



Basic Impact Analysis (BIA)

Staff Housing Design – Waterton Lakes National Park

December 2015



Parks
Canada

Parcs
Canada



1 PROJECT INFORMATION

Project Title

Staff Housing Design – Waterton Lakes National Park

Proponent information

Parks Canada

Functional Manager of Project (FMP)

Jim Lambe

Project Manager Federal Infrastructure Program

Waterton Lakes National Park

Parks Canada Agency

P.O. Box 200, Waterton Park, Alberta T0K 2M0

jim.lambe@pc.gc.ca

Telephone: 403-859-5120

Facsimile: 403-859-5121

Proposed Project Dates

The Staff Housing Design – Waterton Lakes National Park Project (the Project) is scheduled to start in the first quarter of 2016.

Internal Project File #

WLNP-2015-018-FII945

Project Location

Sites were assessed within the community of Waterton (Waterton townsite) and at the bunkhouse within the Operational Compound (Compound).

Basic Impact Analysis Author

Golder Associates Ltd.

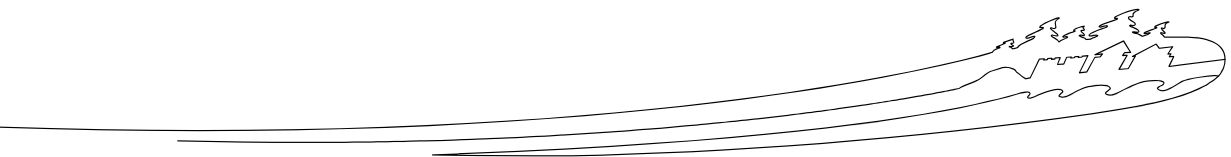
102, 2535 - 3rd Avenue S.E.

Calgary, Alberta, Canada T2A 7W5

Telephone: 403-299-5660

2 PROJECT DESCRIPTION

Parks Canada staff housing is needed in and/or near the Waterton townsite. Starting in the first quarter of 2016, IBI Group intends to complete design for construction of new staff housing in the Waterton townsite and in the Compound. Planned works include staff housing design, disconnect of electrical, water and sewage lines, demolition of existing structures, construction of new buildings, and restoration. Planned potential work sites were assessed in the northwest Waterton townsite and in the Compound northwest of the Park Warden offices (Table 1; Figures 1 and 2).



**Table 1: Staff Housing Design – Waterton Lakes National Park Site Locations**

Site	Address
Lots 39 and 40	Vacant lots adjacent to Glacier Suites Hotel, Wind Flower Ave, Waterton, AB
Lot 42	105 Wind Flower Ave, Waterton, AB
Lot 41	101 Wind Flower Ave, Waterton, AB
Lot 20	102 A (Post office) and 102 B (residence) Wind Flower Ave, Waterton, AB
Lot 21	104 Wind Flower Ave, Waterton, AB
Lot 3	104 Clematis Ave, Waterton, AB
Lot 4	106 Clematis Ave, Waterton, AB
Staff Residence	Operational Compound northwest of Park offices, Waterton, AB



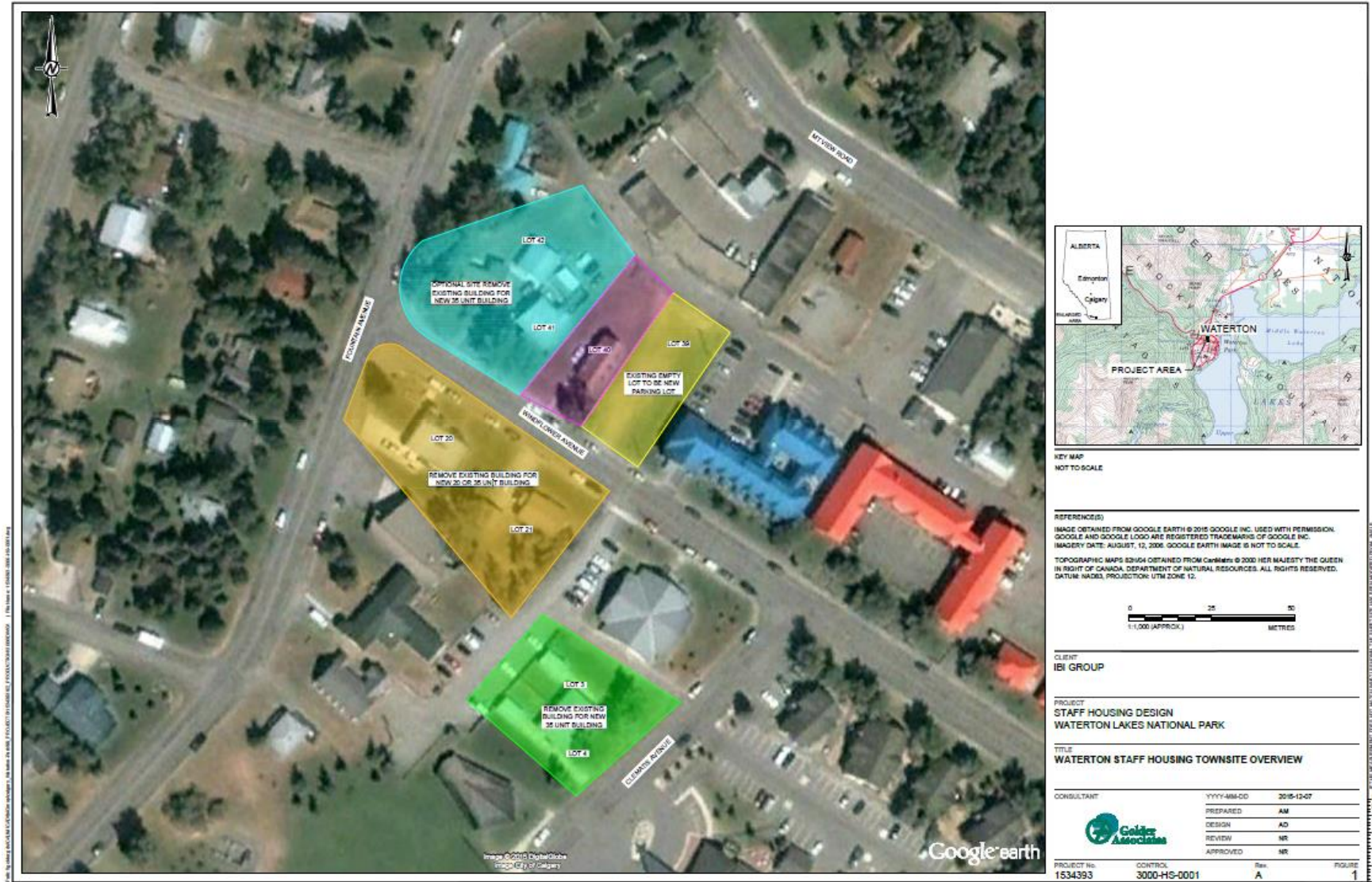
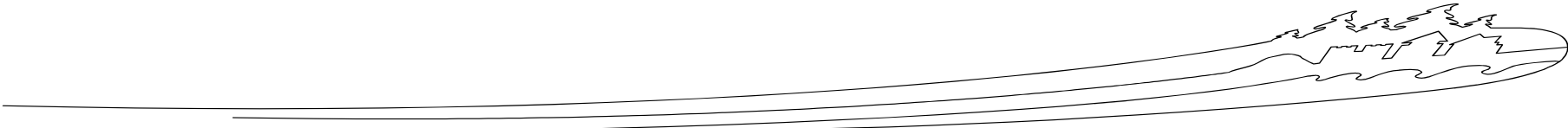


Figure 1: Staff Housing – Waterton Lakes National Park townsite overview.



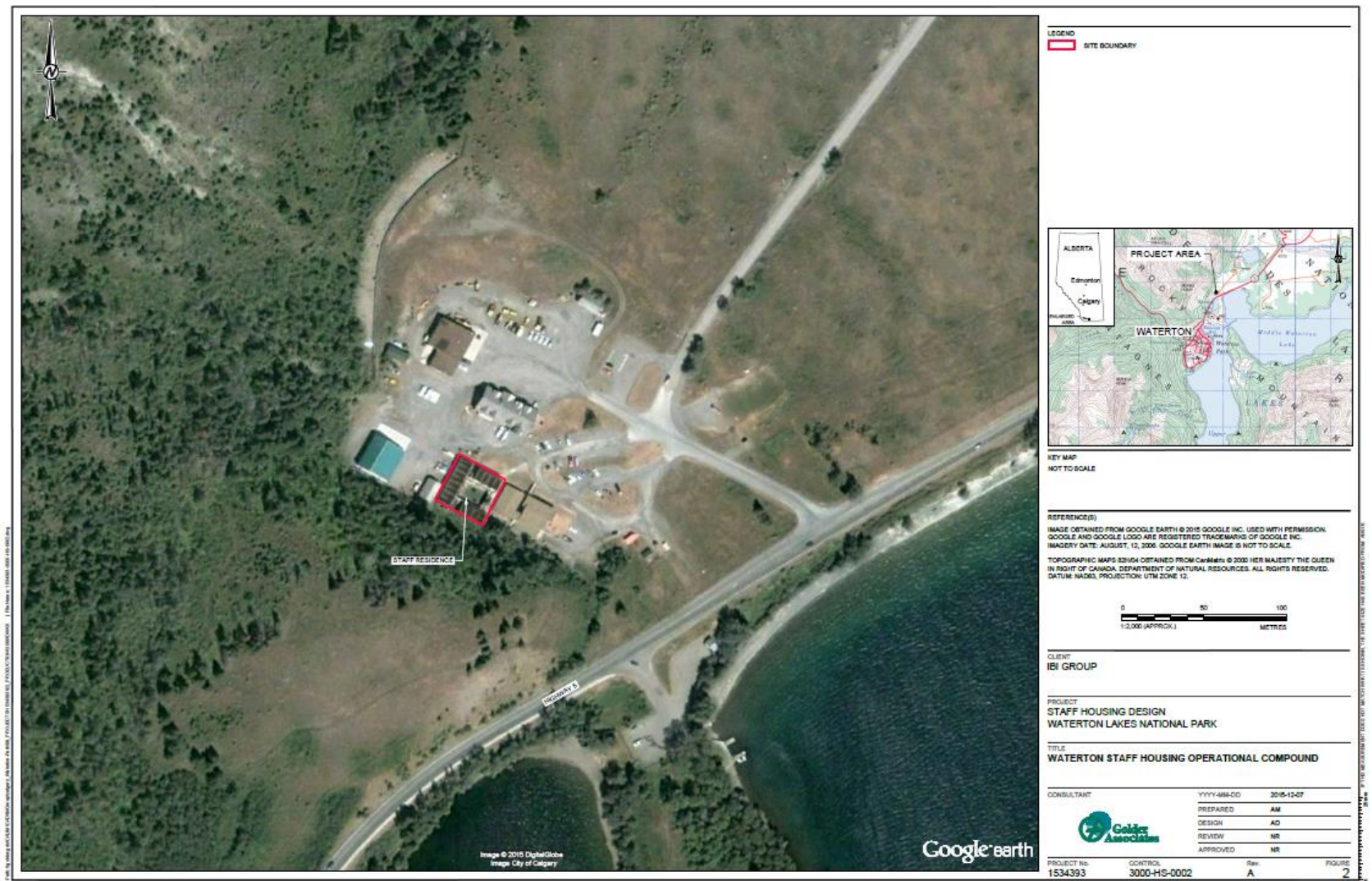
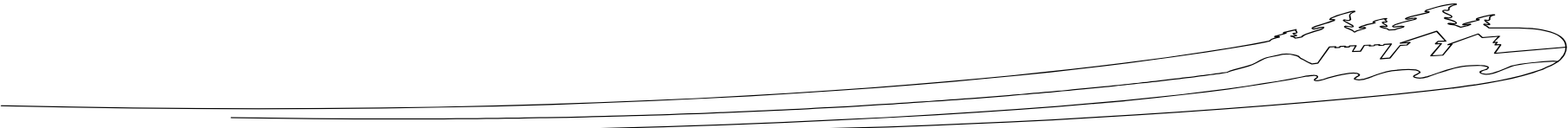


Figure 2: Staff Housing – Waterton Lakes National Park Operational Compound. The existing staff residence at the Compound is located approximately 1 km north of the townsite.





Lots 39 and 40

Two vacant lots adjacent to Glacier Suites Hotel (Wind Flower Ave, Waterton, AB) (Figures 3 and 4).



Figure 3: Vacant lots 39 (left) and 40 (right), facing south toward Wind Flower Ave.



Figure 4: Vacant lots 40 (left) and 39 (right), facing north.

Lot 42

The one-storey residence and surrounding land at Lot 42 (105 Wind Flower Ave) (Figures 5 and 6).



Figure 5: Lot 42 (105 Wind Flower Ave), facing northeast.



Figure 6: Lot 42 (105 Wind Flower Ave), facing southeast.

Lot 41

The one-storey residence and surrounding land at Lot 41 (101 Wind Flower Ave) (Figures 7 and 8).





Figure 7: Lot 41 (101 Wind Flower Ave), facing northeast.



Figure 8: Lot 41 (101 Wind Flower Ave), facing southwest.

Lot 20

The one-storey post office, residence and surrounding land at Lot 20 (102 Wind Flower Ave) (Figures 9, 10 and 11).



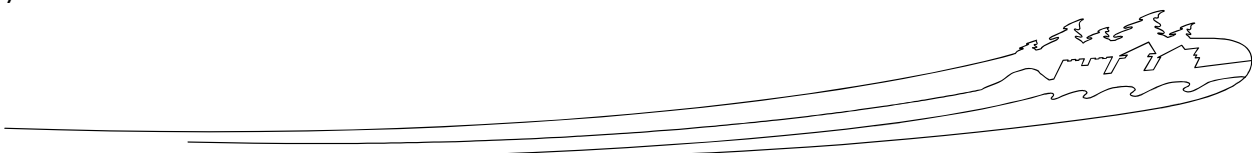
Figure 9: Lot 20 (102 A and B Wind Flower Ave), facing southwest.



Figure 10: Lot 20 (102 A Wind Flower Ave), facing east.



Figure 11: Lot 20, facing southwest – land adjacent to 102 B Wind Flower Ave.





Lot 21

The one-storey residence and surrounding land at Lot 21 (104 Wind Flower Ave) (Figures 12, 13, 14 and 15).



Figure 12: Lot 21 (104 Wind Flower Ave), facing south.



Figure 13: Lot 21 (104 Wind Flower Ave), facing southwest.



Figure 14: Lot 21 (104 Wind Flower Ave), facing southwest.



Figure 15: Lot 21 (104 Wind Flower Ave), facing north.

Lots 3 and 4

The one-storey duplex and surrounding land at Lots 3 (104 Clematis Ave) and 4 (106 Clematis Ave) (Figures 16, 17, 18 and 19).

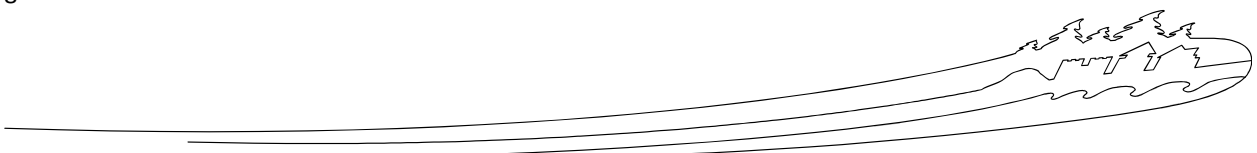




Figure 16: Lots 4 (left; 106 Clematis Ave) and 3 (right; 104 Clematis Ave), facing northwest.



Figure 17: Lot 3 (104 Clematis Ave), facing southeast.



Figure 18: Lot 3 (104 Clematis Ave), facing southwest.



Figure 19: Lot 4 (106 Clematis Ave), facing southeast.

Operational Compound Staff Residence

The two-storey staff residence and surrounding land in the Compound northwest of the Parks Canada warden offices (Figures 20, 21, 22 and 23).

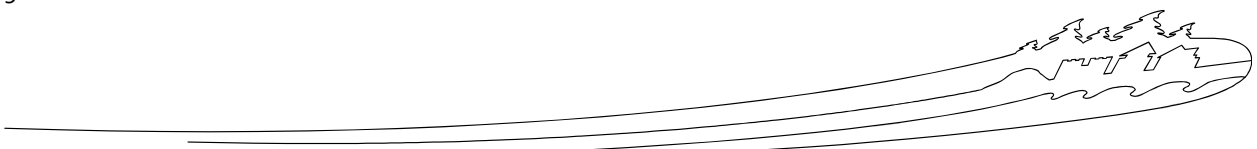




Figure 20: Staff residence (Operational Compound), facing west.



Figure 21: Staff residence (Operational Compound), inner courtyard.



Figure 22: Staff residence (Operational Compound), facing southwest.



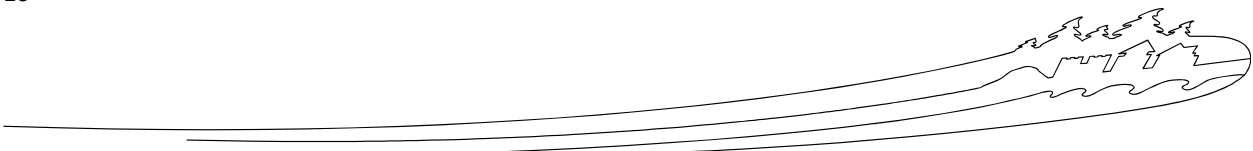
Figure 23: Staff residence (Operational Compound), facing east.

3 ASSESSMENT SCOPE

The Project is within a National Park and a *Basic Impact Analysis* (BIA) was required for the proposed Project locations to meet Parks Canada guidelines for environmental impact analysis (Parks Canada 2015a). The purpose of the assessment is to address components of the proposed Project including demolition, design, construction, operation, and site reclamation. The assessment describes the environmental and socio-economic setting, identifies the potential environmental and socio-economic effects, identifies appropriate mitigation measures, and determines potential residual and cumulative effects. Appropriate mitigations, surveillance needs and follow-up monitoring requirements are addressed through this process. Project design and construction work requires approval from Parks Canada.

4 METHODS

Golder terrestrial ecologist, Amy Darling, conducted a one day field reconnaissance survey to document site conditions (i.e., land use, vegetation, wildlife sign, wildlife habitat), collect a photographic record, and characterize the proposed Project sites (i.e., sites proposed for





demolition, new construction, and potential housing) and immediately adjacent land. Additional information was collected through an analysis of existing data sources and aerial imagery.

5 VALUED COMPONENTS (VCs)

Valued components (VCs) which may be affected by the Project during preparation, construction, operation and decommissioning as identified in the Effects Identification Matrix (Appendix A) are:

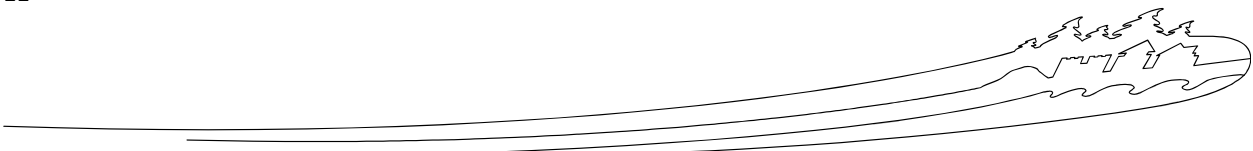
- Natural resources; and
- Visitor experience

No cultural resources are anticipated to be affected by the Project because there are no heritage buildings and no known archaeology sites (Parks Canada 2009) at the proposed Project sites. However, if cultural resources are found, Project work should be stopped and the expertise of the Archaeology and History Branch should be sought.

The geographic area (i.e., spatial scale) assessed for these components corresponds to the buildings and surrounding land on each lot in the Waterton townsite, and the staff residence and surrounding land in the Compound. The landscape context (e.g., surrounding forest type) was also taken in to consideration.

The Waterton townsite and the Compound are in the Montane Natural Subregion of the Rocky Mountain Region (Natural Regions Committee 2006). Waterton Lakes National Park is a UNESCO biosphere reserve, and a world heritage site (Waterton-Glacier International Peace Park) (Parks Canada 2015b). Waterton Lakes National Park has unusually high species richness for its size because it is located in a transitional area of overlapping ecological regions with influences from the Rocky Mountain, Parkland and Grassland Natural Regions (Natural Regions Committee 2006), and also plants from the Pacific Northwest (Waterton Lakes Chamber of Commerce 2015). Many species in Waterton Lakes National Park are rare. Species at Risk potentially present in Waterton Lakes National Park are (Parks Canada 2015b):

- halfmoon hairstreak butterfly (*Satyrrium semiluna*);
- whitebark pine (*Pinus albicaulis*);
- westslope cutthroat trout (*Oncorhynchus clarkia lewisi*);
- common nighthawk (*Chordeiles minor*);
- olive-sided flycatcher (*Contopus cooperi*);
- Bolander's quillwort (*Isoetes bolanderi*);
- Lewis's woodpecker (*Melanerpes lewis*);
- long-billed curlew (*Numenius americanus*);
- short-eared owl (*Asio flammeus*);
- northern leopard frog (*Rana pipiens*);
- western toad (*Anaxyrus boreas*);
- western bumble bee (*Bombus occidentalis*);
- pygmy whitefish (*Prosopium coulteri*);
- common nighthawk (*Chordeiles minor*);
- barn swallow (*Hirundo rustica*);





- harlequin duck (*Histrionicus histrionicus*);
- western screech owl (*Megascops kennicottii*);
- black swift (*Cypseloides niger*);
- horned grebe (*Podiceps auritus*); and
- western grebe (*Aechmophorus occidentalis*).

Other wildlife of management concern near people and inhabited areas, with the desired management outcome of reducing conflict with visitors, are ungulates and bears. Mule deer (*Odocoileus hemionus*) are of particular concern in the Waterton townsite, and bighorn sheep (*Ovis canadensis*) are a concern at the Compound.

Natural Resources

Air

No existing impacts to air quality other than light vehicle traffic (e.g., tour buses) and minor residential sources (e.g., chimneys, campground fire pits) were noted during the September 14, 2015 site visit.

Soil and Landforms

The proposed Project sites are in a previously disturbed environment (Figures 3 to 23). Existing impacts to soil and landforms were noted during the September 14, 2015 site visit; the vacant lot 40 had uneven terrain that had been recently colonized by invasive vegetation including noxious weeds (Figure 24).

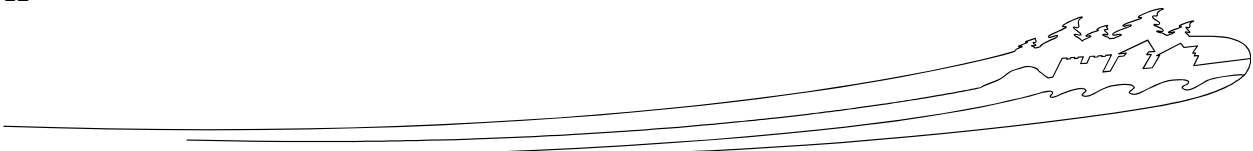


*Figure 24: Rough terrain with weed species in vacant lot 40, including the noxious weed, oxeye daisy (*Leucanthemum vulgare*), and a thistle.*

Flora

The proposed Project sites are in the Belly River 8 ecosite which covers 2/3 of the townsite (Parks Canada 2009). The primary vegetation type is Aspen Parkland and extensive open grassland (Parks Canada 2009). The vegetation communities at proposed Project sites are relatively disturbed and include non-native species.

Most sites had manicured lawns (*Poa* spp.) and three sites contained weeds defined as noxious or prohibited noxious in Alberta (Government of Alberta 2008; Government of Alberta 2010).





Oxeye daisy (*Leucanthemum vulgare*) was found in vacant lot 40 and at the Compound (noxious in Alberta; Figures 24 and 25), hound's tongue (*Cynoglossum officinale*; noxious; Figure 26) was found in lot 21 at 104 Wind Flower Ave, and spotted knapweed (*Centaurea stoebe*; prohibited noxious; Figure 27) and common mullien (*Verbascum thapsus*; noxious; Figure 28) were found at the Compound. Spotted knapweed and oxeye daisy are also considered prohibited noxious and noxious, respectively, in the Weed Seeds Order (Government of Canada 1986).



Figure 25: Oxeye daisy (*Leucanthemum vulgare*) at the Operational Compound north of the staff residence.



Figure 26: Hound's tongue (*Cynoglossum officinale*) in lot 21 at 104 Wind Flower Ave.

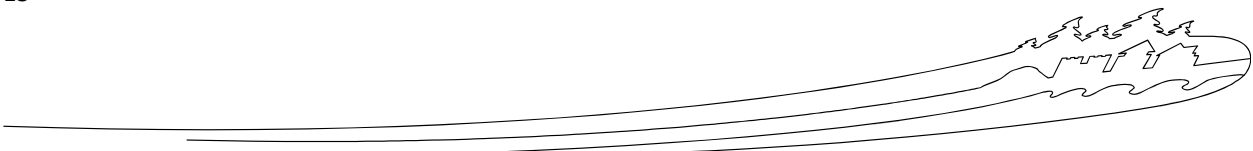


Figure 27: Spotted knapweed (*Centaurea stoebe*) at the Operational Compound north of the staff residence.



Figure 28: Common mullien (*Verbascum thapsus*) at the Operational Compound west of the staff residence.

Lots 40, 42, 41, 20, 21, 3 and 4 each had one or more large trees, typically 15 m in height or taller (Figures 3 to 19) which have the potential to function as important wildlife habitat, e.g., for cavity associated species such as downy woodpeckers (*Picoides pubescens*), including species at risk such as Lewis's woodpecker and little brown myotis (*Myotis lucifugus*). Tree species at proposed Project sites were mainly cottonwoods (*Populus tremuloides* and *P. balsamifera*). Lots 40, 20 and 21 also contained one spruce tree each, likely white spruce (*Picea glauca*) (Figures 3, 10 and 15). Lot 41 contained one 5 m tall fir, likely Douglas fir (*Pseudotsuga menziesii*).





Shrubs of Rocky Mountain maple (*Acer glabrum*), red-osier dogwood (*Cornus sericea*), buffalo-berry (*Shepherdia canadensis*), prickly rose (*Rosa acicularis*), wild red raspberry (*Rubus idaeus*) and Douglas fir were growing around the edges and in the courtyard of the staff residence at the Compound (Figures 20 to 23). The natural environment surrounding the Waterton townsite and the Compound was mountainous and treed with cottonwoods, spruce and fir, with some bare rock (Figures 29 and 30).



Figure 29: Treed mountainside northwest of the Operational Compound.



Figure 30: Treed mountainside southwest of the Operational Compound.

Fauna

Migratory birds are an important component of Canadian biodiversity and most birds and their nests and eggs are protected under the *Migratory Birds Convention Act*, 1994 (Government of Canada 1994). No cavity nests, songbird nests or large stick nests were observed in the trees at proposed Project sites during the September 14, 2015 site visit, though a downy woodpecker and a black-capped chickadee (*Poecile atricapillus*), both cavity-nesters, were observed at lots 42 and 41, respectively, and an American robin (*Turdus migratorius*) flew over lot 39. Black-billed magpies (*Pica hudsonia*), a common raven (*Corvus corax*) and mule deer (Figure 31) were observed at the lots along Wind Flower Ave, and wapiti (*Cervus canadensis*) scat was observed near the staff residence in the Compound. Other wildlife and wildlife sign observed at proposed Project sites were: bat guano (staff residence at the Compound; Figure 32), a burrow, likely of a Columbian ground squirrel (*Spermophilus columbianus*; driveway at the Compound), red squirrel (*Tamiasciurus hudsonicus*), Canada geese (*Branta canadensis*), and unknown songbirds (flyover, possibly a mixed migratory flock). Other ungulates, bears, cougars, mustelids, rodents and birds have also previously been observed in the Waterton townsite, and balsam poplars provide suitable nesting habitat for several owl species (Parks Canada 2009) such as the western screech owl. Wildlife are known to move through the townsite along the shoreline of Waterton Lake, along Cameron Creek, and in green spaces between houses (Parks Canada 2009).

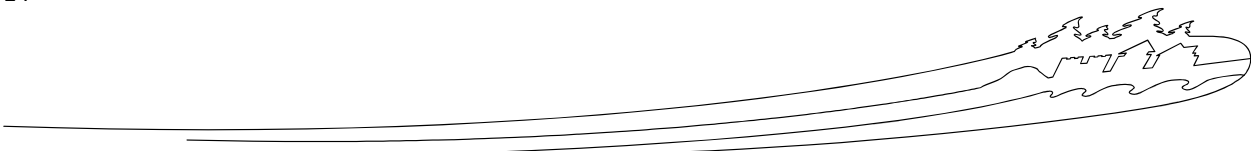




Figure 31: One mule deer resting in lot 42 and two resting in the adjacent lot 43 (red circles).



Figure 32: Bat guano on the side of the staff residence near an entry point to the maternity roost at the Operational Compound.

Species at Risk – Bats

Seven bat species have been confirmed as present in WLNP: little brown myotis, long-eared myotis (*M. evotis*), long-legged myotis (*M. volans*), big brown bat (*Eptesicus fuscus*), silver-haired bat (*Lasionycteris noctivagans*), eastern red bat (*Lasiurus borealis*) and hoary bat (*Lasiurus cinereus*) (Lausen 2012). The existing staff residence at the Compound is a known maternity roost for little brown myotis (Figure 32) (Lausen 2012). Little brown myotis is Endangered under Schedule 1 of the *Species at Risk Act* (SARA) (Government of Canada 2015).

Visitor Experience

Visitor Access and Services, Recreation/Accommodation Opportunities, Visitor Safety

Project sites are located mainly in the Waterton townsite, close to amenities used by WLNP visitors. Lot 39 is adjacent to the Waterton Glacier Suites, with Aspen Village further east on the same avenue, and Bear Mountain Motel to the north (Figures 1 and 3). One Project site, lot 20, includes the post office (Figures 1, 9 and 10). Lots 3 and 4 are across the street from a church. Town recycling bins and trailers are located behind the residences (Figures 18 and 19). The staff residence at the Compound is adjacent to the park warden services.

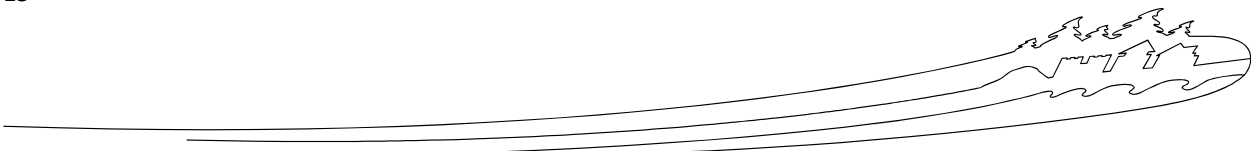
6 EFFECTS ANALYSIS

Valued Components have the potential to be affected by the Project. However, no significant or long-term effect is anticipated provided mitigations to protect natural resources and visitor experience are effectively implemented (Section 7 and Appendix B).

Natural Resources

Air

Potential impacts to air quality are associated with operation of heavy equipment, transportation of equipment, equipment accessing project sites, increase in vehicular traffic, and use of chemicals (e.g., paint, solvents, concrete) (Appendix A). However, vehicle traffic in the Waterton townsite and at the Compound is already present, with vehicles travelling through multiple times





daily. Chemical use for residences (e.g., maintenance and paint re-touching) is also likely. Therefore, after mitigation (Section 7 and Appendix B), although there will be adverse air emission effects as a result of the Project, they are predicted to be negligible in magnitude, short term and reversible after construction.

Soil and Landforms

Potential impacts to soil and landforms are associated with excavation, potential soil compaction from Project activities such as storage or laydown of materials and equipment, and potential erosion from Project activities such as operation of heavy equipment, and other vehicle traffic (Appendix A). Backfilling, grading and contouring have the potential to alter drainage and impact soil and landforms. Use of chemicals (e.g., paint, solvents, and concrete components) could also affect soils, if spills occurred. The Project will require soil and landform disturbance. However, the proposed Project sites are in a previously disturbed environment. Therefore, after mitigation (Section 7 and Appendix B), although there will be adverse effects to soil and landforms as a result of the Project, they are predicted to be negligible in magnitude, short term and reversible after construction.

Flora

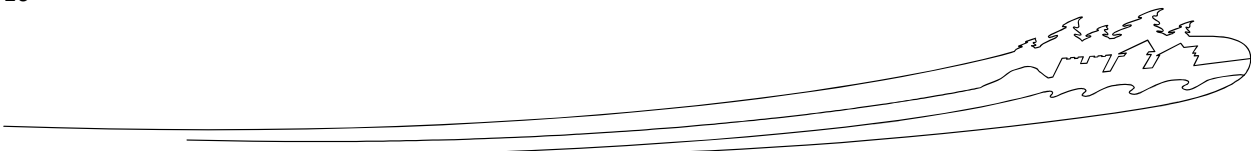
Potential impacts to flora, for example large cottonwood (*Populus* spp.), spruce and fir trees, are associated with most Project activities (Appendix A). Potential impacts to vegetation could arise from physical damage (e.g., from operation of heavy equipment and other vehicle traffic), adverse effects to vegetation health (e.g., from improper disposal of wastewater or from chemical spills) (Appendix A). Soil disturbance, site clearing and revegetation could also leave vegetation communities vulnerable to invasion from non-native species. The Project may adversely impact existing vegetation communities, however, appropriate mitigations will be implemented to prevent weed colonization and promote the desired vegetation community post-construction. To prevent adverse impacts such as weed colonization, a landscape plan consistent with the most current townscape vegetation management strategy will be developed for each lot. Therefore, after mitigation (Section 7 and Appendix B), although there will be adverse effects to flora as a result of the Project, they are predicted to be negligible in magnitude, short term and reversible after construction.

Fauna

Potential impacts to wildlife, for example woodpeckers and mule deer, are associated with sensory disturbance (e.g., noise, light) and the loss of potential nesting, foraging, movement and protective habitat (Appendix A). Wildlife habituation to human food sources could also occur as a result of poor waste disposal practices (Appendix A). However, the proposed Project sites are in a previously disturbed environment, and good garbage management practices will be in place. The *Migratory Birds Convention Act* prohibits the disturbance or destruction of nests and eggs of migratory birds (Government of Canada 1994) and bird nesting periods will be considered during project planning. The general nesting period of migratory birds is between April 1 to August 31 for zone B3 (Environment Canada 2014 website). Therefore, after mitigation (Section 7 and Appendix B), although there will be adverse effects to fauna as a result of the Project, they are predicted to be negligible in magnitude, short term and reversible after construction.

Species at Risk – Bats

Potential impacts to bats are associated with the loss of potential roosting habitat (i.e., demolition of old buildings, in particular the maternity roost in the staff residence in the Compound [Lausen 2012]). Potential Project impacts are also associated with sensory disturbance (e.g., noise, light), and operation of heavy equipment and vehicle traffic also pose a





mortality risk for bats (Appendix A). To prevent residual effects of Project activities on little brown myotis, a bat use assessment for each building will be required that includes: 1) gathering local knowledge of bat use in the building; 2) assessing habitat suitability of the building; 3) searching for signs of bat use (i.e., guano, individuals); and 4) determining what kind of use occurs at the site (i.e., day roost, night roost, maternity roost, or hibernacula). Results of the assessments will be used to determine the appropriate site-specific mitigations and prevent any residual effects of Project activities on little brown myotis or other bat species. A separate bat assessment and mitigation plan will be prepared for buildings containing bat roosts (J. Carpenter, pers. comm. 2015). Mitigations to prevent residual effects on bats are provided in Section 7 and Appendix B.

Visitor Experience

Visitor Access and Services, Recreation/Accommodation Opportunities, Visitor Safety

Direct impacts to visitor experience could arise from Project activities (Appendix A). Temporary road or sidewalk closures may be required at construction areas, and an increase in traffic (e.g., heavy equipment) and construction noise could occur near accommodations in the Waterton townsite. Adverse impacts to air, soil and landforms, flora, fauna and bats could also indirectly impact recreational opportunities of visitors (Appendix A). For example, construction sites cleared of vegetation might be aesthetically displeasing to visitors, until revegetation is completed. Impacts to soil, landforms and flora could also have indirect adverse effects on visitor access, and visitor safety. For example, excavations and areas with cleared vegetation could present access obstacles or safety hazards for visitors, requiring detours. However, the proposed Project sites are in a previously disturbed environment, and Parks Canada services will not be disrupted. Therefore, after mitigation (Section 7 and Appendix B), although there could be adverse effects to visitor experience as a result of the Project, they are predicted to be negligible in magnitude, short term and reversible after construction.

7 MITIGATION MEASURES

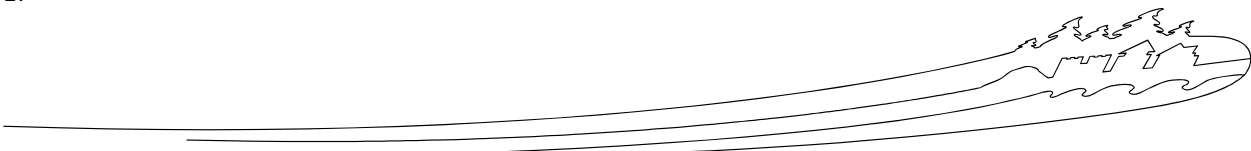
Apply the Best Management Practices (BMP) from the *Model Class Screening for Routine Projects in National Park Communities* (2009), Mitigations for Reducing Impacts of Building Projects (Appendix B), in addition to the mitigation outlined in this section.

Responsibilities

- The FMP is responsible for including all applicable mitigation measures and conditions in project permits and authorizations.
- A Parks Canada Surveillance Officer (SO) will provide surveillance, information, and guidance on the application of mitigations.

Environmental Briefing

- Employees on the work site must attend a briefing with a SO or designate before beginning work at the site to review and explain the mitigations that are conditions of the project approvals. Information on species at risk, including bats, will be included in contractor environmental briefings.
- Where applicable, the FMP is responsible for seeing that an Environmental Protection Plan (EPP) is created and submitted to Parks Canada that includes applicable Soil Handling, Sediment and Erosion Control, Emergency Response, and Spill Response Planning. The EPP will be approved by Parks Canada prior to initiation of the work.





Design Mitigation

- Critical wildlife areas including movement corridors are considered sensitive resources in the Waterton townsite (Parks Canada 2009).
 - Avoid creation of movement traps and/or hiding places for ungulates, cougars and bears. Having a more open environment reduces the likelihood of animals becoming more habituated to the townsite environment (Stuart-Smith, pers. comm. 2015).
 - Project designs will not include fencing.
- Prevent mortality of cavity-associated wildlife by designing and using screened chimney and ventilation shafts.
- Design will incorporate features to minimize environmental impacts through the life-cycle of the building (e.g., long-lasting materials, energy use).
- Where applicable, existing buildings shall be repurposed to reduce waste. Where practicable, waste materials will be salvaged for re-use, recycled or composted. Other waste will be removed from the Park for disposal at an appropriate site.

Air

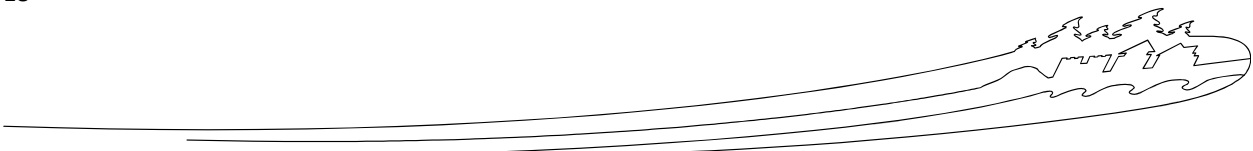
- Appropriate emission control measures will be in place to protect air quality as required in the Appendix B mitigations, e.g., equipment must be in good operating order and fitted with standard air emission control devices.
- Equipment will not be idled unnecessarily.

Soil and Landforms

- Appropriate control measures will be put in place to protect soil and landforms from runoff, wind and water erosion, sedimentation, and soil contamination as required in the mitigations, e.g., cover stockpiles of soil with polyethylene sheeting, tarps, or vegetative cover, halt grading on exposed soil during high rainfall and runoff, and prepare an Emergency Response for worst case scenarios (Appendix B).
- Appropriate compaction, dust and slope stability control measures will be put in place (Appendix B).
- Soil quality will be protected by salvaging available topsoil and preventing topsoil-subsoil mixing. If topsoil from outside the Park is required, such soil will be from sources approved by the Park Vegetation Ecologist (Appendix B).

Flora

- Put appropriate control measures in place to protect any existing native vegetation, e.g., minimize the area to be cleared and delineate areas to be avoided with biodegradable flagging tape and/or temporary fences (Appendix B).
- Cottonwood, white spruce and Douglas fir trees are designated as sensitive resources for the purpose of referring to mitigation documents such as Parks Canada (2009) and Appendix B.
 - Avoid removal and damage of trees.
 - Where tree removal cannot be avoided, refer to Appendix C for tree replacement requirements.





- Tree replacement is done at a ratio of at least 3:1 (three new trees for one removed; (Parks Canada 2009) using replacement trees that are as large as possible (e.g., 15 gallon root size and ¾" or greater trunk size) (Appendix C).
- Trees can be difficult to establish in the townsite because of high winds, desiccation and browsing by deer (Parks Canada 2009), and appropriate protection measure for young trees will be implemented. Inspection of replacement trees will follow Appendix C.
- A landscaping plan for undeveloped areas of the lots will be prepared consistent with applicable Waterton townsite vegetation management strategies, e.g.,:
 - No planting of wildlife vegetation attractants;
 - Where appropriate, incorporating low maintenance native vegetation and shrubs into landscaping;
 - In lawn areas that are not already established, using sod to promote fast ground cover and prevent establishment of noxious weeds; and
 - During initial post-construction growing season, completing weed control and supplemental seeding as required to promote the desired vegetation community.

Fauna

- To prevent wildlife habituation, garbage and wildlife attractants will be stored in wildlife-proof containers.
- Vegetation clearing can negatively impact nesting birds and/or bats in spring and summer, therefore avoid vegetation removal during this time. If vegetation removal is scheduled to occur between April 1 and August 31, contact the SO to schedule pre-work surveys for migratory birds and nesting raptors.
 - If a nest is found during the pre-work surveys, the vegetated area will be left intact with a species-specific buffer around it until nesting is finished and the SO authorizes that work may begin. Size of buffer will be determined by the SO in consultation with a qualified professional biologist or Parks Canada ecologist.
 - Pre-work surveys must occur within 7 days of the planned activity.
- During building demolition, avoid disturbing the small mammal burrows adjacent to the bunkhouse at the Compound.

Species at Risk – Bats

- Complete an assessment of bat use at each building and determine type of use and appropriate mitigations for that building.
- Mitigations follow a hierarchical approach: (1) avoidance, using timing windows; (2) minimization, modifying project activities to minimize risk for disturbance; and (3) compensatory mitigation, providing alternative habitat such as bat boxes.
- *Maternity Roosts* - No disturbance to the roost from May 1 – September 30.
 - If the SO or qualified wildlife biologist determines that bats are absent from the site in autumn prior to September 30, then project activities may proceed.
 - If the SO or qualified wildlife biologist determines that project activities will not disturb the roost, then project activities may proceed during the restricted timing window.





- If disturbance begins outside the restricted timing window but will extend past May 1, or if disturbance permanently removes a maternity colony (e.g., building demolition), alternative habitat such as bat boxes must be installed before May 1. Parks Canada will provide the bat boxes.
- *Hibernacula* – Hibernacula are not expected; however, if building inspections discover hibernacula, a site-specific plan must be developed to find alternatives and mitigation measures that will prevent disturbance or destruction of this critical habitat.

Visitor Access and Services, Recreation/Accommodation Opportunities, Visitor Safety

- Put appropriate control measures in place to protect visitor experience (Appendix B).
- To protect the aesthetics of the community, development must comply with the *Architectural and Motif Guidelines for Waterton Lakes National Park, Signage Guidelines for Waterton Lakes National Park* (Parks Canada 2009), and other current development guidelines as appropriate.
- The replacement or installation of new lighting must follow the *Best Practices and Specifications for Outdoor Lighting at Parks Canada* (Parks Canada 2008). Outdoor fixtures must be shielded, full cut off low intensity dark sky compliant lights. Interior lighting must be designed to reduce light trespass. The colour temperature of any new luminaires should be under 3000K, with amber LED or converted amber LED preferred.

8 PUBLIC/STAKEHOLDER ENGAGEMENT & ABORIGINAL CONSULTATION

8 a) Indicate whether public/stakeholder engagement was undertaken in relation to potential adverse effects of the proposed project:

- ☒ No
- ☒ Yes (describe the process to involve relevant parties and indicate how comments were taken into consideration).

A Public Open House was held on October 12, 2015.

8 b) Indicate whether Aboriginal consultation was undertaken in relation to potential adverse effects of the proposed project:

- ☒ No
- ☐ Yes (describe the process to involve relevant parties and how the results were taken into consideration).

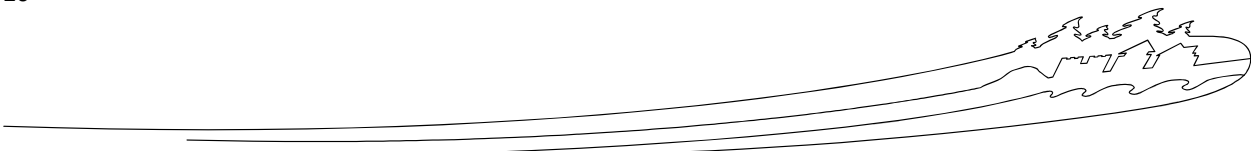
9 SIGNIFICANCE OF RESIDUAL ADVERSE EFFECTS

Though adverse effects are possible as a result of the Project, they are predicted to be local in scale, negligible in magnitude, short term and reversible after construction. No residual significant adverse effects from this project are anticipated, provided mitigation measures are implemented and executed as required (Section 7 and Appendix B).

10 SURVEILLANCE

- ☐ Surveillance is not required
- ☒ Surveillance is required

Surveillance is required for:





- General – Site surveillance during construction; SO provides feedback on mitigation compliance to FMP; SO supports FMP through information and guidance on the effective application of mitigations;
- Air – Emissions control efforts, e.g., idling;
- Soil and landforms – Runoff, wind and water erosion, sedimentation, soil contamination, slope stability, dust and soil quality control efforts;
- Vegetation – Delineating areas to be avoided, e.g., large trees;
- Wildlife – Pre-disturbance assessment of wildlife use, e.g., migratory bird nests; and
- Species at Risk – Pre-disturbance assessment of bat use in buildings.

Pre-disturbance assessments should occur during the appropriate timing window, e.g., April 1 to August 31 for trees or buildings that may support breeding birds. Further surveillance of Project works involving potential or confirmed bat habitat and migratory bird nests may be required.

11 FOLLOW-UP MONITORING

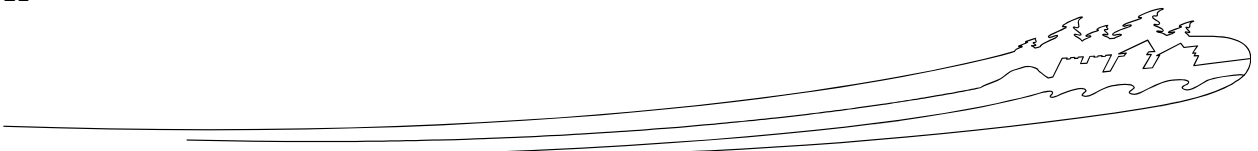
Follow-up monitoring is:

- ☒ not required
- ☐ legally required (e.g., under the *Species at Risk Act* or *Fisheries Act*)
- ☐ required in accordance with the *Parks Canada Cultural Resource Management Policy*

12 SARA NOTIFICATION

Notification is:

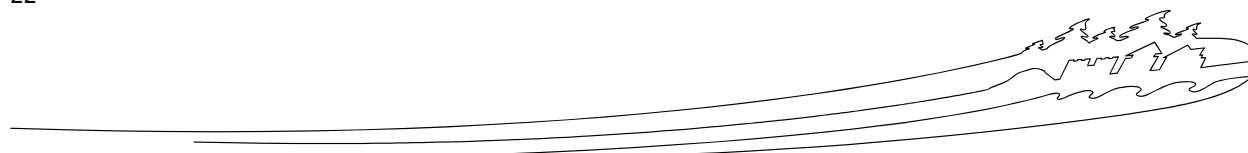
- ☒ not required
- ☐ required under the *Species at Risk Act* (outline the nature of and response to any notification).





13 EXPERTS CONSULTED

Department/Agency/Institution: Parks Canada	Date of Request: 2015-09-23
Expert's Name & Contact Information: Jon Stuart-Smith Waterton Lakes National Park of Canada Parks Canada Box 200, Waterton Park AB T0K 2M0 Telephone: 403-859-5155	Title: Human / Wildlife Conflict Specialist
Expertise Requested: Knowledge of wildlife movement in the Waterton townsite.	
Response: With regards to the movement of wildlife within and around the townsite, from the experience [Stuart-Smith] had over the last 9 years, it is important for wildlife to be able to move freely and not be impeded by any fences. Bears can get caught behind fences that make it difficult for them to figure out escape routes. So ensuring that no new fencing is added for any new projects is important from a wildlife-conflict standpoint [to] get bears out of the townsite as quickly as possible. Fences also provide places for other wildlife like cougars or deer and sheep to hide. Having a more open environment reduces the likelihood of animals becoming more habituated to the townsite environment.	
Department/Agency/Institution: Golder Associates Ltd.	Date of Request: 2015-09-14
Amy Darling, M.Sc. Golder Associates Ltd. 102, 2535 - 3rd Avenue S.E. Calgary, Alberta, Canada T2A 7W5 amy_darling@golder.com Telephone: 403-532-5730	Title: Terrestrial Ecologist
Expertise Requested: Assessment of wildlife, vegetation and environment at and near project locations listed in Section 2.	
Response: Used online Alberta Conservation Information Management System (ACIMS) search tool to determine tracked or watched Element Occurrences within the Waterton townsite or the Operational Compound. No tracked or watched Element Occurrences for a species of management concern is reported in the Waterton townsite or the Operational Compound (ACIMS 2015). Used online Fisheries and Wildlife Management Information System (FWMIS) search tool to search for wildlife species of interest reported near the proposed Project sites. Short-eared owl (<i>Asio flammeus</i>), red-sided garter snake (<i>Thamnophis sirtalis</i>), boreal toad (<i>Anaxyrus boreas</i>), long-toed salamander (<i>Ambystoma macrodactylum</i>) and harlequin duck (<i>Histrionicus histrionicus</i>) were previously reported within 1 km of proposed Project sites (AEP 2015). Conducted a site visit on September 14, 2015. Weather was overcast, foggy and cool (6°C to 10°C) with a moderate breeze (Beaufort 2). The vegetation communities at proposed Project sites are relatively disturbed and include non-native, weedy or cultivar species such as dock, thistle, sweet clover, pineapple weed, peppergrass, western wheat grass, bluebur, alfalfa, Alsike clover, dandelion, timothy, quackgrass, common plantain, ornamental lungwort and lilac. Native plants, i.e., yarrow, prostrate vervain, cow parsnip, snowberry, goldenrod, aster, stinging nettle and strawberry were also observed. Additional plant species observed during the site visit are discussed in Section 5 under the header "Flora." Wildlife species observed	





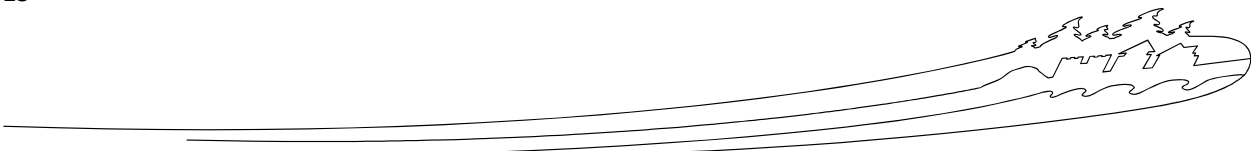
during the site visit are discussed in Section 5 under the header "Fauna."	
Department/Agency/Institution: Parks Canada	Date of Request: 2015-11-19
Expert's Name & Contact Information: Kimberly Pearson Waterton Lakes Field Unit Parks Canada Agency PO Box 200 C.P. 200 Waterton Park, AB T0K 2M0 kimberly.pearson@pc.gc.ca Telephone 403.859.5123 www.parkscanada.gc.ca Government of Canada	Title: Conservation and Restoration Project Manager
Expertise Requested: Knowledge of wildlife species in the Waterton townsite.	
<p>Kimberly Pearson confirmed the Species at Risk present in Waterton Lakes National Park listed on the Parks Canada (2015b) website and added the following information:</p> <ul style="list-style-type: none"> • Western bumble bee may also be present - no thorough surveys to date but their distribution covers WLNP (COSEWIC Threatened) • Pygmy whitefish are known to be in abundance in Upper and Middle Waterton Lakes (AB Threatened) • Similar to Lewis' woodpecker, common nighthawk haven't been observed recently but are potential (SARA Threatened) • Barn swallow - not a lot lately but likely in past and potential future (SARA Threatened) • Harlequin duck - common in Cameron Creek through townsite - they nest somewhere upstream of the falls (AB Sensitive, COSEWIC Special Concern) • Western screech owl - at back side of town in 2015 - uncommon (SARA Endangered) • Black swift - nest in buildings although none confirmed nesting in Waterton (COSEWIC Endangered) • Horned grebe - on Emerald Bay in migration (SARA Special Concern) • Western grebe - on Emerald Bay in migration (COSEWIC Special Concern) 	

14 DECISION

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

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

NOTE: If the project is identified as likely to cause significant adverse effects, CEAA 2012 prohibits approval of the project unless the Governor in Council (Cabinet) determines that the effects are justified in the circumstances. A finding of significant effects therefore means the project CANNOT go ahead as proposed.



**FOR SARA REQUIREMENTS:**

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

15 RECOMMENDATION AND APPROVAL

Prepared by: Amy Darling, Terrestrial Ecologist (Golder Associates Ltd.)	Date: 2015-12-07 Signature:
Reviewed by: Martin Jalkotzy, Principal, Senior Wildlife Biologist (Golder Associates Ltd.)	Date: 2015-12-07 Signature:
Recommended by: Jennifer Carpenter, Environmental Assessment Scientist (Parks Canada)	Date: 2015-12-21 Signature:
Recommended by: Michael Houldin, Project Manager (Parks Canada)	Date: 2016-01-05 Signature:
Approved by: Ifan Thomas, Superintendent (Parks Canada) Ifan Thomas Superintendent	Date: Signature: December 30/15.

16 NATIONAL IMPACT ASSESSMENT TRACKING SYSTEM

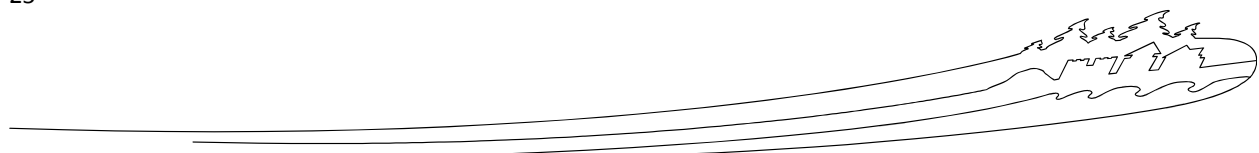
- ☒ Project registered in tracking system
- ☐ Not yet registered (*CEAA 2012 requires PCA submit a report to Parliament annually. EIAs must be entered in the tracking system **by the end of April** to enable reporting).*)





17 LITERATURE CITED

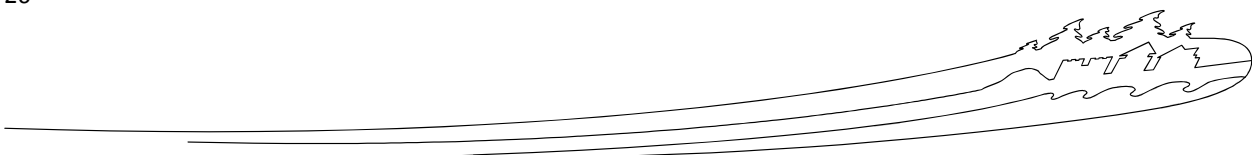
- ACIMS (Alberta Conservation Information Management System). 2015. *ACIMS Data Request webpage: Download Data – Updated July 2015, Element Occurrences (Part 1: Non-sensitive) and Element Occurrences (Part 1: Sensitive, by township) Shapefiles*. Available at: [http://www.albertaparks.ca/albertaparksca/management-land-use/alberta-conservation-information-management-system-\(acims\)/download-data.aspx](http://www.albertaparks.ca/albertaparksca/management-land-use/alberta-conservation-information-management-system-(acims)/download-data.aspx). Accessed October 30, 2015.
- AEP (Alberta Environment and Parks). 2015. *Species records from the Fish and Wildlife Management Information System in the Waterton townsite and area*. Retrieved September 2015 from the Fish and Wildlife Management Information System, Alberta Environment and Parks. Available online at: Accessed September 4, 2015.
- Carpenter, J. 2015. Environmental Assessment Scientist. Parks Canada, Waterton, AB. E-mail to Amy Darling. October 5, 2015.
- Environment Canada. 2014. *General Nesting Periods of Migratory Birds in Canada*. Available online at: https://www.ec.gc.ca/paom-itmb/default.asp?lang=En&n=4F39A78F-1#_fig01. Accessed December 1, 2015.
- Government of Alberta. 2008. *Weed Control Act. Statutes of Alberta, 2008*. Chapter W-5.1. Current as of October 1, 2011. Alberta Queen's Printer. Edmonton, AB. ISBN: 9780779760602
- Government of Alberta. 2010. *Weed Control Regulation. Alberta Regulation 19/2010 under the Weed Control Act*. Alberta Queen's Printer. Edmonton, AB. ISBN: 9780779748150
- Government of Canada. 1986. *Weed Seeds Order*. Available at <http://laws-lois.justice.gc.ca/eng/regulations/SOR-2005-220/index.html>. Accessed November 3, 2015.
- Government of Canada. 1994. *Migratory Birds Convention Act, 1994*. S.C. 1994, C. 22. Department of Justice Canada.
- Government of Canada. 2015. *Species at Risk Public Registry*. Available at: <http://www.sararegistry.gc.ca/default.asp?lang=En&n=24F7211B-1>. Accessed on: October 9, 2015.
- Lausen, C. 2012. *Waterton Lakes National Park Bat Survey*. Birchdale Ecological Ltd. Kaslo, BC. www.batsRus.ca.
- Natural Regions Committee. 2006. *Natural Regions and Subregions of Alberta*. Compiled by D.J. Downing and W.W. Pettapiece. Government of Alberta. Pub. No. T/852.
- Parks Canada. 2008. *Best Practices and Specifications for Outdoor Lighting at Parks Canada*. Prepared by the Real Property and Ecological Integrity Branches of Parks Canada.
- Parks Canada. 2009. *Model Class Screening Report for Routine Projects in National Park Communities*. Available at: <http://www.ceaa-acee.gc.ca/>. Accessed October 30, 2015.
- Parks Canada. 2015a. *Guide to the Parks Canada Environmental Impact Analysis Process*. Available at: <http://www.pc.gc.ca/progs/eie-eia/itm1/itm1b/itm1b-2.aspx>. Accessed October 30, 2015.
- Parks Canada. 2015b. *Waterton Lakes National Park*. Available at: <http://www.pc.gc.ca/eng/pn-np/ab/waterton/index.aspx>. Accessed October 30, 2015.





Stuart-Smith, J. 2015. Human/Wildlife Conflict Specialist. Parks Canada, Waterton, AB. E-mail to Jennifer Carpenter. September 23, 2015.

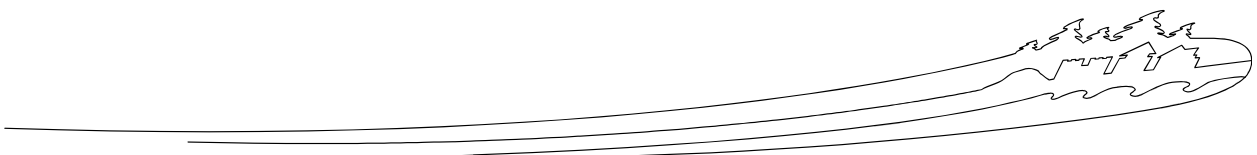
Waterton Lakes Chamber of Commerce. 2015. *Waterton History*. Available at: <http://mywaterton.ca/about/waterton-history/watbd60d825554a33b91>. Accessed October 30, 2015.





APPENDIX A

Environmental Impact Analysis Tools: Effects Identification Matrix

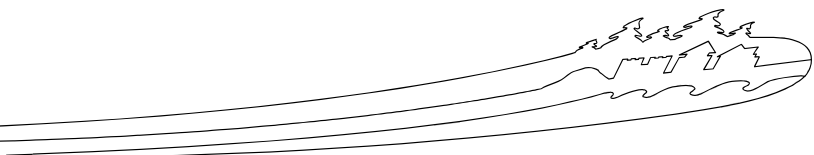




Appendix A: Environmental Impact Analysis Tools: Effects Identification Matrix

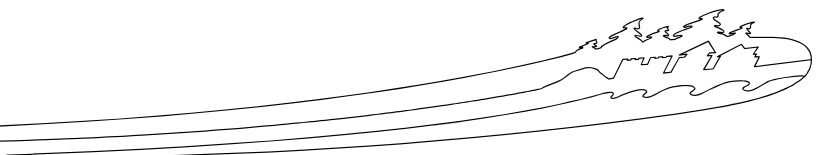
Potential direct effects of the project are shown in Section A and indirect effects that are caused by changes to the environment are shown in Section B. Consideration of indirect effects is required under CEAA 2012 Sections 5(1)(c) and 5(2)(b), and by the PCA mandate. Potential direct and indirect effects are listed prior applying mitigations.

A. Direct Effects								
	Valued Components Potentially Directly Affected by the Proposed Project							
	Natural Resources					Visitor Experience		
Project Activities during Preparation, Construction, Operation and Decommissioning Phases	Air	Soil & landforms	Flora (e.g., large cottonwood, spruce and fir trees)	Fauna (e.g., mule deer, woodpeckers)	Species at Risk – Bats (e.g., building roosts)	Visitor access & services	Recreation / accommodation opportunities	Visitor Safety
Storage/laydown of materials & equipment	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Vegetation clearing, site prep	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Structure demolition	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Disposal of waste/debris	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Disposal of wastewater	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Drainage	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Excavation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Excavated materials storage and transport	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Grading/contouring	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Backfilling	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Operation of heavy equipment	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Transport of equipment/equipment site access	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Use of chemicals (e.g., paint, solvents, concrete components)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Set up of temporary facilities	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Disturbance to exterior, roof/attic of buildings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Facility use (post construction)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Use/Removal of temporary facilities	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Site clean-up	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Revegetation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vehicle traffic	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>



**B. Indirect Effects**

	Potential Indirect Effects as a Result of Changes to the Environment					
	With respect to non-Aboriginal peoples:	With respect to Aboriginal peoples:		With respect to visitor experience		
Natural Resource Components affected by the Project during Preparation, Construction, Operation and Decommissioning Phases	Health and socio-economic conditions	Health & socio-economic conditions	Current use of lands and resources for traditional purposes	Visitor access & services	Recreation / accommodation opportunities	Visitor Safety
Could impacts to <u>air</u> lead to adverse effects on...	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Could impacts to <u>soil and landforms</u> lead to adverse effects on...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Could impacts to <u>flora</u> (e.g., large trees) lead to adverse effects on...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Could impacts to <u>fauna</u> (e.g., woodpeckers) lead to adverse effects on...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Could impacts to <u>Species at Risk – bats</u> lead to adverse effects on...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>





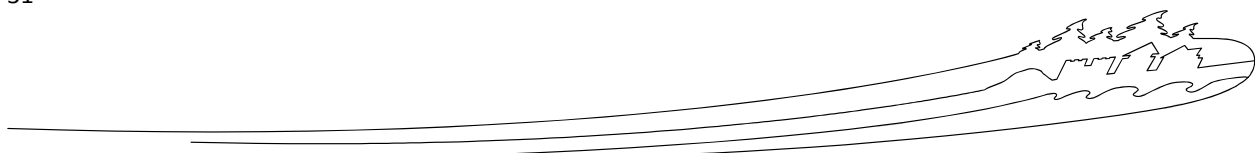
APPENDIX B

Best Management Practices / Model Class Screening
Mitigations



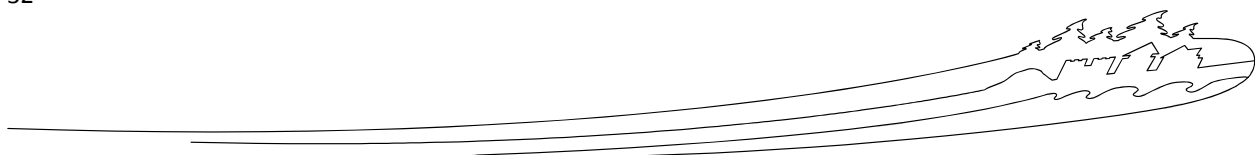
Sub-Class 1: Buildings: Mitigations for reducing impacts of building projects
(Table 8.2 from Parks Canada 2009).

Activity	Potential Impacts	Mitigation Measures
Pre-planning		
Site investigation, including geotechnical investigation	Sensory disturbance, disturbance of archaeological resources, slope failure, sedimentation	1. Conduct Phase I Environmental Site Assessment, if not already completed for the site, and additional site surveys, test pits, bore holes, etc. if necessary.
		2. Minimize the time boreholes remain open to reduce small terrestrial wildlife mortality. Properly seal boreholes and fit PVC pipes as per provincial/federal standards.
		3. Use existing roadways or disturbed areas for site access and travel within the site.
		4. Follow appropriate excavation mitigation measures for geotechnical investigation (see mitigations for "Trenching").
		5. All wells must be registered as per provincial standards.
		6. Drilling shields must be environmentally friendly.
		7. Unsuccessful drill holes must be properly sealed and capped as per the provincial standards.
		8. Collection containers are required for all drill cuttings. Drilling mud will not be disposed of in the park.
		9. A copy of the drilling log will be submitted to Parks Canada Environmental Assessment Office when complete.
General planning activities specific to all building projects.	Runoff / sedimentation; soil contamination	10. Prepare an Emergency Response Plan for the worst case, i.e., heavy rainfall and runoff events, high winds, spills, fires, etc.
		11. In the event of emergency operations (as defined in Section 8.11 of the MCSR), call Emergency Services and/or Parks Canada at the phone numbers indicated on Attachment 2.
		12. Ensure all activities are conducted at least 30 m from waterbodies.
	Dust production	13. Have a water source available to wet down exposed soil and dry areas.
	Wind and water erosion	14. Prepare a satisfactory Sediment and Erosion Control Plan covering all construction and restoration periods.
		15. Acquire necessary sediment control equipment (i.e., landscaping fabric, sediment fences, etc.) and install prior to construction.



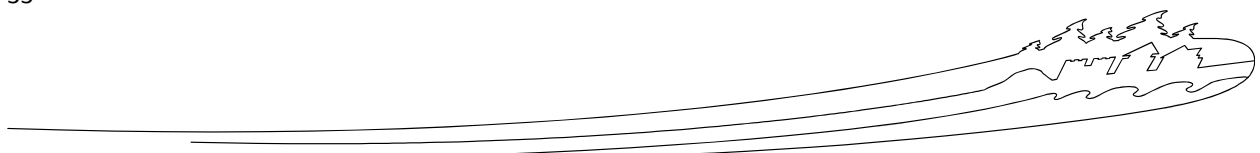


Activity	Potential Impacts	Mitigation Measures
	Compaction of soils	16. Extra planning should be used for areas with silty deposits and sloped areas with sandy deposits.
		17. Identify soils susceptible to compaction (fine textured and organic soils).
		18. In sensitive areas, use equipment of low bearing weight, low PSI tires, or tracked vehicles.
		19. Building material storage must be contained in one area of the site and clearly flagged to prevent soil compaction and reduce area of disturbance.
	Slope failure	20. Assess slope stability (based on slope length, soil texture, steepness, soil depth) and adjust activities to avoid these areas if possible. Use appropriate setbacks.
		21. Pay particular attention when planning for slopes of Class 6 (15-30%) or greater, especially where soils are shallow and likely to move with disturbance.
	Habitat loss and fragmentation; or encroachment on wildlife movement corridor	22. Identify wildlife habitat that may be impacted by activities and avoid sensitive areas, including wetlands.
		23. Ensure only necessary vegetation is removed and delineate areas to be avoided with biodegradable flagging tape and/or temporary fences.
	Sensory disturbance and mortality of wildlife	When working adjacent to natural areas:
		24. According to the wildlife that may be present, schedule high noise level activities and other intrusive construction activities to avoid critical life stages (breeding, nesting, rearing, migration). Consult with Parks Canada to discuss any localized wildlife concerns.
		25. Confine "noise" activities to between 7:00 and 19:00.
		26. Consider posting wildlife signs to reduce vehicle speeds and increase driver awareness near construction areas where wildlife mortality has or is likely to occur.
	Disturbance of archaeological resources	27. Educate workers that feeding or harassing wildlife is not permitted. Keep the site free of food scraps, and dispose of garbage in bear proof containers.
		28. Consult with Parks Canada to discuss if consultation with the Park's archaeologist is required.
		29. If it is deemed that potential archaeological sites may be subject to ground disturbance activities



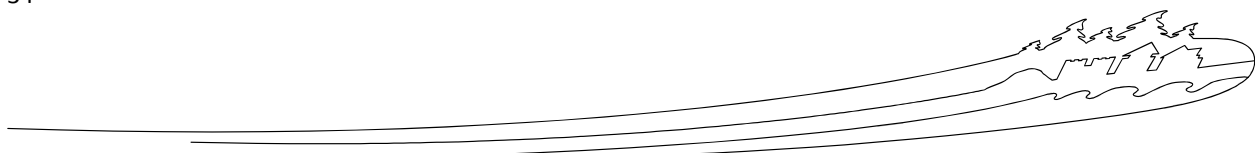


Activity	Potential Impacts	Mitigation Measures
		should be adapted to avoid them.
		30. Educate workers to notify site supervisor upon finding any archaeological artefacts and to stop work immediately. Contact Parks Canada immediately.
	Increased water and energy consumption	31. Identify water and energy conservation opportunities for building design (e.g., low flow fixtures, low energy heating and lighting) and outdoor requirements (e.g., yard lighting, drip irrigation systems).
	Public safety	32. Outline traffic control measures and assess the need for flagging personnel.
		33. Call utility line companies to identify infrastructure locations.
	Reduced aesthetics (noise and visual)	34. Evaluate the site layout, access routes and construction activities to minimize their visual impact.
		35. Plan work schedule to confine “noise” activities to between 7:00 and 19:00.
Site Preparation		
Clearing of vegetation, grading, excavation and disposal of cleared material	Dust production	36. Wet down dry, exposed soils, particularly during windy periods.
		37. Ensure materials being stored or transported are covered with tarps or equivalent material.
		38. Minimize grading and excavation on windy days to limit dust production.
	Runoff / sedimentation	39. Halt construction activity on exposed soil during events of high rainfall intensity and runoff and refer to the Sediment and Erosion Control Plan. Periodically inspect and repair, if necessary, erosion control structures.
		40. All excavations will remain free of water (see mitigations for “Dewatering”).
		41. Cover stockpiles of soil with polyethylene sheeting, tarps, or vegetative cover.
		Sites close to waterbodies, but not closer than 30 m:
		42. To ensure site run-off is minimized, control overland flow up and down gradient of excavated areas by use of effective diversion ditches, bales, vegetation filter strips, or sediment traps.
	Wind and water erosion	43. Minimize grubbing.
		Particularly in areas with silty deposits and sloped areas with sandy deposits:



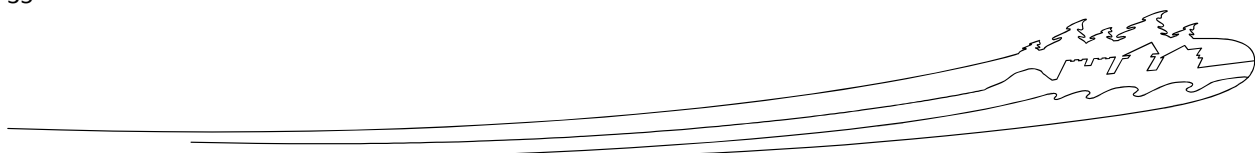


Activity	Potential Impacts	Mitigation Measures
		44. Protect exposed soils with coarse granular materials, mulches, straw, or landscaping fabric along drainage pathways.
		45. Cover stockpiles of soil with polyethylene sheeting, tarps, or vegetative cover.
	Damage to adjacent vegetation, loss of native vegetation	To protect areas adjacent to development site:
		46. Minimize area cleared. Clearly mark area to be cleared with biodegradable flagging tape and/or temporary fences.
		47. Ensure sensitive resources identified in Attachment 3 and 4 (if applicable) are protected.
		48. See Attachment 2 for replanting directions.
		49. Fencing around trees to be retained must be installed beyond the tree's drip line before starting work on site.
		50. Where required obtain permit before removing any trees. See mitigations section for details.
		51. Ensure excavated material does not damage or bury plant material that is to be retained on the site or in adjacent areas.
		52. Trees are to be cut so they fall inside the cleared perimeters.
	Wildlife habitat loss and fragmentation	53. Care must be taken during grubbing and stripping to ensure trees and roots on the edge of the cleared area are not disturbed.
		54. Grubbing and stripping may not be permitted on steep slopes to reduce the potential for erosion.
	Loss of topsoil and/or topsoil- subsoil mixing	When working adjacent to undeveloped areas and areas bordering natural habitat:
		55. Clear only the minimum area required for construction activities.
	Slope failure	56. Retain vegetation barriers where possible, especially trees and shrubbery.
		57. Topsoil separation is required.
		58. Topsoil will be stored away from any slopes, subsoils, spoil material, construction activities and day-to-day operations.
		59. Avoid work on steep slopes unless absolutely necessary.
		60. In areas with slopes of Class 6 (15-30%) or greater, especially where shallow soils overlie bedrock use appropriate geo-technical control measures to stabilize slopes. Consult occupational



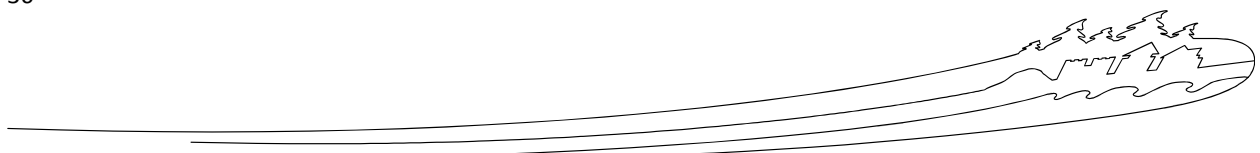


Activity	Potential Impacts	Mitigation Measures
		health and safety guidelines.
	Waste management	61. Large timber (trees larger than 10 cm DBH) shall be cut into blocks not to exceed 35 cm and stockpiled for re-use as firewood.
		62. Smaller trees and other woody material should be disposed of as indicated in construction documents.
		63. Dispose of trade waste at an appropriate landfill.
		64. Where available, construction waste will be separated to maximize recycling opportunities.
		65. Ensure cleared vegetation being stored or transported is covered with tarps or equivalent material.
		66. Excess fill will be removed to a designated site.
	Reduced aesthetics (visual)	67. Minimize the time cleared vegetation remains at the work site.
		68. Burning or burial of waste is not permitted.
	Other	69. Any trench/pit left over night will be fenced and singe to restrict access by people and/or wildlife.
		70. Location of service lines will be identified before excavation begins.
71. Should cultural artefacts be discovered during excavation, work will stop and Parks Canada notified.		
Construction		
Dewatering	Sedimentation; Erosion; Damage to vegetation	72. Dewatering is not permitted into any waterbody.
		Dewater is permitted across previously disturbed vegetation or natural vegetation if the following conditions are met:
		73. Sediment controls are used (i.e., silt fences, silt bags, etc.).
		74. Water velocity is controlled to dissipate energy, prevent soil erosion and allow for infiltration.
		75. Dewatering structures are continuously monitored to ensure no damage is being done to soil or vegetation.
		76. Dewatering into the sanitary or stormwater system is restricted.
		77. Sediment from the traps may be used as fill on the construction site.
	Damage to adjacent vegetation	78. For undeveloped areas adjacent to development site, ensure water and sediment is directed away



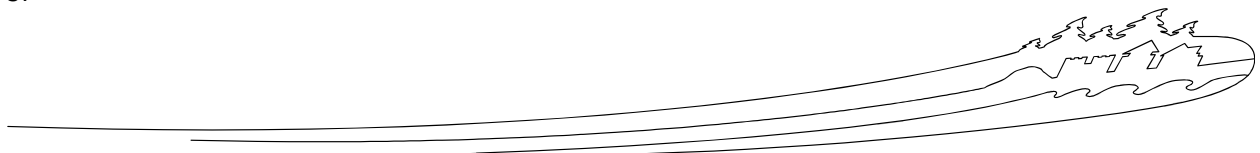


Activity	Potential Impacts	Mitigation Measures
	Sensory disturbance and mortality of wildlife	from natural areas.
		79. When working adjacent to natural areas:
		80. According to the wildlife that may be present, schedule, high noise level activities and other intrusive construction activities to avoid critical life stages (breeding, nesting, rearing, migration). Consult with Parks Canada to discuss any localized wildlife concerns.
		81. Confine “noise” activities to between 7:00 and 19:00.
		82. Consider posting wildlife signs to reduce vehicle speeds and increase driver awareness near construction areas where wildlife mortality has or is likely to occur.
		83. Educate workers that feeding or harassing wildlife is not permitted.
Construction (sandblasting)	Dust production (sand blasting)	84. Minimize sandblasting. Sandblasting should only remove loose paint to provide a clean surface for the new paint to adhere to.
		85. Confine activity to days with little or no wind and use physical barriers (e.g., shrouds, scaffold canopies) to contain dust.
Construction (painting and paint stripping)	Contamination of soil and water from accidental spill of paint, stripping compounds, or thinner	86. Prepare an appropriate Spill Response Plan and ensure that spill contingency equipment and measures are in place before work begins.
		87. Ensure paint is stored appropriately to prevent spillage.
		88. In the event of emergency operations (as defined in Section 8.11 of the MCSR), call Emergency Services and/or Parks Canada at the phone numbers listed in the Emergency Response Plan.
		89. Waste oil based paints must be transported out of the Park in accordance with the Federal and Provincial <i>Transportation of Dangerous Goods Act</i> and Regulations.
		90. Dispose of contaminated materials at provincially certified disposal sites outside of the park. No treatment of contaminated soils (e.g., bioremediation) is allowed in the park. All applicable documentation demonstrating proper disposal must be provided to Parks Canada.
Site Servicing (Subsurface)		
Trenching, Utilities	Runoff / sedimentation	91. To ensure site run-off is minimized at times of heavy rainfall, control overland flow up and down



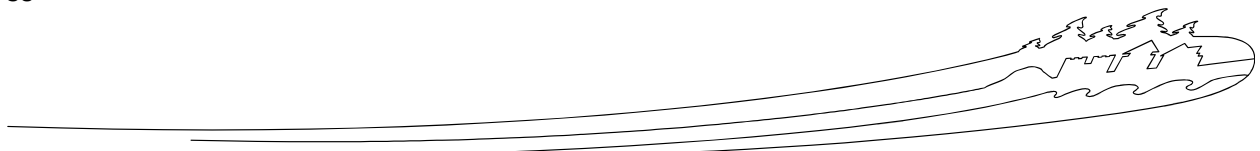


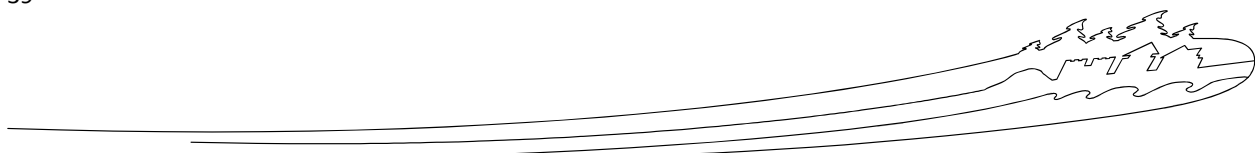
Activity	Potential Impacts	Mitigation Measures
excavation and removal		gradient of exposed areas by use of effective diversion ditches, bales, vegetation filter strips, or sediment traps.
	Wind and water erosion	Particularly in areas with silty deposits and sloped areas with sandy deposits:
		92. Use interceptor ditches or berms (bales) up-gradient of excavation to divert overland flow around exposed soils
		93. Line steep ditches with filter fabric, rock or polyethylene lining to prevent channel erosion.
	Wildlife mortality	94. All trenches or excavations to be left unattended overnight must be fenced.
	Loss of topsoil and/or topsoil- subsoil mixing	95. Topsoil separation is required. Disturbed areas should be reclaimed with stockpiled topsoil.
		96. Minimize the amount of time the trench remains open.
		97. Top soils will be stored away from any steep slopes, subsoils, spoil material, construction activities and day-to-day operations.
		98. Roach piles on reclaimed linear disturbances will be minimized to the extent possible.
		99. Backfilling should allow for settling to prevent depressions.
	Slope failure	100. Avoid work on steep slopes unless absolutely necessary.
		101. In areas with slopes of Class 6 (15-30%) or greater, especially where soils are shallow, use appropriate geo-technical control measures to stabilize slopes. Consult occupational health and safety guidelines.
Decommissioning and Abandonment		
Demolition activities / foundation removal	Dust production	102. Wet down dry, exposed soils.
		103. Ensure fine materials being stored or transported are covered with tarps or equivalent material.
	Discovery of existing soil contamination	104. If any contamination is found, cease work immediately. Inform the building site supervisor and, if necessary, implement Emergency Response Plan.
	Loss of topsoil and/or topsoil- subsoil mixing	105. Topsoil separation is required. Disturbed areas should be reclaimed with stockpiled topsoil.
		106. Top soils will be stored away from any grades, subsoils, spoil material, construction activities and day-to-day operations.





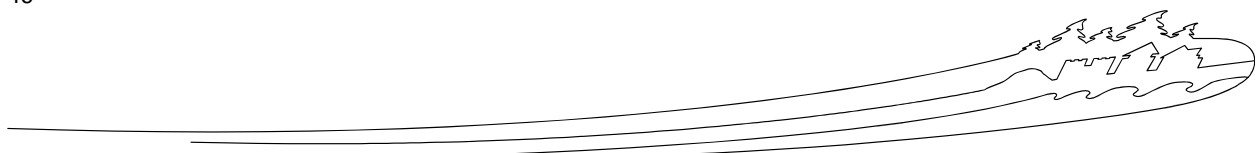
Activity	Potential Impacts	Mitigation Measures
Site Reclamation or Restoration		
Grading	Dust production	107. Wet down dry, exposed soils.
		108. Ensure materials being stored or transported are covered with tarps or equivalent material.
	Runoff / sedimentation	109. Halt grading on exposed soil during events of high rainfall intensity and runoff. Consult the Sediment and Erosion Control Plan.
		110. Cover stockpiles of soil with polyethylene sheeting, tarps, or vegetative cover. Establish containment structures to trap runoff.
	Wind and water erosion	Particularly in areas with silty deposits and sloped areas with sandy deposits:
		111. Protect exposed soils with coarse granular materials, mulches, or straw along drainage pathways.
Revegetation	Runoff / sedimentation / erosion	112. Recontour slopes to pre-disturbance conditions.
		113. Initiate replanting of disturbed areas immediately after construction is completed.
	Compaction of soils	114. Use stockpiled topsoil to facilitate reclamation.
		115. Cultivate affected areas before reclaiming, especially areas with fine textured or organic soils.
	Weed invasion	116. Revegetate exposed areas at first opportunity.
		117. Ensure topsoil is clean and weed free. If clean fill is unavailable, monitor the site, and treat as needed, to ensure appropriate weed control for 3 years following landscaping (applicable to construction crews only).
Herbicide/fertilizer use	Contamination of soil or water	118. Revegetate with Parks Canada approved grass seed mix or sod, if applicable, or the Town seed mix for landscape rehabilitation
		119. An approved current integrated pest management plan must be in place.
		120. Accurately assess the need for chemicals during site revegetation. An approved current integrated pest management plan must be in place.
Paving	Dust production	121. Do not use fertilizers and herbicides in areas where residue or run-off may enter a waterbody or drainage pathway.
		122. Do not over water.
		123. Wet down dry, exposed soils.
		124. Ensure fine materials being stored or transported are covered with tarps or equivalent



39

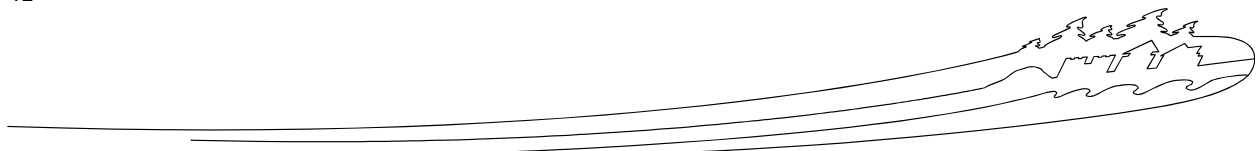


Activity	Potential Impacts	Mitigation Measures
		transported are covered with tarps or equivalent material.
	Contamination of soil and water from accidental spill	140. Prepare an appropriate Spill Response Plan. In the event of emergency operations (as defined in Section 8.11 of the MCSR), call Emergency Services and/or Parks Canada at the phone numbers indicated in the Emergency Response Plan. All spills must be reported to Parks Canada.
		141. Avoid work in high risk areas, particularly in areas of high water table, steep slopes or in close proximity to streams.
		142. Have spill containment equipment on-hand and ensure that all personnel are trained in their use.
		143. Ensure all construction equipment is free of leaks from oil, fuel or hydraulic fuels.
		144. The crossing of any waterbody (including wetlands) by construction equipment, or the use of such equipment within waterbodies is strictly prohibited unless prior approval has been confirmed.
		145. Designate refuelling areas at least 100 m away from any water body.
		Stationary stores of fuel will be bermed with an impermeable liner to contain 125% of the anticipated fuel quantity. Any contaminated rainwater will be moved out of the park.
		146. Refuelling activities should not be conducted where run-off could carry contaminants into drainage pathways (including storm sewers).
		147. Equipment will be fuelled on hardened surfaces.
		148. Dispose of contaminated materials at provincially certified disposal sites outside of the park. No treatment of contaminated soils (e.g., bioremediation) is allowed in the park. All applicable documentation demonstrating proper disposal will be provided to Parks Canada.
	Compaction of soils	149. Restrict vehicular travel and other equipment operation to the construction site and approved access routes.
		150. Vehicle parking will be restricted to specified areas on the construction site.
		151. Minimize or halt construction traffic during wet conditions when the soil shows signs of ponding or rutting.



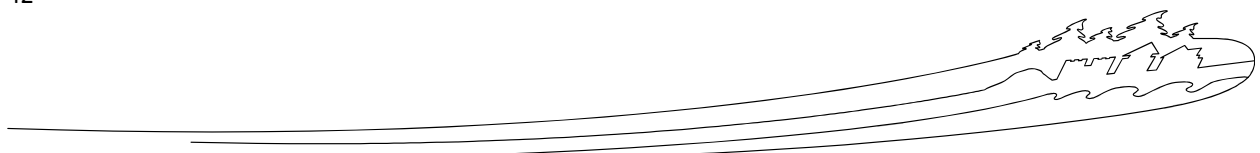


Activity	Potential Impacts	Mitigation Measures
		152. In sensitive areas, if possible, use equipment which minimizes surface disturbance including low ground pressure tracks/tires, blade shoes and brush rake attachments.
	Damage to adjacent vegetation	Undeveloped areas adjacent to development site:
		153. Careful machine operation is required to ensure that damage to surrounding vegetation does not occur.
		154. Excavated material must not be permitted to bury plant material that is to be retained. Snow fences may be used to prevent excavated material escaping into the surrounding forest.
		155. Fencing around trees to be retained must be installed beyond the tree's drip line prior to commencement of site work.
	Weed invasion	156. All construction equipment from outside a park will be steam cleaned (or if not available use high pressure wash) prior to arrival to minimize the risk of introducing weeds.
		157. Construction equipment from outside a park will not be washed while in a park.
	Sensory disturbance to wildlife	158. Use existing roadways, pathways and previously disturbed areas for site access and travel within the site.
		159. Educate workers not to enter wildlife corridors.
		160. Confine "noise" activities to between 7:00 and 19:00.
	Aesthetics	161. All heavy equipment operating on paved surfaces should be equipped with street pads. Damage to paved surfaces will be restored to original conditions.
	Increased traffic levels	162. Time construction activities to minimize vehicle conflicts on access roads and/or use flagging personnel.
Waste management (general)	Contamination of soil and water from accidental spill or improper disposal	163. No rock, silt, cement, grout, asphalt, petroleum product, lumber, vegetation, domestic waste, or any deleterious substance shall be placed or allowed to disperse into any stream, river, pond, sewer, or other water course. Excess material will not be disposed of on or adjacent to the site.
	Aesthetics (visual and smell)	164. Collect all waste, store appropriately and dispose trade waste and garbage at designated locations.
		165. All garbage and food must be stored in bear-



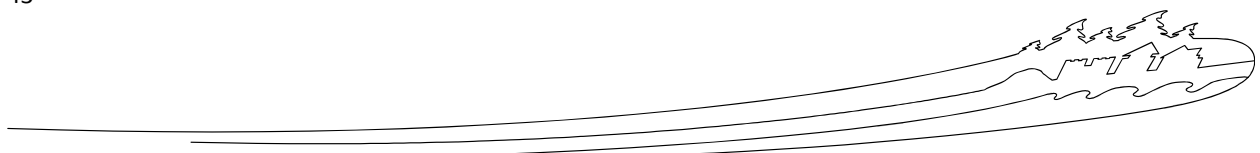


Activity	Potential Impacts	Mitigation Measures
		<p>proof bins.</p> <p>166. Keep site maintained in a tidy condition, free from the accumulation of waste products, debris and litter.</p> <p>167. Construction sites must undergo thorough clean-up, including removal of general litter, survey stakes and flagging tape at project completion.</p>
Hazardous materials collection and handling	Contamination of soil or water	<p>168. Prepare an appropriate Spill Response Plan. In the event of emergency operations (as defined in Section 8.11 of the MCSR), call Emergency Services and/or Parks Canada at the phone numbers indicated on Attachment 2. All spills must be reported to Parks Canada.</p> <p>169. If any hazardous waste is uncovered during excavation/construction it must be investigated, source identified, properly removed and disposed to an approved landfill.</p> <p>170. All toxic/hazardous materials will be identified during demolition and will be handled as required under the Canadian Environmental Protection Act, Transportation of Dangerous Goods Act and Workplace Hazardous Materials Information Service.</p> <p>171. Dispose of contaminated materials at provincially certified disposal sites outside of a park. No treatment of contaminated soils (e.g., bioremediation) is allowed in the park. All applicable documentation demonstrating proper disposal must be provided to Parks Canada.</p> <p>172. All hazardous materials and wastes will be clearly labelled with WHMIS labels and information.</p> <p>173. Spill contingency plans, equipment and supplies (to clean up 110% of the site's largest possible fuel/chemical spill) will be present on-site at all times and employees trained in their use.</p> <p>174. All fuels, oils, lubricants and other petrochemical products will not be stored within 100 meters of any waterbody (including wetlands).</p> <p>175. Do not store fuels, lubricants, solvents, paints, and other chemicals on site overnight except within construction trailers secured with lock and key. Storage should be on a bermed, impervious site (secondary containment). An additional permit may be necessary.</p>





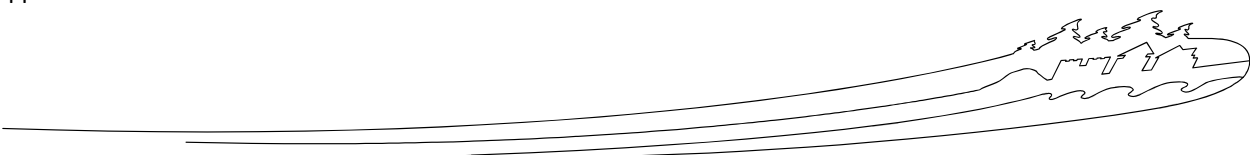
Activity	Potential Impacts	Mitigation Measures
		176. No rock, silt, cement, grout, asphalt, petroleum product, lumber, vegetation, domestic waste, or any deleterious substance shall be placed or allowed to disperse into any stream, river, pond, storm or sanitary sewer, or other water course.
		177. All construction sites will be equipped with containers suitable for the secure, temporary storage of hazardous wastes. Hazardous wastes will be separated by type. Follow all applicable regulations and codes for the management and handling of hazardous wastes.
	Public safety	178. If equipment infringes on driving lane, flag persons are required.
		179. All roadway signage must be in accordance with provincial standards. Signs must be bilingual or symbolic.
		180. The proponent is responsible for site security at all times.





APPENDIX C

Trees and Shrubs Recommended for Waterton Park
Townsite





TREES AND SHRUBS RECOMMENDED FOR WATERTON PARK TOWNSITE

The following is a condensed list of native tree and shrub species which are recommended for planting in the Waterton Townsite area. Species of trees and shrubs native to the Waterton area are the preferred species to be used when planting and should be sourced locally to prevent the introduction of non-native varieties. Where possible species have been selected to minimize the attraction to wildlife (bears, deer, elk) and have reduced fire risk potential. Species not found on this list must be approved by the Park Ecologist (Vegetation) or representative prior to planting.

TREES:

Coniferous:

Douglas fir (*Pseudotsuga menziesii*) – medium browse; medium fire

- Growing to 10 metres or more with a massive trunk and dense, spreading branches. Occurs at low elevations on dry exposed slopes and ridges.
- A primary species on disturbed sites, it occupies a variety of habitats from moist to very dry soils
- Adaptable to most sites; therefore good survival rate
- Good windthrow resistance; good shade tree
- Plant well away from eaves troughs (high needle cast)

White Spruce (*Picea glauca*) – Low browse; high fire

- Often somewhat bluish-green with a dense crown, up to 15 metres in height.
- Best on a moist site; needs a great deal of water, especially after transplanting
- Good shade tree; wind and shade tolerant.
- Colorado Spruce is not a desirable alternative; it's non-native

Lodgepole Pine (*Pinus contorta*) – low browse; high fire

- Occurs on a wide variety of soils, at low to middle elevations
- Young trees are intolerant of shade and grow best on dry exposed sites

Limber Pine (*Pinus flexilis*) – low browse; high fire

- Long-lived and slow growing
- A SARA listed species but plantings in townsite can be used as educational material

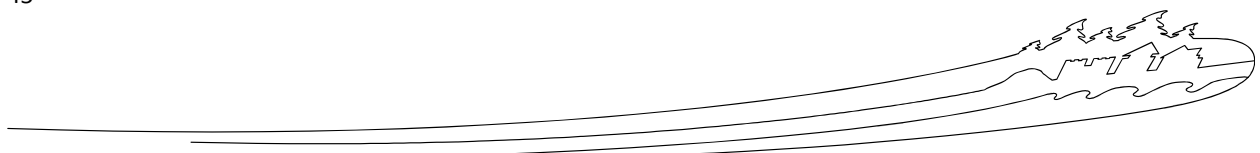
Deciduous:

Trembling aspen (*Populus tremuloides*) – high browse; very low fire

- Rather small and more or less rounded leaves
- Mature trees form groves from root suckers.
- Require a moderately moist site
- NOTE – lots of hybrid and cultivar species available – these must not be used.

Balsam Poplar (*Populus balsamifera*) – high browse; very low fire

- Tall tree growing best along creek-beds and lakeshores (requires a moist site)
- Long, wide leaf-blades
- Sticky seed scales can be a nuisance; roots can surface





Paper Birch (*Betula papyrifera*) – low browse; very low fire

- A slender, long-branched tree – 10-25 m tall, mature bark mostly white; peeling
- Moist upland sites; shade intolerant
- Can withstand moderate drought once established

Water Birch (*Betula occidentalis*) – low browse; very low fire

- Smaller tree - <10m; dark-reddish brown bark that does not peel.
- Good early successional species in moist areas

SHRUBS:

Mountain Maple (*Acer glabrum*) – medium browse; very-low fire

- A red-stemmed shrub growing to a few metres tall. Typical "maple leaf" shaped leaf blades
- Will grow on rocky sites

Shrubby Cinquefoil (*Potentilla fruticosa*) – low browse; low fire

- A coarse shrub of grasslands and open places, decorated June to September with numerous small, yellow, rose-like flowers.
- NOTE – lots of hybrid and cultivar species available – these must not be used.

Red Osier Dogwood (*Cornus stolonifera*) - high browse; low fire

- Willow-like shrub with distinct red bark and small greenish-white flowers; 1 to 3 metres tall
- grows best in damp, somewhat sheltered places

Wolf Willow (*Elaeagnus commutata*) – medium browse; low fire

- Leaves silvery in colour; exhibits small yellow aromatic flowers in June/July
- Forms small groves in seepage areas
- NOTE – lots of hybrid and cultivar species available – these must not be used.

Snowberry (*Symphoricarpos albus*) – medium browse; low fire

- Common in a variety of habitats
- Small bell-shaped flowers June to August

Buffalo-berry (*Shepherdia canadensis*) – medium browse; low fire

- PLANT MALE BUSHES ONLY
- Spreading shrub to 3m tall

Common Wild Rose (*Rosa woodsii*) – medium browse; low fire

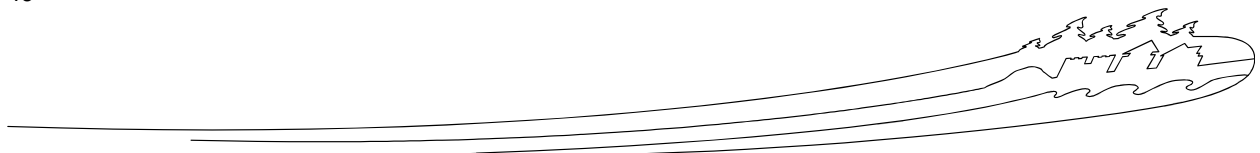
- Exhibits bright pink flowers in June and July
- Open woods and thickets, some tolerance to sandy areas

Prickly Rose (*Rosa accicularis*) – high browse; low fire

- Branching shrub, up to 1.5 metres high
- Open woods and moist thickets

Tree Standards:

- In cases of tree replacement, the three replacement trees should be as large as available, with a 15 gallon root size and at least ¾" trunk size. If 15 gallon native trees are not available, on approval of the SO, four 10 gallon trees may be planted instead.
- All trees must be guaranteed for one year (one growing season).





- Trees shall be inspected immediately after initial planting and during the growing season by a designated Parks Canada Surveillance Officer (SO). After the growing season, the SO will determine final acceptance of the tree.
- Any planted tree that is dead or, in the opinion of the SO, is in an unhealthy or unsightly condition, and/or has lost its natural shape due to dead branches, excessive pruning, inadequate or improper maintenance, or other causes prior to final acceptance, shall be replaced in the next planting season. There shall be a growing season guarantee on trees commencing after the final inspection of the permitted planting.
- Where dead trees are identified, the dead material shall be removed within four (4) weeks of notification. When necessary, approved soil and grass seed shall be added to the pit to reclaim the site and eliminate potential tripping hazards at the time of removal.

General Tips:

- Select the right tree for the site. It is important to match your planting site and its conditions with a tree species' shade, moisture, and soil preferences.
- Plants should be put in the ground in autumn or spring and fenced immediately to prevent animal damage.
- Frequent watering is necessary for the weeks following transplantation or first growing season, and if possible up to the first frost.
- It is advisable to screen young plants from wind over the winter.
- Avoid planting dense clusters of shrubs; this helps limit cover for large animals such as cougars and reduces fire hazards.
- Even "fire resistant" vegetation will burn if the plant's moisture content is low.
- To prevent the spread of non-native species and reduce the appeal of the townsite for animals such as deer and bear, please avoid planting the following:
 - Saskatoon (*Amelanchier alnifolia*) - berries attract bears
 - Chokecherry (*Prunus virginiana*) - cherries can attract bears
 - Pincherry (*Prunus pennsylvanica*) – cherries can attract bears
 - Common Caragana (*Caragana arborescens*) - it's non-native and can crowd out other plants.
 - Junipers – (*Juniperus communis* & *horizontalis*) – can be highly volatile in case of fire.
- Provide good pre-planting care. Keep trees shaded, cool, and moist before planting. Be gentle when handling the root mass.
- Remove burlap, pots, wire baskets, rope, plastic, etc. from the roots and all labels, wires etc. from the stem. Removing these materials with the root ball in the hole minimizes root system disturbance. If you can't remove burlap because the ball is loose, at least slit and peel it back below the soil surface.

For further information please contact the Park Ecologist (Vegetation) at 403-859-5137.

In cases of tree replacement, for further information please contact the Park Surveillance Officer at 403-859-5185.

