wood (as creosote) that will, once installed, be permanently or seasonally in direct contact with any body of water as these materials are toxic and can harm fish populations and should be disposed of according to Regulation. See PCA guidance at: <http://intranet2/our-work/environmental-management/bois-traité-treated-wood/>.
8. Complete in-water works when water levels are lowest, if consistent with other seasonal restrictions.
9. Projects likely to interfere with navigation (e.g., work performed from a barge) must comply with the [Navigation Protection Act](#) (See PCA "[Factsheet: Navigation Protection Act](#)")
10. Work with a CRM Advisor and CRM specialists (archaeologists, historians, and built heritage advisors) to assess the impact of intervention to cultural resources (CRIA process) and identify necessary mitigation measures.
11. In consultation with a Parks Canada archaeologist, compare any construction, demolition, landscaping, vegetation removal/grubbing, shoreline stabilisation or soil disturbance plans (including but not limited to erosion and sediment control measures, staging areas and access routes) to local archaeological resource inventories. A CRIA may be required which would include an AOA. Based on the results of the AOA, an AIA and/or additional mitigation measures may be required.

*Example: Environmental Timing Windows Table*

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Fish	AVOID INSTREAM WORK					Least risk window for work in and around freshwater, June 15 – Sept 15				AVOID INSTREAM WORK		
Birds	Reduced risk for harm to birds			AVOID VEGETATION REMOVAL Bird Nesting Period: April - Mid August				Reduced risk for harm to birds				
Bats	Bat in Hibernacula			Bats Nursing Pups							Bat in Hibernacula	
Turtles	Hibernation		Mitigate Road Mortality	Nesting -avoid disturbance		Road Mortality		Hatchlings – avoid disturbing	Road Mortality	Hibernation		
Snakes	Avoid disturbance of Hibernacula			Road Mortality		Peak : breeding, live young Mitigate road mortality		Migration Road mortality	Avoid disturbance of Hibernacula			



## 2. Common Activities

*Projects: This module applies to all projects covered under this BMP.*

12. Apply measures from the National Common Activities BMP (see [Appendix A](#)).
  - a. Worksite Conditions/Staging/Laydown
  - b. Equipment Operations (e.g., hand machinery, vehicles such as ATVs, mini-excavators, mini-dozers)
  - c. Site Clean-up and Waste Management
  - d. Spill Response Plan and Hazardous Material Management
  - e. Invasive Alien species
  - f. Wildlife Management
  - g. Visitor Experience and Safety
  - h. Cultural Resources
13. Should conditions at the work site indicate there are unforeseen negative impacts to fish, wildlife, cultural or visitor experience resources, all work shall cease immediately, and the designated Parks Canada staff consulted to determine next steps.
14. Whenever possible, operate machinery on land above the high water mark, on ice, or from a floating barge in a manner that minimizes disturbance to the banks and bed of the waterbody.
15. Boats, all materials and equipment with potential to come in contact with waterbodies, must be cleaned and inspected for aquatic invasive alien species (e.g., zebra mussels) before and following work. Proof this mitigation was applied may be requested before equipment is permitted into the protected heritage place.
16. If invasive species or parasitic disease (i.e., whirling disease) are a serious problem, consider more effective cleaning methods as “Direction for Permitted Users conducting water-related activities in BNP” regarding whirling disease or the suggested by National Oceanic and Atmospheric Administration (NOAA) on [Preventing Invasive Species: Cleaning Watercraft and Equipment](#).
17. Debris shall not be allowed to enter waterbodies and must be retrieved to the extent possible if it does.
18. If a barge is used, minimise disturbance to the foreshore from the spuds and prop scour and ensure sufficient water is present to prevent the barge from grounding, be aware of the potential of submerged cultural resources.
19. Prior to demolition or repair work on bridges, docks, wharves or any other physical work, an assessment must be conducted for regulated materials such as asbestos, lead, treated wood, fluorescent bulbs, light ballasts, transformers and other electronic components, mercury and PCBs. All regulated materials must be properly managed and disposed/recycled at an approved disposal facility.
20. Avoid known or potential cultural resources and archaeological sites.
21. Apply any mitigation measures that may have been previously identified by a CRM Advisor and/or CRM specialist(s) for the immediate area of work.
22. If cultural resources are encountered, work must cease in the immediate area, the site secured and the designated Parks Canada staff contacted for further direction.
23. Notify Parks Canada staff upon discovery of any archaeological resources. If features (i.e., structural remains and/or artifact concentrations) are encountered, leave in place, mark the location (e.g. with prominent flagging) and contact the designated Parks Canada staff to take photographs and, if possible, depth measurements. The designated Parks Canada staff must provide the information immediately to the Archaeology section for an assessment of significance before work can resume. The designated Parks Canada staff should ensure that on-site workers receive appropriate cultural resource awareness training.



### 3. Erosion and Sediment Control

*This module applies to all projects covered under this BMP. It includes a description of an erosion and sediment control plan, installation, maintenance and removal of erosion and sediment control measures, material options and when to use them.*

24. An Erosion and Sediment Control Plan (ESCP) that covers all construction and restoration periods must be prepared. It should be scaled to the scope and associated risks of the project. It is likely that the final details of the plan will be provided later in the process or be modified as each worksite is encountered depending on timing of work, site condition, equipment used... However, typical requirements should be stated early. Potential considerations are:
  - a. Project design and spatial concept of environmental sensitivities (e.g. watercourses, wetlands, steep slopes etc.);
  - b. Erosion prevention (avoidance) procedures (e.g., project schedule, minimization of work area, site management, ground cover measures);
  - c. Sediment control (minimization) measures (e.g. sediment fences, check dams, sediment traps, etc.) including specifications and typical drawings of sediment control structures;
  - d. Detailed plans for in-water works including site isolation measures and project timelines;
  - e. Water management plans including site control, equipment necessary and proposed dewatering locations;
  - f. Location of erosion and sediment control measure applications;
  - g. Monitoring of prevention and control measures and corrective actions (e.g., repairs);
  - h. Removal of non-biodegradable materials once site is stabilized.
25. Avoid soil disturbing activities during periods with saturated soils, periods of high rainfall intensity, runoff, high winds, or wet snow. Temporarily stop work when wet ground conditions contribute to erosion and sediment transport.
26. Erosion and sediment control products made of 100% biodegradable materials (e.g., jute, sisal or coir fiber) should be used when possible. Ensure backing materials are also biodegradable. Products should also be selected to reduce potential for wildlife entanglement/attraction and prevent introduction of invasive alien species. Avoid straw and hay based erosion control when possible.
27. All products must be approved by Parks Canada and installed prior to commencement of work.
28. Regularly inspect and maintain erosion and sediment control structures during all phases of the project including during periods of construction inactivity or shutdown and until the site has been stabilised.
29. In the event of erosion and sediment control measure malfunction, work must be stopped until measures are adjusted to address the problem.
30. Plan project activities to minimize soil handling and limit equipment movement over exposed soils and steep or unstable slopes prone to erosion.
31. Minimize the length of time soils are exposed and complete work in one area before commencing work in another area.
32. If vegetation clearing is scheduled early due to timing windows, maintain soil stability by delaying grubbing until just prior to construction activities.
33. Ensure rock, riprap, or other materials placed on the banks or within the active channel or floodplain of the waterbody are inert and free of silt, overburden, debris, or other substances deleterious to aquatic life.
34. Excavated material and debris must be stored in a stable area, above the HWM or active floodplain and, where possible, 15 m from drainage features and/or the top of steep slopes. Protect excavated material from re-entering the waterbody, (i.e. cover with erosion blankets, seed or plant with native vegetation).



35. Following completion of work, prior to removal of sediment and erosion control measures, all disturbed surfaces and shorelines shall be stabilized and/or re-vegetated as soon as possible. Plant species/seed mix must be approved by Parks Canada.
36. Remove accumulated sediments prior to removing erosion control products.

Note that plans for sediment and erosion control are only plans, the results are what matter most for preventing adverse impacts, which means that plans must remain flexible and adaptable to site conditions and may require adjustments during construction.

## 4. Removal of terrestrial Vegetation

*This module includes: alterations or removal of terrestrial vegetation such as mowing, brushing, and landscape or structure maintenance activities, pre-work site clearing or grubbing (stump and root removal).*

37. Minimize clearing in the HWM zone as much as possible to maintain vegetative buffer at shoreline, cover and windbreaks. When practical, prune or top vegetation instead of grubbing/uprooting.
38. Avoid felling trees across a waterbody unless there is no other alternative due to safety reasons (e.g., to protect fallers or buildings). Damage to the banks and the bed of the waterbody must be prevented when removing the felled tree. If possible, leave and anchor the trunk, letting it remain as large woody debris within the riparian zone but ensure tree limbs/stumps are flush cut as close to the ground or stem as possible.
39. Clearly identify the clearing zone and mark significant specimen trees to ensure they are avoided.
40. Move logs and other salvage materials to a storage site outside the HWM zone, minimize the spread of debris or damage to other standing trees or landscape resources outside the marked clearing and storage area. Logs should not be skidded through wetlands or water bodies.
41. Avoid using machinery in wetland areas in order to prevent rutting, soil compaction, contamination, etc. Use hand clearing and avoid grubbing if possible.
42. If machinery is required to access the wetland, conduct work in winter under sufficient snow cover and under frozen ground conditions
43. Store removed vegetation on disturbed areas to minimize disturbance area. Debris must not be deposited in water bodies
44. Where vegetation has been removed/damaged, re-establish with native vegetation as soon as possible.

## 5. Shoreline Stabilisation

*This module includes maintenance, repairs and removal of existing shoreline works designed to prevent or reduce erosion. Methods include bio-engineering, rip-rap, a variety of vertical shore walls composed of armour stone, masonry rock, concrete, steel, wood, or gabion baskets, waterways or historic man-made walls. Shoreline excavation may be required to improve the stabilisation or complete repairs behind the walls.*

45. Avoid high-risk inclines with unstable slopes. Keep excavation to a minimum to maintain vegetative cover; where possible maintain vegetated buffer at shoreline.
46. Stabilize slopes as appropriate for local site conditions; possible methods include: grading to a stable slope, hard and soft designs or combinations of designs using riprap, armour stone, revetments, erosion control blanket, brush bundles, etc.
47. Geotextile shall be used as a separator between riprap and soil in areas where soil may erode from beneath the riprap due to high flows.



48. Ensure effective surface drainage at the end of the project, this may require re-establishment of, or improvement to, the original site drainage.
49. When herptiles are present, consider these conservation gain measures:
  - a. Create gradually sloped shorelines using a minimum 1:3 but preferably 1:15 (vertical to horizontal) slope ratio when stabilizing the shoreline.
  - b. Avoid creating deep, permanent water bodies with steep embankments.
  - c. Use 'soft armoring' shoreline techniques like plants, logs, root wads, and/or vegetative mats.
  - d. Replace 'hard' shorelines (e.g., concrete retaining walls, rip-rap) with vegetation to create more natural shorelines (i.e., 'soft armoring' techniques).

## 6. Temporary Diversion Channel/By-Pass

*This module includes installation, maintenance and removal of a temporary diversion channel or by-pass in order to allow the work in isolation of flowing water. To maintain water flow for the rest of the waterbody, options include continual pumping water around the work area or diversion of flow to an excavated stream bypass.*

50. Time of year should be considered for temporary channel construction. (E.g. outside of sensitive period and if the channel is constructed when soil is frozen, it may start to degrade once spring hits and the soil begins to thaw).
51. The diversion channel/by-pass should be completely set up and functioning properly, before any further work occurs in the site.
52. Ensure work area is appropriately isolated to prevent sediment laden water from entering the downstream side of the diversion.
53. An open temporary diversion channel should be treated as part of the actual channel, and sediment and erosion control measures should prevent sedimentation into this channel.
54. Size diversion channel appropriately to accommodate peak flows including consideration of increased flow from rain events.
55. Temporary diversions should be excavated from the downstream end toward the upstream point of diversion, where a "plug" of earth should be left to prevent the entry of streamflow into the diversion before channelization. The channel should be lined with plastic weighted down with crushed stone or other permeable material and staked into the top of the channel slopes. Once the channel has been lined and the lining secured, the "plug" of earth referred to earlier can be slowly removed.
56. The permeable material lining the diversion should be kept in a good state of repair to ensure streamflow does not get under or behind the channel liner and cause erosion of the channel banks and subsequent downstream sedimentation. Constant maintenance of temporary diversion channels may be required.
57. The temporary diversion should be filled in and stabilized to prevent erosion when no longer in use; all construction materials will be removed off site and disposed of as appropriate.
58. Once project is complete, restore the waterbody to its original configuration and stabilize bank to prevent erosion at the temporary diversion site.

## 7. Pumping Activities

*This module includes activities for diverting water around the work site or to remove sediment-laden site water arising in dewatered work areas.*



59. If the area is likely to contain fish, ensure the fish screen complies with DFO Fish protection Measures to avoid causing harm to fish and fish habitat including aquatic species at risk and the [DFO Freshwater Intake End-of-pipe Fish Screen Guideline](#).
60. Care should be exercised in the excavation of the diversion channel to ensure that the diversion is capable of accommodating peak flows from the stream that is being diverted.
61. Pumping should not occur until pumps are operating efficiently and free of sedimentation or erosion.
62. Submersible pumps used for dewatering should be placed in the low point of the work area. If there is high turbidity, pre-filter pump water and try to eliminate unnecessary sources of sediment to the dewatering area.
63. Determine the maximum flow rate for dewatering activities and ensure discharged pumped water does not cause additional erosion.
64. If pumps are used for more than one day, the pump operation should be monitored during periods of inactivity.
65. Pump water from the dewatered area into adequately vegetated areas to filter sediments or filter by other physical means, such as filter press, before allowing water to re-enter the waterway.
66. Monitor discharge water quality on a regular basis. Should there be any observable turbidity at the discharge point, work should halt until the source is determined and additional mitigation measures are applied.
67. Pump should be contained to prevent release of deleterious substances from leaking and entering system.
68. The temporary diversion should be filled in and stabilized to prevent erosion when no longer in use and any construction materials are to be disposed of appropriately.

#### Re-watering of worksite

69. Ensure all construction material/debris is removed from the site with minimal disturbance and disposed of at an approved facility.
70. Allow site to re-water slowly, while pumps are still in operation, so that no flooding or high flows erode the work site.
71. Pump water onto hardened surface to prevent excess mobilization of sediment.
72. Remove any excess sediment sources and cap with clean rock or gravel as appropriate.
73. Sediment control measures and exclusion fencing must be removed in a way that prevents the escape or re-suspension of sediments.

## 8. Fish and Herptile Salvage

*This module includes the fish and herptile salvage operation related to dewatering projects. When a watercourse is identified as fish habitat (presence of fish, no matter what species) a complete fish and herptile salvage operation is highly recommended.*

74. Capture and relocation of any species listed as endangered or threatened under SARA is NOT covered by this BMP and will require an approval from PCA or DFO. Consult the SARA-Compliant Authorization Decision Tool (found under “IA and the Species at Risk Act”) for detailed information.
75. Apply DFO Measures to Avoid Causing Harm to Fish and Fish Habitat Including Aquatic Species at Risk and obtain any applicable permits from DFO or Provincial/Territorial permits (if applicable) prior to undertaking salvage work.



76. A qualified environmental professional is required to do the salvage. The qualified environmental professional must have direct experience leading field surveys in the discipline of practice, have knowledge and direct field experience in fish and amphibian salvage, and be able to identify the fish and amphibian species in the Project area. The salvage protocol must submit and approved by Parks Canada.
77. Fish and amphibian salvage must be completed before work starts and may need to be repeated if flooding occurs on the site or if isolation is lost.
78. Consider time of year for salvaging activities as cold weather and ice can make it very hard on fish/amphibians, salvagers, labourers and equipment.
79. Round gobies or other invasive species found during dewatering activities, should NOT be returned to the waterbody, alert the designated Parks Canada staff to their presence and abundance.
80. Temporary exclusion fencing can be installed to prevent salvaged individuals from returning to the work area during construction, but must be removed on completion of the project.

## 9. Concrete Works

*This module includes: removal of concrete, demolition of damaged concrete, installation of formwork and anchors, pouring and curing of concrete. Concrete leachate is alkaline and highly toxic to fish and aquatic life, all concrete work must include measures to protect aquatic species.*

81. Anti-leaching concrete will be used for projects in and/or within 30 m of a waterbody.
82. 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, 72 hours if ambient air temperature is below 0°C or until significantly cured to allow the pH to reach neutral levels.
83. Avoid project activity during wet weather conditions.
84. All concrete, sealants, or other compounds used for project will follow stated guidelines and methods for proper use, provided by the product manufacturer.
85. Ensure all works involving the use of concrete do not deposit, directly or indirectly, sediments, debris, concrete, concrete fines, wash or contact water into or about any waterbody.
86. Monitor turbidity and pH during concrete works and have CO<sub>2</sub> diffusion system in place to neutralize pH levels if concrete materials found to be entering water body
87. For underwater pouring:
  - a. Use Anti-washout Admixture to decrease the percentage of concrete fines released into the water column.
  - b. Use grout bags where possible to further contain the concrete.
  - c. Install CO<sub>2</sub> diffusion system to neutralize pH levels and a turbidity curtain during pouring and leave in place until the pH is  $\leq 9$ .
  - d. Ensure fish are not trapped within the turbidity curtain during placement.
88. Stop placement of concrete immediately if fish kill is observed and contact the designated Parks Canada staff.
89. Wash equipment away from waterbodies and provide containment facilities for the wash-down water from concrete delivery trucks, concrete pumping equipment and other tools and equipment.
90. Any concrete wash water shall be directed to a collection basin to effectively remove all suspended solids, dissipate velocity and prevent deleterious substances from entering the waterbody.
91. Concrete debris shall be stored in an enclosed container and transported to an approved disposal facility.





92. The work area must be restored as close to the original state as possible on completion of work.

## 10. Painting, Staining and Resurfacing

*This module includes maintenance and repair projects near, in or above the waterbody which are unable to be moved away from the waterbody.*

93. Introduce adequate recovery and containment measures to minimize release of contaminants into the water, air and soil. For example:
  - a. install a shelter or tarp to collect sandblast particles and concrete residue generated by cleaning work.
  - b. the shelter must be waterproof to prevent leaching in the event of rain and have a mechanism for capturing soil and preventing discharge into the waterbody.
94. Comply with allowable levels of silica in the abrasive, as specified in applicable Regulations. To the extent possible, use an abrasive with a less significant impact than silica.
95. Attach drop cloths to prevent materials such as paint, timbers, concrete, solvents, and sandblast material from entering the water. A cofferdam may be required for work below the HWM.
96. Paints and solvents shall be stored, mixed and transferred at a suitable location upland, away from the watercourse.
97. Sealants or other compounds shall be utilized according to the appropriate Product Technical Data Sheet, stated guidelines and methods for proper use provided by the manufacturer of the product.
98. Any debris on watercourse beds (including unused aggregate/concrete rubble) shall be completely removed, and the area restored to as close to the original state as possible upon completion of work.

## 11. Wharves, Piers, Docks, Boathouses and Launch Ramps

*This module includes removal and maintenance of wharves, piers, docks, launches or boathouses (building at the water's edge in which boats are kept).*

99. Minimize disruption to habitat by ensuring removal activities do not include dredging, blasting and/or placement of fill below the high water mark. Ensure existing rocks and logs in the aquatic environment remain in place.
100. Remove existing structures and/or pilings in a manner that prevents foreshore disturbance and/or sediment generation. Remove debris by hand, where possible.
101. If piles cannot be pulled out, cut or break off any piles as close to the waterbody bottom as possible.
102. During installation/replacement of new cribs under a boathouse, at least 50% of the total boathouse length must be clear unobstructed open spans to allow for water circulation and fish movement.
103. Space elevated decks and walkways to allow light penetration to the foreshore.
104. Avoid use of polystyrene buoyancy billets, they are friable and deposit plastic particles into the receiving environment. If used, polystyrene floats must be fully enclosed in a protective coating to prevent breakdown of the material during use, seasonal removal, and reinstallation.
105. Decking on docks, floats, piers and gangways should use open grid material to allow light infiltration to the water column. This can be accomplished through spacing of deck materials, or by using porous deck materials which allows minimum of 40% of light to pass through the deck surface and enter the water column.



106. Do not use rubber tires as floatation system components for floating dock sections as they are known to release extracts toxic to fish and aquatic invertebrates.
107. Use inert or untreated materials (e.g. fir, cedar, hemlock) as supports for structures to be submerged in water. Use no treated wood (such as creosote) that will, once installed, be permanently or seasonally in direct contact with any body of water as these materials are toxic and can harm fish populations. Treated wood must be handled, and disposed of according to guidance. See PCA guidance at: <http://intranet2/our-work/environmental-management/bois-traite-treated-wood/>.
108. Cut, seal and stain (non-toxic) all lumber away from the water and ensure it is completely dry before use near water.
109. Ensure plastic barrel floats are free of any chemicals inside and outside before they are placed in water.

## 12. Small Mooring Activities

*Traditional mooring buoys consist of an anchor (mushroom anchor or large block of concrete or similar material), a length of chain, connecting chain tackle, buoyant rope or light chain and a surface float. Conservation mooring systems (or eco-mooring system) have been developed to replace traditional moorings and substantially reduce or eliminate the impact on sensitive resources when the chain moves across the bottom. A typical conservation mooring consists of a helical screw anchor, elastic rode, a mid-water column buoyant float to keep all parts off the bottom and a surface float with moorage attachment point.*

110. Ensure moorings (including anchors and floats) are made of clean, inert material.
111. Locate moorings in depths that allow structures and vessels to remain afloat at the lowest possible water levels and prevent propellers from disturbing bottom sediments.
112. Select mooring anchors of an adequate size to secure vessels or structures and prevent the anchor from shifting or dragging along the bottom.
113. Size the length of mooring lines, chains or cables to avoid excess line, chain or cable accumulation on the bed of the waterbody.
114. Pre-cast and cure concrete anchors, if required, away from water prior to use to prevent seepage of potentially toxic substances into the waterbody.
115. Remove derelict or unused floats, lines, chains or cables and dispose of in accordance with appropriate legislation and standards.
116. Do not install or replace traditional mooring in sensitive substrate areas.
117. Install conservation moorings at priority anchorage sites to protect vulnerable species or habitat and minimise anchor activities in sensitive areas. For example:
  - a. Identify anchor exclusion zones;
  - b. Strongly encourage use of moorings where they are present and available.
118. Where restoration of sensitive areas is needed, convert chain moorings to conservation moorings.



## 13. Supplementary Mitigations

In the application of National BMPs, supplementary mitigations will likely be required to ensure all potential impacts are mitigated. Include any site-specific mitigation measures in this section (e.g., a few site-specific mitigation measures that may have been previously identified by a Parks Canada archaeologist or cultural resource advisor,).

NOTE: if the number of supplementary mitigations is considerable in extent and nature, determine whether a Field Unit specific BMP or another IA pathway is better suited to address the impacts.

In this circumstance, the relevant BMP should be indicated in the EIA Requirement Checklist, with a note that application of the BMP will be supplemented through the addition of mitigation measures to address project or site-specific requirements. All relevant mitigations and project-specific clarifications should be included as terms and conditions in any permits and authorization documents (e.g., contracts) for the project.

Supplementary mitigation measures may be included here:



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**Not for revision**

APPENDIX A

**Parks Canada National Best Management  
Practices for Common Activities**



## Parks Canada National Best Management Practices for Common Activities

Approved by

Original signed by Nadine Crookes

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Nadine Crookes, Director Natural Resource Conservation Branch

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Date

Last updated: Feb13, 2017



The Best Management Practice (BMP) pathway is applied when there is a suite of routine, repetitive projects or activities, with well understood and predictable effects. This fulfils Park's Canada's obligations under the *Canadian Environmental Assessment Act 2012* as a manager of federal land (see the [Guide to the Parks Canada EIA Process](#)). The BMP maximizes efficiency through creation of a pre-approved impact assessment for the defined suite of projects, to which standard mitigation and environmental management measures can be applied.

National BMPs can be applied in the following ways:

- **Direct application:** Use as is when the proposed project falls within the scope of the BMP(s) and its application will ensure there are no significant residual adverse effects.
- **Application along with supplemental mitigations:** *This will likely be the case when using a National BMP.* Slight modifications will likely be required to ensure all potential impacts are mitigated and to provide project-specific clarifications (e.g., critical timing windows, contact information, SAR or cultural resources considerations).
- **Application as part of a Basic Impact Analysis (BIA) or Detailed Impact Analysis (DIA):** where one or more BMPs may not address all the potential adverse effects of a proposed project, Field Units can apply the BMP(s) as part of a BIA or DIA.
- **Develop a Field Unit specific BMP:** use the National BMP as a resource to create a BMP to address site-specific needs. In this case, the new BMP must be signed off and approved by the Field Unit Superintendent.

The impact assessment officer (IAO) will review a proposed project and advise the functional manager of the project if and how this BMP should be applied. The IAO's advice will be based on whether the project falls within the scope of the BMP, and whether application of the mitigation measures in the BMP will adequately address potential adverse effects of the project. The IAO will also be responsible for adding any required supplemental mitigations to ensure site specific considerations are addressed.

Project Managers are responsible for ensuring all mitigation measures applicable to the project are added to the terms and conditions of any permits or contracts issued for the project.

The IAO must ensure the project, IA pathway applied and determination are recorded in the Parks Canada National Impact Assessment [Tracking System](#).



<b>Parks Canada National Best Management Practice for Common Activities</b>	
Scope of application:	<p>This Best Management Practice (BMP) applies to the common activities related to most projects (e.g., construction, demolition, maintenance or modification) taking place greater than 30 meters(m) from a waterbody<sup>2</sup> as measured from the High Water Mark<sup>3</sup> and outside of critical wildlife timing windows (e.g., nesting, breeding, migration, denning).</p> <p>Common Activities in this BMP include:</p> <ul style="list-style-type: none"> <li>• Project Planning</li> <li>• Worksite Conditions/Staging/Laydown</li> <li>• Equipment Operations (e.g., hand machinery, vehicles such as ATVs, mini-excavators, mini-dozers)</li> <li>• Site Clean-up and Waste Management</li> <li>• Spill Response Plan and Hazardous Material Management</li> <li>• Invasive Alien species</li> <li>• Wildlife Management</li> <li>• Visitor Experience and Safety</li> <li>• Cultural Resources</li> </ul>
Exceptions:	<p>This BMP does NOT apply to the following:</p> <ul style="list-style-type: none"> <li>• Work within a riparian buffer zone (i.e., within 30m from the High Water Mark) and below the High Water Mark of any waterbody.</li> <li>• Work taking place within critical wildlife timing windows (e.g., migratory bird nesting period)</li> <li>• Projects located within Zone I (Special Preservation) or within sensitive areas.</li> </ul> <p>If the project requires additional mitigation measures specific to aquatic resources, vegetation, species at risk, birds, wildlife, sediment and erosion control, or other non-common activities, consideration of another Impact Assessment (IA) pathway may be required i.e., Basic Impact Analysis (BIA) or Detailed Impact Analysis (DIA).</p>
Approved geographic area of application:	This BMP may be used in all Parks Canada administered protected heritage places.

<sup>2</sup> Waterbody: All aquatic ecosystems including, lakes, ponds, rivers, streams, wetlands and canals.

<sup>3</sup> High Water Mark: the usual or average level to which a body of water rises at its highest point and remains for a sufficient time so as to leave a mark on the land (Fisheries and Oceans, 2016).

**Effects Assessment and Mitigation**

<p>Components of the environment that may be affected:</p>	<p><b>Water Resources:</b></p> <ul style="list-style-type: none"> <li>• Reduced water quality due to transportation of debris and contamination (i.e. from leaks and accidental spills, etc.)</li> </ul> <p><b>Soil/Land Resources:</b></p> <ul style="list-style-type: none"> <li>• Soil contamination from hazardous materials (e.g., construction waste, fuel)</li> <li>• Soil compaction and rutting</li> <li>• Soil erosion, loss of topsoil and exposure of subsoils</li> <li>• Change in slopes, landforms and landscape</li> </ul> <p><b>Air/Noise Quality:</b></p> <ul style="list-style-type: none"> <li>• Temporary decreased ambient air quality (e.g., dust, equipment emissions)</li> <li>• Increased ambient noise levels</li> </ul> <p><b>Terrestrial Wildlife and Vegetation:</b></p> <ul style="list-style-type: none"> <li>• Wildlife habituation/attraction to artificial food sources</li> <li>• Impeded/altered wildlife movement</li> <li>• Habitat destruction or alteration</li> <li>• Mortality from project activities</li> <li>• Introduction of invasive species, or expansion of existing populations</li> <li>• Damage to and removal of vegetation, disturbance of adjacent natural areas, root exposure and physiological distress</li> </ul> <p><b>Cultural Resources:</b></p> <ul style="list-style-type: none"> <li>• Adverse effects to the heritage value or character defining elements of a cultural resource or a heritage place</li> <li>• Impacts to archaeological resources (known or potential) from displacement or destruction, resulting in loss of heritage value</li> <li>• Impacts to cultural landscapes, buildings, objects, engineering works</li> </ul> <p><b>Visitor Experience/ Visitor Safety:</b></p> <ul style="list-style-type: none"> <li>• Reduced quality of visitor experience due to noise and presence of construction equipment</li> <li>• Visual impacts and landscape changes</li> <li>• Reduced accessibility to portions of the site where work is taking place</li> <li>• Hazard to visitors and staff due to construction activities</li> </ul>
<p>Parks Canada Specialists</p>	<p><b>Impact Assessment advice:</b>          If there are any questions on how to apply this BMP, consult a member of the <a href="#">Impact Assessment Team</a>.</p>

**Cultural Resource advice:**

If there is any uncertainty regarding potential adverse effects to known or potential cultural resources, consult a member of the [Cultural Resource Management Protection Team](#) or, if applicable, the local Field Unit specialist.

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## **Mitigation Measures**

Review this section and delete the mitigation measures that may not apply to the project or copy the appropriate measures into the IA document.

<b>Mitigation Measures:</b>	<p><b>Project Planning:</b></p> <ol style="list-style-type: none"><li>1) Schedule construction during optimum times for reducing erosion, and outside of timing windows for sensitive species to maintain compliance with the <i>Migratory Birds Convention Act, Fisheries Act</i> and <i>Species at Risk Act</i>.</li><li>2) The impact assessment officer will review a proposed project and advise the functional manager of the project as well as if and how this BMP should be applied.</li></ol> <p><b>Work Site Conditions/Staging/Laydown:</b></p> <ol style="list-style-type: none"><li>3) Key contacts and their respective roles and responsibilities must be identified prior to work starting and communicated to all on-site workers.</li><li>4) People working on the project/activities must review the mitigation measures and any site specific considerations with designated Parks Canada staff before work begins.</li><li>5) Clearly mark the work site and restricted areas with stakes, biodegradable flagging tape or other means to minimize the disturbance footprint; remove when the project is completed.</li><li>6) Staging areas, material/equipment drop sites, and parking areas must be identified, including duration of use, within an existing disturbed footprint (e.g., roadway, gravel surface, previously disturbed area with high resiliency) or approved by designated Parks Canada staff.</li><li>7) Use existing roadways, trails, disturbed areas or other areas as approved by designated Parks Canada staff for site access, travel within the site and construction activities.</li><li>8) Wet down dry materials, if appropriate, and cover waste to prevent the wind from blowing dust and debris. Control dust on roads used by the on-site workers (including temporary roads).</li></ol> <p><b>Equipment Operations:</b></p> <ol style="list-style-type: none"><li>9) Use low pressure or rubber tracked equipment or access matting where feasible to minimize soil compaction and ground disturbance.</li><li>10) Select equipment appropriate to the nature of work being conducted (e.g., avoid using large scale machinery when hand tools or smaller scale machinery could be used).</li><li>11) Heavy equipment operating on paved surfaces should be equipped with street pads; damage to paved surfaces must be restored to original conditions.</li><li>12) Equipment must be properly tuned, clean and free of contaminants, in good operating order, free of leaks (e.g., fuel, oil or grease), and fitted with standard air emission control devices and spark arrestors prior to arrival on site.</li><li>13) Machinery must be stored, maintained and refuelled on a flat surface, outside the dripline<sup>4</sup> of trees and a minimum of 30m from waterbodies, as measured from the High Water Mark. Increase the buffer zone depending on level of risk and site specific conditions.</li><li>14) Refueling must take place on an impermeable fuel mat with a berm or within a container. Leaks and spills during refueling must be cleaned up and contaminated materials must be</li></ol>
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<sup>4</sup> The area defined by the outermost circumference of a tree canopy where water drips from and onto the ground.

disposed of appropriately. Fuel must never be dispelled or deposited into the environment or any water body.

- 15) Any required cleaning of tools and equipment should be done off-site. If it must be on-site, it must be in an appropriate area at least 30m from a waterbody.
- 16) Gas generators must be secured to prevent movement during operation and set up on an impermeable fuel mat with a berm or within a container that can contain 110% of the volume of fuel in the generator.

**Site Clean-up and Waste Management:**

- 17) All wildlife attractants must be secured (e.g., petroleum products, human food, recyclable drink containers and garbage) in wildlife-proof containers, a secure building or vehicle. When possible, keep food waste separate from construction waste and remove daily.
- 18) Contain and stabilize waste material (e.g., construction waste and materials, vegetation) at a minimum of 30m from a waterbody.
- 19) Contain wastes and transport to an approved waste landfill site outside the Parks Canada protected heritage place, unless otherwise directed; cover waste loads during transportation. All construction materials must be removed from the site on project completion.
- 20) Burning is not permitted within the protected heritage place unless approved by Parks Canada.
- 21) Concrete mixing activities must take place over tarps and a minimum of 30m from waterbodies. Fresh, wet, uncured concrete and concrete dust must not come into contact with waterbodies. Secondary containment measures such as collection/drip trays and berms lined with air and water-tight material such as plastic and a layer of sand, and double-lined fuel tanks are required.
- 22) Excess concrete must be disposed of at an appropriate facility outside of the Parks Canada protected heritage place. If excess concrete from pump trucks must be dumped prior to transport outside the protected heritage place, it must be deposited in a location approved by Parks Canada and removed following hardening for disposal at an approved facility.
- 23) If present, portable sanitary facilities must be serviced on a regular basis and accumulated waste disposed of at a sanitary waste disposal facility. The portable facilities must have sufficient capacity and be managed to ensure waste is not discharged to the receiving environment.

**Spill Response Plans and Hazardous Material Management:**

- 24) A Spill Response Plan should be developed prior to work starting.
- 25) Ensure that all on-site workers receive a briefing about the Spill Response Plan and are aware of the location and use of spill kits and containment devices.
- 26) The Spill Response Plan will, at minimum, include the following information:
  - a) List of products and materials considered or defined as hazardous or toxic to the environment. Such products include, but are not limited to, waterproofing agents, grout, cement, concrete finishing agents, hot poured rubber membrane materials, asphalt cement, sand blasting agents, paint, solvents and hydrocarbons.
  - b) Required equipment on site.
  - c) Size, type and location of spill kits.
  - d) Fuelling procedures, fuel storage.

	<ul style="list-style-type: none"> <li>e) Spill prevention procedures (i.e., containment and storage of materials, security, handling, use and disposal of empty containers, surplus product or waste generated in the application of these products in accordance with all applicable federal and provincial legislation).</li> <li>f) Spill response (i.e., containment, clean-up, disposal of contaminated materials, etc.).</li> <li>g) Spill reporting procedure.</li> <li>h) Up-to-date emergency response contact list including contact information for reporting spills.</li> </ul> <p>27) Follow all applicable regulations and codes for the management and handling of hazardous waste.</p> <ul style="list-style-type: none"> <li>a) Identify and handle all toxic/hazardous materials as required under the <i>Canadian Environmental Protection Act, Transportation of Dangerous Goods Act</i> and Workplace Hazardous Materials Information System.</li> <li>b) Dispose of contaminated materials at provincially or territorially certified disposal sites outside of Parks Canada land.</li> </ul> <p>28) Spill containment equipment must be present on-site. A spill contingency response kit including sorbent material and berms to contain 110% of the largest possible spill related to the work must be available on site at each location of potential spills (sites where equipment is working and at re-fuelling, lubrication, and repair locations).</p> <p>29) All spills must be contained and cleaned-up as soon as it is possible to safely do so. In the event of a major spill, all other work must stop until the spill has been adequately contained and cleaned up.</p> <p>30) Notify the designated Parks Canada staff and the emergency contact immediately of any spill. In the event of a major spill, call the first contact authority (see Appendix A).</p> <p>31) Contaminants must be recovered at source and disposed of according to applicable laws, policies and regulations. The site will be inspected by Parks Canada staff to ensure completion to expected standards.</p> <p>32) Petrochemical products, paints and chemicals must be stored a minimum of 30 meters away from waterbodies and, if left overnight, they must be secured.</p> <p>33) All construction sites must be equipped with containers suitable for the secure, temporary storage of hazardous wastes, separated by type.</p> <p>34) If hazardous waste or potentially contaminated material is uncovered during excavation / construction, work must stop and excavated materials must be secured onsite in a manner that prevents contamination of the surrounding environment, including leaching. The designated Parks Canada staff must be contacted for further direction.</p> <p><b>Invasive Alien Species:</b></p> <p>35) All construction equipment from outside the Parks Canada protected heritage place must be washed outside the site prior to arrival to minimize risk of introducing invasive weed species. Proof that this mitigation was applied may be requested before equipment is permitted into the protected heritage place.</p> <p>36) If invasive species are a serious issue, consider more effective cleaning methods as suggested by the US Department of Commerce, National Oceanic and Atmospheric Administration<sup>5</sup>.</p>
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[http://www.habitat.noaa.gov/pdf/best\\_management\\_practices/Cleaning%20of%20Land%20Vehicles%20and%20Equipment.pdf](http://www.habitat.noaa.gov/pdf/best_management_practices/Cleaning%20of%20Land%20Vehicles%20and%20Equipment.pdf)

- 37) All soil, gravel, untreated construction lumber, erosion and sediment control products (e.g., hay, straw, mulch), or other applicable materials from outside the protected heritage place must be approved by the designated Parks Canada staff.
- 38) Organic material (e.g, topsoil, borrow and fill material, gravel) taken from the construction site will not be used in other parts of the protected heritage place unless approved by the designated Parks Canada staff.
- 39) Minimise ground disturbance and vegetation removal, when possible.
- 40) Minimise bare soil exposure (e.g., cover stockpiled material with tarps, plant native species, cover with natural mulch/ground coverings).
- 41) Stabilize and re-vegetate disturbed areas as soon as possible, ideally with native plants, soil and seed mix or otherwise approved by designated Parks Canada staff. If there is insufficient time remaining in the growing season, stabilize the site to prevent erosion and vegetate the following spring.
- 42) Monitor disturbed and re-vegetated areas until the designated Parks Canada staff establishes that native vegetation is growing successfully and invasive alien species spread is prevented.

**Wildlife Management:**

- 43) On-site workers must be made aware of and subsequently report any incidental sightings of species at risk immediately to designated Parks Canada staff.
- 44) If active nests, dens or roosts are discovered, stop work and contact designated Parks Canada staff immediately for direction.
- 45) Cover or fence hazardous areas when left unattended to reduce the potential for wildlife injury.
- 46) Never approach or harass wildlife (e.g., feeding, baiting, luring).
- 47) If wildlife is observed at or near the work site, allow the animal(s) the opportunity to leave the work area.
- 48) Designated Parks Canada staff must be alerted immediately to any potential wildlife conflict (e.g., aggressive behaviour, persistent intrusion), distress or mortality. In the case of aggressive behaviour or persistent intrusion, stop work and evacuate the area.
- 49) On-site workers must receive any required wildlife awareness training, according to field unit policy.

**Visitor Experience and Safety:**

- 50) As much as possible, schedule noisy activities to minimise impacts to visitors, especially around townsites, campgrounds and other high visitor use areas.
- 51) Close and mark the work site with appropriate signage while active construction, repair or maintenance is underway; consider temporary detours or reroutes as appropriate.
- 52) Secure and clearly mark unattended safety hazards (e.g., excavations, debris piles) with fencing, warning signs, area closures or combination thereof.
- 53) If closing the area is not possible, maintain a safe working distance between work activities and visitors. If traffic control is required, a flag person should manage traffic through the construction/hazard area.
- 54) Visitor access trails and roads outside the construction area must be free of construction materials, waste, machinery and equipment.

**Cultural Resources:**

- 55) Avoid known potential cultural resources and archaeological sites.
- 56) Apply any mitigation measures that may have been previously identified by a Parks Canada archaeologist or cultural resource advisor for the immediate area of work.
- 57) If cultural resources (i.e., structural remains and/or artifact concentrations) are encountered, work must cease in the immediate area, the site secured and the designated Parks Canada staff contacted for further direction.
- 58) The designated Parks Canada staff should ensure that on-site workers receive appropriate cultural resource awareness training.

**Supplementary Mitigations:**

In the application of National BMPs, supplementary mitigations will likely be required to ensure all potential impacts are mitigated. For example, a few site-specific mitigation measures that may have been previously identified by a Parks Canada archaeologist or cultural resource advisor, measures to protect vegetation or to provide contact information. NOTE: if the number of supplementary mitigations is considerable in extent and nature, it should be determined whether a Field Unit specific BMP is better suited to address the impacts or if another IA pathway should be selected.

In this circumstance, the relevant BMP should be indicated in the IA Requirement Checklist, with a note that application of the BMP will be supplemented through the addition of mitigation measures to address project or site-specific requirements. All relevant mitigations and project-specific clarifications should be included as terms and conditions in any permits and authorization documents (e.g., contracts) for the project.

Supplementary mitigation measures may be included here:



# References

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Parks Canada. 2015. *National Best Management Practices for Roadway, Highway, Parkway and Related Infrastructure*.

Parks Canada. 2016. Waterton Lakes National Park. *General Project Best Management Practices*.

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Parks Canada. 2016. *National Best Management Practices for Trail Maintenance and Modification*.

# Appendix A

In the event of a major spill, call the first contact authority:

<b>PROVINCE/ TERRITORY</b>	<b>FIRST CONTACT AUTHORITY</b>	<b>TELEPHONE</b>
<b>Newfoundland and Labrador</b>	Newfoundland and Labrador Regional Office Canadian Coast Guard Fisheries and Oceans Canada	709-772-2083 or 1-800-563-9089*
<b>Prince Edward Island</b>	Maritimes Regional Office Canadian Coast Guard Fisheries and Oceans Canada	902-426-6030 or 1-800-565-1633*
<b>Nova Scotia</b>	Maritimes Regional Office Canadian Coast Guard Fisheries and Oceans Canada	902-426-6030 or 1-800-565-1633*
<b>New Brunswick</b>	Maritimes Regional Office Canadian Coast Guard Fisheries and Oceans Canada	902-426-6030 or 1-800-565-1633*
<b>Quebec</b>	Environmental Protection Operations Directorate – Quebec Environment Canada	514-283-2333 or 1-866-283-2333*
<b>Ontario</b>	Spills Action Centre Ontario Ministry of the Environment	416-325-3000 or 1-800-268-6060*
<b>Manitoba</b>	Manitoba Department of Conservation	204-944-4888
<b>Saskatchewan</b>	Saskatchewan Ministry of Environment	1-800-667-7525
<b>Alberta</b>	Alberta Ministry of Environment	780-422-4505 or 1-800-222-6514*
<b>Nunavut</b>	Department of Environment and Natural Resources Government of the Northwest Territories	867-920-8130
<b>Northwest Territories</b>	Department of Environment and Natural Resources Government of the Northwest Territories	867-920-8130
<b>British Columbia</b>	British Columbia Provincial Emergency Program Ministry of Public Safety and Solicitor General	1-800-663-3456
<b>Yukon</b>	Yukon Department of Environment	867-667-7244

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