



Parks Canada EIA Requirement Checklist

This template documents the initial analysis of the requirement for an EIA and is designed to be used with the EIA decision framework and a completed project description. Additional information (such as correspondence with local Parks Canada or other experts) can be appended as required. If you have any questions, please contact Jennifer.Carpenter@pc.gc.ca

Project Title: Bar U Waste Midden Recapping

Project Location: Bar U Ranch National Historic Site

Project File #: WLNP-2018-021

Proponent Contact Information: Travis Weber, NHS and VE Manager, Bar U Ranch National Historic Site – (403) 395-2110

Date of Request: 2018-04-25

Section A: No EIA Required

The project is exempted from EIA requirements under CEAA 2012 S. 70: (check the appropriate box)

- ☐ the project relates to matters of national security;
- ☐ the project is being carried out in response to a national emergency for which special temporary measures are being taken under the Emergencies Act; or
- ☐ the project is to be carried out in response to an emergency, and in the interest of preventing damage to property or the environment or in the interest of public health or safety.

The project is exempted from EIA requirements as the same project was previously assessed: (both boxes must be checked to apply this option)

- ☐ the previous EIA is adequate
- ☐ there is no change in information that would alter the results of the analysis.

The project is exempted from EIA requirements because an initial analysis has determined:

- ☐ there is NO potential for adverse effects to natural and cultural resources, including:
 - natural resources targeted in management objectives and ecological integrity monitoring indicators; listed species at risk, their residence or critical habitat. Additionally, the activity is not prohibited in a protection order under the Species at Risk Act.
 - cultural resources targeted in management objectives and identified in a Parks Canada cultural resource management document, or any structure, site or thing of historical, archaeological, paleontological or architectural significance.

OR

- ☐ potential adverse effects of the project are exclusive to cultural resources (including potential archaeological resources), and the Cultural Resource Impact Analysis (CRIA) will be used to assess impacts and determine appropriate mitigation measures.

Provide a concise explanation to justify the decision.

If you have exempted the project from an EIA requirement by selecting one of the three options above, **Proceed to Section D.**





Section B: ELA Pathway Decision

The ELA pathway to be applied to the proposed project is:

- ☐ an approved alternate process (must be approved by VP PAEC)
- ☒ one or more approved Best Management Practices (BMPs)
- ☐ a Basic Impact Analysis (indicate if one or more BMPs are also being used)
- ☐ a Detailed Impact Analysis (indicate if one or more BMPs are also being used)

Insert the name of the approved alternate process and/or applicable BMPs and Continue to Section C.

Waterton Lakes National Park General Project Best Management Practices - Version 2.0

Although intended for projects in WLNP, after an analysis of the proposed project activities, the WLNP General Projects Best Management Practices provides an appropriate set of mitigations for the scope and scale of the proposed project. Relevant supplemental mitigations specific to the site are included in Section 1.

Section C: Permitting Requirements

Indicate the types of permits that may be required:

- ☐ Development/Building ☐ Lease/License of Occupation ☐ Water Withdrawal ☒ Business License
- ☐ Add others as required (Fisheries Act, Navigation Protection Act, SARA authorization, etc.)

Section D: Cultural Resource Requirements

Indicate the types of Cultural Resource Impact Assessment that may be required:

- ☐ A separate request for Cultural Resource Impact Assessment must be submitted.
- ☐ No additional assessment is required. The accidental finds mitigation applies to all project activities.
- ☐ Cultural Resources (including archaeology) will be included as a Valued Component of the BIA or DIA.
- ☒ Archaeological Overview or Impact Assessment is required.
- ☒ Additional mitigations related to Cultural Resources are indicated in section F below.

Section E: Recommendation and Approval

Prepared by (IAO name/position): Erin Rowlands, Environmental Assessment Officer

Date: 2018-07-05

Reviewed by: Edwin Knox, Cultural Resource Management Officer

Date:

July 5/18

Reviewed by: Dennis Madsen, Resource Conservation Manager - WLNP

Date:

2018-07-05

Recommended by (Project Manager name/position): Brent O'Rae, Environmental Program Advisor, Calgary

Date:

2018-08-02

Approved by (name of FUS, Director of a Waterway, or delegate):

Date:

Ian Thomas

Aug 7/18



Signature (FUS, Director of a Waterway, or delegate):

**Ifan Thomas
Superintendent**

(Note that EIA decisions regarding highway and waterway projects identified in Parks Canada's Investment Program may require joint approval with Associate VP, Asset Management and Project Delivery; however, the FUS/Dir. of a Waterway is responsible for issuing permits and authorizations for those projects).



Section F: Additional Comments

Scope of work includes the construction of an improved cap for the East and West Waste Middens, removal of existing vegetation from disturbed areas and disposal offsite, and seeding of disturbed areas.

Project preparations include:

- Utility locates
- Locating of existing monitoring wells.
- Site survey

Construction of the improved cap for the East and West waste middens:

- Clearing and grubbing and disposal of surface vegetation and other deleterious materials off site.
- Excavation and stockpile of topsoil from the midden areas.
- Extension of the existing groundwater monitoring well piping for monitoring wells within the midden area, including extension of the protective flush mounted metal casing pipes and PVC standpipes.
- Supply, installation and compaction of clay material within the midden areas as noted in the Drawings.
- Supply and installation of two (2) layers of non-woven geotextile and one (1) layer of reinforced polyethylene (RPE) membrane. The RPE membrane is to be sandwiched between the two layers of nonwoven geotextile to protect the RPE membrane from punctures during and after installation. The perimeter of the geotextiles and geomembrane are to be keyed into the ground by an anchor trench.
- Supply, installation and field welding of pipe boots around the extended monitoring well casing pipes.
- Supply, installation and compaction of subsoil material within the midden areas as noted in the Drawings.
- Supply, installation and compaction of topsoil material within the midden areas as noted in the Drawings.
- Supply and installation of approved seed mix over areas that have been disturbed during construction activities.
- Landscape maintenance over a two (2) year period post construction to ensure vegetation establishment

Cultural Resources

The following interventions are required:

Archaeological monitoring will be required of any work done at the base of slope within the potential boundary of site 1669R.

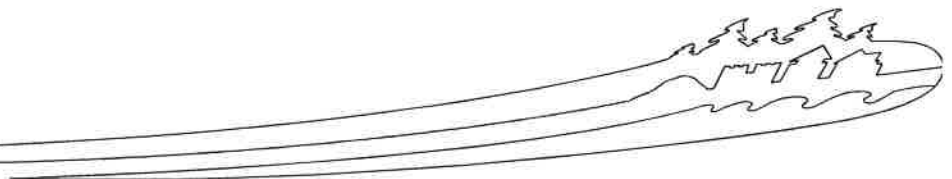
Once access, laydown and staging areas are known, additional archaeological review is required to determine the impacts to cultural resources.

Accidental Finds Protocol (see below) is in effect for all other portions of the project not covered above.

Accidental Finds: As archaeological testing is by nature sampling (not 100% coverage) there could be a chance, however low, that features or artefact concentrations are encountered in the course of work. If cultural features (i.e., structural remains and/or artefact concentrations) are encountered when a professional archaeologist is not onsite, work should stop in the immediate area, photographs and a GIS reading should be taken, and the Parks Canada project manager informed. The project manager should then contact Parks Canada's Terrestrial Archaeology section for advice and assessment of significance that will in turn determine what will be required to mitigate the chance find.

Section G: Attachments

- Project Description
- Waterton Lakes General Project Best Management Practices – Version 2.0 – Adapted for project # WLNP-2018-021
- Archaeology Overview Assessment from Bill Perry, PCA Archaeologist





Use this template to prepare a comprehensive description of a proposed project. Provide clear concise information as it will help determine the need for an environmental impact analysis (EIA). A well prepared project description will help move the project proposal forward efficiently. The level of detail should match the complexity of the proposed project and its potential to generate impacts of concern. Please include available designs and site photos.

If you have questions or need help contact the Impact Assessment Officer at the site where you are proposing work.

Project Title: Bar U Ranch East/ West Waste Disposal Middens Remediation FCSI# 56488004/56488005, FCSAP Phase 3

Project Contacts: *Contact Information for Proponent, Project Manager, and Contractors*

See Attached Contact List

Date of Request: Click here to enter a date. **Proposed Project Start:** Click here to enter a date.

PROJECT DESCRIPTION *(to be completed by proponent)*

Project objective: Construction of an improved cap for the East and West Waste middens. Elements required to complete this work includes: clearing and grubbing and removal/ disposal of existing vegetation overlying the middens area. Excavation and stockpiling of topsoil from the middens area. Import, Installation and compaction of clay material within the middens area. Install 2 layers of non-woven geotextile and a polyethylene membrane. Extending monitoring well pipes, and protective casings. Import and compaction of subsoil material (0.15 m depth) and topsoil (0.015 m depth) within middens area. Seeding over disturbed construction area.

Project rationale (optional): *Provide a brief rationale for project (e.g. to support visitor experience objectives, improve public safety, implement actions from the park management plan, etc.).*

Project location: *describe site location & size, include locations of any off-site requirements (e.g. for staging materials, excavating a borrow pit, etc.)*

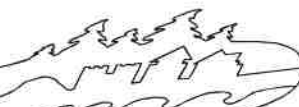
Primary Location: East /West middens at North -northwest Ranch property boundary

Footprint size: West Middens 120 m x 30 m approximately (estimated 2,800 m²) East Middens 115 x 30 m approximately (estimated 3,500 m²)

Off-site Location(s): Unknown at this time pending Awarded contractor

Footprint size: Unknown

Project phases and activities: *i.e. "how the project will be completed" – through the site preparation, construction, operation and decommissioning phases. The Project Phases & Activities Table on the next page can help organize the information. Include:*





1. *Site preparation/access activities*
2. *Dimensions of structures, size of excavation, area of disturbance, fill requirements*
3. *Construction activities, methods, materials, equipment to be used*
4. *Associated project work (e.g., paving, vegetation removal, excavation, etc.)*
5. *Changes to utilities, capacity or demand, new lines (i.e. water, electric, natural gas, wastewater)*
6. *Toxic or hazardous materials (e.g. cast in place concrete, chemicals, fuels, paints, solvents, explosives)*
7. *Operational requirements: (materials, maintenance procedures, monitoring, waste & wastewater management requirements)*
8. *Site modifications, structure removals, site reclamation activities*
9. *Plans & drawings attached.*

Project Environment

Other facilities that may be affected: NA

Site history (previous use, contamination, buried tanks, lines, cables): Historical ranch waste buried in waste middens

Known cultural resources (e.g. buildings, engineering works, landscapes and landscape features, historical and archaeological objects): BarU Ranch National Historical Site of Canada 1669 Pre-contact Period Excavations 2010.

Distance to nearest water body, water crossings, shoreline work: 150 m Pekisko Creek

Fish & fish habitat:

Species at risk, critical habitat, and residence of individuals (if any): Monarch, Northern Leopard frog, Bairds sparrow, peregrine falcon, short eared owl, common nighthawk, west slope cutthroat trout, little brown myotis

Other species & habitat:

Site photos or map attached:

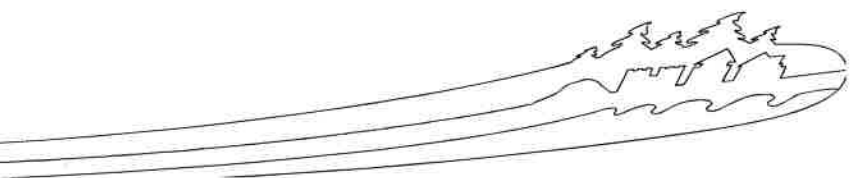
Red flags/ issues:

Project timing: *details on proposed project schedule (Terms of Reference, contract package, construction phases & scheduling, in-service targets, reclamation activities).*

Additional details (as required):

Potential for project to affect use of lands or resources by aboriginal persons (as relevant):

Other jurisdictions or departments involved in project development, review & approval (as relevant):





Project Phases and Activities Table

Use this table to help identify phases of your project and associated activities.

Project Components	Phases	Examples of Associated Activities	Y / N	Details
Project Components	Construction / Site Preparation	Supply and storage of materials	Y	Clay fill, subsoil
		Burning		
		Clearing and grubbing	Y	Vegetation over middens needs removing
		Demolition		
		Disposal of waste	Y	Anticipated Construction waste
		Blasting/ Drilling		
		Dredging		
		Drainage		
		Excavation	Y	For stripping surface vegetation and stripping topsoil
		Grading	Y	In middens area
		Backfilling	Y	Clay fill material, will be tested for environmental quality
		Use of machinery	Y	For earthmoving equipment
		Transport of materials/ equipment	Y	Importing clay fill materials, earthmoving equipment
		Building of fire breaks		
		Use of Chemicals		
		Set up of temporary facilities		
		Seeding	Y	Seeding methodology could be hydro seeding, mechanical/ brillion drill seeding or hand broadcasting
	Operation/Implementation Decommissioning	Waste disposal		
		Wastewater disposal	Y	Temporary purge water storage required for off site disposal
		Maintenance		
		Use		
		Use/Removal of temporary facilities		
		Use of Chemicals		
		Active fire stage		
		Clean-up of prescribed burn		
		Planting		
		Culling		
		Vehicle Traffic		
		Grazing	Y	Cattle grazing
		Groundwater monitoring	Y	Potential annual groundwater monitoring



Project Description Template



Contact List As of April 25 2018

Name	Org/Position	Contact
PWGSC		
Natalie Robinson	PWGSC Environmental Services (ES) Calgary Project Manager	Ph 403.292.6882 Cell: 403.809.2751 Natalie.robinson@pwgsc.gc.ca
Chris Doupe	PWGS Project Lead	Ph 780.497.3868 Cell: 780.940.1914 Chris.doupe@pwgsc.gc.ca
Client: Parks Canada		
Brent O'Rae	Project Lead	Ph 403.292.4739 Cell: 403.860.4015 Brent.ora@pc.gc.ca
Travis Weber (until May 25 2018)	Bar U Ranch Field Unit: Site Mgr. (site logistics goto)	Ph 403.395.2110 Travis.weber@pc.gc.ca
Jennifer Carpenter	Ecologist Team Leader, Environmental Assessment	Ph: 403-632-5167 Jennifer.Carpenter@pc.gc.ca
Erin Rowlands	Resource Management Officer, Environmental Assessment	Ph: 403.859.5185 Erin.Rowlands@pc.gc.ca
Michael McLean (May 25, 2018 onward)	Site Manager	Phone 403.601.4050
Patrick Davis	BarU employee (position unknown)	Phone 403.601.4051
Consultant: Dillon		
Doug Bell	Project Lead/ Sr Technical Lead	Ph 204. 453.2301 Cell 204.782.1487 dbell@dillon.ca
Keith Barnes	Project Manager	Ph 403.215.8885 ext. 4310 Cell 403.827.6299 kbarnes@dillon.ca
Allisha Sordi	Deputy PM, Civil Design Eng.	Ph 403.215.8885 ext 4349 Cell 403.390.2234 asordi@dillon.ca
Field Staff- Dates in field & time		
Contractor	Unknown at this time	





Parks
Canada

Parcs
Canada

Parks Canada Waterton Lakes National Park General Project Best Management Practices

May 2017

Version 2.0

Canada



Scope of Application

This BMP outlines the impact analysis of repetitive and routine projects¹. Site security, worker safety and visitor safety are not included in the scope of this document. If a project involves some or all of below activities, and the initial assessment of site and project indicate “the project is unlikely to result in significant adverse environmental effects” the BMP can be applied.

Projects that this BMP would likely be applied to include:

- The proposed maintenance, repair or upgrade of an **existing** development.
- **New** projects with restricted footprints that do not include sensitive habitats.
- Proposed restoration of **new** and **existing** developments.

For projects where further EIA is warranted, this BMP may be utilized as part of the mitigation package for the analysis. Therefore, this document also presents a minimum standard to provide consultants and contractors for environmental protection measures on work sites. In these cases, additional protection measures and mitigations may be required.

Exceptions

Supplemental analysis and/or mitigations are required for the following project activities:

- New projects or developments in natural areas;
- Projects adjacent to sensitive features;
- Work that may impact aquatic or terrestrial wildlife habitat connectivity, such as new fences or culverts;
- Physical works immediately adjacent to the international boundary;
- Elongation of culverts; realigning water courses; dredging; or work below the high water mark of a fish bearing water body;
- Bridge projects needing work to occur below the High-Water Mark², with permanent; alteration to the water course, such as replacement of piers/abutments or permanent installation of structures on the bed of a water body;
- Greater than 5% increase in land use footprint (e.g. project expansion); and,
- Work which might adversely impact any potential or established Aboriginal and Treaty rights or traditional use³.

¹ For repetitive and routine projects on roadways, highways and parkways, refer to the Parks Canada National Best Management Practices - Roadway, Highway, Parkway and Related Infrastructure.

² High-water Mark is 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).

³ Parks Canada must engage in additional and separate consultations with Aboriginal groups if there is a possibility of a project adversely affecting established or potential Aboriginal or Treaty rights. This is required to fulfil federal government responsibilities in upholding the honour of the crown. If there is uncertainty regarding the need for Aboriginal consultation with respect to a project, refer the matter to Parks Canada Legal Services for advice. Guidance on consultation may be sought from the Aboriginal Affairs Secretariat and from the guidance document “A Handbook for Parks Canada Employees on Consultation with Aboriginal Peoples”.



If the project has the potential to have an adverse effect on the critical habitat of a species at risk (with endangered, threatened, or extirpated status) the project will require a separate environmental impact analysis.

If the project has the potential for residual adverse effects on a listed species at risk (including effects to individuals and residence of the individuals) the project will require a separate environmental impact analysis.

Note: If there is any uncertainty regarding potential adverse effects to species at risk, consult a member of the **National Office Species Conservation team**.

Approved Geographic Area of Application

Although this BMP is intended for use on projects completed in Waterton Lakes National Park (WLNP), after an analysis of the proposed project activities, the WLNP General Projects Best Management Practices provides an appropriate set of mitigations for the scope and scale of the proposed project. Relevant supplemental mitigations specific to the site are included in Section 1.

Roles and Responsibilities during Construction

The following is a select list of key roles that will be in place during the construction program⁴. The responsibilities of the key roles are not limited to those that are stated below, as this is a select list of roles most relevant to compliance with environmental commitments and regulations for projects where the proponent is the Parks Canada Agency (PCA).

Project Manager (PM)

The Project Manager is accountable to deliver the project and is responsible for managing risk, scope, time and budget. The Project manager is the Technical Authority and is the contractor's unique point of contact. The Project manager reviews and develops contract change order and supporting documents and conducts pre-construction meetings and chairs project team meetings. Note that where the proponent of a project is external to Parks Canada, a functional manager of the project within the Agency is designated.

Project Inspector

The Project Inspector reviews plans for compliance to building codes and development guidelines. The Project Inspector performs inspections on behalf of the Project manager and monitors contract compliance in consultation with procurement office. The Project Inspector is responsible for keeping daily logs.

Project Leader

The Project Leader is accountable for the overall success of the project. The Project Leader recommends approval to proceed to the construction phase and approves changes in scope, budget or schedule in consultation with Procurement Officer.

⁴ The list of roles and key responsibilities have been modified from the PCA document *Construction Site Roles and Responsibilities*.

Table of Contents

SCOPE OF APPLICATION	1
EXCEPTIONS 1	
APPROVED GEOGRAPHIC AREA OF APPLICATION	2
ROLES AND RESPONSIBILITIES DURING CONSTRUCTION.....	2
<i>Project Manager (PM)</i>	2
<i>Project Inspector</i>	2
<i>Project Leader</i>	2
<i>Impact Assessment Officer (IAO)</i>	3
<i>Surveillance Officer (SO)</i>	3
<i>Consultants</i>	3
<i>Environmental Consultants</i>	3
<i>Prime Contractor</i>	3
<i>Banff Dispatch 403-762-1473</i>	3
ENVIRONMENTAL OVERVIEW	4
ENVIRONMENTAL SETTING	4
<i>Ecological Integrity</i>	4
COMPONENTS OF THE ENVIRONMENT THAT MAY BE AFFECTED	4
CONTACT INFORMATION.....	6
1. SUPPLEMENTARY MITIGATIONS	7
2. ENVIRONMENTAL SURVEILLANCE	10
3. PROJECT PLANNING / DESIGN	10
4. SUBMISSIONS.....	12
5. EROSION AND SEDIMENT CONTROL PLAN	13
6. EMERGENCY RESPONSE PLAN MODULE	14
7. GENERAL ACTIVITIES MITIGATIONS MODULE	17
8. VEGETATION REMOVAL MITIGATIONS MODULE	21
9. SOIL HANDLING MITIGATIONS MODULE	23
10. SOIL AND VEGETATION RESTORATION MITIGATIONS MODULE	25
REFERENCES AND SOURCE DOCUMENTS.....	29

Appendices

APPENDIX 1 REGULATORY GUIDANCE	31
---	-----------

Tables

TABLE 1 ADAPTED ALBERTA FOREST AND PRAIRIE FIRE PROTECTION (MINISTERIAL) REGULATIONS AR 65/2017, SCHEDULE	17
--	-----------

Definitions

Sensitive Features are any areas designated by the IAO or through the EIA process as locations that require additional care and consideration for project activities. Sensitive features are defined in the supplemental mitigations section. Examples of sensitive features include but are not limited to nests, dens and roosts, locations of cultural resources, critical habitat or residences for SAR, riparian areas, fescue grasslands, wildlife corridors, rare ecotypes, areas of management concern, etc.

Abbreviations

AIA	Archaeological Impact Assessment
AOA	Archaeological Overview Assessment
BIA	Basic Impact Analysis
BMP	Best Management Practices
CABIN	Canadian Aquatic Biomonitoring Network
CCME	Canadian Council of Ministers of the Environment
CEAA	Canadian Environmental Assessment Act
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CRZ	Critical Root Zone
DBH	Diameter at Breast Height
DFO	Department of Fisheries and Oceans
DIA	Detailed Impact Analysis
EAS	Environmental Alignment Sheets
EI	Ecological Integrity
EIA	Environmental Impact Analysis
ERP	Emergency Response Plan
ESCP	Erosion and Sediment Control Plan
GBSA	Grizzly Bear Secure Areas
HDD	Horizontal Directional Drill
IAO	Impact Assessment Officer
IDA	International Dark-Sky Association
LED	Light-emitting diode
LEED	Leadership in Energy and Environmental Design
PCA	Parks Canada Agency
PM	Project Manager / Functional Manager of Project
RAP	Restricted Activity Permit
SAR	Species at Risk
SARA	<i>Species at Risk Act</i>
SO	Surveillance Officer
TPZ	Tree Protection Zone
UNESCO	United Nations Educational, Scientific and Cultural Organization
UV	Ultra-violet
VC	Valued Component
WLNP	Waterton Lakes National Park



Impact Assessment Officer (IAO)

The Impact Assessment Officer is responsible for drafting and/or reviewing the EIA and ensuring that the scope of work of the environmental analysis complies with Parks Canada's responsibilities under the *Canadian Environmental Assessment Act 2012* as well as all other relevant regulations and guidelines. The IAO may also function as the SO for project construction.

Surveillance Officer (SO)

The Surveillance Officer is responsible for on-site surveillance of the work in accordance with the Parks Canada EIA and environmental regulations and guidelines. The SO will provide direction regarding environmental assessment / environmental infractions or emergencies through the Project Manager unless necessary. As the Parks Canada representative for environmental concerns, the SO may consult with relevant specialists to determine appropriate implementation for mitigation measures. The SO has the authority to stop work for National Parks Act violations, however, during normal operations does not give direction to the Contractor.

Consultants

Consultants recommend contract amendments, reviews and approves shop drawings and provides advice on project compliance. Consultants perform inspections on behalf of the Project Manager.

Environmental Consultants

Under the direction of the IAO, environmental consultants are responsible for producing deliverables as required for the Project, including, but not limited to: Environmental Impact Assessment, site-specific mitigation strategies, Environmental Alignment Sheets (EAS), Environmental Management Plan.

Prime Contractor

The Prime Contractor is responsible for developing a site-specific Occupational Safety and Health Management Plan. The Prime Contractor is responsible for guarding the health and safety of those working on and visiting the site through implementing occupational safety and health induction training. The Prime contractor also obtains materials and labour necessary to successfully complete the project. The Prime contractor will engage and plan the work of sub-contractors and acquire all necessary licenses and permits, provide any required EIA construction planning documents for review (see Submissions Section) and record minutes of site meetings.

Banff Dispatch 403-762-1473

911 provides 24-hour emergency dispatch services and will connect callers with emergency or other Parks Canada services as required (e.g., Warden/Law Enforcement Services, Duty Officers). Banff dispatch at 403-762-1473 can be used for 24 hour notification to Parks Canada in non-emergency situations. When calling, if unsure what services you require, request a Waterton Duty Officer.



Environmental Overview

Environmental Setting

Ecological Integrity

Ecological Integrity (EI) is defined in the Canada National Parks Act as “a condition that is determined to be characteristic of its natural region and likely to persist, including abiotic components and the composition and abundance of native species and biological communities, rates of change and supporting processes”.

Components of the environment that may be affected

Potential effects from projects occurring in Bar U Ranch National Historic Site are well understood and predictable. They include:

Water Resources:

- Adverse modifications to surface drainage patterns
- Reduced water quality due to increased erosion, sedimentation, transportation of debris and contamination (i.e. from leaks and accidental spills, etc.)
- Physical alteration of aquatic habitat

Soil/Land Resources:

- Change in slopes, landforms and landscape
- Soil compaction and rutting
- Slope instability due to increased soil exposure and improper excavation and storage
- Soil contamination

Air quality:

- Decreased ambient air quality (i.e. from dust, equipment emissions, etc.)
- Increased ambient noise levels
- Temporary increased levels of CO₂ and other pollutants
- Temporary increased localized temperatures from paving and equipment operation

Vegetation:

- Damage to and/or removal of vegetation in immediate or adjacent areas
- Introduction of non-native species populations, or expansion of existing populations

Wildlife:

- Introduction of non-native species populations, or expansion of existing populations
- Wildlife sensory disturbance causing displacement/preferred habitat avoidance
- Wildlife habituation/attraction to artificial food sources
- Impeded/altered wildlife movement
- Damage to nests/disruption of nesting animals
- Mortality from project activities
- Damage to the quality of nesting / spawning / roosting habitats

Cultural Resources:

- Adverse effects on the heritage value or character-defining elements of a cultural resource



WLNP General Project Best Management Practices

- Impacts to archaeological resources (known or potential)

Visitor Experience / Safety

- Decreased quality of visitor experience due to temporary area closures, operation of equipment, sensory disturbance
- Potential impacts to visitor safety due to construction activities



Mitigation Package

Parks Canada Waterton Lakes National Park General Project Best Management Practices

Recommendation & Approval – Version 2.0

Modified for: WLNP-2018-021 Bar U Ranch Waste Midden Recapping

Contact Information

Project Manager:

Travis Weber, NHS and VE Manager, Bar U ranch National Historic Site – (403) 395-2110

Impact Assessment Office: 403-859-5185

Jennifer Carpenter: 403-632-5167

Eri Hiraga: 403-632-6071

Erin Rowlands: 403-632-5046

Parks Canada Emergency Dispatch:

Banff Dispatch: 403-762-1473

First Contact Authority (for SPILLS):

First Contact Authority: 780-422-4505

OR 1-800-222-6514

24-hour Emergency Dispatch*:

Police, Fire, Ambulance: 9-1-1

* In an Emergency, 9-1-1 operators can also notify Banff Dispatch.



1. Supplementary Mitigations

Include any supplemental, or site-specific mitigations



Species at Risk

Species at Risk at Bar U Ranch National Historic site are listed below. As well, required habitat characteristics and the likelihood of them being present within the project footprint is displayed.

Species	Scientific Name	Habitat Characteristics	Likelihood to be found within project footprint
Baird's sparrow	<i>Ammodramus bairdii</i>	Mixed grass	Possible
Common nighthawk	<i>Chordeiles minor</i>	Gravelly, open soils	Possible
Leopard frog	<i>Lithobates pipiens</i>	Streams and wetlands	No
Little brown myotis	<i>Myotis lucifugus</i>	Cottonwoods and other tree cavities, caves and structures	No
McCown's longspur sparrow	<i>Rhynchophanes mccownii</i>	Dry, sparse, short-cropped grassland with bare patches	Possible
Monarch	<i>Danaus plexippus</i>	Areas with milkweed	Possible
Short-eared owl	<i>Asio flammeus</i>	Open meadow	Possible
Westslope cutthroat trout	<i>Oncorhynchus clarkii lewisi</i>	Cold, clean water	No

The regional bird/songbird nesting period is **April 1 to August 31**. Avoid all vegetation removal during this time. If vegetation removal is scheduled to occur within this period, the SO may complete pre-work surveys for nesting migratory birds. See [appendices](#) for regulatory guidance and detail on the MBCA and SARA.

- Nesting surveys must be completed within 7 days of project activities.
- There is a **risk of delays** to project activities due to the presence of nesting migratory birds.
- If a nest is found during the pre-work surveys, the vegetated area will be left intact with a suitable sized protected buffer until the young have left the nest and vicinity. Size of buffer is species dependent, to be determined by the SO in consultation with federal regulatory guidance.

SO/EA Specialist to confirm absence of milkweed/ suitable habitat for Monarch. There is **risk of delays** to project activities due to the presence of Monarch.

Cultural Resources

The following interventions are required:

- Archaeological monitoring will be required of any work done at the base of slope within the potential boundary of site 1669R.
- Once access, laydown and staging areas are known, additional archaeological review is required to determine the impacts to cultural resources.
- Accidental Finds Protocol (see below) is in effect for all other portions of the project not covered above.



Accidental Finds: As archaeological testing is by nature sampling (not 100% coverage) there could be a chance, however low, that features or artefact concentrations are encountered in the course of work. If cultural features (i.e., structural remains and/or artefact concentrations) are encountered when a professional archaeologist is not onsite, work should stop in the immediate area, photographs and a GIS reading should be taken, and the Parks Canada project manager informed. The project manager should then contact Parks Canada's Terrestrial Archaeology section for advice and assessment of significance that will in turn determine what will be required to mitigate the chance find.



2. Environmental Surveillance

- 2.1. All projects are subject to environmental surveillance by the SO to ensure that mitigation measures as outlined through the EIA process are implemented during all phases of construction, including clearing, grading, construction, cleanup, and restoration.
- 2.2. The SO will report deficiencies to the PM and summarize site visit observations in a surveillance report. The surveillance report will be filed into a database to supplement information for restoration activities in the future.
- 2.3. The Prime Contractor is responsible for keeping the SO informed of project activities and will notify the SO prior to the following activities:
 - Vegetation clearing and soil stripping < 30 m from sensitive features;
 - Activities in and < 30 m from water;
 - Species at risk mitigation measures;
 - Rare plant mitigation measures; and
 - As otherwise outlined in the project EIA.

3. Project Planning / Design

Project planning and engineering design for new projects or upgrades to existing infrastructure will incorporate consideration of environmental impacts of long term operation and the potential for Conservation Gains through improved design.

Human Use

- 3.1. Incorporate human behaviour into design to minimize human use impacts on the surrounding lands. Some examples include:
 - Block social trails and provide clear wayfinding signage to encourage use of designated trails;
 - Formalize a single trail to remove multiple social/unwanted trails;
 - Prevent vehicle parking outside designated areas; and
 - Manage wildlife attractants and litter through garbage facilities.

Efficiency

- 3.2. Design includes materials and technologies that minimize environmental impacts through the lifecycle of the material.
- 3.3. Design incorporates energy efficiency, reduction of greenhouse gases and environmental design best management practices (e.g., LEED criteria).

Project Footprint & Siting

- 3.4. Avoid sensitive features and apply appropriate setbacks.
- 3.5. The Project Footprint and construction methods use existing disturbances and development footprints as much as possible in order to minimize project impacts on native vegetation.
- 3.6. Minimize visual impact of site layout, access routes and construction activities.
- 3.7. Locations are compatible with any zoning requirements (e.g., avalanche paths, wilderness zone).
- 3.8. Design minimizes the area and/or impact of disturbance.



- 3.9. Design and plan activities and works near watercourses and waterbodies to minimize disturbance to aquatic habitat and avoid sensitive spawning habitats.
- 3.10. Design and construct approaches to a watercourse perpendicular to the watercourse to minimize loss or disturbance to riparian vegetation.
- 3.11. Avoid building structures on meander bends, braided streams, alluvial fans, active floodplains or any other area that is inherently unstable and may result in erosion and scouring of the stream bed or the built structures.

Aquatic Habitat / Water Quality

- 3.12. Minimize runoff into water bodies; direct runoff and storm water into vegetated areas rather than directly into surface waters.
- 3.13. Avoid designs and construction practices that result in long, smooth, uniform slopes and may contribute to erosion or sediment transfer.
- 3.14. Apply appropriate standards for all septic field, pit privy, and other waste water management at facilities.
- 3.15. Projects < 100 m from sensitive aquatic features including wetlands, drainages, streams, lakes and other surface water requires additional EIA to determine appropriate setbacks, mitigations and other design considerations related to aquatic habitats.

Fire

- 3.16. Design considers location and materials appropriate for risk of fire, following FireSmart Canada guidelines where feasible to reduce risk of fire in the wildland-human interface.

Restoration Funding / Plan

- 3.17. Project planning and design minimize the disturbance to surrounding vegetation as much as is feasible.
- 3.18. Project planning incorporates opportunities to restore or use existing disturbed areas.
- 3.19. Project planning includes restoration of the site following construction. Short term revegetation must establish native vegetation cover to reduce potential for erosion, topsoil loss, and weed infiltration and spread. Long term restoration will establish native vegetation communities similar to existing communities prior to disturbance, or comparable to adjacent areas (see [Restoration Section](#)).
- 3.20. A Landscape Restoration Plan shall be developed prior to construction as part of a landscape drawing construction package. The Landscape Restoration Plan shall consider the following:
 - Site objective and intended use;
 - Site design and implementation to be detailed in the plan. The implementation may be executed in stages;
 - Amount and Type of human use within and movement through the site;
 - Site-specific soil, wind, vegetation and/or wildlife concerns;
 - Site hydrology, including flood potential and/or drainage concerns;
 - Identification of potential contamination issues and methods for resolution;
 - Erosion and sediment control requirements for locations near waterbodies or along slopes. Site to be monitored to determine requirements for short- or long-term measures; and



- Maintenance and monitoring requirements.

Pre-Construction Surveys

- 3.21. Prior to the commencement of project activities, the IAO may determine that field surveys are required to determine the applicability of this BMP, requirements for additional impact analysis, identify sensitive features, and determine mitigations.
- 3.22. All ground disturbance activities must be compared to local archaeological resource inventories and the IAO will consult with the Terrestrial Archaeology section. An Archaeological Overview Assessment (AOA) may be required to determine the archaeological potential of the work area. Based on the results from the AOA, an Archaeological Impact Assessment (AIA) might be required.

Survey	Required	Details
Phase I Environmental Site Assessment	<input type="checkbox"/>	
Hazardous Materials Survey	<input type="checkbox"/>	
Reconnaissance Site Visit	<input type="checkbox"/>	
Rare Plant Survey	<input type="checkbox"/>	
Wetland Survey	<input type="checkbox"/>	
Wildlife Survey (list types)	<input type="checkbox"/>	
Fish Assessment	<input type="checkbox"/>	
Soils / Geotechnical	<input type="checkbox"/>	
Cultural Resources (list type)	<input checked="" type="checkbox"/>	Must abide by requirements as per AOA.
AOA / AIA	<input type="checkbox"/>	
Water/Air Quality	<input type="checkbox"/>	
Visitor Experience	<input type="checkbox"/>	
Weed Survey	<input type="checkbox"/>	
Other	<input type="checkbox"/>	

4. Submissions

- 4.1. Check box of attachments / plans required prior to the start of construction.

Attachments / Plans	Required	Responsible Party	Reviewer and Submission Deadline
Environmental Alignment Sheets	<input type="checkbox"/>		
Erosion and Sediment Control Plan	<input checked="" type="checkbox"/>	Prime Contractor	2 weeks prior to project commencement
ERP (Emergency Response Plan)	<input checked="" type="checkbox"/>	Prime Contractor	2 weeks prior to project commencement
Spill Response Plan	<input checked="" type="checkbox"/>	Prime Contractor	2 weeks prior to project commencement
Fire Contingency Plan	<input checked="" type="checkbox"/>	Prime Contractor	2 weeks prior to project commencement
Avalanche Safety Plan	<input type="checkbox"/>		
Site-specific Mitigation Details	<input type="checkbox"/>		
Restoration Plan	<input checked="" type="checkbox"/>	Prime Contractor	2 weeks prior to project commencement
HDD or Geotechnical Drill Plan	<input type="checkbox"/>		



5. Erosion and Sediment Control Plan

- 5.1. An Erosion and Sediment Control Plan (ESCP) will be prepared that covers all construction and restoration periods.
- 5.2. The requirements for an erosion and sediment control plan can be scaled to the scope and associated risks of the project, as determined by the IAO or SO.
- 5.3. The Erosion and Sediment Management Plan will be developed by a qualified professional and is subject to approval of the IAO.

Timing of Works

- 5.4. Schedule work to avoid extreme wet, windy and rainy periods that may increase erosion and sedimentation.
- 5.5. Avoid soil disturbing activities during periods with saturated soils, periods of runoff, high rainfall intensity, high winds, or wet snow. Temporarily stop work when wet ground conditions contribute to erosion and sediment transport.

General Mitigations

- 5.6. Erosion control measures that prevent sediment transport into any waterway, water body or wetland shall be implemented by the contractor.
- 5.7. Identify high risk areas or components of the project including areas with fine-grained soils, sandy deposits, slopes, shallow soils, or adjacent to sensitive features (e.g., riparian areas).
- 5.8. Identify sources of potential runoff (e.g., ditches, slopes) from within the construction site or from upslope areas. Construct and maintain structures to deflect sources of runoff from entering areas of exposed soils (e.g., diversion ditches, vegetative filter strips).
- 5.9. Acquire necessary erosion and sediment control equipment (i.e., landscaping fabric, sediment fences, coir rolls etc.) and install prior to risk of sediment transport.
- 5.10. Minimize slope lengths and angles, promote surface roughness on slopes, and avoid designs and construction practices that result in smooth, uniform slopes. Incorporate texture and organics into the cover of slopes to reduce soil erodibility.
- 5.11. Plan project activities to minimize soil handling.
- 5.12. Limit equipment movement over exposed soils.
- 5.13. Avoid activities that contribute to soil compaction and use practices that roughen and decompact soils to promote infiltration.
- 5.14. Ensure all activities are conducted at least 30 m from waterbodies wherever possible.
- 5.15. Minimize extent of vegetation cover removal and grubbing. Clearly mark construction boundaries to prevent accidental damage to vegetation.
- 5.16. Where vegetation cannot be retained, apply soil covers to erodible areas (granular materials, mulches, tackifier, tarps). Note that tarp covers may not be suitable at most locations in WLNP where high winds are common.
- 5.17. Minimize the length of time soils are exposed and complete work in one area before commencing work in another area.
- 5.18. If vegetation clearing is scheduled early due to timing windows, grubbing should be delayed until just prior to construction activities, in order to maintain soil stability.
- 5.19. Initiate replanting of disturbed areas immediately after construction is completed.



- 5.20. Ensure all erosion and sediment control devices are weed free. Straw and hay based erosion control is not permitted.
- 5.21. Avoid use of coconut matting due to ungulate hoof entrapment.
- 5.22. Maintain and repair all erosion and sediment control structures in a timely manner. If the design of the control measures is not functioning effectively they are to be repaired.
- 5.23. The site will be secured against erosion during any periods of construction inactivity or shutdown.
- 5.24. Install all erosion and sediment control devices according to Typical Drawings included in ESCP. Typical Drawings must be on site and available at the request of the SO.

Minimum Requirements

- 5.25. The minimum requirements of an erosion and sediment control plan include consideration of:
 - Project design and spatial concept of environmental sensitivities (e.g. watercourses, wetlands, steep slopes etc.);
 - Erosion prevention procedures (e.g., project schedule, minimization of work area, site management, ground cover measures);
 - Sediment control measures (e.g. sediment fences, check dams, sediment traps, etc.) including specifications and Typical Drawings of sediment control structures;
 - Detailed plans for instream works including site isolation measures and project timelines;
 - Water management plans including site control, equipment necessary and proposed dewatering locations;
 - Locations of erosion and sediment control measure application;
 - Monitoring of prevention and control measures and corrective actions (e.g., repairs).
 - Removal of non-biodegradable materials once site is stabilized.

6. Emergency Response Plan Module

- 6.1. The general emergency contact for WLNP is 9-1-1.

Spill Response Plan

- 6.2. The Prime Contractor is responsible for ensuring that a Spill Response Plan is developed prior to start of work and the plan is subject to approval of the IAO.
- 6.3. The Prime Contractor is responsible for ensuring that spill kits sufficient to contain and clean up 110% of the site's largest possible fuel / chemical spill must be retained on site at each location of potential spills (sites where equipment is working).
- 6.4. The Prime Contractor is responsible for ensuring that all crew members and sub-consultants on site receive a briefing about the Spill Response Plan and are aware of the location and use of spill kits and containment devices.

General Mitigations

- 6.5. Avoid work in high risk areas, particularly in areas of high water table, steep slopes or in close proximity to streams.



- 6.6. Have spill containment equipment on-hand and ensure that all personnel are aware of their location and trained in their use.
- 6.7. Absorbent booms must be immediately available on site during works in and near water.
- 6.8. Ensure all construction equipment is free of leaks from oil, fuel or hydraulic fuels. See **General Activities** module for the requirements for equipment inspection by the SO prior to entry to WLNP.
- 6.9. 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 from the SO.
- 6.10. Designate refuelling areas at least 100 m away from any water body. Refuelling activities should not be conducted where run-off could carry contaminants into drainage pathways (including storm sewers).
- 6.11. Hazardous or toxic products shall be stored no closer than 100 metres from streams, wetlands, water bodies or waterways.
- 6.12. Equipment will be fuelled on hardened surfaces wherever possible.
- 6.13. Spill kits shall be provided at re-fuelling, lubrication, and repair locations.
- 6.14. Dispose of contaminated materials at provincially certified disposal sites outside of WLNP. No treatment of contaminated soils (e.g., bioremediation) is allowed in WLNP. All applicable documentation demonstrating proper disposal will be provided to Parks Canada.
- 6.15. If potentially hazardous materials (e.g. cement-based products, sealants or paints) are used on site ensure raw material, mixed compounds and wash water are not released to any watercourse or soils. Secondary containment measures such as collection/drip trays and berms lined with occlusive material such as plastic and a layer of sand, and double-lined fuel tanks are required.
- 6.16. All gas generators and water pumps require secondary containment. Electric pumps are preferred.
- 6.17. Follow all applicable regulations and codes for the management and handling of hazardous waste.
- 6.18. The costs involved in a spill incident (the control, clean up, disposal of contaminants and site remediation to pre-spill conditions), shall be the responsibility of the Prime Contractor. The site will be inspected by the SO to ensure completion to the expected standard and to the satisfaction of Parks Canada.
- 6.19. Timely and effective action shall be taken to stop, contain and clean-up all spills as long as the site is safe to enter. In the event of a major spill, all other work shall be stopped and all personnel devoted to spill containment and clean-up.
- 6.20. The SO shall be notified immediately of any spill. In the event of a major spill, Banff Dispatch (403-762-1473) shall be notified immediately along with the First Contact Authority (1-800-222-6514).

A major spill is defined below:

Material	Immediate Notification Requirements	Written Spill Report Requirements
Any deleterious substance that enters a water body of any type (e.g., stream, lake, wetland, drainage, sewer)	Any Quantity, notify the SO and Banff Dispatch.	Required; Major Spill



or poses a threat to human safety (e.g., slippery road, explosive hazard, poisonous gas).		
Any substance that is hazardous or toxic to the environment including but not limited to, waterproofing agents, grout, cement, concrete finishing agents, hot poured rubber membrane materials, asphalt cement, sand blasting agents, paint, solvents and hydrocarbons (e.g., fuel, grease, hydraulic fluid).	<100 L, immediately notify the SO. > 100 L, immediately notify the SO and Banff Dispatch.	At the discretion of the SO. Major Spill if not contained. Required; Major Spill

Minimum Requirements

6.21. The Spill Response Plan must at minimum, include the following information:

- List of products and materials that are 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.
- required equipment on site and location of spill kits;
- 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);
- fuelling procedures, fuel storage;
- spill response (i.e., containment, clean-up, disposal of contaminated materials, etc.);
- spill reporting procedure; and
- up-to-date emergency response contact list including contact information for reporting spills.

Spill Reporting Requirements

6.22. Immediate spill reports are verbal notifications and must include all available information. Follow-up written spill reports must include the following:

- Prime Contractor Name
- Name and Contact Number
- Location and time the spill occurred
- Type and quantity of the substance spilled
- Cause of the spill
- Size of area the spill spread to
- Was the spill in water or on land
- Does the spill have potential to enter a water body
- Detail of immediate action taken to control the spill
- Additional actions required or ongoing to control the spill
- Any restoration required at the spill site
- Names of PCA representatives that were present at the spill site

Fire Contingency Plan

- 6.23. An emergency fire contingency plan is required for projects where risk of fire exists (e.g. for operations on dry grassland habitats) as requested by the IAO in consultation with the Fire Management Officer.
- 6.24. Fires or burning of waste materials is not permitted.



- 6.25. The Prime Contractor is responsible for ensuring that all crew members and sub-consultants on site receive a briefing about the Fire Contingency Plan and are aware of the location of emergency equipment, such as fire extinguishers.
- 6.26. Where an emergency fire contingency plan has been requested, the prime contractor should provide, at minimum the required equipment as defined in the Schedule of the *Alberta Forest and Prairie Protection (Ministerial) Regulation*.
- 6.27. The fire contingency plan must at minimum contain the following information:
 - required equipment on site;
 - fire prevention procedures;
 - initial response;
 - fire reporting procedure; and
 - up-to-date emergency response contact list.

Table 1 Adapted Alberta Forest and Prairie Fire Protection (Ministerial) Regulations AR 65/2017, Schedule

Required Equipment for Fire Control	People Employed at the Site of Operations									
	1	2	3	4	5	6-10	11-20	21-30	31-40	41+
Shovels	1	1	2	2	3	5	10	15	20	Same as 31-40 plus increase as required by SO in consultation with the Parks Canada Fire Management Officer.
Back pack with pump	1	1	1	2	3	5	10	15	20	
Axe or Pulaski	1	1	1	1	2	5	10	15	20	
Fire pump	0	0	0	0	0	0	0	1	1	
Fire hose (metres)	0	0	0	0	0	0	0	450 m	450 m	
Power saw	0	0	0	0	0	0	0	1	1	

7. General Activities Mitigations Module

Construction activities involve the use of laydown/staging areas, equipment operations, storage and handling of hazardous materials. Potential adverse effects include: alteration of vegetation, erosion and sedimentation, constriction for wildlife movements and introduction/spread of non-native vegetation.

- 7.1. All employees must attend an environmental briefing with a SO before beginning work at the site to review and explain the mitigations that are conditions of the project approvals. Employees must attend this briefing before beginning their work at this site.
- 7.2. All equipment and vehicles will be made available for inspection by the SO on arrival to WLNP. The Prime Contractor will give 48 hours' notice and schedule equipment inspection with the SO. Water trucks require a written restricted activity permit from the SO to enter the Park. The permit is received at initial inspection.

Construction Timing / Visitor Experience

- 7.3. Confine construction activities to hours set below, and if possible to periods of low visitation in order to reduce sensory disturbance to wildlife and visitors.



- 7.4. Time activities to minimize vehicle conflicts on access roads (*i.e.*, where possible, schedule activities so that equipment operations does not disrupt traffic flow; result in wildlife collisions).
- 7.5. All Parks Canada designated speed limits apply to construction vehicles. Additional speed restrictions may be required to protect wildlife and visitor safety.

	Required	Location(s)	Notes
Additional Speed Limits	<input type="checkbox"/>		
Work Hour Restriction	<input type="checkbox"/>		
Designated Truck Routes	<input type="checkbox"/>		

Timing Windows

- 7.6. Timing windows to reduce erosion, maintain compliance with the *Migratory Birds Convention Act*, *Fisheries Act*, *Species at Risk Act* and may be part of best practices to reduce erosion and environmental effects. See detailed mitigations for timing windows under **Erosion and Sediment Control**, **Vegetation Removal** and **Buildings** modules where these activities are part of project works. A summary of these restrictions is made below.

Consideration	Applicable	Restricted Window	Notes
Migratory Bird General Breeding Period	<input type="checkbox"/>	April 1 to August 31	
Bat Maternity Roost Activity Period	<input type="checkbox"/>	April 1 to August 31	
Bat General Activity Period	<input type="checkbox"/>	April 1 to October 31	
Amphibian Calling Window	<input type="checkbox"/>	April 15 to June 15	
Bull Trout Restricted Work Periods	<input type="checkbox"/>	August 31 to August 15	
Other Fish Species Restricted Work Periods	<input type="checkbox"/>	Consult IAO	
Grassland Dormancy	<input type="checkbox"/>	October 1 to February 28	
Additional Timing Considerations (e.g., weed seed set, soil protection)	<input type="checkbox"/>	Dry late summer and fall conditions	

Work Site Conditions/Staging/Laydown

- 7.7. Minimize vegetation-clearing activities and ground disturbance by staging on existing hardened areas wherever possible.
- 7.8. Delineate the work zone; clearly mark the limits to active construction, sensitive features and the access and egress locations.
- 7.9. The Prime Contractor is responsible for security and safety of the work site.
- 7.10. Strong winds are a regular occurrence in WLNP. Prevent materials from blowing off of work site.
- 7.11. If contamination is found, cease work immediately and if necessary, implement Emergency Response Plan.



Wildlife Observations and Encounters

- 7.12. Notify the SO immediately of any dens, litters, nests, carcasses (road kills or other), wildlife encounters, or carnivore (bears, wolves or cougars) observations on or around the worksite.
- 7.13. If wildlife is observed at or near the work site, allow the animal(s) the opportunity to leave the work area to the surrounding habitat and away from areas of potential conflict.
- 7.14. If potentially dangerous wildlife (e.g., bear, cougar, wolf, deer, sheep) persistently enter the work area or display aggressive behaviour, the contractor will immediately stop work, notify 9-1-1 or Banff Dispatch (403-762-1473), and safely evacuate the area.
- 7.15. Contractor will make bear spray, bear spray training, and wildlife awareness training mandatory to all workers on site.
- 7.16. Secure all materials that might attract wildlife (e.g. petroleum products, human food, recyclable food and drink containers and garbage).
- 7.17. No feeding, baiting or luring of any wildlife (including bears, small mammals, birds); do not approach or harass wildlife in any way. Notify the SO immediately if wildlife obtain garbage or human food. If wildlife get into attractants that have been intentionally or accidentally left out, individuals or the contractor could be charged under the *Canada National Parks Act Regulations*.

Equipment Operations & Fuelling

- 7.18. Equipment movements and workers' private vehicles shall be restricted to the designated footprint of the construction area.
- 7.19. Protective measures, including using appropriately sized equipment, or protective access matting must be employed if entry into wet areas is required.
- 7.20. Due to the importance of fescue grassland within WLNP, vehicles must not be driven onto any open grassland areas unless it has been designated by the SO as a parking area prior to construction activities.
- 7.21. Machinery must arrive on site in a clean and dry condition and be maintained free of fluid leaks, vegetative material (i.e., invasive species, noxious weeds) and soils from off-site. All construction equipment from outside WLNP will be washed prior to arrival to minimize the risk of introducing weeds or aquatic invasive species. Additional weed-cleaning stations may be designated by the SO depending on project activities and locations (see table below).

	Required	Location(s)	Notes
Are additional weed cleaning stations required?	<input type="checkbox"/>		

- 7.22. Inspect equipment daily for fluid/fuel leaks and maintain equipment in good working order.
- 7.23. Equipment fuelling and maintenance sites will be identified by the Contractor and approved by the SO. Fuelling should occur on hardened areas > 100 m from streams, wetlands, waterbodies or watercourses. Fuelling personnel shall maintain presence at and provide immediate attention to the fuelling operation.



- 7.24. Mobile fuel containers (e.g., slip tanks) shall remain in the service vehicle at all times.
- 7.25. Operate machinery on land above the high water mark, on ice, or in another manner that minimizes disturbance to the banks and bed of any water body.
- 7.26. Limit machinery crossing (fording) a stream or watercourse to a one-time event (i.e., over and back), and only if no alternative crossing method is available. If repeated crossings of the watercourse are required, construct a temporary crossing structure in compliance with the *Fisheries Act*.
- 7.27. For fording equipment without a temporary crossing structure, use stream bank and bed protection methods (e.g., swamp mats, pads) if minor rutting is likely to occur during fording.
- 7.28. Use temporary crossing structures or other practices to cross streams or water bodies with steep and highly erodible (e.g., dominated by organic materials and silts) banks and beds.
- 7.29. Equipment that will work adjacent to or within a stream or watercourse should be free of external grease, oil or other fluids, excessive mud, dirt and vegetation before entering the work area.

Small Equipment

- 7.30. All small equipment (e.g., chainsaws, mowers, etc.) should be kept in good working condition and free of oil and fuel leaks.
- 7.31. Where possible, chain oil should be vegetable-based.
- 7.32. Fuelling of chainsaws will take place outside of riparian areas and sensitive features.

Site Clean Up/Waste Disposal

- 7.33. Clean tools and equipment at an appropriate off-site facility to prevent the release of wash water that may contain deleterious substances.
- 7.34. Sweep up loose material or debris. Any material that may pose a risk of contamination to soils, surface water or groundwater should be disposed of appropriately off-site.
- 7.35. No construction waste (sawdust, soil, vegetation, debris, pumped water, hydrocarbon, chemicals, cement, asphalt, etc.) shall be allowed to enter an aquatic habitat or be deposited on undisturbed lands unless the said lands are part of the project works and approved for temporary waste storage.
- 7.36. Construction, trade, hazardous waste and domestic waste materials shall not be burned, buried or discarded at the construction site or elsewhere in WLNP. These wastes shall be contained and removed in a timely and approved manner and disposed at an appropriate waste landfill site located outside WLNP.
- 7.37. Construction waste storage containers, shall be emptied when 90% full. Waste containers will have lids, be wildlife proof if containing attractants, and waste loads shall be covered while being transported.
- 7.38. Sanitary facilities, such as a portable container toilet, shall be provided and maintained in a clean condition. Sanitary facilities must be in good condition, and located away from sensitive resources including water bodies.
- 7.39. Camping and other recreational activities at the work site by contractors is not permitted without prior approval from the IAO and the Project Manager. These activities, if deemed appropriate, are conditional upon specific mitigations that address risks to wildlife, safety and any other additional environmental effects.



Air Quality Mitigations

- 7.40. Diesel equipment used on the project shall be fuelled with low sulfur diesel fuels and shall conform to local emission requirements.
- 7.41. Minimize idling of engines at all times.
- 7.42. Schedule dust generating activities during periods with lower wind speeds.
- 7.43. Ensure fine materials being transported are covered and protected.

Cultural Resources

- 7.44. All work in WLNP is subject to the accidental finds clause whereby on finding any unexpected Cultural Resources, workers shall stop work in the immediate area and notify the SO. Parks Canada's Terrestrial Archaeology section will provide advice and assessment of significance and determine requirements to mitigate the chance find. Examples of archaeological artefacts encountered in WLNP include buried bison bones, stone tools, and above ground cairns.
- 7.45. Where deep excavation is planned within the townsite, notify the Parks Canada Terrestrial Archaeology section to coordinate a site visit to look at the subsurface deposits with buried soils whenever possible.
- 7.46. If applicable, follow additional mitigations outlined in the Cultural Resources Impact Assessment.

	Required	Location(s)	Notes
Are additional mitigations for cultural resources required?	<input checked="" type="checkbox"/>		Must abide by all requirements in AOA.

8. Vegetation Removal Mitigations Module

Project activities that may alter or remove vegetation include mowing, brushing, and landscape maintenance activities, non-native species management, fire hazard reduction and prescribed burn operations and pre-construction site clearing. Grubbing (stump and root removal) may be required to prepare the ground surface for other activities.

Wildlife Timing Windows

All vegetation, including grassland, has the potential to provide habitat for wildlife. Applicable timing windows for individual project vegetation removal is listed under the **General Activities Mitigations Module**.

- 8.1. The regional bird/songbird nesting period in WLNP is **April 1 to August 31**. Avoid all vegetation removal during this time. If vegetation removal is scheduled to occur within this period, the SO may complete pre-work surveys for nesting migratory birds. See **appendices** for regulatory guidance and detail on the MBCA and SARA.
 - Nesting surveys must be completed within 7 days of project activities.
 - There is a **risk of delays** to project activities due to the presence of nesting migratory birds.
 - If a nest is found during the pre-work surveys, the vegetated area will be left intact with a suitable sized protected buffer until the young have left the nest and vicinity.



Size of buffer is species dependent, to be determined by the SO in consultation with federal regulatory guidance.

- 8.2. Vegetation clearing can negatively impact bats in spring and summer. The timing windows for avoidance of vegetation removal activities in WLNP is April 1 to August 31 for vegetation likely to support roosting bats. If vegetation removal is scheduled to occur within this period, the SO may complete pre-work surveys for bat roosts.
- Roosting surveys must be completed within 7 days of project activities.
 - There is a **risk of delays** to project activities due to the presence of bat roosts.
 - If a potential bat roost is located, a site-specific mitigation strategy must be developed dependent on the type of roost and species present, to be determined by the SO in consultation with federal regulatory guidance.
- 8.3. Vegetation removal can negatively impact amphibians and reptiles, especially during breeding, transformation and important movement periods within and close to wetlands.
- If vegetation removal is to occur within 300 m from a confirmed or potential amphibian breeding wetland, or within 500 m from a confirmed SAR amphibian breeding wetland, additional impact analysis may be required and site-specific mitigations developed.
 - If vegetation removal is scheduled to occur during non-frozen conditions, the SO may complete an amphibian and reptile ground search immediately prior to equipment activities.
 - If ground disturbance activities are scheduled to occur in frozen conditions, amphibian exclusion fencing may be required in the preceding fall season at the discretion of the SO.

Other Timing Considerations

- 8.4. Where ground disturbance accompanies vegetation removal, time activities to minimize soil handling, soil compaction, and erosion potential. Avoid extreme dry windy and wet conditions.
- 8.5. In areas with weed infestations, reduce weed spread through vegetation removal prior to seed set.

Vegetation Removal Mitigations

- 8.6. If previously unidentified sensitive features are found during construction, immediately stop work and notify the SO (e.g., raptor nest).
- 8.7. Vegetation removal should be limited to the minimum area required for safe operations during construction or to meet the objectives of the clearing activities (i.e., fire breaks, sight lines etc.).
- 8.8. Minimize full removal and retain vegetation when possible to reduce erosion.
- 8.9. Retain 30 metre vegetated buffer around sensitive features; where disturbance is unavoidable < 30 metres, a restoration plan is required and the SO must be on site during disturbance activities.
- 8.10. Do not deposit debris in water bodies.



- 8.11. Limbing must be completed using the appropriate equipment to minimize damage to the tree (i.e., using a hoe bucket to limb trees is not appropriate as it can cause the bark to tear and can make the remaining tree vulnerable to diseases and rot).

Disposal of Vegetation Debris

- 8.12. Where practicable, as much of the coarse woody debris and organic matter from the tree removal should remain on the site and used in restoration. The quantity and distribution of slash remaining must not impede wildlife movement, choke out native vegetation, create a significant fire hazard or cause an excessive nutrient flush.
- 8.13. All debris that is not being disposed of on-site must be removed as soon as possible from the project footprint, by transporting off-site for disposal.
- 8.14. If temporary storage is required, store debris on already disturbed areas to minimize footprint of disturbance.
- 8.15. All vegetation containing non-native species will be bagged and removed off site to disposal facility.
- 8.16. On approval of the SO, vegetation debris may be taken to the WLNP burn pile at the upper government compound provided all materials are transported, placed and sorted according to current WLNP requirements.
- 8.17. If removal is not feasible a chipper may be used for less than 50 boles per hectare. Chip depth is to be a maximum of 5 cm (2 inches), spread over area no greater of 5m x 5m per hectare so as to not cover underlying vegetation, prevent new native seedlings from sprouting, and cause soil/seed bank sterilization. Spreading of chips may extend beyond these parameters with approval by the SO.

Herbicide Use

- 8.18. A Field Unit Integrated Pest Management Plan (IPMP) must be completed and approved prior to the use of herbicides to ensure the most effective and least harmful substances are properly used.

9. Soil Handling Mitigations Module

To successfully complete restoration of disturbed areas, and protect areas from erosion, proper soil handling and backfilling procedures must be followed. Post excavation and stripping soil and vegetation restoration mitigations should be applied. See Section 10 of this BMP for **Soil and Vegetation Restoration**.

- 9.1. All soil handling activities require consideration of erosion and sediment control. **See ESCP Section.**

Soil Stripping

- 9.2. No stripping shall occur outside of the delineated work area or within 1 metre of the drip line of existing forest.
- 9.3. Stripping close to any watercourse, water body or wetland shall employ methods to ensure materials are not pushed, do not fall or erode into the water or wetlands.
- 9.4. Soil must be stripped in accordance with the **ESCP**. Key components for soil stripping are:
 - Minimize soil movement and handling at all times.



- Strip topsoil under dry conditions, whenever possible.
- In the event of a work program shutdown during inclement weather (e.g. winter conditions unfavourable for construction, heavy rain events, construction delays, etc.) contingency planning for bared soils or excavated material stockpiles is required.

Topsoil Salvage

- 9.5. Salvage topsoil at all excavation sites for restoration purposes.
- 9.6. Prevent loss of topsoil through wind or water erosion.
- 9.7. Usually the upper 15 cm of soil, below the sod layer if present, is considered topsoil, where topsoil depths exceed 15 cm then salvage the entire depth of topsoil.
- 9.8. Where depths exceed 15 cm, salvage the upper 15 cm of topsoil separately from the remaining, where the seedbank is filled with desirable native seed material.
- 9.9. The SO may designate separate storage of topsoil zones whereby forest soils are stored separately from grassland soils and weed contaminated soils are separated from clean topsoil.

Excavation

- 9.10. All trenches or ditches left unattended overnight must be fenced or covered to prevent wildlife entrapment or provide appropriate egress for wildlife.
- 9.11. Workers must inspect trench for trapped wildlife prior to backfilling. If trench has been left open for > 24 hours, SO must be notified and time allowed for the SO to complete additional inspection for trapped wildlife such as salamanders.
- 9.12. Materials shall be placed at storage sites or on the grade without spillage outside the working limits. Any material inadvertently falling outside the work limits is to be removed promptly in a manner that does not damage trees or vegetation.
- 9.13. Special precautions may have to be taken during excavation in the vicinity of intermittent or active drainage channels.
- 9.14. Minimize changes to the ground surface that affects its infiltration and runoff characteristics and maintain/re-establish effective surface drainage on completion of the project.
- 9.15. Backfill and compact excavations as soon as possible. Optimize degree of compaction to minimize erosion and allow for re-vegetation.
- 9.16. To limit over compaction, use equipment which minimizes surface disturbance including low ground pressure tracks/tires, blade shoes and brush rake attachments.
- 9.17. All excavations will remain free of water (see dewatering mitigations).

Excavated Material Storage

- 9.18. Allow space for separate storage of topsoil and spoil; where space is available, separate stored topsoil from spoil by at least 1 m. Use appropriate material (e.g., geo-textile) to separate soil components where space is limited.
- 9.19. Topsoil from separate ecotypes or areas of the project may not be mixed without approval of the SO (i.e., grassland soils must be kept separate from forested soils).
- 9.20. Topsoil may be stored on hardened surfaces, geo-textile material, in topsoil storage containers or directly on undisturbed vegetation. If storage occurs on vegetation, material recovery by hand may be required.



- 9.21. Topsoil should be stockpiled on the uphill side of the disturbance on sloped terrain and away from any grades, subsoils, spoil material, construction activity and day to day operations.
- 9.22. Construct barricades to prevent losses on steep terrain ($>18^\circ$, 3:1).

Excess Materials and Waste (Overburden Removal)

- 9.23. Remove excess excavated material from site where it cannot be used for the final grading of the area. Site specific arrangements must be made for disposal locations and procedures of overburden.
- 9.24. Surplus excavated material may be used to fill depressions around the project site providing topsoil is stripped before filling, with approval from SO.

10. Soil and Vegetation Restoration Mitigations Module

Almost all projects activities included in this BMP will require some ecological restoration- *the process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed*. The restoration plan can be a simple application of the following mitigations and can be at the site or both at the site and in concert with another site designated to offset the permanent impact of a project. A restoration plan is required for all projects but the scale and scope can be adapted to that required by the project (i.e., BMPs, site restoration plan, etc.). Restoration works can often be considered projects in and of themselves. Soil and vegetation restoration must apply the principles of effective, efficient and engaging solutions.

Restoration Plan

- 10.1. Develop restoration plan as part of the project scoping and specifications prior to project approvals.
- 10.2. Ensure that the appropriate restoration materials are available as needed immediately following construction activities.
- 10.3. The restoration plan will be subject to the approval of the IAO, who will be responsible for consulting with the Park Vegetation Ecologist.
- 10.4. The restoration plan should the following minimum information
 - Site description;
 - Site-specific restoration goals and objectives;
 - Schedule of clean-up activities;
 - Timing of restoration activities;
 - Restoration Standards; and
 - Follow-up Protocols (i.e., supplemental seeding, native transplants, weed control, etc.)

Timing Windows

- 10.5. Complete initial seeding as soon as possible.
- 10.6. Supplemental planting should be timed for the species and location. Seeding in the fall allows for full scarification of the seed over the winter. Consider using seed that requires shorter scarification times for spring and summer applications. Transplants may do best in the spring and summer and can require watering or other maintenance.
- 10.7. Time weed control measures to prevent seed propagation.



Topsoil Replacement

- 10.8. Implement restoration plan for the disturbed area immediately following completion of construction.
- 10.9. Minimize soil movement and handling to protect existing native seed bank.
- 10.10. Replace topsoil to all areas immediately following fine grading.
- 10.11. Do not compact topsoil.
- 10.12. Backfilling should allow settling to prevent depressions however, long term roach piles on linear disturbances should be minimal.
- 10.13. Where insufficient topsoil is available, the SO may approve moving soil from different projects or areas of WLNP. Imported soil may be used as a last resort and must be from a supplier that has been inspected and approved by the Park Vegetation Ecologist. Methods of improving vegetation succession using locally sourced, weed and contaminant free materials are preferred.
- 10.14. Slopes to be seeded should be no steeper than 2 horizontal to 1 vertical (2:1) and covered with a minimum of 5 cm (2 inch) of topsoil. Finish grading should always follow top soil placement. Maintain structure (i.e., rocks, roots, woody debris) in topsoil.
- 10.15. Where remaining soils are unstable due to steepness or soil characteristics, immediate installation of sod or other erosion control is required.
- 10.16. Methods of bioengineering such as terracing, willow staking, live pole drain systems should be assessed as solutions where soils are steeper or remain unstable.

Soil Amendments

Fertilizer Application

- 10.17. Avoid use of fertilizer to limit non-native vegetation growth and allow for local species to use available nutrients.
- 10.18. If needed use locally sourced mycorrhizae compost teas to improve vegetative success, as approved by WLNP vegetation ecologist.

Topsoil substitute

- 10.19. Apply an organic cellulose only amendment as a soil substitute if restoration standards are not being met within the defined time frame.
- 10.20. Determine the type of organic amendment based on the site-specific requirements (e.g., peat moss, compost) at the discretion of WLNP vegetation ecologist.

Seedbed Preparation

- 10.21. The seedbed will be scarified by hand or, with the approval of the SO, by machine on large areas (i.e., roadbeds) where it is accessible and appropriate.
- 10.22. The seedbed will be scarified if seeding takes place more than 7 days after final grading or if there has been a rainfall between final grading and the seeding date.
- 10.23. The cleats of a tracked vehicle or a harrow device will be used, where possible, to prepare an adequate seedbed with seedling safe-sites (microsites) substantially free of soil crusts.
- 10.24. Align cleat marks at right angles on slopes to trap seed and sediment and reduce erosion.



Species Selection

10.25. When selecting species and varieties:

- Use species of local native plant communities.
- Avoid use of cultivars.
- Species viability in proposed environment and climatic conditions.
- Capability to effectively control erosion, where required.
- Adaptation to the variable site conditions of undulating topography.
- Consider palatability of some species to herbivores and avoid growing attractants in areas of increased risk to wildlife and visitors.
- Variable life expectancy to produce variable, delayed die-out of seeded species and replacement with indigenous native plants.

Seed Mix Selection

- 10.26. A prescriptive seed mix appropriate for the project area will be provided by Parks Canada. If an appropriate seed mix is not available, the SO will contact the Park Vegetation Ecologist to determine an appropriate mix for the Project.
- 10.27. Percentage of individual species within mixes are approximate and may vary depending on seed availability. A number of native species that are available only in limited quantities commercially have been included in the seed mixes. These seed mixes are to be used conditional on availability of individual species; modifications/replacements are allowed, subject to approval by the WLNP Vegetation Ecologist.
- 10.28. Prior to seed purchase, certificates of seed analysis will be provided to the Vegetation Ecologist for approval.
- Do **NOT** purchase seed until written approval is obtained.
 - Certificates of Analysis must include both the common and include the scientific name following the CANADENSYS nomenclature system; indicate if the seed is a cultivar, ecovar, or wild native; geographic origin (seed source); date of collection; method of seed storage; germination, viability and vigour; and indicate all other species occurring including agronomic, weed, and native species; and date of the analysis. The contact information for the Seed Supplier will be included.
- 10.29. All seed is subject to testing by PCA prior to use.

Seeding

- 10.30. Use only seed purchased after written approval is obtained.
- 10.31. Seed and stabilize (e.g. mulch/tackifier) bare areas as soon as possible after disturbance, preferably as soon as a significant area is graded and finished and before the next rain event. If there is a risk of seedling mortality as a result of fall frost stabilize until appropriate growing conditions exist.
- 10.32. In previously disturbed lawn areas of the Waterton Community, consider using sod in high traffic areas or places that need extra erosion control.
- 10.33. Use temporary seeding when outside the seeding dates for permanent vegetation.
- 10.34. Apply a seed mixture which is appropriate for the climate, soil, and drainage conditions of the site.



- 10.35. Apply seed at a rate appropriate to the seed mixture, seeding method and existing vegetation conditions.
- 10.36. Conduct broadcast seeding under calm wind conditions. Hydro-seeding is acceptable where access is available.
- 10.37. Do not increase the seeding rate to compensate for poor seedbed conditions.
- 10.38. Monitor temporary erosion control measures to prevent seed loss.
- 10.39. Supplemental seeding may be required in subsequent years.

Alternatives to Seeding

- 10.40. Use topsoil seed bank in small areas when there is no risk of erosion or competition from invasive species (i.e., natural regeneration).
- 10.41. Use native transplants in areas where conventional seeding applications are not applicable or where slope stability is an issue.
- 10.42. Use native transplants to provide additional diversity and structure to supplement seeding.
- 10.43. Use conventional forestry planting methods for container grown transplants, see [website](#) for guidance.



References and Source Documents

- Axys Environmental Consulting Ltd. and David Walker & Associates. 1998. Best Available Methods for Common Leaseholder Activities. 2013. Prepared January 1998 and updated March 2013 for Line Leaseholders Working Group, Jasper National Park.
- British Columbia Ministry of Transportation and Infrastructure. 2010. Environmental best practices for highway maintenance activities 2nd ed. Government of British Columbia.
- British Columbia Ministry of Forests and Environment Lands and Parks. 2000. Provincial Wildlife Tree Policy and Management Recommendations. Government of British Columbia.
- Coordinated Technology Implementation Program. 2011. Current and Innovative Solutions to Roadside Revegetation Using Native Plants. Federal Highway Administration U.S. Department of Transportation.
http://www.nativevegetation.org/pdf/B1422_Roadside_revegetation_Report_complete.pdf
- Dane, C. 1978 Culvert Guidelines: Recommendations for the Design and Installation of Culverts in British Columbia to Avoid Conflict with Anadromous Fish. Fisheries and Marine Service Technical Report No.811. Department of Fisheries and Environment. Government of Canada.
- Dick, Robert. 2008. Guidelines for Outdoor Lighting in Dark Sky Preserves. Royal Astronomical Society of Canada
- Dick, Robert. 2014. Report on Current Lighting within Waterton Lakes National Park, Specifically the Town Site of Waterton. Report presented to Parks Canada.
- Environmental Protection Agency Office of Water. 2000. A Guideline for Maintenance and Service of Unpaved Roads. Choctawhatchee, Pea and Yellow Rivers Watershed Management Authority.
http://water.epa.gov/polwaste/nps/urban/upload/2003_07_03_NPS_unpavedroads_ch5.pdf
- Fisheries and Oceans Canada. Measures to Avoid Harm. Accessed February 2015. <http://www.dfo-mpo.gc.ca/pnw-ppe/measures-mesures/index-eng.html>
- Fisheries and Oceans Canada. Self-Assessment Criteria. Accessed February 2015. <http://www.dfo-mpo.gc.ca/pnw-ppe/index-eng.html>
- Federal Highway Administration. 2011. Clear Zones and Roadside Terrain. United States Department of Transportation. http://safety.fhwa.dot.gov/roadway_dept/clear_zones/cmclearzones/
- Gregoire, P. 2015. Environment Canada. Personal Communication of recommended setbacks from species at risk for high disturbance activities on 21 November 2015.
- Government of British Columbia. 1996. Water Act and Water Regulation. Crown Publications, Queens Printer.
- Lausen, C. 2012. Waterton Lakes National Park Bat Survey. Birchdale Ecological Ltd. Kaslo, B.C.
- Parks Canada. 2007. Parks Canada Omnibus Environmental Protection Plan Mitigation Measures. Government of Canada.
- Parks Canada. 2007. Parks Canada Best Management Practices for Fire Management Operations. Government of Canada.
- Parks Canada. 2008. Guidelines and Specifications for Outdoor Lighting at Parks Canada. Real Property and Ecological Integrity Branches of Parks Canada.



WLNP General Project Best Management Practices

- Parks Canada. 2008b. Waterton Lakes National Park of Canada: State of the Park Report. Government of Canada.
- Parks Canada. 2011. Waterton Lakes National Park of Canada Road Maintenance Guidelines. Government of Canada.
- Parks Canada. 2012. Minor Repairs to Transportation Infrastructure in Atlantic Canada National Parks Replacement Class Screening Report. Government of Canada.
- Parks Canada. 2012. Replacement Class Screening Report for Routine In-Water Works Projects Along the Rideau Canal and the Trent-Severn Waterway.
- Parks Canada. 2015. Parks Canada National Best Management Practices for Roadway, Highway, Parkway and Related Infrastructure. Government of Canada.
- Parks Canada. 2013. Flood 2013 Rehabilitation. Government of Canada
- Parks Canada. 2013. Best Management Practice for Roadside Vegetation Maintenance at Point Pelee National Park. Government of Canada.
- Parks Canada. 2013 Assessment of Highway Nighttime Paving. Jasper National Park, Government of Canada.
- Parks Canada. 2013. Best Management Practice for Routine Vegetation Trimming and Clearing Pukaskwa National Park. Government of Canada.
- Parks Canada. 2014. Highway Service Centre Engineering's Environmental Procedures. Jasper National Park, Government of Canada.
- Parks Canada. 2015. Parks Canada Directive on Impact Assessment. Government of Canada.
- Parks Canada. 2015. Basic Impact Analysis Rock Slope Remediation. Kootenay National Park, B.C. Government of Canada.
- Parks Canada. 2015. Memo: Managing Risk of Invasive Mussels through Fire Operations. Government of Canada.
- Parks Canada. 2016. Information Centre on Ecosystems (ICE) System. Government of Canada.
- Parks Canada. No Date. Jasper Mitigation Manual. Government of Canada.
- Transport Canada. 2008. Replacement Class Screening Report for Minor Transportation Repairs. June 2008. TC Contract # 8080-07-0061.
- United Nations Food and Agriculture Organization. 1998 Manual for the Planning, Design and Construction of Forest Roads in Steep Terrain.
<http://www.fao.org/docrep/w8297e/w8297e00.htm>



Appendix 1 Regulatory Guidance

Jurisdictions

While all projects on lands managed by Parks Canada must adhere to Federal law and regulation, it is considered best practice to refer to local community, regional, provincial regulation and best practices where federal guidance is silent and/or attempt to meet those targets if it can reduce the overall impact of the project.

Some of the project activities reviewed have potential environmental impacts that are addressed by various provincial, federal and territorial acts and regulations. All activities must meet current environmental law and regulations in their design and construction. The following is a brief description of some of the key federal acts and regulations. Further review, understanding and application of other federal, provincial and territorial environmental laws are part of a rigorous approach to project planning and execution.

Canada National Parks Act and Regulations-Parks Canada

All work inside National Parks and Protected Areas must be performed in accordance with the laws and regulations set out in the *Canada National Parks Act* and Regulations. This includes the requirement for most activities described to only be done under a permit such as: business licence for contractor, disturbance of natural objects, travel in restricted areas, special events or use of disposal sites.

Fisheries Act - Fisheries and Oceans Canada

If a project is to be conducted near water, it is the proponent's responsibility to ensure they avoid causing serious harm to fish in compliance with the *Fisheries Act*. The advice in on the Fisheries and Oceans website will help a proponent avoid causing harm and comply with the Act.

If the water body in the project area has fish or is connected to waters at any time that have fish the project must meet the self-assessment criteria on the Fisheries and Oceans website, if not a project review can be made by Fisheries and Oceans Canada to assess whether the project requires authorization or authorization can be requested directly. Given the level of detail required for a review and/or authorization request the EIA officer may need to consider a more involved EIA pathway in those circumstances.

Migratory Bird Convention Act – Environment Canada

The purpose of this Act is to implement the Convention by protecting and conserving migratory birds - as populations and individual birds - and their nests. Section 6 - prohibits the disturbance, destruction, or taking of a nest, egg, or nest shelter of a migratory bird.

In Canada, the general nesting period may start as early as mid-March and may extend until end of August. This is a general nesting period that covers most federally protected migratory bird species. This period varies regionally across Canada mainly due to differences in species assemblages, climate, elevation and habitat type. Generally, the nesting period is delayed in more northerly latitudes, corresponding to vegetation development and food availability. (Environment Canada, 2014). To help with determining regionally relevant periods where nesting is likely to occur, Environment Canada is publishing estimated regional nesting periods within large geographical areas across Canada referred as "nesting zones". These periods are



estimated for each zone and consider the time of first egg-laying until the young have naturally left the vicinity of the nest. Field Units may wish to refine this section and add their known local nesting periods.

Species at Risk Act

If a species listed under the *Species at Risk Act* (SARA) is found within the project area, any potential adverse effects from the proposed project to the individuals of the species, their residences and/or their critical habitat must be understood. Species at risk considerations require specific expertise, due to additional legal requirements under the SARA and CEAA 2012. If the projects or activities to be addressed by the BMP could affect a listed species or its critical habitat, the EIA officer may need to consider a more involved EIA pathway in those circumstances.



Archaeological Overview Assessment : Bar U Ranch NHS East/West Waste Disposal Middens Remediation

*Prepared by Bill Perry, Archaeologist, Terrestrial Archaeology, IACHD, Parks Canada
June 28, 2018*

Purpose

The objective of the project is to address potential archaeological concerns for the Bar U waste disposal midden remediation project (figure 1). The proposed project will encompass the construction of an improved cap for the two historic waste middens.

Background and References Cited:

The scope of work consists of the following (Project Description April 25 2018):

- Construction of an improved cap for the two waste middens
- Clearing and grubbing and removal/disposal of existing vegetation
- Excavation and stockpiling of topsoil from the middens area
- Installation and compaction of clay material within the midden area
- Installation of two layers of non-woven geotextile and a polyethylene membrane
- Extension of monitoring well pipes and protective casings
- Import and compaction of subsoil material (0.15m depth) and topsoil (0.015m depth) within midden areas
- Seeding over disturbed construction area.
- Footprint size is 120m by 30m (west midden) and 115m by 30m (east midden)
- Offsite locations and stockpiling and staging areas unknown at this time.

Observations

This assessment is based on my knowledge of the cultural resources in Bar U Ranch N.H.S, gained through reviews of the archaeological records and my own extensive field work. Based on this knowledge I am able to provide the following observations.

- The project area has one Indigenous archaeological site (1669R) located immediately at the base of slope and east of the waste middens (see figure 1). The site is located on the west bank of Pekisko Creek on a east facing terrace and comprises a large Indigenous campsite. The site is of moderate archaeological significance. It is currently unknown as to where the western most boundary of the site is and whether the proposed monitoring pipes and casings will impact intact archaeological deposits.
- Midden # 1 (figure 2), the most westerly midden was first used post 1920 to recently before the site was purchased by PCA. The feature was assessed in 1993 by Rod Heitzmann (1993:pp58-59) who noted refuse on the surface such as wringer washing machines, various abandoned machine parts and other domestic waste. The recovery of an historic weather vane from this feature that may have topped the southeast barn suggests that this dump has been used since the 1920s.
- Midden # 2, the more easterly midden dates from post 1940 to the present. Also assessed by Heitzmann in 1993 (1993:59), the midden is comprised of relatively recent domestic refuse. Archaeological aspects of this feature are unlikely to be significant given its apparently late date.
- Given the relatively recent age of the easternmost midden, it is considered to be of low archaeological significance.



- The westernmost midden has both modern and historic refuse contained in it. It is not anticipated that the capping and remediation efforts will affect the older refuse deposits underneath.

Management Concerns and Project Recommendations

The following interventions are *required*:

- **Archaeological monitoring will be required of any work done at the base of slope within the potential boundary of site 1669R. It is uncertain from the project description whether there may be potential impacts to this area from vehicle access, laydown and staging areas etc.**
- **Once access, laydown and staging areas are known, additional archaeological review is required to determine impacts to cultural resources.**
- **Accidental Finds protocol** (see below) is in effect for all other portions of the project not covered above.

References Cited

1993 Heitzmann, Roderick "Bar U Ranch National Historic Site Preliminary Archaeological Inventory and Assessment". On file, Archaeological Services, Western Region, Canadian Parks Service, Calgary.

Accidental Finds

As archaeological testing is by nature sampling (not 100 percent coverage) there could be a chance, however low, that features or artifact concentrations are encountered in the course of work. If cultural features (i.e., structural remains and/or artifact concentrations) are encountered when a professional archaeologist is not onsite, work should stop in the immediate area, photographs and a GIS reading should be taken, and the Parks Canada project manager informed. The project manager should then contact Parks Canada's Terrestrial Archaeology section for advice and assessment of significance that will in turn determine what will be required to mitigate the chance find.

Contacts

Bill Perry
Archaeologist, Archaeology and History Branch,
Heritage Conservation and Commemoration Directorate
Parks Canada, Calgary
Bill.perry@pc.gc.ca
Cell 403-701-0614

Figures

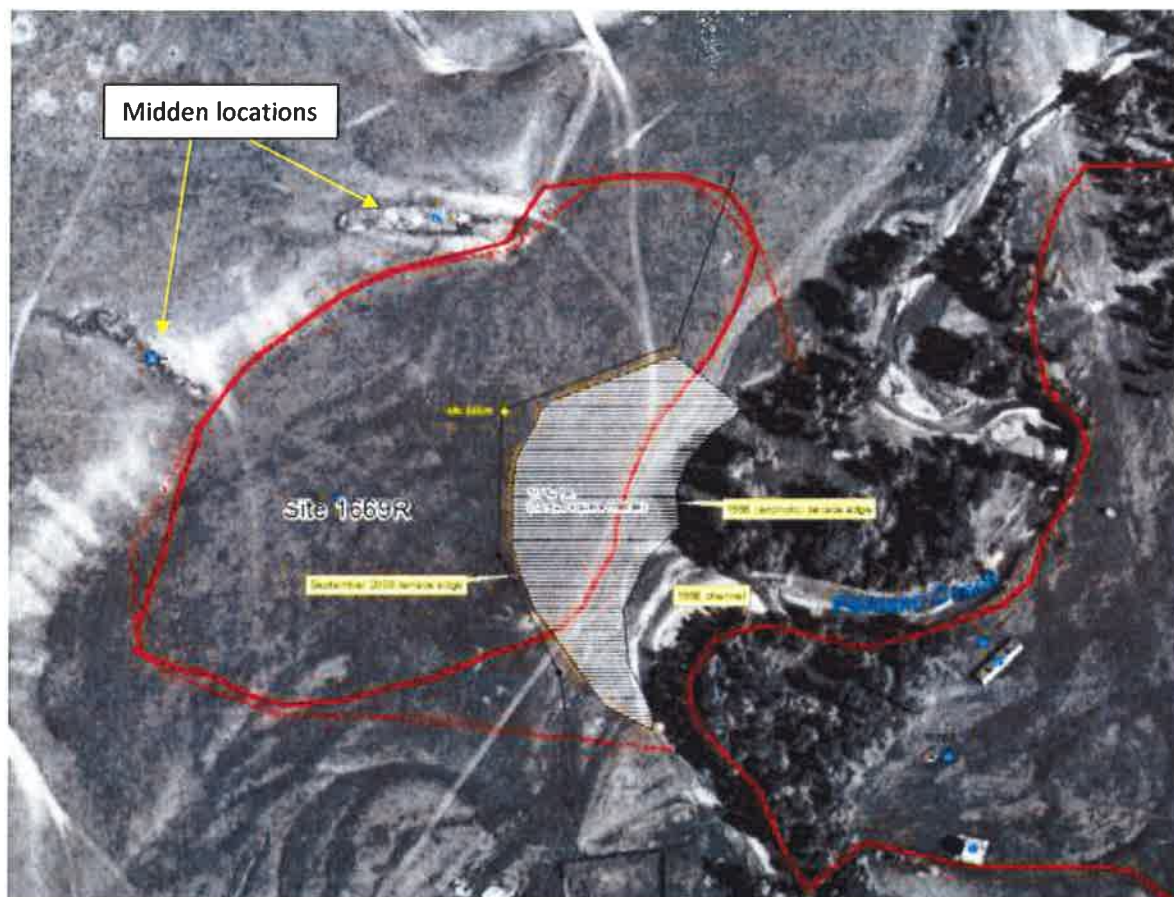


Figure 1. Project location within Bar U Ranch N.H.S. with archaeological sites and features plotted. Project areas at arrows. Source: Bar U Ranch N.H.S. GIS Archaeological base map, 2018.

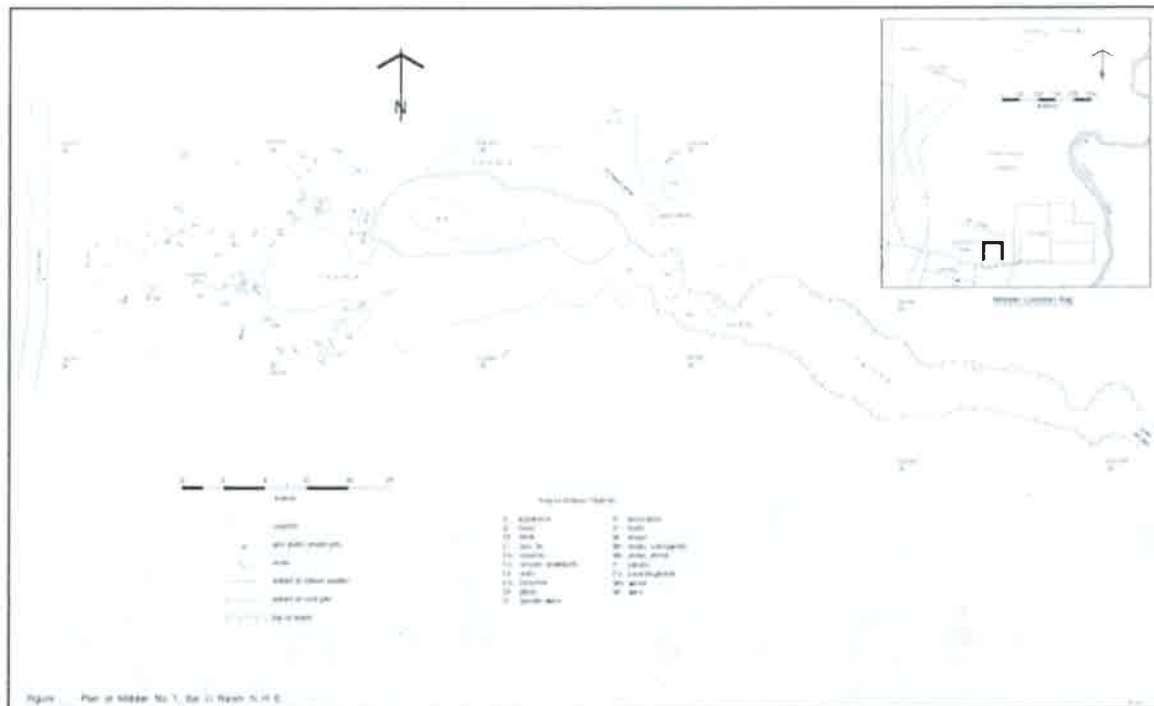


Figure 2. Archaeological map of finds, Midden 1, westernmost midden, Bar U Ranch N.H.S. (after Heitzmann 1993).