

ENVIRONMENTAL BENEFICIAL MANAGEMENT PRACTICES MANUAL

For SaskPower Transmission, Distribution and Fibre Construction,
Operations and Maintenance



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Table of Contents

1.0	INTRODUCTION	4
1.1	Health, Safety and Environment Policy	4
1.2	BMP Development, Training and Continuous Improvement.....	4
1.3	Scope and Application	5
1.4	Legal Requirements	6
1.5	Roles and Responsibilities.....	7
1.6	Incident Reporting	9
2.0	PRE-CONSTRUCTION AND ENVIRONMENTAL PLANNING	10
2.1	New Construction Routing and Design	10
2.2	Primary and Secondary Environmental Screening	11
2.3	Emergency Maintenance Activities	12
3.0	ENVIRONMENTAL BENEFICIAL MANAGEMENT PRACTICES	14
3.1	BMP 01 Surface Water.....	15
3.2	BMP 02 Wildlife and Habitat.....	22
3.3	BMP 03a Birds – Tree and Ground Nest Management.....	26
3.4	BMP 03b Birds – Nest Management on Infrastructure	34
3.5	BMP 03c Birds - Collision Prevention.....	44
3.6	BMP 04 Native Grassland, Agricultural Land, and Sandhill Environments.....	48
3.7	BMP 05 Soil	52
3.8	BMP 06 Heritage Resources	56
3.9	BMP 07 Vegetation Management	58
3.10	BMP 08 Weeds and Clubroot	65
3.11	BMP 09 Disposal and Storage of Nonhazardous and Hazardous Materials and Waste.....	69
3.12	BMP 10 Spills and Releases	73

Figures

Figure 3.1.1 – Surface Water Feature – Bed, Bank and Boundary.....	21
Figure 3.3.1 - Rural Nesting Habitat BMP Application	30
Figure 3.3.2 - Urban Nesting Habitat BMP Application	33
Figure 3.4.2 - Nest on Infrastructure Response Requirements	37

Appendices

A: Nest Search Data Sheet

B: Wildlife Critical Habitat and Compliance Requirements

C: Erosion and Sediment Control Guideline

D: Nest and Perch Deterrents and Artificial Nests and Shelters

E: Emergency Maintenance Notification Requirements

F: Environmental Closure Report Form

1.0 INTRODUCTION

Saskatchewan Power Corporation (SaskPower) maintains over 1 million transmission and distribution structures totaling 157,000 km of power lines, 56 high voltage switching stations and 200 distribution substations. In addition, the province is growing and SaskPower completes approximately 8000 new distribution service connects annually and is projecting significant annual investments to renew and rebuild the power system.

SaskPower's Environmental Beneficial Management Practices Manual (the Manual) identifies the environmental planning requirements in addition to a set of beneficial management practices (BMPs) for SaskPower employees and their contractors to use during transmission, distribution and communication (i.e., fibre optic) project planning, construction and maintenance. The BMPs are applicable to both linear projects and new or expanded facilities (e.g., switching stations).

The BMPs have been designed to address three project phases; pre-construction and planning, construction, and maintenance. Proper planning and mitigation of potential effects throughout these three phases of a project reduce the risk of potential environmental effects and improve SaskPower's ability to meet stakeholder expectations and project operational objectives (e.g., meeting in-service dates). Additionally, the BMPs have been designed to address existing federal and provincial regulatory requirements and meet the requirements of a results based regulatory system.

The Manual and BMPs within are required training for SaskPower transmission, distribution and fibre optic employees and contractors to ensure consistent application of environmental mitigation measures and use of best practice to complete their work. A contractor's ability to meet the requirements of the Manual is considered during tender and post construction evaluations.

1.1 Health, Safety and Environment Policy

SaskPower maintains an ISO 14001 environmental management system and is guided by our existing commitments to environmental sustainability and beneficial practice. SaskPower's corporate policy and commitment to the environment is:

SaskPower is committed to the health, safety and well-being of its employees, contractors and everyone exposed to our facilities, and the protection of the environment. We are all responsible for the health and safety of people and for protecting the environment. We shall:

- *Actively prevent incidents, injuries and pollution*
- *Continually improve our safety and environmental performance*
- *Meet or exceed occupational health, safety and environmental legislation and corporate commitments*

1.2 BMP Development, Training and Continuous Improvement

The BMPs were developed through the following processes:

- consultation with external consultants, internal subject matter experts, and regulatory agencies was undertaken over a three-year period;

- comprehensive review of T&D and fibre optic activities, potential effects and risk to the environment was completed to guide the beneficial management practice development;
- incorporation of new information, lessons learned, client and regulator feedback and suggestions with each revision.

The BMP Manual content and application training will be provided to all SaskPower employees and contractors involved in the planning, development and execution of construction, operation and maintenance projects within Transmission Services, Distribution Services and Communications Engineering (fibre optic). Training will be completed on a recurring cycle and delivered by SaskPower Environment, SaskPower Environment representatives and/or online learning modules.

As legislation and practice changes and evolves, the Manual, the BMPs and training materials will be evaluated and updated as required.

1.3 Scope and Application

Construction, operations and maintenance activities within SaskPower's Transmission Services, Distribution Services and Communications (fibre optic) fall within the scope of the Manual and BMPs. The BMPs apply both to new and existing linear facilities in addition to sub and switching stations. Prior to activities occurring, planning, routing, construction and reclamation elements must be considered.

The BMPs have applicability to all activities from all-terrain vehicle based ground patrols to new transmission line construction. Although some routine low risk activities may not require environmental screening (e.g., ground patrol), the BMPs are still applicable and provide guidance to planning and execution of environmentally low risk work. Similarly, transmission projects which undergo detailed environmental evaluation including field studies and detailed mitigation development to meet regulatory requirements can be informed by the BMPs.

The BMPs will form the basis for mitigation within all project permits and approvals as applicable. Although designed to be comprehensive and inclusive, all regulatory approval conditions and project specific mitigation measures in environmental assessments take precedence over the BMPs. The BMPs are organized both by a particular environmental feature (e.g., Surface Water) or by a particular activity (e.g., Disposal and Storage of Non-hazardous and Hazardous Waste). BMPs include:

- BMP 01 Surface Water
- BMP 02 Wildlife and Habitat
- BMP 03a Birds – Ground and Tree Nest Management
- BMP 03b Birds – Nest Management on Infrastructure
- BMP 03c Birds – Collision Prevention
- BMP 04 Native Grassland, Agriculture Land, Sand and Sandhill Environments
- BMP 05 Soils
- BMP 06 Heritage Resources

- BMP 07 Vegetation Management
- BMP 08 Weeds
- BMP 09 Disposal and Storage of Nonhazardous and Hazardous Materials and Waste
- BMP 10 Spills and Releases

Prior to implementation of any BMP measure, ensure the appropriate hazard and risk analysis is completed and safety controls and protection are applied as required.

1.4 Legal Requirements

The Manual and BMPs have been developed to address, and to the degree practical, maintain compliance with federal and provincial environmental legislation relevant to SaskPower's construction and maintenance activities. The following is the core legislation considered. The applicability of the various legislative requirements is discussed in each of the BMPs.

1.4.1 Federal

- *Canadian Environmental Protection Act*
- *Canada National Parks Act*
- *Fisheries Act*
- *Migratory Birds Convention Act, 1994*
- *Species at Risk Act, 2002*
- *Transportation of Dangerous Goods Act*

1.4.2 Provincial

- *The Environmental Management and Protection Act, 2010* and applicable regulations including:
 - *The Environmental Management and Protection (General) Regulations*
 - *The Hazardous Substances and Waste Dangerous Goods Regulations*
- *The Forest Resources Management Act*
- *The Heritage Property Act*
- *The Provincial Land Act*
- *The Saskatchewan Environmental Code*
- *The Wildfire Act*
- *The Wildlife Act, 1998*
 - *The Wildlife Regulations*

- *The Wildlife Species at Risk Regulations*
- *The Wildlife Habitat Protection Act*
- *The Weed Control Act*

1.5 Roles and Responsibilities

SaskPower Environment is responsible for maintaining, updating and providing training on the Environmental BMP Manual content. The following key roles and responsibilities ensure the appropriate communication and application of BMPs over the course of an activity or project.

1.5.1 Project Managers/Contract Owners

Contract Owners and Project Managers either assigned through the Project Development Office or from Construction teams are responsible to:

- Ensure the environmental screening of projects is completed
- Provide resources for environmental assessment, acquisition of environmental permits and approvals and beneficial management practice implementation
- Consider the BMPs that affect scheduling, project design and start-up of construction and adjusting project schedules and budgets as applicable
- Include BMPs and project specific environmental requirements in tender documents and ensure contractors are qualified
- Hold contractors and project team members accountable to BMP implementation
- Respond with timely corrective action to environmental incidents

1.5.2 Environment

SaskPower Environment staff are responsible to:

- Provide secondary environmental screening and if applicable, primary environmental screening (major transmission and fibre optic projects) and communicate results to project team
- Liaise with regulatory agencies and obtain relevant permits and approvals
- Provide input on project route selection and environmental design requirements
- Review major project requests for proposals (RFPs) and spread contractor tender documents to ensure the appropriate inclusion of BMPs or project specific requirements
- Coordinate and manage environmental consultants and environmental monitors required for projects
- Communicate environmental requirements at kick-off meetings as applicable

- Provide training to contractors and internal staff
- Manage review and update of BMPs

1.5.3 Transmission, Distribution and Fibre Optic Engineering Services

Lead engineers or engineering technicians may be responsible for the Project Manager duties (noted above) if designated PM on projects. Otherwise their core responsibilities are:

- Complete primary environmental screening (i.e., Distribution Services and Asset Management and Field Services) and initiate secondary environmental screening if required
- Ensure specific environmental design requirements are incorporated into route selection, design and planning (e.g., avoidance of wetlands)

1.5.4 Transmission, Distribution and Fibre Optic Construction Managers, Contract Owners, Construction Officers and Inspectors

- Ensure project environmental requirements are communicated to contractors and implemented effectively in the field
- Respond with timely corrective action to environmental incidents
- Complete documented work observations of crews and contractors

1.5.5 SaskPower Line Crews, District Operators and External Construction Contractors

- Maintain SaskPower Environmental BMP training accreditation for project managers, foreman and crews
- Be aware of and implement BMPs, RFP environmental requirements, Shop Papers, permit conditions and site specific mitigation as required
- Provide the appropriate operational controls and equipment to meet mitigation objectives
- Complete a daily Hazard/Aspect and Risk Assessment (HARA) form to document environmental aspects and controls prior to initiating work
- When required, request assistance to determine proper mitigation measures

1.5.6 Environmental Monitors

If required on a project, environmental monitors are responsible to:

- Meet the requirements of *SPIGEC No. 6 - Required Qualifications – Field Environmental Monitors for Oil and Natural Gas Exploration and Development Projects (2002)* and SaskPower's Environmental Monitor Handbook

- Ensure construction contractors and their subcontractors are aware of the BMPs, permit conditions and site-specific environmental mitigation requirements and they are upheld in the field
- Understand limitations of construction due to standards requirements and provide assistance to resources with mitigation measures
- Address unexpected environmental effects in consultation with SaskPower Environment
- Temporarily halt activities that may cause unacceptable effects or result in non-compliance with project-specific permit conditions, laws and regulations
- Prepare weekly or daily monitoring reports and a final project as-built report as required by SaskPower and/or regulatory agencies

1.6 Incident Reporting

An “Incident” is an occurrence that did, or could have, resulted in damage, environmental impact or loss, and/or an occurrence that caused a breach of corporate policy, legislation or other requirement.

All incidents, including minor incidents, must be reported to the SaskPower contract owner (contractor) or onsite supervisor (internal) and to the applicable SaskPower Resource or Environment Specialist. An incident must be entered in the SaskPower Environment and Safety Management Information System (ESMIS) with preliminary incident classification as soon as possible. Incident classification, communication and reporting requirements must be completed as per the SaskPower Environment Incident Reference Chart. . SaskPower has a 24/7 Safety, Environment and Security Reporting Line (306-566-6200) if there are any questions about a possible incident or if the SaskPower contract owner or onsite supervisor cannot be contacted.

2.0 PRE-CONSTRUCTION AND ENVIRONMENTAL PLANNING

Project planning, sustainable development guiding principles and integration of the BMPs are incorporated at each stage of project development including route selection for new facilities, environmental screening of work to be completed, construction and reclamation.

2.1 New Construction Routing and Design

2.1.1 Transmission

The objective of the transmission line route development and planning process is to determine the route corridor that balances the major aspects of SaskPower's *Transmission Line Routing Guidelines* (SaskPower 2014) while also reducing the effects to each aspect to the degree practical in each category. Major aspects include the following five categories:

- Environment (e.g., native grassland, critical habitat, sand hills, wetlands, waterfowl abundance, steep terrain, archaeological)
- Indigenous Knowledge (e.g., engagement with communities to determine areas of importance)
- Land Use (e.g., route along quarter lines, avoid irrigation, parallel existing infrastructure, residential setbacks)
- Social (e.g., points of interest, recreational areas, areas of economic importance)
- Cost (e.g., r line length and number of deflections, long term maintenance and land acquisition)
- Technical (e.g., maintain adequate safety clearance to highways, pipelines, railways, airstrips, etc.)

During route corridor development, route corridor alternatives are progressively evaluated and narrowed as more detailed information is collected and a final preferred route corridor and centerline is identified. Data from open house consultations, environmental field studies and desktop analysis is then used to optimize structure location and on and off-ROW access trails. Principles for structure placement and access design include avoidance of protected areas, surface water features, steep side slopes, heritage sites, rare plants, and specific wildlife habitat features (e.g., leks) to the degree practical.

2.1.2 Distribution and Fibre Optic

Distribution and fibre optic projects are typically shorter in length and have less routing flexibility than transmission projects. However, core principles that guide distribution and fibre optic routing are similar to transmission:

- Utilize road allowances, quarterlines and other linear corridors and existing disturbance where practical.

- Avoid spanning and structure placement in surface water features that have high waterfowl abundance. If avoidance is not possible, refer to design considerations in BMP 03c Birds – Collision Prevention.
- Reduce conflict with present and planned land use.
- Select rights-of-way that reduce effects to treed areas, shelter belts, critical habitat and other environmental and archaeological sensitivities.

Following facility design and route selection, projects are checked in the field by district operators or engineering technicians to confirm accuracy of desktop data (e.g., landcover, presence of water, treed areas, etc.) and to determine any unknown site conflicts.

2.2 Primary and Secondary Environmental Screening

Engineers, route planners and environmental staff also utilize SaskPower’s Environmental Screening System (ESS) during route planning and primary and secondary environmental screening. By identifying any potential concerns prior to construction, SaskPower is better equipped to address these concerns and plan accordingly to minimize and/or mitigate adverse effects. The BMPs contain guidance for planning projects within environmentally sensitive areas and are a reference during project planning and screening.

2.2.1 Environmental Screening System

The ESS is an internal geographical information system (GIS) database that includes current baseline environmental and archaeological data compiled from various sources. The ESS database includes information from known, published and digitally compiled lists of environmental occurrences (e.g., Conservation Data Center tracked plants and animals), land with specific legislative status, areas with other status or ranking and/or presently undisturbed habitat. The information and data are acquired from a variety of government and non-government agencies, private sector and academic sources, and updated on a regular basis.

2.2.2 Primary Environmental Screening

The ESS is a valuable tool used by SaskPower route planners and engineering technologists to identify potential environmental, cultural or heritage issues of concern for proposed projects. Each new construction or planned maintenance transmission, distribution or fibre optic project is screened using the ESS. Activities located within disturbed environments and low risk activities (e.g., ground patrols) are exempt from screening. If “hits” or intersections with sensitive environmental features are identified, the projects are reviewed in the secondary screening phase by SaskPower’s Environmental Assessment (EA) staff and cannot proceed until a mitigation response has been communicated.

2.2.3 Secondary Environmental Screening and Permitting

During Secondary Screening, SaskPower's EA staff and/or consultants provide guidance on route selection, access planning and structure placement and determine if environmental regulatory permits and approvals are required. Secondary Screeners may utilize the ESS, environmental assessment data, consultant expertise and the BMPs to prescribe project specific mitigation measures to reduce the project effects and meet regulatory objectives. If required, EA or its consultants will complete regulatory applications (e.g., technical proposals) and acquire environmental permits (e.g., Aquatic Habitat Protection Permit, Forest Product Permit, Crown Land Clearance, Miscellaneous Use, etc.).

2.2.4 Internal Communication and Coordination

BMP training is mandatory for all SaskPower project managers, engineering, line crews and external construction contractors working on SaskPower transmission, distribution and fibre optic projects. The BMPs are also available on the internal intranet (EnviroNet) and SaskPower.com for use during project planning and design.

The BMPs and any project specific mitigation measures (e.g., nest survey, environmental monitor, construction timing restrictions) are provided to the project management team, engineering, construction management coordinators, file management staff and construction crews through inclusion in project specific work orders (e.g., shop papers, RFPs, etc.) or through project specific kick-off meetings on larger projects. On larger projects or projects within environmentally sensitive areas, an EA coordinator and/or a third party environmental monitor will be assigned to the project team for the duration of the project to ensure environmental requirements are communicated and met.

All projects are required to complete a Hazard/Aspect and Risk Assessment (HARA) prior to initiating work. The BMPs can be referenced as operational controls for reducing environmental risk as applicable.

2.3 Emergency Maintenance Activities

Transmission and distribution emergencies requiring immediate repair can occur at all times of the year and in all ground disturbance conditions. Completing maintenance work under emergency status allows work to proceed without acquiring typical required permits (e.g., AHPP). However, the work must meet the definition of an emergency or hazardous condition as defined in *The Power Corporation Act*. These include conditions that may endanger the safety of the customer or the public. Emergency scenarios typically include:

- outages;
- fire;
- imminent health, safety or environmental risk;
- infrastructure damage or imminent risk of damage.

In the event of an emergency, SaskPower will implement the mitigation within the BMP to the extent practical. Refer to Appendix E for emergency notification requirements. Notification is not required for

activities exempted from notification as per the *Environmental Protection Plan for Working in or Near Surface Water* and for activities that fall under provincial Crown land exemptions. In some cases, a Closure Report may be required to be submitted to the Ministry of Environment (ENV) following completion of the work as directed by EA. A Closure Report template is included in Appendix F and the most current version and associated Job Aid can be found on SaskPower.com or EnviroNet. Crew leads are responsible for completing and submitting back closure reports to SaskPower Environment for final submission to ENV.

During emergencies with immediate risk to life and property (e.g., storm events with multiple outages and /or fires), there is no notification requirement. Please inform SaskPower Environment (306-566-6200) and they will assist with coordination of post construction assessment and follow-up with ENV if applicable. If SaskPower's Incident Command System (ICS) is initiated, the designated SaskPower Environment Technical Specialist will coordinate with the ICS team as per the *SaskPower Environmental Emergency Management Work Procedure*.

3.0 ENVIRONMENTAL BENEFICIAL MANAGEMENT PRACTICES

SaskPower's environmental BMPs are contained in this section. They are organized both by a particular environmental feature (e.g., Surface Water) or by a particular activity (e.g., Disposal and Storage of Non-hazardous and Hazardous Materials and Waste). The applicability of these practices will vary by the type of construction or maintenance activity undertaken and the location of the project.

3.1 BMP 01 Surface Water

3.1.1 Effect

Working in or near surface water features has the potential to introduce sediment, disrupt fish habitat, disturb surrounding vegetation and wildlife habitat, or have other adverse effects on surface water feature function, soil, vegetation, and wildlife.

3.1.2 Application

This BMP applies to any activity when working in or near surface water. Surface water includes all wetland types (e.g., bogs, fens, swamps, marshes and shallow open water wetlands) and classes and lakes, reservoirs, rivers, creeks and streams whether the water is there permanently or intermittently. Wetlands are areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal conditions, do support a prevalence of vegetation typically adapted for life in saturated soil conditions. Measures in this BMP are designed to maintain surface water feature function, reduce soil and vegetation disturbance, reduce soil compaction and erosion and prevent pollutants from entering the surface water.

3.1.3 Project Planning and Communication

New infrastructure should be located outside of water boundaries if practical and projects should be planned to occur under frozen or dry ground conditions. All proposed construction and maintenance work (i.e., ground disturbance) near water (within 45 m) requires Secondary Environmental Screening by SaskPower Environment and may require an Aquatic Habitat Protection Permit (AHPP) from Ministry of the Environment (ENV).

3.1.4 Documents and Clearances

ENV Aquatic Habitat Protection Permits (AHPP) may be required under the provincial *The Environmental Management and Protection (General) Regulations* prior to work in or near surface water that may cause disturbance to bed, bank or boundary of the surface water feature (refer to Figure 3.1.1). Exceptions in the *The Environmental Management and Protection (General) Regulations* allow directional boring, direct ploughing and vegetation removal for the purpose of utility line maintenance only under frozen or dry conditions (i.e., vehicles and equipment will not have a noticeable impact on the soil; with respect to ice, frozen to safely support equipment, but not necessarily frozen to the bed). SaskPower has also secured additional exemptions as documented in the *SaskPower Working in or Near Surface Water Environmental Protection Plan (EPP)*. Additional exemptions include most activities during dry or frozen conditions, vegetation clearing by hand during wet conditions, pole installation and replacements in class I, II and III wetlands during wet conditions and “reaching in” from dry ground in all wetland classes on private land. Refer to the EPP for a complete list of exemptions and additional requirements. SaskPower is pursuing similar exemptions for provincial Crown land, although they are not in place at this time.

A Temporary Water Rights License may be required from the Water Security Agency if temporary water withdrawals are required (e.g., for directional drilling) from surface water features. Fisheries and Oceans Canada (DFO) Authorization may be required under the federal *Fisheries Act* if working in fish bearing water. If work is proposed that has potential to impact fish or fish habitat, the project must be screened by a SaskPower Environment Resource Specialist during secondary screening to determine if additional approvals are required.

All permits and approvals are acquired by Environmental Assessment or their consultants unless otherwise advised.

3.1.5 Preconstruction and Planning

3.1.5.1 General

- a. ensure permits are kept on site and that all permit conditions are followed. If required, notify Ministry of Environment prior to commencement of work;
- b. all incidents, including minor incidents, must be reported to the SaskPower contract owner (contractor) or onsite supervisor (internal) and to the applicable SaskPower Resource or Environment Specialist. An email summary of the incident shall be sent to incidentsenv@saskpower.com. SaskPower has a 24/7 Safety, Environment and Security Reporting Line (306-566-6200) if there are any questions about a possible incident or if the SaskPower contract owner or onsite supervisor cannot be contacted.

3.1.5.2 Site Selection and Structure Placement

- a. identify surface water using best available topographical data when planning structure placement and access routes (e.g., aerial imagery, GIS data, LiDAR, project specific land cover mapping and field data if available);
- b. avoid structure placement in surface water features where practical. If avoidance is not possible, position structure near the surface water boundary;
- c. ground truth structure placement during final design and prior to construction during site readiness check;
- d. if necessary, clearly mark surface water boundaries if work is occurring within or in proximity to surface water features.

3.1.5.3 Structure Foundation Selection

- a. select a structure foundation that is suitable for water depth, minimizes potential for erosion and provides adequate protection from ice shearing during spring thaw.

3.1.5.4 Seasonal Avoidance

- a. plan activities to occur under dry or frozen ground conditions where feasible;
- b. if ground conditions deteriorate, ensure a contingency plan is in place to reduce ground disturbance (e.g., access matting is in place);

- c. ensure activities in or near fish bearing water are scheduled to avoid spring and fall fish spawning periods (consult EA for any work occurring in potential fish bearing water).

3.1.5.5 Access Planning and Equipment Selection and Storage

- a. ensure that crossing with construction equipment and vehicles will only occur if an existing crossing at another location is not available or practical to use;
- b. surface water and riparian areas will be avoided by 30 m when possible and crossings will be a onetime event under wet conditions;
- c. for structures within road allowance under wet conditions, utilize equipment that can be set-up on the road and reach in to complete installation or replacement;
- d. under wet conditions, ensure access matting is in place prior to initiation and review considerations within the SaskPower Working On, In or Near Water SOP;
- e. consider the use of a geotextile liner under access matting for longer duration activities or activities requiring multiple trips;
- f. under frozen conditions review considerations within the SaskPower Working On Ice SOP;
- g. ensure access points and/or crossings will conform closely to the natural topography of the site and avoid cut or fill sections to reduce erosion;
- h. machinery access will be limited to a single point on one bank where practical;
- i. should clearing of vegetation be necessary for right-of-way access, only enough will be cleared to provide safe passage and operation of construction equipment;
- j. ensure structures, facilities, staging areas, or laydown yards will not be placed within the surface water boundary;
- k. ensure additional workspace will be located in area where it will not impact surface water boundary (recommended minimum distance of 15m);
- l. ensure construction camps will be located in area where it will not impact surface water boundary (recommended minimum distance of 100 m).

3.1.6 Construction and Maintenance

3.1.6.1 Project Start-up Meeting

- a. review access plan, EPP mitigation measures and any measures identified in screening results, permit applications and permits during daily Hazard/Aspect and Risk Assessment (HARA) and project start-up meetings;
- b. complete a daily HARA and review applicable SaskPower Standard Operating Procedures (e.g., Working in Water or Working on Ice) as applicable;
- c. ensure environmental monitor is on site if required as per secondary environmental screening requirements or permit conditions if applicable.

3.1.6.2 General

- a. complete in water work as quickly as possible while minimizing impact;

- b. activities will be suspended during heavy rainfall events and when soils are saturated and rutting and compaction may result;
- c. appropriate spill response materials and equipment will be maintained on-site for the duration of the project;
- d. deleterious substances will not be discarded into water or left in a situation where there is potential to enter water;
- e. all necessary equipment and materials will be on-site before any work begins;
- f. low-ground weight construction equipment will be used to enter surface water features during construction if standing water or saturated soils are present;
- g. all equipment will be clean, showing no sign of leak or spill and in sound mechanical repair before nearing or entering surface water;
- h. all watercraft, water-related equipment, and other items for use within or adjacent to water bodies must be free of aquatic invasive species (i.e., clean, drained and dry).

3.1.6.3 *Fueling and Fuel Storage*

- a. fueling of vehicles and machinery should not occur within 100 m of a surface water feature boundary. If exception is required based on site conditions, fueling is to be continuously monitored, drip trays used and spill containment equipment must be on site;
- b. fueling of portable equipment (pumps, chainsaws, etc.) should not occur within 5 m of a surface water feature boundary during dry or wet conditions. If this is not feasible, secondary containment (e.g., calf sled, tarps, etc.) and/or drip trays are required when refueling portable equipment (pumps, chainsaws, etc.);
- c. fuel, oil, chemicals, and other hazardous materials will be stored a minimum of 100 m from the surface water boundary. If exception is required, contact SaskPower Environment.

3.1.6.4 *Soil Salvage, Excavation, Terrain Stability and Sediment Control*

- a. where a seasonal or dry surface water feature must be disturbed (i.e., excavation), organic layer of soil (e.g., topsoil) will be removed from the area and stored separately from other soils and the organic soil layer will be replaced as the top layer during reclamation;
- b. remove excavated material to a stable area above the high water mark or active floodplain of the surface water feature as feasible;
- c. excavated materials from waterbodies that cannot be transported because of saturation should be allowed to settle back around area they were excavated from (e.g., small amount of sediment following a pole installation at base of pole);
- d. loose material should be protected from being eroded or reintroduced into the water (e.g., silt fence);
- e. unstable, erodible soils will be exposed for the minimum amount of time necessary;
- f. work will be suspended if sedimentation is occurring within surface water and further protection measures to control sedimentation loading will be implemented;

- g. erosion and sediment control will be placed in all ditches that drain directly into any water near crossing or encroachment locations (refer to Appendix C Erosion and Sediment Control Guidelines);
- h. erosion protection and sediment control measures may be required to minimize erosion and maintain bank stability. Control measure may include:
 - silt fences, sediment traps, diversion berms, slash or mulch (refer to Appendix C Erosion and Sediment Control Guidelines)
- i. mulch or compacted brush (when available) will be placed on the sides of the crossing location where necessary to help protect the bank from excessive disturbance and potential erosion;
- j. sediment control measures will be inspected and cleaned regularly (i.e., removing trapped sediment) and necessary repairs will be made immediately;
- k. on disturbed slopes outside of surface water boundaries use diversion berms and/or shallow diversion ditches to direct sediment-laden or turbid runoff into vegetated areas outside of the surface water boundary.

3.1.6.5 *Vegetation Clearing*

- a. hand clearing of vegetation will occur within 30 m of surface water features during wet conditions;
- b. mechanical clearing will only take place under dry or frozen conditions. The riparian and shrub vegetation between the work area and the water edge will be retained; if clearing must occur, vegetation that will not interfere with the right-of-way will not be cleared;
- c. vegetation will be hand cut at ground level from unstable or erodible banks, avoiding use of heavy machinery;
- d. trees on the bank and/or in riparian areas will be felled away from the water (as safety requirements and site conditions allow). Fallen trees can remain on banks and in riparian areas, however, fallen trees, slash, and other debris inadvertently placed in the water or on ice will be removed immediately if safe to do so.

3.1.6.6 *Herbicide Application*

- a. on targeted vegetation within 30 m of surface water features, either targeted basal bark, low volume foliar or cut stump backpack application methods will be used and a minimum 5 m buffer from the surface water feature boundary will be maintained unless additional setback is required as per the product label or approval conditions (as applicable);
- b. herbicide will not be applied to the bed, bank or boundary of a surface water feature and all label requirements and BMP 7 Vegetation Management will be followed.

3.1.6.7 *Directional Drilling and Boring*

- a. underground facilities that cannot be routed around surface water, may be installed using a directional drilling method;
- b. ensure that if any water will be withdrawn from any surface water feature, SaskPower Environment is notified to ensure an assessment of this activity has been completed and permits are obtained (e.g., temporary water rights license);

- c. a buffer zone of approximately 20 m from boundary of the surface water feature should be established as a "no equipment zone" for vegetated areas or if the area is previously disturbed (i.e., cultivated field), an area approximately 10 m from boundary of the surface water feature should be established as a "no equipment zone";
- d. if the directional drilling occurs in steep terrain (greater than 5%) additional buffer may be required or further mitigation such as silt fencing is required to ensure no silt enters the surface water feature;
- e. during the drilling, excess mud and fluid will be held within a temporary holding tank outside of the surface water feature boundary for eventual disposal offsite;
- f. top soil will be stripped at bell holes and along with the subsoil placed away from the waterbody boundary;
- g. ensure a frac-out contingency plan is in place prior to proceeding.

3.1.6.8 Working on Ice

- a. no substances (e.g., fuel, oil, waste, etc.) are to be left remaining on the ice surface at any time;
- b. no storage of equipment or hazardous substances is permitted on the ice;
- c. access to the ice surface during construction will be limited to one entry and one exit point;
- d. if flooding is required to increase ice thickness, the following measures apply:
 - apply secondary containment to portable water pumps used to increase ice thickness (refuelling portable equipment on ice is permissible under these conditions);
 - locate holes away from the waterbody edge and any visible vegetation;
 - maintain the greatest distance from the bed of the water body and the suction intake;
 - install appropriate mesh on the pump intake to prevent debris uptake and maintain a minimum of 60 cm of water depth or as per approval conditions.
- e. pole stubs should be removed following structure replacement if is safe to do so;
- f. pole holes remaining following salvage should be backfilled with clean crushed rock if surface water is frozen to bottom or dry at time of removal;
- g. excavated materials from waterbodies that cannot be transported because of saturation should be allowed to settle back around the area they were excavated from (e.g., small amount of sediment following a pole installation at base of pole).

3.1.6.9 Reclamation

- a. complete all reclamation work within 30 days of project completion or as ground conditions allow;
- b. riparian zones along surface water features will be allowed to re-vegetate naturally unless it is adjacent to a shoreline where there are potentially erodible soils and short-term stabilization measures are deemed necessary;
- c. an approved weed free, native seed blend for seeding disturbed banks will be sourced before construction begins;

- d. stabilization, reclamation and clean-up of areas adjacent to surface water will be carried out immediately after construction; where water levels are high, reclamation and clean-up may be deferred until a later date when conditions are suitable;
- e. original contours and drainage patterns at all disturbed surface water features will be re-established; where original contours cannot be achieved, a stable profile will be established unless otherwise directed by site-specific design.

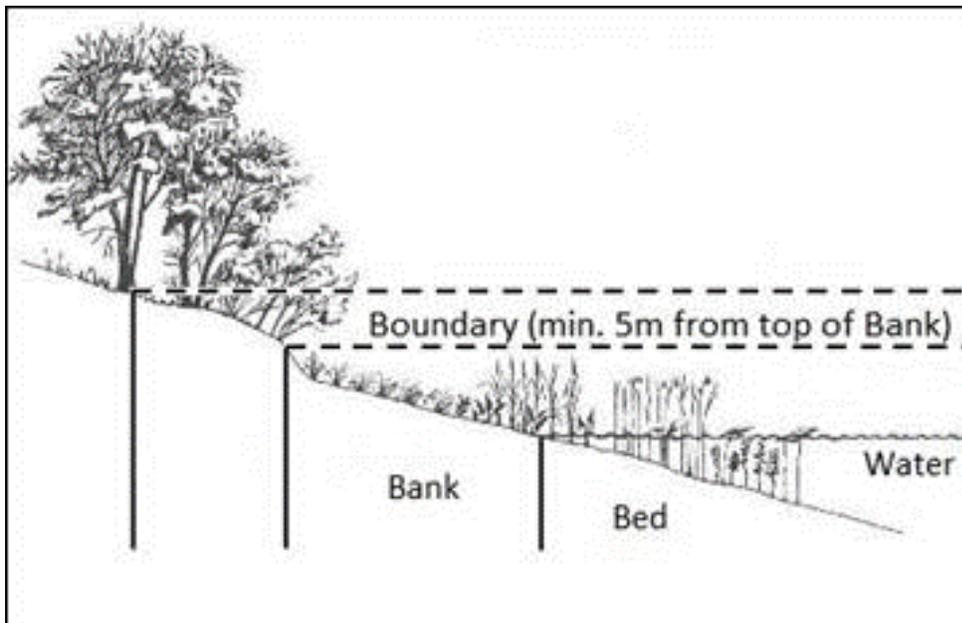


Figure 3.1.1 – Surface Water Feature – Bed, Bank and Boundary

3.2 BMP 02 Wildlife and Habitat

3.2.1 Effect

Wildlife and sensitive wildlife species may be affected by traffic, noise, dust, lights, habitat loss, alteration, or destruction, as well as a variety of other impacts from construction and operation which can cause undue stress, abandonment of young, and disruption to daily activities such as foraging or mating.

3.2.2 Application

This BMP applies to all activities that may disrupt wildlife and wildlife habitat. This BMP also applies to bat species listed under the federal *Species at Risk Act*. Bats may use large diameter trees as maternal roost locations (i.e., residence used for birthing and rearing) and maternity roosts may be occupied during the April 15 to August 15 timing window.

Refer to BMP 03a Birds – Tree and Ground Nest Management and BMP 03b Birds- Nest Management on Infrastructure for specific mitigation for nesting habitat. Refer to Appendix B for specific Wildlife Critical Habitat (e.g., Greater Sage-Grouse, Sprague’s Pipit, Caribou, etc.) requirements if working within critical habitat.

3.2.3 Project Planning and Communication

As per the primary screening process, all construction and maintenance activities on:

- designated land (e.g., crown *Wildlife Habitat Protection Act*, *Fish and Wildlife Management Fund* land, critical habitat, etc.)
- within boundaries of previous rare and endangered species occurrences
- occurring during sensitive time periods within native grassland, treed areas or surface water features

are subject to secondary screening. Project specific mitigation by EA, potential wildlife surveys and Ministry of Environment (ENV) clearances prior to construction may be required. Consultation regarding wildlife, sensitive wildlife species and their habitats, and critical time periods should occur between the Project Manager and SaskPower Environment.

3.2.4 Documents and Clearances

This BMP was developed to meet the intent of the corporate SaskPower *Species at Risk Standard* and the following legislation and guidelines for routine projects:

- *Migratory Bird Convention Act*
- *Species At Risk Act (SARA)*
- *Environment Canada Emergency order for the Protection of the Greater Sage-Grouse*

- *The Wildlife Act*
- *Saskatchewan Activity Restriction Guidelines*
- *Water Security Agency Beaver Dam Removal Fact Sheet*
- *Fisheries and Oceans Canada Beaver Dam Removal Interim Code of Practice*
- Relevant provincial and federal action plans, recovery strategies and range plans for species at risk
- *Ministry of Environment Bat Exclusion Policy*

Follow the SaskPower *Avian, Fish and Wildlife Interaction Reporting, Permitting and Data Tracking Procedure* if interactions with wildlife are planned or occur incidental to an activity.

3.2.5 Preconstruction and Planning

3.2.5.1 General

- a. *Saskatchewan Activity Restriction Guidelines for Sensitive Species* will be referenced during siting, routing, and adhered to during construction of a project unless otherwise determined in consultation with Ministry of Environment;
- b. specifications in Appendix B will be followed if working within wildlife critical habitat (e.g., Greater Sage-Grouse critical habitat);
- c. prior to the start of construction, an access plan will be developed, communicated, and followed;
- d. prior to the start of construction, right-of-way boundaries, facility sites, temporary workspaces, work sites, staging areas, decking locations, and temporary access roads will be clearly designated (i.e. staking or flagging) and activities will be confined to these areas;
- e. construction camps, staging areas, and storage yards will not be situated in an area known to be used by wildlife for denning, nesting, wintering, or calving purposes (e.g., native grassland will be avoided);
- f. project personnel will be made aware of potential wildlife, sensitive wildlife species and habitats in the area;
- g. wildlife habitat or features (i.e., nests, dens, leks, and hibernacula) that are identified as environmentally sensitive (as specified in the pre-project environmental site assessment conducted by trained personnel) will be flagged or fenced prior to commencement of any construction-related activities.

3.2.6 Construction and Maintenance

3.2.6.1 General

- a. reduce sensory disturbances (e.g., noise) by avoiding unnecessary idling and requiring all motorized vehicles and equipment to have appropriate mufflers to minimize noise generation during construction activities;
- b. temporary exclusion fencing will be erected around long-term boreholes, culverts, pits, sump pits, or other excavations;

- c. project-related wildlife deaths, injuries and nuisance animals will be reported immediately to SaskPower Environment (project environment representative or call 306-566-6200 or email incidentsEnv@saskpower.com with the details of the occurrence) and Project Manager;
- d. beaver dams or other wildlife shelter will not be removed prior to contacting SaskPower Environment for project specific guidance and acquisition of regulatory approvals or notification as applicable;
- e. beaver dam removal must follow the beaver dam removal conditions of the Water Security Agency (WSA) (refer to WSA Website) or an Aquatic Habitat Protection Permit (AHPP) must be obtained. If removing a beaver dam in fish habitat, the Fisheries and Oceans Canada (DFO) *Beaver Dam Removal Interim Code of Practice* must be followed or a Request for Review submission to DFO may be required;
- f. food and human wastes will be secured and properly disposed of to minimize attracting scavenging species;
- g. project personnel will be instructed not to feed any wildlife present;
- h. recreational use of ATVs by personnel will not occur;
- i. any species at risk that are observed during construction will be reported immediately to SaskPower Environment so that appropriate mitigation plans can be designed and implemented in consultation with the appropriate regulatory agencies;
- j. in some cases, a temporary shut-down of construction activities may be required until the concern is resolved or potentially moving construction activities to a different location until the conflict can be addressed;
- k. observations regarding the presence of any sensitive species will be recorded by the Project Inspector, environmental monitor(s), or contractors and reported to the SaskPower Environment so that they can be submitted to the Ministry of Environment;
- l. construction activities occurring within the *Saskatchewan Activity Restriction Guidelines* critical set back distances will not be continued without further consultation and clearance from SaskPower Environment and ENV.

3.2.6.2 Rights-of-way and Access:

- a. the speed limits on rights-of-way and access roads will be a maximum of 40 km/hr and may be lowered where specific wildlife concerns are identified;
- b. no disturbing or harassing of wildlife or livestock will occur. If encountered, allow animals to passively disperse;
- c. for snow clearing, windrows that are ≥ 1 m in height will have a minimum 5 m wide gap every 200 m along the windrow to allow for wildlife movement;
- d. slash windrows will not exceed 200 m in length and 1 m in height; windrows will be separated by a gap approximately 5 m wide to facilitate wildlife movement through windrows.

3.2.6.3 Bat Habitat Considerations

- a. trees, particularly those characterized as “danger” trees located along a right-of-way edge may have suitable characteristics. These commonly include mature Balsam Poplar and Trembling

Aspen with advanced heart rot creating hollow space inside the tree trunk and entrances < 3cm in size and located 1.5 m to 2 m or greater above the ground. Bats may be directly observed leaving a tree roost or large accumulations of bat feces (guano) at the base of the tree may be present.

- b. if there is evidence of bat use during nest surveys, consider leaving the tree until after August 15 when young bats have fledged.
- c. if an occupied tree must be removed or pruned, a competent biologist must be consulted to obtain applicable permits and assist with removal.
- d. If bats are observed inside a building, contact the applicable SaskPower Resource or Environment Specialist for guidance. All requirements of the *Ministry of Environment Bat Exclusion Policy* must be followed when handling, capturing, excluding or removing bats from a building or structure.

3.3 BMP 03a Birds – Tree and Ground Nest Management

3.3.1 Effect

Birds and their nests and eggs are potentially subject to disturbance, damage or destruction from construction, maintenance and operations activities conducted during the nesting season. Nest and egg destruction during the nesting season is also prohibited under the *Migratory Birds Convention Act, 1994* and *The Wildlife Act*.

3.3.2 Application

This BMP applies to all activities that may disrupt birds, nests, eggs or suitable habitat during the nesting season and protected nests at any time of year (e.g., eagle, ferruginous hawk and great blue heron nests). Generally, the nesting season is from April 15 to August 15, though variance may occur depending on species present and location within the province. The BMP applies to the following types of suitable habitat:

- Native and tame grassland and hayland
- Treed/Forested areas
- Within 45 m of surface water
- Developed road allowances if new vegetation easements are required (i.e., tree clearing along road allowance)

This BMP does not apply to emergency maintenance activities and within developed road allowance or other disturbed areas where no nesting habitat is present.

3.3.3 Project Planning and Communication

Projects and activities will be planned outside of the nesting season to the degree practical for transmission, large distribution and fibre optic projects. However, projects including new customer connects, maintenance and vegetation clearing cannot always accommodate avoidance. All high risk (refer to Figure 3.3.1) construction and maintenance projects occurring during April 15 to August 15 require Secondary Screening and potentially a consultant nest survey if >400 m of contiguous nesting habitat has the potential to be impacted. For projects occurring in less than 400 m of nesting habitat or low risk activities, operator nest identification and nest management apply (Refer Figure 3.3.1). A consultant nest survey may also be required if:

- there is potential for early or late nesting species to occur (e.g., raptors)
- advised by Ministry of Environment (ENV)
- or if there is potential for species at risk or habitat present in the area.

3.3.4 Documents and Clearances

Regulations pursuant to the *Migratory Birds Convention Act, 1994* (MBCA) provide for the protection of migratory birds. Section 6(a) of the *Migratory Birds Regulations* state: “no person shall disturb, destroy or take a nest, egg, or nest shelter of a migratory bird”. Similarly, the provincial *The Wildlife Regulations* and under the *The Wildlife Act 6(1)* indicate that “no person shall, without a licence for the purpose, kill, disturb or molest any wildlife or the den, house, nest, dam or usual place of habitation of any wildlife protected under the Act or under the *Migratory Birds Convention Act (Canada)*”. Depending on the species, nest protection, specific setback distances or timing restrictions may apply as per the ENV *Saskatchewan Activity Restriction Guidelines for Sensitive Species in Natural Habitats*. This BMP also aligns with the *Canadian Electricity Association, 2017 Bird Beneficial Management Practices Guide for Utilities*.

Follow the *SaskPower Avian, Fish and Wildlife Interaction Reporting, Permitting and Data Tracking Procedure* if interactions with wildlife are planned or occur incidental to an activity.

3.3.5 Preconstruction and Planning – Rural

3.3.5.1 General

- a. landcover classes (e.g., treed/forested, native grassland, wetland, cultivated, tame pasture) will be identified on survey plans developed following route selection and construction planning;
- b. complete primary and secondary environmental screening and determine the project risk type, timing and nest survey requirements using Figure 3.3.1 if applicable.
- c. vegetation clearing will be scheduled to avoid breeding and potential impacts to bird nests where practical;
- d. when accessing a site, stay on existing roads, trails and rights-of-way to the extent possible;
- e. prior to the start of construction, right-of-way boundaries, facility sites, temporary workspaces, work sites, staging areas, decking locations, and temporary access roads will be clearly designated (i.e. staking or flagging) and activities will be confined to these areas;
- f. avian protection mitigation such as collision and electrocution prevention mitigation will be implemented during design and construction of facilities and implemented where appropriate;
- g. review nest management procedure during daily Hazard/Aspect and Risk Assessment (HARA) meetings when working during the nesting season and document any mitigation undertaken.

3.3.5.2 Consultant Nest Survey (nesting habitat >400m)

- a. for high risk work (refer to Figure 3.3.1) occurring within larger areas of nesting habitat (i.e., >400 m of contiguous habitat) a consultant nest survey is required if working between April 15 to August 15. SaskPower Environment will coordinate a competent biologist to complete a nest survey within 7 days prior to the start of construction. A nest survey procedure that meets industry best practice and/or regulatory standards will be used.

3.3.5.3 Operator Nest Survey (nesting habitat <400m)

- a. for low risk work or high risk work (refer to Figure 3.3.1) occurring within small areas of potential nesting habitat (i.e., <400 m) where no consultant survey has been conducted and work is being completed between April 15 and August 15, carry out a visual check to determine if there are active nests in your work area. The following guidelines will be observed when completing a nest check:
 - walk through the project work area on foot before work begins. Nests may be located on the ground or in trees and shrubs.
 - ensure noise from equipment or vehicles are minimized to enable you to hear warning calls or flushing.
 - avoid doing the survey in high wind or heavy rainfall conditions.
 - document the nest search was undertaken and results in HARA or sample form in Appendix A.
- b. if a bird is observed flushing from the ground or a tree and a nest or nesting behavior (e.g., adult birds carrying food, nest building, etc) is observed during construction or maintenance activities, follow the Nest Management Procedure (refer to 3.3.5.4) or specific direction provided by SaskPower Environment or an onsite environmental monitor.

3.3.5.4 Nest Management Procedure

- a. if a nest or suspected nesting location is found, mark or flag a buffer zone of a minimum of 5 m for most songbirds and 10 m for most waterfowl and some raptors if the activity is short-term in duration (e.g., maintenance activity with 1 to 2 passes or total cumulative activity period less than one to two hours). For higher risk activities of longer duration (e.g., transmission construction), setbacks of up to 50 m for most songbirds and up to 100 m for most waterfowl and some raptors may be required or as directed by regulatory agencies, environmental monitors or SaskPower Environment;
- b. only mark or flag the setback, do not mark or flag the nest itself;
- c. delay work in the area if doing so will not compromise public safety or system security.
- d. complete work outside of buffer quickly and alert all other project crew to stay outside that area throughout construction;
- e. if the nest has the potential to be from a bird that is a species at risk (e.g., barn swallow, grassland song bird ground nest, etc.) or a species that has additional management concerns (e.g., eagle or hawk species where a large stick nest is present), do not clear the nest, please contact SaskPower Environment or onsite environmental monitor (if present) for guidance. Depending on the species, nest protection, specific setback distances or timing restrictions may apply (e.g., *Saskatchewan Activity Restriction Guidelines for Sensitive Species in Natural Habitats*);
- f. divert any equipment or vehicles as far away from that area as possible throughout the project;
- g. ensure removal of flagging after project work is complete;

- h. in some cases, a temporary shut-down of construction activities in the vicinity of the nest may be required until after the chicks have fledged (i.e., left nest);
- i. implement any other mitigation SaskPower Environment, onsite environmental monitors or regulatory agencies may require.

3.3.6 Construction and Maintenance

- a. if nests are identified during activities post survey, the nest management procedure applies;
- b. accidental bird deaths including electrocution, collision or nest and egg destruction will be reported immediately to SaskPower Environment as per the incident reporting procedure (entry into ESMIS, call 306-566-6200 or email incidentsEnv@saskpower.com with the details of the occurrence);
- c. If the incident created an outage, reporting through the outage reporting system is all that is required.

Figure 3.3.1 - Rural Nesting Habitat BMP Application



3.3.7 Preconstruction and Planning – Urban

3.3.7.1 General

- a. all project personnel are to be aware that the potential to impact nests exists when working within the migratory bird nesting season April 15 to August 15 (refer to Figure 3.3.2); and
- b. review nest management procedure during daily Hazard/Aspect and Risk Assessment (HARA) meetings when working during the nesting season and document any mitigation on the HARA form.

3.3.7.2 Nest Survey

- a. before any tree or brush removal takes place, ensure vegetation is inspected for nests by the crew completing the vegetation removal; and
- b. inspect each tree thoroughly from the ground before commencing any work and conduct an additional inspection if aerial equipment is required to access the area to be trimmed.

3.3.7.3 Nest Management

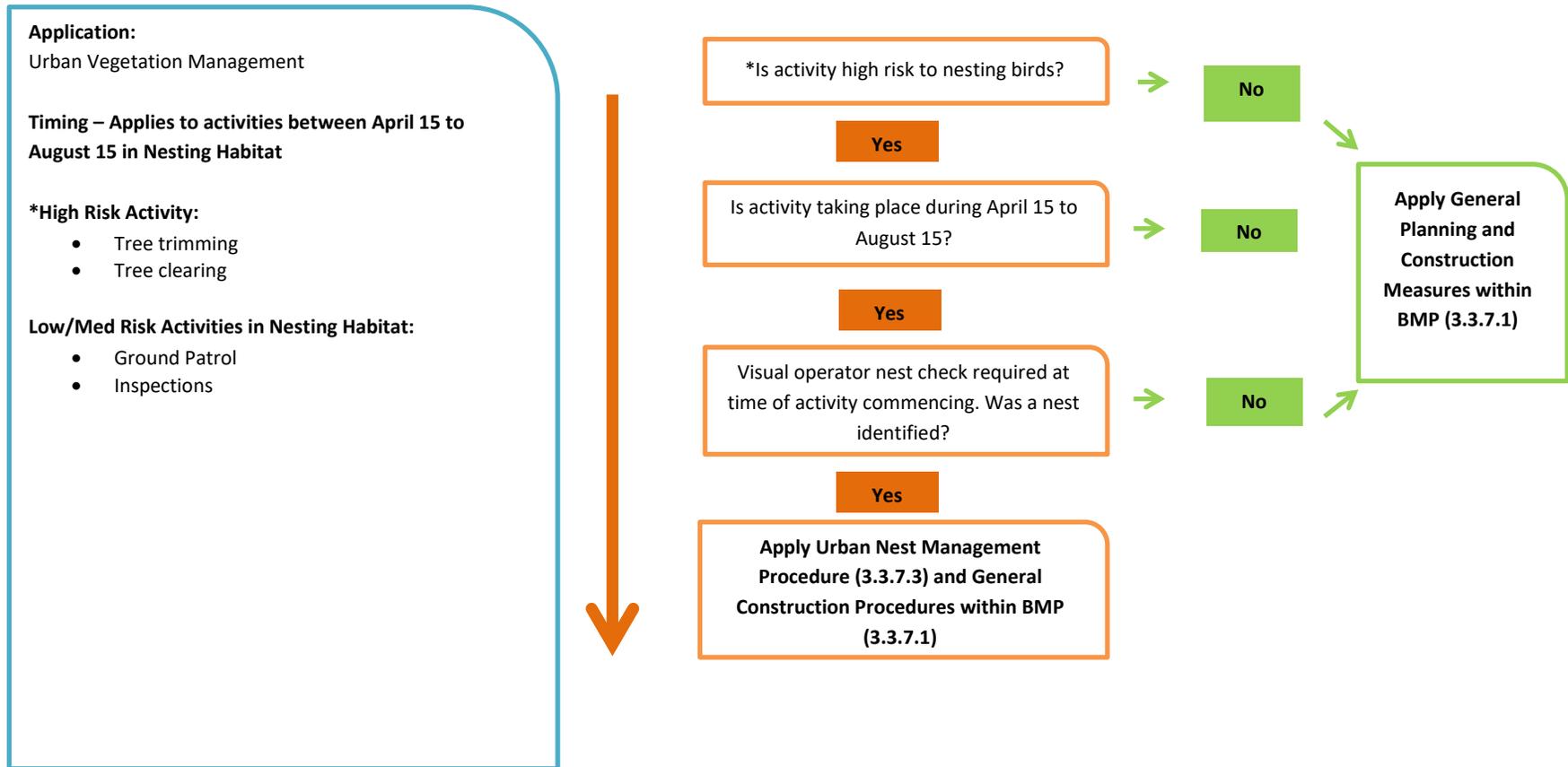
- a. if an active nest is identified in trees or brush, determine if the nest or associated vegetation is an immediate safety or reliability concern. If it is not, delay trimming or clearing until after the nesting season or implement a minimum of 5 m or as much setback as possible from the nest;
- b. if the nest is located in vegetation that poses an immediate safety risk or reliability risk, then emergency pruning may occur. If conditions allow, contact SaskPower Environment prior to removing the nest;
- c. if the nest has the potential to be from a species that has additional management concerns (e.g. eagle or hawk species), please contact SaskPower Environment for additional information. Depending on the species, specific setbacks or timing restrictions may apply (*Saskatchewan Activity Restriction Guidelines for Sensitive Species in Natural Habitats*);
- d. branches containing nests will be kept intact and as much of the crown as possible will be kept intact, while maintaining safe clearance from the conductor;
- e. when trimming in close proximity to an active nest implement the following methods:
 - complete work as quickly as is safe to do so, using hand or hydraulic tools. If possible, chain saws are not to be used where an active nest has been identified to minimize potential disturbance from noise or vibration;
 - wherever possible, use an aerial device to complete the work;
 - if using ladders or ropes, secure them as far away from the nest as is safe to do so.
 - do not touch the nest;
 - any limbs that are removed should be lowered in a manner such that they do not come in contact with the nest. They are not permitted to fall through the canopy of the tree; and,
 - chipping will not be conducted in the vicinity of the active nest.

- allow breaks for birds to return to nest if work will last more than 1.5 hours within 15 m of the nest (depending on weather conditions).

3.3.8 Construction and Maintenance

- a. accidental bird deaths including electrocution, collision or nest and egg destruction will be reported immediately to SaskPower Environment as per the incident reporting procedure (entry into ESMIS, call 306-566-6200 or email IncidentsEnv@saskpower.com with the details of the occurrence);
- b. If the incident created an outage, reporting through the outage reporting system is all that is required;
- c. if nests are identified during activities post survey, the nest management procedure applies.

Figure 3.3.2 - Urban Nesting Habitat BMP Application



3.4 BMP 03b Birds – Nest Management on Infrastructure

3.4.1 Effect

In the absence of suitable nest sites, raptors and other species of birds may use SaskPower T&D structures and other infrastructure (e.g., buildings, stations, material yards, etc.) for nesting.

Effects that can occur as a result of nest building on T&D structures include:

- power outages due to excrement or nest debris falling on or expanding into energized components;
- fire including loss of pole, loss of nest and potential risk to the surrounding landscape;
- injury or death to birds and/or humans;
- financial cost to SaskPower and customers associated with outages and/or fire;
- work restrictions in proximity to an active nest.

Effects that can occur as a result of nesting activity on buildings, stations and other types of structures include:

- safety hazard;
- temporary loss of use, setbacks and associated impact to operations;
- modified work requirements.

3.4.2 Application

This BMP applies to any bird nest on SaskPower infrastructure. Osprey is the most common type of raptor to nest on SaskPower linear infrastructure in northern areas. Hawk species are most common on linear infrastructure in southern areas. SaskPower stations, power production facilities and properties have experienced nesting impacts from a variety of species including, cliff and barn swallows, geese, killdeer, common night-hawk, ravens, crows and owls.

3.4.3 Project Planning and Communication

SaskPower Construction, Operations and Asset Management staff shall:

- Reduce the opportunity for nesting on SaskPower infrastructure through the development and application of design standards, appropriate use of deterrents and offsets (e.g., artificial nest platforms or structures) and procedures (e.g., do not leave bay doors open for extended periods) as required;
- Manage and maintain artificial nest structures constructed to deter nesting on infrastructure;
- Avoid operational impacts to active nests to the extent practical;
- Contact SaskPower Environment for nest management support and guidance;

- Contact SaskPower Environment prior to removing an active or protected nest (e.g., ferruginous hawk). Permits from Saskatchewan Ministry of Environment and Environment and Climate Change Canada may be required;
- Report all active/protected nest destruction to SaskPower Environment as an incident.
- Report all injured or abandoned birds to SaskPower Environment for support relocating birds to a wildlife rehabilitation facility.

SaskPower Environment shall:

- Provide support to all bird and wildlife related inquiries;
- Acquire applicable permits for nest management as required;
- Track incidental, accidental or intentional active nest destruction and bird mortality;
- Report incidental, accidental or intentional active nest destruction and bird mortality to the appropriate regulatory agency;
- Assist with artificial nest structure placement and track nest structure location and success;
- Arrange competent professional and/or environmental monitoring support as required.

3.4.4 Documents and Clearances

The federal *Migratory Bird Convention Act* (MBCA) prohibits the destruction of nests and eggs of migratory birds. Generally, all birds in Saskatchewan are included under the *MBCA* with the exception of grouse, quail, pheasants, ptarmigan, hawks, owls, eagles, osprey, falcons, cormorants, pelicans, crows, jays, kingfishers, and some species of blackbirds.

The provincial *The Wildlife Regulations, 1981* protects all birds and active nests from interference without first obtaining a license from the Ministry of Environment with the exception of starlings, house sparrows, pigeons, crows and magpies which have no requirement for license outside of protected areas.

Nests of raptor species may be active as early as February 15 and may remain active until July 31. For most other species, the nesting season is from April 15 through to August 15. For certain species, activity type may be restricted, or an avoidance area may be required up to 1000 m as per the *Saskatchewan Activity Restriction Guidelines for Sensitive Species*.

Follow the *SaskPower Avian, Fish and Wildlife Interaction Reporting, Permitting and Data Tracking Procedure* if interactions with wildlife are planned or occur incidental to an activity. For nest removal, permits may be required from ENV and/or Environment Canada and Climate Change.

3.4.5 Preconstruction and Planning

3.4.5.1 *Nest Identification, Reporting and Risk Assessment*

If you need to address a nest in your area of work, Figure 3.4.2 outlines nest management response requirements with considerations based on the season, species and infrastructure (e.g., safety and reliability) and operational risk (e.g., access to facilities).

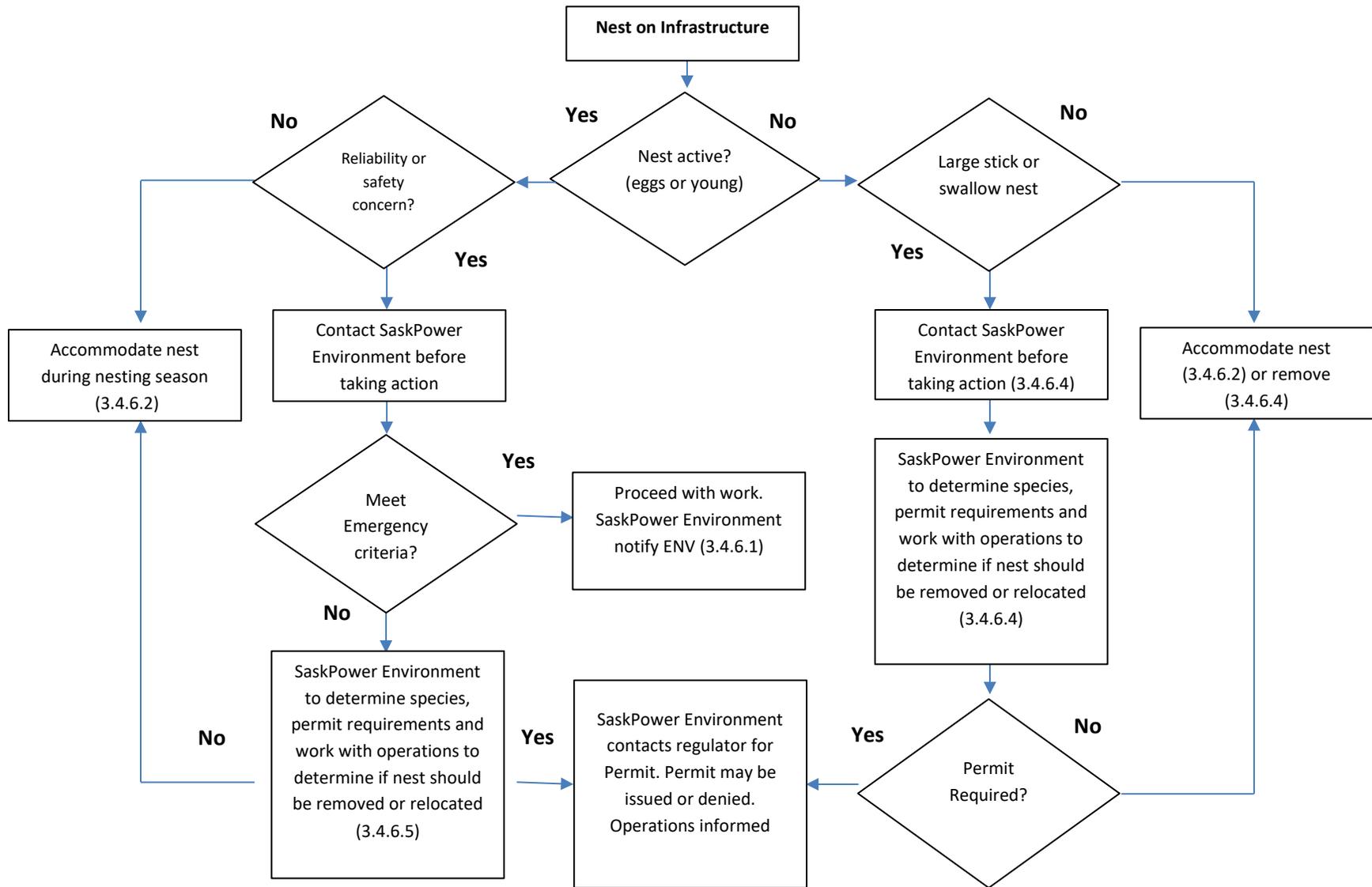


Figure 3.4.2 - Nest on Infrastructure Response Requirements

3.4.5.2 Nest Deterrents

If you have nests recurring annually in areas that create operational or safety risk, Appendix D includes options for nest deterrents for different types of species on SaskPower infrastructure. Items used at SaskPower for osprey and other raptor deterrent include cross arm perch diverters and cones, and artificial nest bowls. Swallow deterrents include alternatives for door entrances, swallow spikes, low friction panels and artificial shelters. Deterrents for woodpeckers include metal mesh pole wrap and alternative pole material (e.g., fiber glass). For pigeons, pigeon spikes or other methods such as falconry may be appropriate depending on the situation. Consult SaskPower Environment and subject matter experts within Asset Management before application of any deterrents.

3.4.5.3 Permits

Nests of certain protected species as per the *Species at Risk Act* and the provincial *The Wildlife Act* that may be encountered on infrastructure (e.g., hawk and eagle species, common nighthawk, barn swallow and bank swallow) are protected year round and alteration or removal of an active or inactive nest will require a permit. For additional details please consult *SaskPower Avian, Fish and Wildlife Interaction Reporting, Permitting and Data Tracking Procedure*. SaskPower Environment must be contacted to assist with the nest response and permit acquisition.

3.4.6 Construction and Maintenance

Options for nest response are presented below. The appropriate nest response is typically dependent on the species (emergencies may be an exception). If you are uncertain of species, contact SaskPower Environment for assistance.

3.4.6.1 Nest Response – Emergency

If the work is required in response to an emergency situation, please contact your SaskPower Environment Contact for assistance and a notification will be submitted by SaskPower Environment to Ministry of Environment and/or Environment and Climate Change Canada advising them of the situation and SaskPower's response requirements. If birds are injured or abandoned, contact SaskPower Environment for support relocating birds to a wildlife rehabilitation facility (refer to 3.4.6.6).

Emergency scenarios typically include:

- outages;
- fire;
- imminent health, safety or environmental risk;
- infrastructure damage or imminent risk of damage.

3.4.6.2 Accommodate Nest During Nesting Season

If nests are active and not a risk to safety, infrastructure or operations, the best approach is to implement an appropriate setback and accommodate the nest until the nest is no longer in use. At that time, the nest can be removed or moved.

If the active nest is in proximity to energized infrastructure (e.g., cross arm or station), the following guidelines will help prevent electrocution or damage to the infrastructure until it can be removed:

- Apply cover-up to energized or grounded components to reduce the risk of electrocution or outage. Wait until the fledglings are a few weeks old to reduce the risk of nest abandonment;
- Recommend no more than 30 minutes of activity in one day when adding protective materials to the conductor;
- Conduct activity on a good weather day (warm, low wind, no rain);
- Trim any nest material that may have potential to cause flashovers.

If working in proximity to the nest, establish as much setback as reasonable and limit activities in proximity to the nest or establish a buffer zone of a minimum of 5m for songbirds and 10 m for waterfowl if the activity is short-term in duration (e.g., maintenance activity with 1 to 2 passes or total cumulative activity period less than one to two hours).

For higher risk activities of longer duration (e.g., transmission construction), setbacks of up to 50 m for most songbirds and up to 100 m for most waterfowl may be required as directed by regulatory agencies, environmental monitors or SaskPower Environment.

After chicks leave the nest, evaluate the need to relocate the nest to a free standing platform or remove the nest, provide deterrents or trim the nest if it is on a low risk component of the infrastructure (refer to 3.4.6.4 for additional consideration).

3.4.6.3 Nest Removal During the Nest Building Phase

If birds are in the process of nest building and a nest is not yet established, the nest material can be removed and deterrents put in place to discourage nesting. Refer to Appendix D for types of deterrents that may be suitable.

3.4.6.4 Nest Removal and/or Relocation Outside of Nesting Season

In most cases (refer to 3.4.5), nests can be removed after the nesting season or confirmation that young have permanently left the nest. Permits may be required as per the *SaskPower Avian, Fish and Wildlife Interaction Reporting, Permitting and Data Tracking Procedure*. Without deterrents (see Appendix D) or alternative nesting locations, nests are likely to be a recurring problem for species that reuse nest locations (e.g., osprey, hawks, swallows). If removing a hawk or osprey nest, install a deterrent to discourage nesting on the structure. If necessary, evaluate the opportunity to provide either an offset such as a raised platform on the structure or a freestanding platform adjacent to or off of the right-of-way. Off right-of-way nest structures are advised for ferruginous hawks to remove the potential risk of electrocution and collision. Ferruginous hawk is a Threatened species federally listed under the *Species at Risk Act*. Unknown hawk species nests should be treated like ferruginous hawk nests if within ferruginous hawk range. Swallows may require site specific assessment to determine if alternative nesting opportunities can be provided.

Species specific nest management information is provided below for common species on infrastructure including Osprey, Ferruginous Hawk and Swallows. Contact SaskPower Environment for adaptations for other nesting hawk, owl or eagle species.

A. Osprey - Nest Platform Installation on Energized Structure – H-Frame, Single Pole or Lattice

The following guidelines apply when moving a nest to a raised platform/ artificial nest bowl on an energized structure:

- Place platform/nest bowl where conductors and energized equipment will not be fouled by nest material, prey remains or excrement;
- Ensure drain holes are drilled into the platform or nest bowl;
- Be aware of potential induction and bond bolts and bracing if required;
- Ensure approximately 5 ft of clearance from energized components. This may require a pole top extension on distribution structures and some transmission structures. Typically, placement on the cross arm of lattice structures is sufficient;
- Move the nest onto the platform/bowl. Wrapping tie wire temporarily around the nest will help keep it together during relocation;
- Apply cover-up to energized components on distribution poles;
- Consider the use of nesting deterrents to prevent re-nesting (See Appendix D);

B. Osprey - Nest Platform Installation on a Free Standing Structure.

The proximity to, or availability of, the factors listed below to proposed artificial nest pole site(s) should be evaluated during the siting process. Consult SaskPower Environment for assistance in locating the new pole. Consider the following during site selection and installation:

- Keep nest pole within 50 m of existing nest or closer if practical;
- Keep nest pole within right-of-way if practical. If placement off of the right-of-way is required, obtain landowner consent;
- Height should be as high or higher than the existing structures (commonly 55 to 60 ft above ground);
- Site within 50 m of water if practical;
- Maintain clearance of 10 m or more from tall trees;
- Maintain setbacks from human infrastructure (power lines, roads, fences, buildings, etc.) to the degree practical;
- Maintain >200 m setback from other existing Osprey nests to avoid range conflict;
- Contact SaskPower Environment for nest pole/ platform design guidelines;
- Be aware of potential induction and bond bolts and bracing if required;
- Install between July 16th and March 31;
- Move nest material off of the power line structure and onto the nest platform. Wrapping tie wire temporarily around the nest will help keep it together during relocation. If using a Zena bowl, only fill 1/3 to ½ of the depth with nest material and discard the remainder.

SaskPower will monitor nests during annual patrols. Nests have the potential to become very large and heavy and some nest material may require removal to ensure the security of the nest. Perform maintenance prior to April 1 or the onset of the nesting season.

C. Ferruginous Hawk

The proximity to, or availability of, the factors listed below to proposed artificial nest pole site(s) should be evaluated during the siting process. To minimize risk to this threatened species, generally, ferruginous hawk nest platforms should be setback up to 1000 m from the powerline. Consult SaskPower Environment for assistance in locating the new pole. Once a suitable site(s) are selected consult landowner and occupants regarding the potential for nest pole placement. A SaskPower landowner consent agreement must be completed if the nest structure is on private or leased land (contact SaskPower Environment for a template agreement). Consider the following during site selection and installation:

- Locate in good quality native prairie habitat - >50% cover;
- Preferred platform height is 12 to 14 feet from the ground;
- Provide >800 m setback from other hawk nest sites to avoid range conflict;
- Provide 1000 m setback or as much as practical from human infrastructure (power lines, roads, fences, buildings, etc.) in the immediate vicinity to the proposed pole;
- Avoid habitat features for other species at risk such as burrowing owl dens, sharp-tailed or sage grouse leks by 800 m;
- Consult Ministry of Environment;
- Install between July 16th and March 14;
- Move nest material off of the power line structure and onto the nest platform. Wrapping tie wire temporarily around the nest will help keep it together during relocation. If using a Zena bowl, only fill 1/3 to ½ of the depth with nest material and discard the remainder.

SaskPower Environment will provide the platform location to a monitoring agency for inclusion in their monitoring plans (with landowner permission). The monitoring agency or landowner will need to contact SaskPower Environment in the event future maintenance is required. Maintenance will be scheduled and performed at SaskPower's discretion.

D. Swallows

A site specific evaluation will be conducted by SaskPower Environment to determine if alternative sites or structures may be suitable for cliff, bank or barn swallows. After removing an inactive barn or cliff swallow nest the following deterrents should be applied:

- Scrape off nest debris and wash down the location, preferably with bleach or other disinfectant;
- Block entrances if they are inside buildings. Consider use of vinyl or plastic strip doors (allow passage of vehicles but not birds);

- Consider the use of “No Nasty Nest” monofilament, netting, swallow spikes or vertical hangers to minimize potential nesting (refer to Appendix D). If using netting, monitoring for entrapment is required.

E. Woodpeckers

Woodpeckers may drill holes in SaskPower wooden power poles to feed and may construct a cavity to nest in. If a pole with a nest requires salvage or replacement and the status is non-emergency, the activity should be scheduled until after the nesting season (April 15 to August 15). Woodpeckers may compromise the structural integrity of the pole and the appropriate safety precautions should be taken when inspecting pole cavities and maintaining structures. Contact SaskPower Transmission or Distribution Asset Management for the most current methods for woodpecker damage assessment and repair (e.g., Pecker Patch).

F. Other Birds

Generally alternative nesting structures for most other birds are not required. If recurring nesting is a problem, contact SaskPower Environment for assistance.

3.4.6.5 Nest Removal or Relocation During the Nesting Season

Active nest removal during the nesting season is a last resort and should only be attempted if there is imminent risk of triggering an emergency scenario. A Ministry of Environment Special Permit, an Environment and Climate Change Canada Damage or Danger Permit and/or a permit under Section 73 of the *Species at Risk Act* may be required to move or alter an active nest during the nesting season (see exceptions in Section 2.0). Please contact SaskPower Environment for assistance in obtaining the required permits and identifying species specific requirements prior to completion of any work (trimming, removal, line protection, etc.). SaskPower regional stores have a supply of small artificial nest boxes (stock code 13449) that can be used if small nest relocations are required.

The following general guidelines apply for active raptor nests relocated during the nesting season:

- A competent biologist with experience with nest management must be present to guide the move;
- An artificial nest platform must be installed prior to moving the nest, eggs or chicks (see siting and construction guidelines below);
- Proper personal protective equipment must be worn to prevent injury from defensive parents;
- Avoid moving the nest during cool, wet or inclement weather;
- Remove eggs and chicks prior to nest transfer and keep them in a soft, shaded location;
- Transfer the nest to the platform/bowl;
- Complete work as efficiently as possible and leave area immediately to allow the parents to return;

- A competent biologist will monitor nest to assess whether or not the parents return and accept the new site. If nest is not accepted, the biologist will determine if a wildlife rehabilitator should be contacted for assistance.

3.4.6.6 Injured Birds

Field personnel are instructed to contact SaskPower Environment at 306-566-6200 if an injured bird is found. SaskPower Environment will contact the Wildlife Rehabilitation Society of Saskatchewan (Wildlife Hotline: 306-242-7177) and a local licensed rehabilitator for assistance.

SaskPower discourages its employees from handling any injured birds, but particularly raptors (e.g., hawks, owls, eagles, falcons) and large wading birds (e.g., pelicans, herons). These species have powerful and potentially dangerous defenses such as sharp talons and/or beaks that can cause eye injuries or other serious harm to employees. Wild birds are unpredictable and will aggressively defend themselves. Even a seriously injured bird may be dangerous.

While awaiting professional assistance, the employee may cover the bird (or at least its head) with a loosely woven cloth. This minimizes stress on the bird while still allowing it to breathe. This should be done on large species only if the employee is wearing eye protection and can cover the bird while maintaining a safe distance from the animal. If the bird is injured at a SaskPower facility, a SaskPower ESMIS environmental incident report must be completed by the observer and submitted within 48 hours of discovery of the injured bird.

3.4.6.7 Carcass Management

When carcasses of birds need to be handled, take the following precautions:

- Use gloves when handling dead birds; avoid direct contact with the carcass;
- Check for leg bands and report associated information to SaskPower Environment;
- Place the carcass in a plastic garbage bag and double bag;
- Dispose in an outside trash receptacle;
- Wash hands thoroughly after handling carcass.

3.5 BMP 03c Birds - Collision Prevention

3.5.1 Effect

It is well documented that transmission and distribution line infrastructure is a contributing factor to avian mortality and that line marking devices can substantially (50 to 80% reduction) reduce collision risk. This practice outlines the requirements for risk assessment and use of line marking devices on overhead shield wires (transmission) or conductors (distribution) to reduce collision potential.

Overhead shield wires are single or double wires frequently located above transmission line conductors. These wires are grounded and are used to prevent lightning from striking the transmission conductors. They usually are smaller in diameter than transmission conductors and are more likely to cause bird collisions compared to conductors.

Distribution lines are lower to the ground, have reduced spacing between structures (e.g., better visibility) and generally pose less of a collision risk than transmission lines.

3.5.2 Application

This BMP applies to all newly proposed transmission and distribution line projects and transmission and distribution lines undergoing significant rebuild and/or refurbishment.

3.5.3 Project Planning and Communication

Bird collisions are dependent on the species, habitat and local conditions. Risk increases in areas where larger bodied migratory birds (e.g., waterfowl, shorebirds, etc.) nest, rest and feed and in proximity to critical habitat for susceptible species. Designated migratory bird concentration areas, river and lake crossings, coulees with slopes >10 degrees and larger wetlands are areas of higher risk. In Saskatchewan, designated migratory bird concentration sites may include:

- Saskatchewan Conservation Data Center Migratory Bird Concentration Sites;
- Western Hemisphere Shorebird Reserve Network Sites;
- Important Bird Areas;
- Ducks Unlimited sites with high waterfowl use;
- Migratory Bird Sanctuaries;
- National Wildlife Areas;
- Migratory Bird Critical Habitat Areas (refer to Appendix B).

Areas within provincial and national parks, conservation easements and other provincial designated lands may contain areas protected to enhance or protect migratory bird use and should be evaluated on a case by case basis.

Several types of marking devices (active and passive) are available and the most appropriate type and model of device will be identified based on biologist recommendations, engineering requirements (e.g.,

ice loading potential, long term maintenance requirements, installation method, etc.), cost and regulatory requirements. Active marking devices increase line visibility and have moving parts. Products include the BirdMark and FireFly. Passive marking devices increase line visibility and do not have moving parts. Products include the Avian Flight Diverter (AFD) (e.g., Power Line Sentry PVC reflective plate), Bird Flight Diverter (BFD) (e.g., Preformed Line Product PVC Spirals), Swan Flight Diverter (SFD) PVC spirals, and aerial marker spheres.

Table 3.5.1 – Line Marking Devices

Product	Image
Avian Flight Diverter – Power Line Sentry	
Bird Flight Diverter – Preformed Line Products	
Swan Flight Diverter– Preformed Line Products	
Firefly – P&R Tech	
BirdMark – P&R Tech	

3.5.4 Documents and Clearances

This practice establishes requirements for reducing avian mortality risk from avian collisions with transmission and distribution line infrastructure. Legislation protecting birds includes the provincial *The Wildlife Act* and federal *Migratory Birds Convention Act* and *Species at Risk Act*. Supporting documents to this practice include:

- *SaskPower Transmission Drawing T07-121 Bird Flight Diverter Placement Chart. Rev.0, October 9, 2014.*
- *SaskPower Distribution Drawing Bird Flight Diverter Placement (Draft In Review)*
- *APLIC (Avian Power Line Interaction Committee). 2012. Reducing Avian Collisions with Power Lines. The State of the Art in 2012. Edison Electric Institute and APLIC. Washington, D.C.*

- EDM International Inc. 2016. *Line Marking Technology Review. Prepared for Saskatchewan Power Corporation. April 21, 2016.*
- *SaskPower Transmission Line Routing Guidelines T01/606*

Report bird mortality in accordance with the *SaskPower Avian, Fish and Wildlife Interaction Reporting, Permitting and Data Tracking Procedure*.

3.5.5 Preconstruction and Planning

3.5.5.1 Line Placement and Avoidance Areas

- a. SaskPower Environment will review new route and rebuild locations to determine route and structure location modification recommendations and line marker recommendations as applicable;
- b. line placement, line orientation and line configuration can all contribute to reducing collision risk. When feasible, key considerations include:
 - avoid placement of the route between feeding and staging areas in high bird use areas;
 - avoid placement of the route within 500 m of designated migratory bird concentration areas;
 - avoid bird species critical habitat (e.g., greater sage-grouse, whooping crane);
 - orientate lines such that they consider flight direction and topographical features (e.g., parallel configuration poses less risk than perpendicular);
 - cluster lines within common corridors;
 - configure lines horizontally versus vertically to reduce the number of conductor planes a bird must cross;
 - follow environmental considerations within the *SaskPower Transmission Line Routing Guidelines T01/606*.

3.5.5.2 Transmission Line Marking

- a. if avoidance is not practical, transmission line shield line markers should be considered in the following high risk areas during construction to reduce the potential for collision risk:
 - within identified critical habitat for bird species;
 - within 500 m of a designated migratory bird conservation area;
 - crossing all rivers, streams and coulees with a valley slope > 10 degrees (i.e., traditional flight corridors);
 - within 30 m of wetlands that have the potential to support high numbers of migratory birds (e.g., typically larger wetlands that are Class III, IV or V though exceptions may exist based on site specific conditions);
 - areas of high bird concentration and use as defined during field assessment and biologist recommendations and/or areas of bird species at risk concentration susceptible to collision (e.g., waterfowl, shorebirds, etc.).

3.5.5.3 *Distribution Line Marking*

- a. to reduce the potential for collision risk on distribution lines, line markers should be considered in the following high risk areas:
 - within 30 m of a designated migratory bird concentration area (see section 3.5.3);
 - crossing primary rivers and causeways;
 - areas of high bird concentration and use as defined during field assessment and biologist recommendations and/or areas of bird species at risk concentration susceptible to collision (e.g., waterfowl, shorebirds, etc.).

3.5.6 *Construction and Maintenance***3.5.6.1 *Line Marker Installation***

- a. areas of high risk that cannot be avoided will be mitigated through the installation of marking devices where appropriate;
- b. the majority of avian collisions occur within the midspan region between structures. At a minimum, 60% of span length (from center) should be marked;
- c. a spacing of 5 m is supported by the literature to maximize effectiveness on a single shield wire or distribution conductor based on available information;
- d. to maximize visibility, marking devices should be staggered on parallel shield wires or distribution conductors in the same plane (i.e., 10 m spacing on a single shield wire; refer to SaskPower Drawing T07-121 Bird Flight Diverter Placement Chart);
- e. spacing may vary depending on the type of marker device installed and best practice and current research should be referenced if installing alternative devices.

3.5.6.2 *Collision Reporting and Investigation*

- a. report collisions to the SaskPower Environment ESMIS environmental incident database if;
 - you witness the collision with SaskPower equipment and/or structures
 - the cause of death is likely caused by collision SaskPower equipment and/or structures
- b. SaskPower Environment will follow *SaskPower Avian, Fish and Wildlife Interaction Reporting, Permitting and Data Tracking Procedure* and will evaluate collision incident reports and implement corrective actions where appropriate
- c. do not report collisions if bird death was included in an outage report

3.5.6.3 *Line Marker Maintenance*

- a. line markers are to be inspected during annual patrols and upgraded or replaced if necessary during future line refurbishment.

3.6 BMP 04 Native Grassland, Agricultural Land, and Sandhill Environments

3.6.1 Effect

Native grassland and sandhills contain complex assemblages of plant species and provide habitat for rare plant and animal species. Activities can affect vegetation through loss or alteration of plant species and communities and impair growth. Native grassland and sand hill areas are also very difficult and costly to reclaim to pre-disturbance conditions. On agricultural land, SaskPower activities may disturb crops and pasture land through vegetation removal or indirectly through soil compaction, rutting or transfer of weeds and/or soil born pathogens (e.g., clubroot).

3.6.2 Application

This BMP applies to any activity on native grassland, agricultural land, and sandhill environments, or areas where sensitive plant species may occur. Refer to BMP 08 Weeds and Clubroot for additional mitigation to reduce potential for spread of weeds and/or clubroot.

3.6.3 Project Planning and Communication

All construction and planned maintenance projects within sandhills and larger tracts of native grassland require secondary environmental screening. Alternatives to new construction within native grassland and sandhills should be evaluated prior to proceeding with new projects. Involvement of landowners, lessees, or in the case of Crown land, the appropriate government agency will be required. To reduce the potential for ground disturbance and costly mitigation and reclamation, activities within native grassland, sandhill and agricultural areas should be completed during fall or winter on frozen or dry ground conditions.

3.6.4 Documents and Clearances

The BMP was developed to meet the intent of the following legislation and guidelines:

- *Species At Risk Act (SARA)*
- *The Wildlife Act*
- *Ministry of Agriculture Restoration of Saskatchewan's Agricultural Crown Rangelands*
- *The Environmental Assessment Act*

Additional approvals may be required when working on Crown provincial designated sand hill areas such as the Greater Sandhills and/or Manitou Sandhills as per area land use plans. Refer to Appendix B for a list of plants with designated critical habitat in Saskatchewan.

3.6.5 Preconstruction and Planning

3.6.5.1 General

- a. consultation will occur between SaskPower and the appropriate contact (landowner or regulatory agency) prior to any construction activities occurring;
- b. develop and communicate an access plan prior to construction and maintenance operations;
- c. access, clearing, and construction activities will be restricted to dry or frozen ground conditions where applicable, to reduce disturbance to vegetation cover and terrain;
- d. rare plant surveys will be completed prior to completion in areas where there is potential for occurrence; equipment and materials will arrive free of remnant soil and debris to reduce the risk of introducing weeds;

3.6.6 Construction and Maintenance**3.6.6.1 General**

- a. vegetation removal will be kept to the minimal area necessary for safety and interference with structure locations;
- b. avoid areas that were previously flagged or staked to prevent disturbances to the site of a known rare plant population within or adjacent to the construction site/right-of-way;
- c. observations made by the Construction Supervisor, environmental monitor(s) regarding the presence of any rare and endangered species will be reported to SaskPower Environment;
- d. where sandy soils and sand hills are vegetated with shrubs and trees, woody vegetation will be cut with a mulcher and the chips/mulch will be spread across the right-of-way; smaller diameter of short shrubs may be mowed, walked-down, or driven over leaving the growth crown and roots intact for plant recovery and to maintain soil stabilization.

3.6.6.2 Equipment

- a. if sensitive environments cannot be avoided, matting, low ground pressure tracked vehicles or large-tired all-terrain vehicles will be used to transport equipment and materials to the project site;
- b. wherever possible, equipment will be detoured around sensitive areas such as sand dunes, steep slopes (>15%) and blowouts;
- c. operators of tracked equipment will be instructed to minimize single track pivot turns to the greatest extent possible;
- d. use equipment that reduces surface disturbance, soil compaction, and loss of topsoil; such equipment includes low ground pressure tracks or tires, and brush rake attachments (e.g., shoes) to avoid surface gouging and rutting.
- e. use equipment appropriate for the season of construction and soil type (e.g., plough-in underground service is best used under non-frozen and dry conditions; trenched underground service may be more appropriate under frozen conditions; sandy soils may require alternate methods).

3.6.7 Reclamation

3.6.7.1 Recontouring

- a. initial clean-up activities, including soil stabilization and erosion protection and sediment control measures, will commence as soon as possible after construction activities; site plans and schedules for this work will be developed as required with affected landowners and tenants;
- b. topsoil will be replaced only during dry or non-frozen ground conditions, unless future access may be restricted;
- c. on grasslands, efforts will be employed to reduce disturbances to the sod layer below spoil piles during the replacement of salvaged or stored soil materials;
- d. if any earthwork is required on the right-of-way, re-contour the site immediately after the structure hole has been backfilled or subsoils replaced on an excavation or graded area;
- e. if grading is required, backslope to a stable profile (e.g., 3:1 grade) and stabilize any salvaged topsoil material that is replaced over the entire disturbed area;
- f. leave a well-roughened surface and a firm seedbed (e.g., use tracked equipment to compact reclaimed areas leaving horizontal track lines on slopes prior to seed application);
- g. where sandy soils have been exposed in woody covered sand hill environments, cover exposed sands with the salvaged chips or mulch from clearing activities; this covering will help prevent wind erosion;
- h. natural encroachment on the right-of-way by grass, forbs, and shrub species will be encouraged by minimizing vegetation control practices (i.e., reduce herbicide applications).

3.6.7.2 Seeding

- a. revegetation measures will occur as soon as possible after disturbance, recognizing that seeding is often most effective if undertaken in spring or fall;
- b. re-vegetation of native grassland or unimproved pasture areas will occur in the following manner:
 - two seed passes will be made over the right-of-way or other disturbed areas;
 - on reclaimed slopes, a track vehicle will be used to compact the disturbed and reclaimed areas;
 - the seed will be broadcast into these tracked areas, and then re-compacted by a track vehicle;
 - alternatively, the slope can be harrowed to promote good seed/soil contact;
 - a broadcast seeder or seed drill may be used;
- c. where required, slopes greater than 20%, and wet soils, will be seeded and fertilized manually to reduce surface disturbance;
- d. on Crown Land administered by Ministry of Environment or Ministry of Agriculture, graded areas will be seeded with a mixture approved by the agency with jurisdiction; Refer to Ministry of Agriculture *Restoration of Saskatchewan's Agricultural Crown Rangelands* for seed mix guidance.

- e. it is expected that segments of the right-of-way or construction site on cultivated land will be seeded and fertilized by the landowner/lessee as part of their normal farming operations following reclamation;
- f. ditches will be seeded in accordance with Rural Municipality or Ministry of Highway specifications, or with a seed mixture appropriate for the location
- g. reclaimed areas will not be travelled on after completion of seeding.
- h. if hot temperatures persist, a watering program may be required to enhance germination and seedling establishment;
- i. barnyard manure will not be used as a soil additive.

3.6.7.3 Erosion Control, Exclusion Fencing and Inspection

- a. erosion and sediment control measures will be implemented to encourage revegetation (Refer to Appendix C for guidance on erosion control);
- b. in sandy areas where erosion control matting is used, care will be employed to select the proper type of blanket to be used; alternative techniques include gouging, organic mulch, straw crimping or tackifier application;
- c. inspect reclaimed areas periodically to determine revegetation success and reseed as necessary; up to several years after initial application if warranted;
- d. if required, temporary fences will be installed to restrict cattle grazing and trampling of seeded rights-of-way and other work areas until the vegetation become established;
 - some fencing may be required to stay in place for several years and will be constructed with metal or wood posts;
 - a minimum distance of 2 m will be maintained from the fence to the nearest point on a structure or guy wire; and
 - a snow fence or other suitable wind break may be installed to assist with plant establishment on soils susceptible to wind erosion.
- e. landowner/lessee approval of clean-up activity will be required before they sign the final release.

3.7 BMP 05 Soil

3.7.1 Effect

Construction and reclamation activities may affect soil quality if not properly mitigated. Surface disturbance such as trenching, boring, structure foundation installation and crane pads might lead to topsoil loss by wind and water erosion. Heavy equipment and vehicle traffic on rights-of-way might lead to soil compaction, rutting and admixing (i.e., topsoil and subsoil mixing).

3.7.2 Application

This BMP applies to all activities that will disturb soil. This includes right-of-way travel and projects that involve digging, trenching, and creation of crane pads, bell holes, borrow pits or other activities that require the removal, displacement or handling of soil. Refer to BMP 08 Weeds and Clubroot for additional mitigation to reduce potential for spread of weeds and/or clubroot.

3.7.3 Project Planning and Communication

Soil and terrain sensitivities (e.g., wet areas, steep slopes) will be avoided to the degree practical during line design and access planning. The degree of soil disturbance required, and sensitivity of terrain should be evaluated in the project planning phase to determine the best mitigation strategy (e.g., winter construction, matting, topsoil salvage, etc.). Environmental permits and approvals and secondary screening results will often contain specific mitigation pertaining to soil management and should be reviewed prior to project start-up.

3.7.4 Documents and Clearances

All areas requiring substantial ground disturbance (e.g., access roads improvements, crane pads and borrow pits) require screening by SaskPower Environment and may require additional regulatory approvals from Ministry of Environment and Ministry of Agriculture on crown land.

3.7.5 Preconstruction and Planning

3.7.5.1 General

- a. during line design, efforts will be made to avoid placement of structures on steep slopes and other locations where extensive landscape modifications and slope cuts are required;
- b. complete route selection and ground truthing on foot, ATVs, or snow machine to avoid creating new permanent trails;
- c. when it is necessary to remove snow from the ROW for work or access, blading will be done with blades held at least 10 to 15 cm above the surface to avoid sod displacement (consider use of blade shoes);
- d. geotextiles, swamp mats, rig mats, erosion blankets, or log bundles will be used in unstable areas and to mitigate surface disturbance caused by equipment and vehicles;

- e. following periods of excessive rainfall or saturated soil conditions, (e.g., surface thawing) construction will be suspended until suitable soil conditions return;
- f. cuts, fills, access trail grading and excavations will only occur if authorized by the Project Engineer or Project Inspector/Construction Officer in consultation with SaskPower Environment, environmental monitor and landowner or appropriate regulatory agency;
- g. grading will be restricted to tower/pole structure locations and portions of the ROW required to allow safe passage of vehicles and equipment;
- h. where possible, unstable or sparsely vegetated slopes will be left intact or avoided;
- i. on sensitive native grasslands (i.e., sand hill terrain), construction will be scheduled during dry or frozen ground conditions;
- j. where necessary, erosion control structures such as silt fences, check dams, straw rolls, or surface mulches will be installed to prevent erosion (Refer to Appendix C).

3.7.6 Construction and Maintenance

3.7.6.1 Soil Handling

- a. during line construction, topsoil stripping is required during:
 - culvert and anode installation using conventional excavation (note: stripping is not required for direct embed or screw pile installation methods);
 - crane pad leveling and safety;
 - access trail improvements where grading is required facilitate safe access to the structures;
- b. topsoil and organic layer if present will be stripped and stockpiled separately from subsoils with a minimum of 1 m separation to prevent admixing;
- c. topsoil stripping and replacement will be suspended during excessively wet conditions or high winds to prevent rutting or topsoil loss. The following indicators will be used to determine the need to temporarily halt construction due to wet conditions:
 - rutting to the extent that admixing of soil horizons occurs;
 - excessive wheel slip;
 - excessive build-up of mud on tires and cleats;
 - formation of puddles and surface ponding;
- d. stones brought to the surface at sites where earthwork was required will be picked up from the ROW during cleanup prior to and following topsoil replacement;
- e. subsoil will be backfilled and compacted prior to topsoil replacement in all excavations;
- f. topsoil should be replaced during dry or non-frozen ground conditions, unless future access may be restricted or there are safety concerns. If topsoil is replaced during frozen conditions, follow-up inspection in the spring may be required to ensure satisfactory site condition (e.g., no excessive settling);
- g. all soil handling will remain within the confines of the designated ROW or work area;
- h. where required on steep side-slopes, the ROW will be graded at two elevations ('two-toned') to restrict the need for deep cuts and additional workspace and soil disturbance;

- i. topsoil will not be used to ramp ditches, narrow water runs, or low areas only subsoils will be used for this purpose;
- j. where natural vegetation exists on slopes >15%, clearing and grading will be avoided;
- k. excessive rutting will not be permitted on cultivated land and tame pasture. No rutting of any kind is permitted on native grassland;
- l. equipment which reduces surface disturbance (e.g., rutting), soil compaction, pulverization, and topsoil loss will be used; this can include low ground pressure tires and wide pad tracks.

3.7.6.2 Forest, Wooded and Peatland Areas

- a. unless otherwise specified, topsoil salvage will not be required in peatland areas where the organic soils are uniformly greater than 40 cm;
- b. steep, erodible slopes will be cleared by hand, with a hydroaxe or mulcher depending on site-specific limitations;
- c. where a hydroaxe or mulcher is employed, the wood chips or mulch will be distributed across the erodible portion of the ROW or work area and when hand cleared, all slash will be felled within the ROW and not into adjacent trees;
- d. salvaged slash will be rolled back and walked down with a dozer on steep erosion prone slopes to assist with erosion control and to help stabilize the site;
- e. leveling, grubbing or incorporating mulch into soil will not occur without prior consent from SaskPower Environment.

3.7.6.3 Borrow Pits

- a. licensed or otherwise existing borrow areas will be used when possible and with permission;
- b. new borrow areas will be located a minimum of 100 m from roadways and a minimum of 15 m from private residences unless written consent is obtained from the landowner;
- c. borrow material will not be removed from any surface water feature or from within 90 m of the high water mark;
- d. all vegetation will be cleared prior to excavation; in forested areas, a treed buffer will be maintained between the borrow pit and any public roads or highways; merchantable timber will be salvaged where possible;
- e. topsoil will be stripped from the borrow pit area and stockpiled where it will be undisturbed by excavation; subsoil will be salvaged and stored separately from topsoil;
- f. where dewatering is required, water will be directed to settling ponds or through a filter system (i.e. bales or slash piles);
- g. where a pit poses a threat to public safety, exclusion fences will be erected; and
- h. once excavation is complete slopes will be graded or backsloped to no greater than 20%;
- i. subsoil will then be replaced followed by topsoil. Where a topsoil depth of 5 cm to 10 cm cannot be achieved over the entire area, the side slopes will receive topsoil replacement priority.

3.7.7 Reclamation

- a. compaction and rutting will be mitigated after construction and may include topsoil and subsoil tillage to remove compaction and leveling to remove ruts;
- b. initial clean-up activities, including soil stabilization and erosion protection and sediment control measures, will commence as soon as possible after construction activities;
- c. site plans and schedules for this work will be developed as required with affected landowners and tenants
- d. refer to BMPs for Surface Water, Native Grassland, Agriculture and Sandhills and Vegetation Management for additional reclamation guidance in those environments.

3.8 BMP 06 Heritage Resources

3.8.1 Effect

“Heritage Resources” includes things such as: ancient indigenous campsites, spiritual or ceremonial sites, the remains of fur-trade posts, and pioneer homesteads. There are currently over 25,000 such sites recorded in the province of Saskatchewan that are protected under *The Heritage Property Act*. Construction activities have the potential to impact heritage resources through ground disturbance (e.g., topsoil stripping, trenching, and auguring) and vehicular traffic accessing sites.

3.8.2 Application

This BMP applies to all activities with a ground disturbance component that occur in areas where heritage resources have been identified or where there is a potential for undocumented sites to exist.

3.8.3 Project Planning and Communication

All construction and maintenance projects in heritage sensitive areas are screened through SaskPower’s Environmental Screening System process. If a concern is identified, a Heritage Resource Impact Assessment (HRIA) will be completed by SaskPower’s archaeologist or a heritage resource consultant prior to construction. If heritage resources are identified during the HRIA, avoidance measures or other mitigation will be communicated prior to project start-up.

3.8.4 Documents and Clearances

If the need for an HRIA is identified during the project screening, a clearance letter from the Heritage Conservation Branch (HCB) of the Ministry of Parks, Culture, and Sport will be required prior to construction. The SaskPower Archaeologist will complete the necessary assessment and apply for clearance from the HCB. Upon receipt of the clearance letter, the development will be allowed to proceed as long as any conditions specified within the clearance letter are followed.

3.8.5 Preconstruction and Planning

3.8.5.1 General

- a. new developments must be screened with SaskPower’s Environmental Screening System or sent to SaskPower Environment for screening;
- b. any mitigation or avoidance requirements arising out of a heritage resource impact assessment will be communicated to the project planners prior to the project entering the construction phase. Review any requirements identified in shop papers, contracts, or other tender documents.

3.8.6 Construction and Maintenance

3.8.6.1 *General*

- a. if deemed necessary, SaskPower Environment or onsite environmental/archaeological monitor will erect temporary fencing or staking around archaeological sites that are in or near the right-of-way to protect them from inadvertent damage from construction activities;
- b. any deviation from a previously approved construction drawing including temporary access trails will need to be verified and approved by SaskPower Environment;
- c. construction monitoring by an archaeologist may be required (this requirement will be communicated to the crew well in advance) during certain activities (i.e., pole auguring, directional boring) in areas such as:
 - floodplains
 - stream or river crossings
 - on or near a significant landform feature such as a prominent hilltop

3.8.6.2 *Discovery of Heritage Resources during Construction*

- a. if the crew discovers materials they believe to be archaeological in nature (artifacts, tipi rings, bones, etc.) all work in the immediate area will cease and SaskPower Environment will be contacted;
- b. if human remains are discovered at any point in time, stop work and contact SaskPower Environment and the RCMP.

3.9 BMP 07 Vegetation Management

3.9.1 Effect

SaskPower has a mandate to provide safe, reliable, sustainable and cost-effective power for our customers and the communities we serve. If vegetation grows into the safe limits of approach of a conductor or energized component, there is the potential for arcing, infrastructure damage, electrocution, outage and wildfire. Similarly, SaskPower infrastructure such as poles, insulators, transformers and other apparatus require barrier free access for routine maintenance to repair or replace aging components and assets damaged through extreme weather events.

Vegetation clearing, pruning, herbicide use, salvage and disposal of trees and shrubs creates potential risks for SaskPower, including:

- causing avoidable environmental damage including destruction of habitat, damage to water quality, the promotion and spread of insects & diseases, and loss of merchantable timber; and
- creating legal risks by not complying with federal and provincial laws for the protection of migratory birds, species at risk, water and aquatic habitat, elm trees, forests, and wildlife.

3.9.2 Application

This BMP applies to all vegetation clearing and disposal practices for trees and shrubs in forests, parklands, shelterbelts, urban areas and yards. Vegetation clearing includes pruning, hand clearing, mechanical clearing, and herbicide based management. Tree and shrub disposal includes any combination of slashing (i.e., bucking, topping and delimiting), mulching, chipping, windrowing, burning or salvage.

3.9.3 Project Planning and Communication

This BMP is guided by the following:

- *SaskPower Vegetation Management Policy*
- *SaskPower Power Line General Construction / Maintenance Specification*
- *SaskPower Pesticide Standard, Pesticide Application Plans and Approved Pesticide List*
- *SaskPower Wildfire Prevention and Preparedness Plan*

If emergency elm pruning is required by internal SaskPower crews, follow the *SaskPower Emergency Elm Pruning Practice*.

3.9.4 Documents and Clearances

This BMP does not address all tree clearing compliance situations and circumstances that staff and contractors may encounter. Implementing these BMPs will satisfy the main legal requirements and standards expected by the regulator and serves to demonstrate due diligence on the part of SaskPower staff and contractors. This BMP supports the following regulatory requirements:

- Wildfire preparedness planning requirements under *The Wildfire Act*;
- Forest Product Permit requirements under *The Forest Resources Management Act, 2010*;
- Management and use of herbicides for vegetation control under *The Pest Control Regulations, 2015*;
- Dutch Elm Disease prevention under *The Dutch Elm Disease Regulations, 2005*;
- Riparian zone protection under *The Environmental Management & Protection Act, 2010*.

3.9.5 Preconstruction and Planning

3.9.5.1 General

- a. all permit and authorization requirements, and approved Landowner requirements must be reviewed and incorporated into the work plan;
- b. landowners must be notified before clearing operations begin;
- c. Ministry of Environment must be notified for activities on provincial crown land before clearing operations begin;
- d. ensure a site specific treatment plan has been developed;
- e. restrict clearing within environmentally sensitive areas, and in areas with compatible vegetation where maximum growth height of vegetation species will not interfere with construction activities nor with future maintenance of the power line (e.g., valley, wetland and river crossings as appropriate);
- f. review and implement site specific mitigation measures identified during the secondary environmental screening if applicable;
- g. field assessments must be completed by the contractor or SaskPower prior to work commencing, and validated against screening assessments, permits and other plans (e.g., wet ground conditions, surface water feature locations, right-of-way boundaries, etc.);
- h. develop access plan and ensure appropriate notifications and access clearances are obtained;
- i. ensure environmental monitor is on site if required as per secondary environmental screening requirements or permit conditions;
- j. adherence to the *SaskPower Wildfire Prevention and Preparedness Plan* will be implemented for all operations occurring during the fire season (April 1 to October 31).

3.9.5.2 Layout

- a. boundaries of vegetation treatment areas, and obstructions must be flagged, marked or otherwise identified;
- b. avoidance areas (e.g., riparian areas, etc.) will be flagged or otherwise marked for setback if not clearly visible;
- c. flagging, marking or identification includes fluorescent tape, paint, or a discernible natural or man-made boundary.

3.9.6 Mechanical Clearing

3.9.6.1 Soils

- a. mechanical operations will only occur during reliably frozen or dry ground conditions;
- b. activities will be suspended during heavy rainfall events and when soils are saturated and rutting and compaction may result;
- c. clearing shall not level, grub, incorporate mulch into soil, expose mineral soil or modify existing terrain;
- d. erodible slopes will be avoided by heavy mulching equipment and will be hand cleared;
- e. mechanical clearing (e.g., hydro-axe or drum mulcher) will be undertaken with equipment that uses low ground pressure tracks or tires.

3.9.6.2 Surface Water Protection

- a. all work in or near surface water will abide by BMP 01 Surface Water including:
 - hand clearing of vegetation will occur within 30 m of surface water features during wet conditions;
 - mechanical clearing will only take place under dry or frozen conditions. The riparian and shrub vegetation between the work area and the water edge will be retained; if clearing must occur, vegetation that will not interfere with the right-of-way will not be cleared;
 - vegetation will be hand cut at ground level from unstable or erodible banks, avoiding use of heavy machinery;
 - trees on the bank and/or in riparian areas will be felled away from the water (as safety requirements and site conditions allow). Fallen trees can remain on banks and in riparian areas, however, fallen trees, slash, and other debris inadvertently placed in the water or on ice will be removed immediately if safe to do so.

3.9.6.3 Merchantable Timber

- a. salvage requests from landowners or occupants, or other stakeholders will be considered and accommodated if practical or required under a permit;
- b. all merchantable timber salvage operations within Forest Management Agreement Areas (FMA): including layout, landing construction, felling, yarding, processing, transport, scaling and disposal will be completed according to a scaling and salvage harvest plan approved by the FMA holder and Ministry of Environment;
- c. If merchantable timber cannot be salvaged, it will be mulched or disposed of as required within a permit and dues and fees paid as applicable.

3.9.6.4 Manual Slashing

- a. ensure that the cleared vegetation mulch is not placed in areas of the right-of-way that did not originally have brush or trees;
- b. trees will be slashed in 5 m lengths, or in half, whichever is less;
- c. all trees and shrubs will be felled away from the line. Trees that are felled into standing timber shall be delimbed and bucked to forestry standards;

- d. SaskPower's preference is to mulch the trees, stumps and brush within the right of way and avoid the piling of strips of trees, stumps and brush into windrows. This may not be practical on remote transmission line rights-of-way with access constraints that limit mechanical equipment travel. If required, windrows will have a 5 m wide break no more than 200 m apart and be placed a minimum of 4.5 m from forest edge;
- e. windrow breaks will be aligned with wildlife corridors to facilitate wildlife travel across the cleared area;
- f. any burning of cleared timber will comply with a Burning Plan and any authorizations required by the Saskatchewan Public Safety Agency and/or municipality.

3.9.6.5 Mulching/Mowing

- a. mulch or wood chips should be spread evenly across the right-of-way or cleared area;
- b. ensure remaining debris rails are less than one (1) m in length at maximum;
- c. in the wire zone, all remaining stumps within the tree and shrub free zone shall be 100 mm (4") or lower in height, unless rock conditions create an obstacle;
- d. all new-edge and fall-distance trees are deemed a hazard and shall be hand felled and mulched within the right of way;
- e. bluffs (defined as small stands of trees and brush that are solely contained within the right of way and that are completely surrounded by agricultural and/or pasture land) shall be mulched in the right of way in the area where trees and brush originally existed.

3.9.6.6 Elms

- a. emergency elm pruning by SaskPower crews during the summer elm tree pruning ban (April 01-August 31):
 - should only be completed by SaskPower staff who have completed the SaskPower DED Emergency Pruning Awareness training.
 - emergency pruning must follow the *SaskPower Emergency Elm Pruning Practice*;
- b. scheduled and non-emergency elm tree pruning and removals:
 - should only be conducted by a certified utility arborist under the authority of SaskPower.
 - complete removal is permitted at any time of the year if disposed of appropriately.
 - all elm tree biomass will be disposed of at an approved waste facility. Ensure location of disposal is confirmed prior to tree removal;
 - pruning tools should be sterilized after each tree during the pruning of elm trees .

3.9.7 Herbicide Application

3.9.7.1 Surface Water Protection

- a. all work in or near surface water will abide by the *SaskPower Working in or Near Surface Water: Environmental Protection Plan for Transmission, Distribution and Fibre Optic Construction, Operations and Maintenance* including:
 - on target vegetation within 30 m of surface water features, either targeted basal bark, low volume foliar or cut stump backpack application methods will be used and a minimum 5 m buffer from the surface water feature boundary will be maintained unless additional setback is required as per the product label or approval conditions (as applicable);
- b. herbicide will not be applied to the bed, bank or boundary of a surface water feature;
- c. an applicator must not locate outdoor field herbicide mixing and loading sites within 30 horizontal meters of an open body of water.

3.9.7.2 Aesthetics

- a. herbicides will not be applied to vegetation exceeding 2.5 meters (with allowable 10% over height).

3.9.7.3 Storage, Transport, Mixing, Loading and Disposal

- a. storage areas must be appropriately ventilated, locked when unattended and appropriately placarded;
- b. spill kits will be stored separately from but in close proximity to herbicides;
- c. if obtaining water from surface water features (e.g., wetlands) ensure appropriate landowner approvals and permits are obtained (e.g., Temporary Water Rights License);
- d. follow all applicable transport, mixing and loading requirements set out in the provincial *The Dangerous Goods Transportation Act* and *The Pest Control Products (Saskatchewan) Act* including:
 - ensure an air gap is maintained between the water supply outlet and the tank if filled from the top;
 - ensure back flow prevention is in place during filling if filled from another location other than the top.
- e. ensure that the herbicide is properly secured during transport so that accidental discharge or unauthorized removal is prevented, and also to prevent contamination of anything transported with the herbicides that is intended for animal or human consumption;
- f. read and understand the product label and Safety Data Sheet outlining the transportation requirements for each regulated product;

- g. for all herbicide mixing and loading sites, the applicator must ensure that a contingency plan for the containment and cleanup of herbicide releases is available and understood by any personnel;
- h. applicators must dispose of herbicide rinsate and herbicide solution in accordance with label directions and ensure that maximum label application rates are not exceeded. Common disposal methods include:
 - as mix water in spraying operations;
 - by spraying over the treated area.
- i. container disposal shall be in accordance with the product label and as a minimum, empty containers shall:
 - Be triple rinsed or pressure rinsed;
 - Be made so they cannot be reused by crushing, puncturing or damaging them;
 - Be disposed of in a permitted sanitary landfill or other approval disposal site.

3.9.7.4 Application

- a. all herbicide applications at SaskPower shall comply with SaskPower's *Pesticide Standard* and applicable *Pesticide Application Plan*.
- b. use the most practical, suitable, target-specific application techniques;
- c. ensure that all herbicide application is suitable for soil conditions
- d. all herbicide label instructions must be followed (e.g., wind speed, setbacks, dairy cattle grazing, signage, etc.);
- e. any new herbicides must first be authorized for use by SaskPower Environment;
- f. all applications of herbicides by SaskPower will be conducted by certified commercial contractors or by SaskPower personnel who hold a current Pesticide Applicator License (Industrial Vegetation Designation), issued under the authority of the *Pest Control Products (Saskatchewan) Act*;
- g. ensure equipment is leak free, clean and in good operating condition;
- h. as a minimum, all herbicide application equipment will be calibrated once per year prior to use, and at regular intervals throughout the season of use;
- i. low-pressure application and methods will be selected according to wind speed and label directions;
- j. do not apply herbicides if it is raining or if heavy rainfall is imminent;
- k. do not spray herbicides on foliage covered by ice or frost;
- l. appropriate personnel protective equipment specified on the label, in addition to SaskPower high visibility and fire-resistant clothing requirements, must be worn;
- m. maintain appropriate application documentation (e.g., product, rate, coverage area, etc.).

3.9.7.5 Reclamation

- a. if public or private property is damaged as a result of vegetation control activities, SaskPower will ensure that the property is restored to a condition that is as close to its original state as is feasible or to a condition that is acceptable to the property owner;
- b. complete all reclamation work within 30 days of project completion or as ground conditions allow.

3.10 BMP 08 Weeds and Clubroot

3.10.1 Effect

Construction activities have the potential to spread weeds and/or clubroot from one area to another by creating disturbance corridors and transporting seeds and spores on vehicles, equipment, and people. Nuisance, noxious and prohibited weeds degrade native plant and animal habitat, pasture lands, farm land and are costly to control. Clubroot, a soil born pathogen, may reduce the productivity of canola and other crops in the Brassicaceae family (mustard, cabbage, cauliflower, etc.) and is extremely difficult to eradicate.

3.10.2 Application

Weed mitigation applies to any activity that may result in the spread of weeds, particularly if noxious or prohibited weeds are present. This BMP does not cover herbicide application or other weed eradication or control methods (refer to the Vegetation Management BMP).

The clubroot mitigation applies to all cultivated land. In Rural Municipalities that have confirmed clubroot presence, cleaning records are mandatory. The Ministry of Agriculture Clubroot Distribution in Saskatchewan Map is updated annually by the province to identify which Rural Municipalities have confirmed cases of clubroot.

Clubroot mitigation does not apply to developed road allowances, wetlands, pasture, grassland or forest.

3.10.3 Project Planning and Communication

For larger projects or projects requiring a field based environmental survey, weed occurrences are documented and locations and avoidance instructions or project specific mitigation will be provided to crews in advance of construction.

The landowner or occupant may also be able to provide information on weed, clubroot or other biosecurity concerns. Mitigation approaches should be discussed with the landowner and any landowner specific protocols should be integrated as is reasonably practical.

3.10.4 Documents and Clearances

Control of existing weed populations and the prevention of the spread of weeds on newly proposed and existing SaskPower rights-of-way is a legal requirement under *The Weed Control Act*. Control of known pests (e.g., clubroot) is required as per *The Pest Control Act*.

3.10.5 Preconstruction and Planning

3.10.5.1 *General*

- a. equipment, vehicles, and materials will arrive to the project site in a clean condition free of any remnant soil or plant material to reduce the risk of weed or clubroot introduction;
- b. determine if the landowner or occupant is aware of any noxious or prohibited weed or clubroot occurrences intersecting the right-of-way;
- c. environmental monitors, when present, will stake or otherwise mark known weed and clubroot infestations for avoidance or mitigation;
- d. when possible, complete work in winter under snow cover and frozen ground conditions where infestations are known;
- e. use alternate access to avoid infested areas if practical;
- f. avoid unnecessarily entering cultivated land;
- g. develop weed and/or clubroot control measures in consultation with the landowner/occupant.

3.10.6 *Construction and Maintenance*

3.10.6.1 *General*

- a. equipment will be inspected for cleanliness prior to being allowed on the construction site; any equipment which arrives in a dirty condition will not be allowed on the ROW or facility site until the equipment has been cleaned;
- b. if equipment will be needed in infested quarters of land for more than one day, stage equipment within the area rather than entering and exiting on a daily basis;

3.10.6.2 *Weeds*

- a. weed cleaning stations will only be required if avoidance measures are not possible to prevent the spread of **prohibited weeds** and the following **noxious weeds: Absinthe, Field Bindweed, Downy Brome, Japanese Brome, Common Burdock, Scentless Chamomile, Russian Knapweed, Purple Loosestrife, Common Tansy, Yellow Toadflax, Leafy Spurge, Baby's-Breath, Bladder Champion, Ox-eye Daisy, Black Henbane, Hoary Cress, Hoary Alyssum and Wild Parsnip** or as directed by regulatory agencies;
- b. weed cleaning stations may be required as part of permit conditions, prior to working on organic land or as directed by SaskPower Environment;
- c. if work within the weed infested areas must occur, options to avoid weed spread include:
 - working under suitable snow and ice cover where soil and plant material is not exposed;
 - directional drilling or boring weed areas for underground distribution or fibre optic installation;
 - Setting up a cleaning station and cleaning equipment, vehicles and materials before leaving an infested area;
 - If using matting in infected areas, ensure mats and equipment used to place them are cleaned following completion of work;

- d. selection of the appropriate mitigation strategy should be completed in consultation with the environmental monitor, SaskPower Environment and the landowner and consider weed status, equipment requirements, cost and timing of construction;
- e. if deemed necessary, either mechanical rough cleaning (e.g., compressed air, brooms, scrapers) in frozen or dry conditions or pressure washing (e.g., hydrovac) in wet or muddy conditions may be required;
- f. document all inspections, cleaning and sanitization efforts.

3.10.6.3 Weed Cleaning Stations

- a. cleaning stations will be set up by the contractor at appropriate locations determined by the environmental monitor and Project Inspector or Construction Officer;
- b. stations should be located in non-infested areas of the quarters near a road allowance or after areas of significant populations;
- c. the individual stations will be built to accommodate the maximum size of equipment expected;
- d. cleaning stations will be constructed of filter fabric under skids or large tarps or other methods approved by SaskPower Environment;
- e. filter fabric or tarps will be removed and disposed of in an acceptable landfill;
- f. organic material (i.e., remnant noxious weed plants) may be removed to a waste management facility or buried on site (minimum 2 m depth) to reduce potential for further spread if landowner approval is obtained;
- g. soil debris for disposal will be secured in an enclosed container or tarped prior to transport offsite;
- h. signs will be erected at entry and exit points of infested areas which indicate that operators must clean all equipment, vehicles and materials prior to entry into non-weedy areas;
- i. the environmental monitor is required to inspect equipment prior to release from a cleaning station;
- j. document all inspections and cleaning efforts.

3.10.6.4 Clubroot

- a. the clubroot mitigation applies to all cultivated land;
- b. if possible, avoid entering cultivated lands;
- c. if possible, avoid working in wet conditions;
- d. ensure all equipment, clothing and footwear is clean prior to starting a project on cultivated land;
- e. when working on cultivated land:
 - before leaving the field, inspect clothing, footwear, and equipment for soil and dust, and if necessary, **Rough Clean**. The use of a brush and scraper will remove most (90%) surface soil, plant material, and foreign matter from clothing and equipment. Compressed air can also be used if available;
- f. if accessing land with confirmed clubroot, **Disinfection** is mandatory before entering another property:

- items must be rough cleaned and **Fine Cleaned** before applying disinfection. Fine cleaning can be accomplished at a commercial truck wash or through an onsite wash station with a portable pressure washer. Wash fluids should remain on site or be collected and disposed of at an approved disposal facility;
 - spray tracks, openings, tires, wheels and implements that may come in contact with soil, plant material or crop debris with an approved disinfectant solution;
 - a 1-2% bleach solution mixed in a spray bottle or pump sprayer is an effective treatment. Sprayed areas should remain wet for 15-20 minutes. Other disinfectant sprays require the approval of SaskPower Environment and must be used in accordance with label directions;
- g. inspection and cleaning records are mandatory in RMs with confirmed clubroot (refer to most current Ministry of Agriculture Clubroot Distribution Map);
- h. project specific mitigation may be developed to address site specific conditions.

3.10.6.5 Record Keeping

- a. the below minimum details to be included in equipment cleaning records required for weed and clubroot:
- Date/Time;
 - Location - may include land location(s) and/or structure number(s);
 - Personnel/Operator Name;
 - Personnel/Operator Initials and/or Signature;
 - Item Description(s) - includes or encompasses any/all items requiring a cleaning record (based on its applicable circumstance), such as vehicles/equipment, tools, footwear, etc.;
 - Level of Cleaning Applied - includes describing the circumstance, and the level of cleaning required to be applied (based on its applicable circumstance);
 - Photo evidence of attributed vehicles/equipment, tools, footwear, etc. (where possible);
 - Time Duration - if easily identified, indicate the duration of time in applying the level of cleaning being applied.

3.11 BMP 09 Disposal and Storage of Nonhazardous and Hazardous Materials and Waste

3.11.1 Effect

Any type of construction, operation, maintenance or reclamation activity has the potential to generate nonhazardous or hazardous waste products or result in a spill or release of nonhazardous or hazardous substances. Hazardous waste such as oil, antifreeze, lubricants, or fuel released into the environment can cause long term, detrimental impacts to humans, soil, air quality, vegetation, fish, and wildlife.

3.11.2 Application

This BMP applies to all construction, operation, and reclamation activities that have the potential to generate, dispose or store nonhazardous or hazardous wastes. This BMP does not apply to disposal of equipment containing polychlorinated biphenyls (PCB). If you suspect PCBs of any quantity, contact SaskPower Environment for guidance on disposal.

3.11.3 Project Planning and Communication

If hazardous and non-hazardous wastes will be generated or stored onsite, a waste disposal and spill contingency plan compliant with this BMP and regulatory requirements is required prior to initiating work. New temporary and new permanent sites must be screened with SaskPower's Environmental Screening System or sent to SaskPower Environment for screening. Crews are responsible for maintaining spill containment equipment onsite and knowing how to apply it in an emergency situation. SaskPower Environment maintains contracts with hazardous waste disposal vendors that can pick-up and dispose of regulated substances at an authorized disposal facility. Contact SaskPower Environment at 306-566-6200 for assistance with planning, permitting, reporting and disposal requirements.

3.11.4 Documents and Clearances

This BMP is designed to maintain compliance with the following legislation:

- *Environmental Management and Protection Act, 2010* and applicable regulations including:
 - *The Environmental Management and Protection (General) Regulations*
 - *The Hazardous Substances and Waste Dangerous Goods Regulations*
- *The Saskatchewan Environmental Code*
- *Transportation of Dangerous Goods Act*

The SaskPower corporate *Treated Wood Storage and Disposal Standard* must be adhered to when storing and disposing of treated wood (e.g., wood poles).

Workplace Hazardous Material Information System (WHMIS) training is mandatory to ensure workers understand controlled products' potential hazards, required personal protective equipment and the

release response requirements in the event of a release. Workers, who are required to ship or transport any dangerous goods, as defined by *The Transportation of Dangerous Goods Act*, shall be trained in the *Transportation of The Dangerous Goods Act and Regulations*. Safety training certificates are required onsite.

Onsite storage of fuel and hazardous waste will require authorization from Ministry of Environment if storage quantity is not exempted in the *The Hazardous Substances and Waste Dangerous Goods Regulations* (e.g., above ground storage of greater than 4000 L of gasoline or diesel, greater than 500 kg of used oil or waste glycol).

3.11.5 Preconstruction and Planning

3.11.5.1 General

- a. new temporary and new permanent storage sites must be screened with SaskPower's Environmental Screening System or sent to SaskPower Environment for screening.
- b. all personnel working on-site will be instructed to remove garbage from the right-of-way or construction site;
- c. reduce waste and divert waste through recycling as is feasible;
- d. all equipment and vehicles will be provided with garbage bags;
- e. vehicles, machinery, and equipment will be free of any fluid leaks;
- f. project storage sites will be located a minimum of 100 m from the edge of any surface water feature. If this is not technically feasible, SaskPower Environment will contact the necessary regulatory agencies and implement any necessary mitigation measures.

3.11.5.2 Camps

- a. appropriate septic or holding tank systems will be installed at construction camps; systems will meet all provincial requirements of Ministry of Health, Saskatchewan Watershed Authority, and the Ministry of Environment;
- b. all sewage systems will be designed, constructed and operated in accordance with existing regulations;
- c. if a landfill site is developed by the contractor in association to the camp, it will be sited and developed according to municipal and/or provincial regulations.

3.11.5.3 Treated Wood Storage and Disposal

- a. Refer to the *SaskPower Treated Wood Storage and Disposal Standard* for planning requirements.

3.11.5.4 Hazardous Material

- a. hazardous materials will be labeled in compliance with WHMIS;
- b. bulk storage of hazardous material will be confined to an approved designated storage area which will be inspected regularly;

- c. permits will be obtained for bulk fuel and waste storage as applicable (e.g., above ground storage of greater than 4000 L of gasoline or diesel, greater than 500 kg of oil or glycol);
- d. do not store hazardous wastes including fuels or oil in a manner which allows the hazardous material to enter the water (ie.100m);
- e. fuel tanks will be stored within containment berms constructed to a capacity of 110% of the fuels stored or within double-walled tanks;
- f. shippers, carriers, and receivers of hazardous waste will be licensed and registered with Ministry of Environment; current and valid licensing and registration will be a contract requirement for contractors; a copy of licensing and registration documents, as well as the work manifest will be forwarded to the Project Administrator, on request; and
- g. the contractor will keep records of all waste dangerous goods generated, transported, stored, and disposed of, and a copy of such records will be forwarded to the Project Administrator, on request.

3.11.6 Construction and Maintenance

3.11.6.1 General

- a. all waste will be placed in designated garbage or waste containers; these containers will be regularly emptied, and will have lids to prevent materials from leaving the container during wind events or transport to an approved landfill;
- b. garbage or waste will not be burned unless specifically permitted; and
- c. disposal pits or other direct releases to the environment will not be used under any circumstances.

3.11.6.2 Treated Wood Storage and Disposal

- a. Refer to the SaskPower Treated Wood Storage and Disposal Standard for construction and maintenance mitigation requirements.

3.11.6.3 Hazardous Material:

- b. repair and maintenance of all vehicles and construction equipment will be restricted to a designated area (e.g., SaskPower or contractor yard) that has proper containment or catchment structures in place where applicable;
- c. if emergency repair or maintenance is required on the construction site, impervious groundsheets and catch trays will be placed under the equipment or machinery being maintained or repaired to intercept all fluids which might leak or spill;
- d. all equipment will be refuelled and lubricated a minimum of 100 m from the edge of any surface water feature;
- e. petroleum products and/or wastewater will not be discharged or disposed of into waterways or onto the ground;
- f. used oil, filters, grease cartridges, and other products used during equipment maintenance will be collected in designated secure containers and disposed of at an approved waste disposal site;

- g. all contaminated material (e.g., soil, sorbents, and rags, etc.) will be disposed of in accordance with applicable legislation and company standards;
- h. all methanol, ethylene, glycol, and water contaminated by freezing depressants will be collected in tanks and disposed of in an approved manner;
- i. all wastes classified as waste dangerous goods or hazardous wastes by regulations will be handled, transported, stored, disposed of, and/or treated in accordance with manufacturer specifications and government regulations (e.g., *WHMIS guidelines* and the *Transportation of Dangerous Goods Act*).

3.12 BMP 10 Spills and Releases

3.12.1 Effect

Any type of construction, maintenance or operation activity has the potential for spills and releases of hazardous materials (oil, antifreeze, lubricants, or fuel). Hazardous materials released into the environment can cause long term, detrimental impacts to humans, soil, air quality, vegetation, fish, and wildlife.

3.12.2 Application

This BMP applies to all internal and contracted construction, operation and maintenance activities. This BMP does not apply to PCB equipment disposal. If you have a PCB release of any quantity, please call your SaskPower Environment representative immediately or the SaskPower Incident Reporting Line at (306) 566-6200.

3.12.3 Project Planning and Communication

A spill contingency plan must be developed prior to working on site. Crews are responsible for maintaining spill containment equipment onsite and knowing how to apply it in an emergency situation.

3.12.4 Documents and Clearances

This BMP is designed to maintain compliance with the SaskPower corporate Emergency Spill Response Process and the following legislation:

- *Canadian Environmental Protection Act*
- *Environmental Management and Protection Act, 2010* and applicable regulations including:
 - *The Environmental Management and Protection (General) Regulations*
 - *The Hazardous Substances and Waste Dangerous Goods Regulations*
- *The Saskatchewan Environmental Code*
- *Fisheries Act*
- *Transportation of Dangerous Goods Act*

3.12.5 Preconstruction and Planning

- a. all personnel operating a vehicle containing a spill kit will be knowledgeable on the use of the spill kit (e.g., including disposal bag and absorbent material);
- b. an emergency leak repair kit will be available at each construction site to help contain and minimize the release of hydrocarbon fluids.

3.12.6 Construction and Maintenance

3.12.6.1 Spill Response

- a. assess the area for any immediate dangers to health and safety. DO NOT take any action that may endanger your health or safety;
- b. take reasonable measures to ensure personal and public safety, contain the release and prevent migration of the spill to adjacent land or surface water;
- c. SaskPower employees notify your SaskPower Environment Specialist and your supervisor of any spill or release of any volume at the earliest possible opportunity. If you cannot reach your SaskPower contacts, you can call the SaskPower Incident Reporting Line at (306) 566-6200. All incidents must have a draft report entered by the incident owner or delegate within the ESMIS system as soon as possible;
- d. contractors notify your SaskPower Environment contact and the Contract Owner (if applicable) of any spill or release of any volume at the earliest possible opportunity. If you cannot reach your SaskPower contacts, you can call (306) 566-6200 or email SaskPower Environment at IncidentsEnv@saskpower.com;
- e. all regulated releases (refer to volumes specified in *The Saskatchewan Environmental Code – Discharge and Discovery Chapter*) and all releases to water must be reported at the earliest possible opportunity to the Provincial Ministry of the Environment Enforcement Centre Spill Report Line at 1-800-667-7525. Contractors phone in their own regulated releases. Environment Specialists call in for SaskPower;
- f. additional reporting and clean up requirements may be required under the *Saskatchewan Environmental Code*. SaskPower Environment can provide additional guidance and support upon notification;
- g. containment measures (e.g., berms, trenches and absorbents) will be implemented to limit the spread of the spill and to prevent contamination of surface water or other areas of environmental concern, as well as to prevent property damage;
- h. once the spill is controlled and safety measures are in place, spill clean-up can be initiated. The type of material spilled, the quantity spilled, and the spill location are factors to take into account when deciding what appropriate actions to take. SaskPower Environment can provide guidance on clean-up options;
- i. waste material generated during spill clean-up activities must be properly disposed in accordance with Federal and Provincial requirements (e.g., approved waste disposal facility). SaskPower Environment can provide guidance on disposal options;
- j. following remediation of a spill, sites will be reclaimed to pre-existing conditions or conditions as approved by Ministry of the Environment;
- k. review cause of spill and implement corrective action to prevent further release.

Appendices

Appendix A Nest Search Data Sheet

Appendix B Wildlife Critical Habitat

B.1 Wildlife Critical Habitat

Wildlife Critical Habitat has been designated in the province for several animal and plant species including the following:

Animal:

- Bank Swallow (South Saskatchewan River near Outlook)
- Black-footed Ferret (Grasslands National Park)
- Black-tailed Prairie Dog (Grasslands National Park)
- Burrowing Owl (Grasslands National Park)
- Chestnut-collared Longspur (South of the Divide)
- Eastern Yellow-bellied Racer (Grasslands National Park and Val Marie Community Pasture)
- Greater Sage-Grouse (southwest)
- Greater Short-horned Lizard (Grasslands National Park)
- Loggerhead Shrike (South of the Divide)
- Mountain Plover – (South of the Divide)
- Piping Plover (select reservoirs and southern lakes (e.g., Diefenbaker, Chaplin, Old Wives, Quill, etc.))
- Red-headed Woodpecker (Tyvan, Broadview and Val Marie municipal areas)
- Red Knot (Western Hemisphere Shorebird Reserve Network sites)
- Sprague’s Pipit (South of the Divide, Grasslands National Park, Nokomis Community Pasture, Last Mountain Lake National Wildlife Refuge,
- Swift Fox
- Woodland Caribou (Prince Albert National Park, Boreal Plain and Boreal Shield)

Plants

- Slender Mouse-Ear-Cress (Sandhills near Danielson Provincial Park, Cramersburg and Burstall Sand Hills)
- Small-Flowered Sand Verbena (Sandhills near Danielson Provincial Park and Burstall Sand Hills)
- Smooth Goosefoot (Big Stick, Dundurn, Crane Lake, Caron, Coteau, Burstall, Cramersburg, Elbow, Great Seward, Piapot and Tunstall Sandhills)
- Tiny Cryptantha (South Saskatchewan River Valley near Alberta Border)
- Western Spiderwort (Elbow Sand Hills)

Invertebrates

- Gold-edged Gem (Sandhills)
- Dusky Dune Moth (Burstall, Cramersburg, Elbow, Great Seward, and Tunstall Sandhills)
- Gold-edged Gem (Elbow, Tunstall and Cramersburg Sandhills)
- Mormon Metalmark (South of the Divide)

With the exception of woodland caribou, the majority of critical habitat is located in the southwestern and central part of the province. It is predominantly associated with native grassland, sand hills and waterbodies.

A map of all species critical habitat in central and southern Saskatchewan is included in Figure B.1-1. Critical habitat overlapping existing rights-of-way where there is specific mitigation has also been included as a spatial base layer in Electric Office to enable visibility of habitat areas. All critical habitat is a spatial feature in the Environmental Screening System and is a consideration in project planning. For the majority of critical habitat the following general mitigation applies. For projects within Greater sage-grouse or woodland caribou range, additional mitigation is provided in the specific sections below.

General

- a. new infrastructure projects should avoid critical habitat to the extent practical;
- b. if avoidance is not possible, contact SaskPower Environment to determine project specific mitigation and permitting guidance;
- c. maintenance of existing infrastructure is permitted, though project and site specific timing considerations may apply (refer to species specific mitigation below or contact SaskPower Environment for additional guidance);
- d. remain on existing patrol trails;
- e. emergency maintenance is permitted.

Species Specific Mitigation

Greater Sage-Grouse

The following contains critical information for SaskPower personnel on the greater sage-grouse Emergency Protection Order (2014) and Final Recovery Strategy (2015) issued by Environment Canada (Figure B1-1).

Introduction:

- There are 3354 km² of Federal, Provincial Crown and private lands in the southwest corner of Saskatchewan that are deemed to be critical habitat for the sage-grouse;
- Road Allowances: these areas are also included as critical habitat when they are adjacent to the listed quarter section;
- SaskPower has a total of 160 km of overhead and 57 km of underground distribution lines that are located in critical habitat areas under the Emergency Protection Order and Recovery Strategy expansion areas. Only the Emergency Protection Order critical habitat (23 Km) is legally enforceable, however, SaskPower has committed to applying the same mitigation to the Recovery Strategy critical habitat;
- There are no transmission lines within critical habitat.

Prohibited Activities:

- Killing sagebrush plants, native grasses or other native plants;
 - Sage-grouse rely on silver sagebrush for food and shelter;
 - Activities that may disturb sagebrush but do not kill the plant are exempt with some level of caution;
- Moving sagebrush plants, native grasses, or other native plants;
- Constructing a new road or widening an existing road;
- Installing or constructing a structure, machine, or pole that is greater than 1.2 m (4 feet) in height, or increasing the height of an existing structure, machine or pole;
 - Poles and other structures are used by hawks and other birds of prey as roosts to prey on sage-grouse.

Exemptions:

- Killing sagebrush within 15m of an existing road is permitted;
- Does not apply to existing poles, structures, facilities, noise disturbances, or buildings (e.g., pole replacement and maintenance is exempted, though prohibitions on vegetation removal apply);
- Existing agricultural, residential, or municipal operations or activities are also exempt.

Beneficial Practice:

- Where avoidance of critical habitat is not possible, where feasible, bury distribution lines within road allowance or parallel to existing infrastructure;
- Avoid active leks between 1.5 hours before sunset and 1.5 hours after sunrise during the lekking season (April 1 to May 30);
- Reduce surface disturbance of vegetation (e.g., sagebrush, forbs and native grasses) to the extent practical. Note: vegetation removal is prohibited in sage-grouse critical habitat;
- Reclaim disturbed areas with native forbs and shrubs that benefit sage-grouse;
- Establish a fire prevention and suppression plan for construction and maintenance activities.

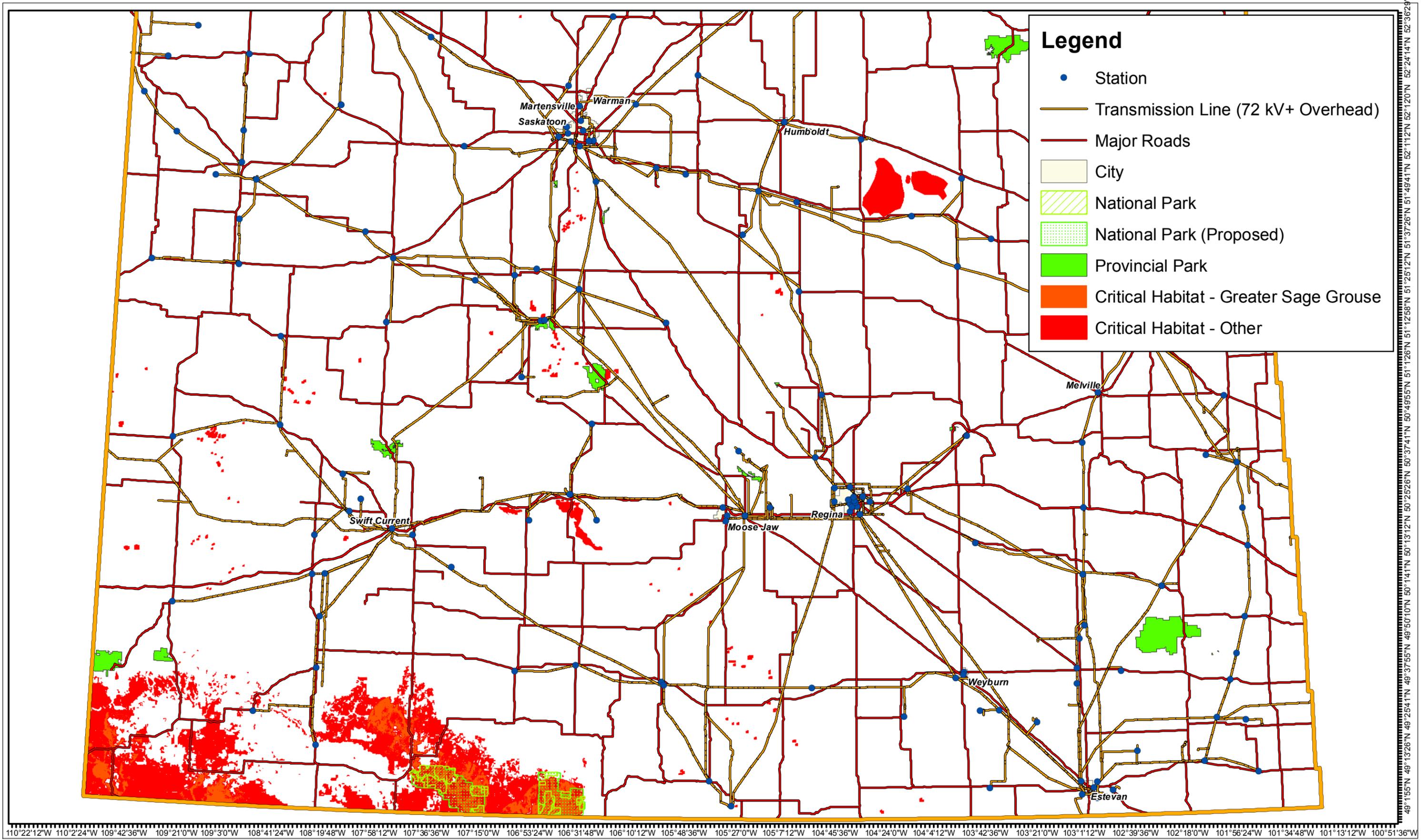
Woodland Caribou

The following BMPs are for work that may be occurring in proximity to woodland caribou on existing rights-of-way in woodland caribou range and critical habitat management areas (Tier 1, 2 and 3) (Figure B1-2). If provided, project specific permit conditions will take precedent over this mitigation.

- Follow general wildlife BMPs for maintenance projects adjacent to existing trails and roads;
- Avoid any interaction with woodland caribou whenever possible, especially during sensitive timing periods:
 - Calving / Post Calving – April 1 to July 31 - 500 m setback buffer
- If caribou are within 500 m of a work area, construction activities will be delayed to prevent excessive stress from noise (e.g., helicopter disturbances);
- If caribou are between 500 m and 1000 m of a work location, an environmental monitor will be present at all times during construction to observe caribou behaviour. If caribou demonstrate a negative response to the construction activities, construction will be halted until caribou are over 1,000 m from the work area;
- In areas where woodland caribou are known to be present, helicopters will maintain a flight elevation of at least 300 m above ground to minimize disturbance. When this is not possible, such as when carrying loads, helicopters will try to avoid all observed animals and fly as high as safely feasible;
- Follow BMPs for waste management to avoid attracting predators such as bears;
- All caribou sightings must be reported to SaskPower Environment.

All Other Species Mitigation

Contact SaskPower Environment for species specific mitigation measures and refer to permit requirements if applicable.

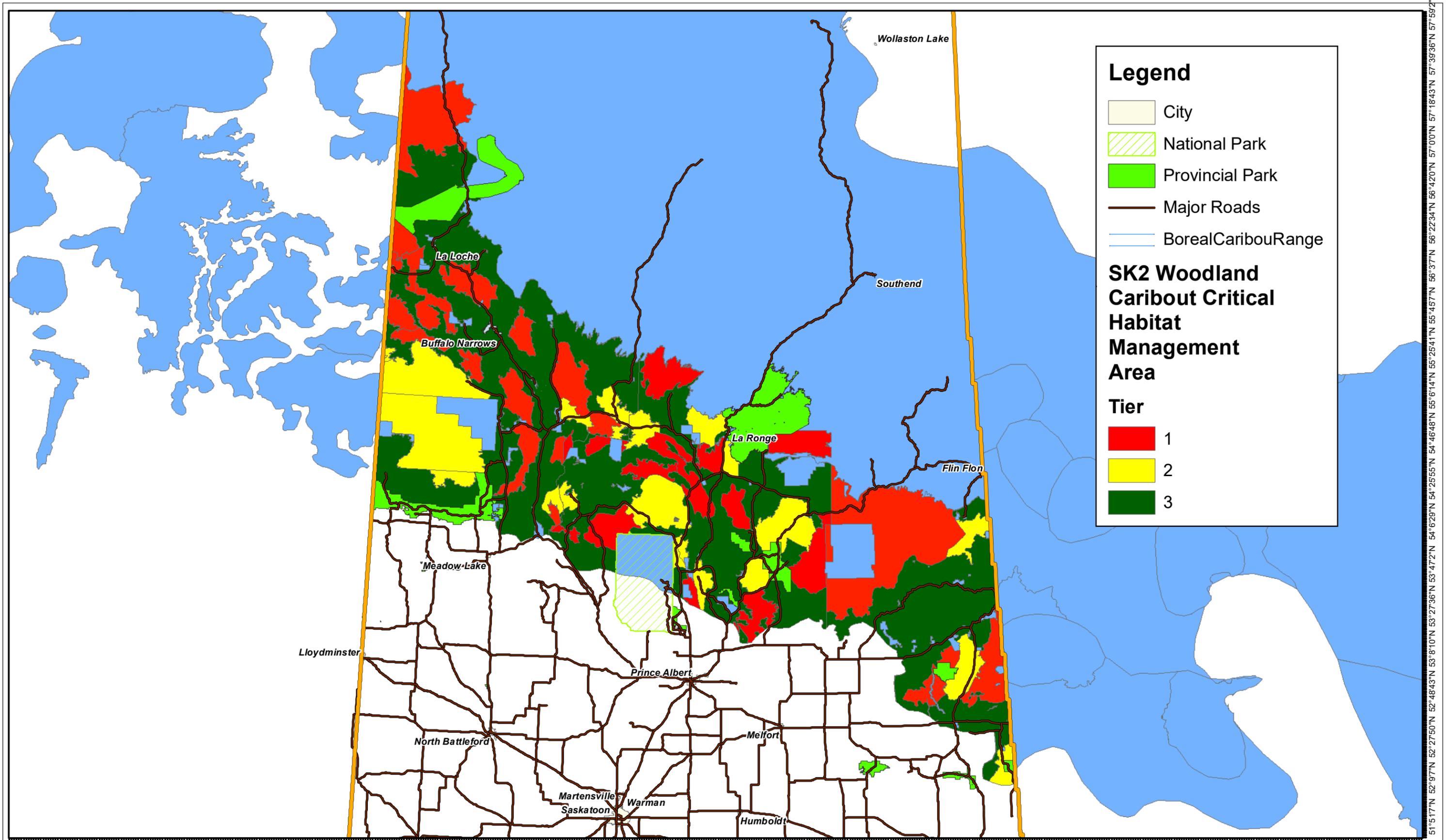


Legend

- Station
- Transmission Line (72 kV+ Overhead)
- Major Roads
- City
- ▨ National Park
- ▤ National Park (Proposed)
- Provincial Park
- Critical Habitat - Greater Sage Grouse
- Critical Habitat - Other

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Legend

- City
- National Park
- Provincial Park
- Major Roads
- BorealCaribouRange

SK2 Woodland Caribou Critical Habitat Management Area

Tier

- 1
- 2
- 3

114°0'0"W 113°24'0"W 112°48'0"W 112°12'0"W 111°34'12"W 111°0'0"W 110°24'0"W 109°48'0"W 109°12'0"W 108°36'0"W 108°0'0"W 107°24'0"W 106°48'0"W 106°12'0"W 105°36'0"W 105°0'0"W 104°24'0"W 103°48'0"W 103°12'0"W 102°36'0"W 102°0'0"W 101°24'0"W 100°48'0"W 100°12'0"W 99°34'12"W 98°58'12"W 98°22'12"W 97°46'12"W 97°12'0"W 96°37'48"W

1:3,000,000

0 80 Km

Figure B.1-2 Saskatchewan Boreal Woodland Caribou Range and Critical Habitat Management Areas

Projection: NAD83 - CSRS98 - UTM Zone 13N

Rev: 4
Date: 22/06/2020
Drawn: JM



Appendix C Erosion and Sediment Control

C.1 Erosion and Sediment Control

Introduction

Several of the environmental beneficial management practices in this document reference the need for erosion control. This appendix provides information on developing an erosion and sediment control plan and common erosion and sediment control options endorsed for use on SaskPower projects. If there are project specific methods that are required by permit conditions, they take precedence over these guidelines. Similarly, equivalent methods developed by individual contractors may be sufficient. Confirmation of methods should be validated with SaskPower Environment, the onsite environmental monitor (if present) and the Contract Owner prior to proceeding.

Preconstruction and Planning

- a. Inspect site area and determine erosion sensitivities;
- b. Develop a plan of how to prevent sediment from entering any water throughout the construction phase and until reclamation is complete. Different controls might be necessary at different stages over the construction phase as the nature of the site changes, (i.e. changing drainage patterns, moving stockpiles to different places, etc.). A comparison of control methods is provided in Table 1 and a description of the following control methods is included in the Erosion Control Options section below:
 - Ground and Soil Stockpile Cover (Geotextiles, Tackifiers, Tarps and Erosion Control Blankets);
 - Sediment Barriers (Silt Fence), Traps, and Dams;
 - Diversion Berms.
- c. A recommended sequence for setting up controls is:
 - Ensure all sediment and erosion control materials are available on site prior to construction;
 - Establish a single stabilized entry/exit point to the site;
 - Install erosion and sediment controls before starting work when necessary;
 - Divert upslope water around the site and, if necessary, stabilize the channels and outlet;
 - Only clear vegetation and soil in areas that must be disturbed during activities. When possible put up flagging around areas that should not need to be disturbed;
 - Ensure that any stockpiles on the site are stabilized;
 - Ensure everyone working on the site understands the significance of not introducing sediment into the water;
 - Maintain your erosion and sediment control works throughout construction through to final reclamation.

Erosion Control Options

Ground and Soil Stockpile Cover (Geotextiles, Tackifiers, Tarps and Erosion Control Blankets)

- a. when deemed appropriate or necessary, erosion control blankets (Figure 2) or geotextiles will be installed to absorb and dissipate the energy released by precipitation and air/water movement to protect and help channels or slopes against the erosive forces; erosion control blankets also help protect soil materials located under the blanket; as well as continual soil temperature and retain moisture to help seeds germinate and grow;
- b. clear plastic covers or poly tarps can be used to cover soil temporarily until it is replaced during reclamation, when deemed appropriate; since plastic is impervious, 100% of the rain that hits it will end up at the base of the slope so some water management may be required; it is beneficial to use this technique for covering stockpiles of erodible material, protecting slopes, lining an area or protecting a stream bank from rainfall erosion until construction is completed; clear plastic covers or poly tarps can also be used for emergency situations such as protecting a large slope at risk of mass failure or movement, and covering seeded areas through the winter; however, the cover needs to be removed during the early spring to allow moisture, heat and oxygen to interface with the soil;
- c. where persistent high winds are eroding topsoil piles or removing topsoil from the work site, measures such as the application of water, mulch or tackifiers, will be used to stabilize the topsoil;
- d. weed free straw can also be spread in soil piles and exposed soils to perform a short term function similar to plastic or poly tarps; all straw or hay used for crimping and amendments, erosion control, or other construction uses will be treated with a seed sterilant prior to use to prevent germination of noxious weed seeds; a secondary option is to purchase straw from local seed producers who often practice good weed management;
- e. slash stored in windrows along the edge of the right-of-way or work site can be evenly spread across the right-of-way or work site following construction to assist with erosion control and help create safe sites for seedlings.

Sediment Barriers (Silt Fence), Traps, and Dams

- a. silt fences (Figure 1), which are designed to retain transported sediment onsite and reduce run-off velocities, will be installed where deemed appropriate; silt fences are constructed of a permeable geotextile and supported by wood or steel posts that intercept and filter small volumes of 'sheet flowing' sediment-laden run-off; silt fences can be used to intercept waterborne sediment from slopes and ditch lines, and to isolate the work area; they are not intended for concentrated flow in rivers, streams, or ditches;
- b. the base of soil stockpiles subject to erosion will be surrounded with boulders, shot rock, subsoil berms, silt fence or straw bales to prevent sediment laden run-off from exiting the construction site, especially in the vicinity of a surface water feature;
- c. sediment traps or basins, which are shallow impoundments created to allow sediment/bedload to settle out, will be installed where deemed appropriate; sediment traps and basins collect and hold run-off water or water pumped from a construction site; and

- d. check dams (Figure 3), which are small temporary dams constructed of rocks, slash, logs, or fabricated materials that reduce the velocity of concentrated storm water flows, will be installed as deemed appropriate; check dams reduce erosion by slowing water velocity and trapping sediment in small open channels such as swales or ditches; they are used when a non-erodible lining is not practical or feasible.

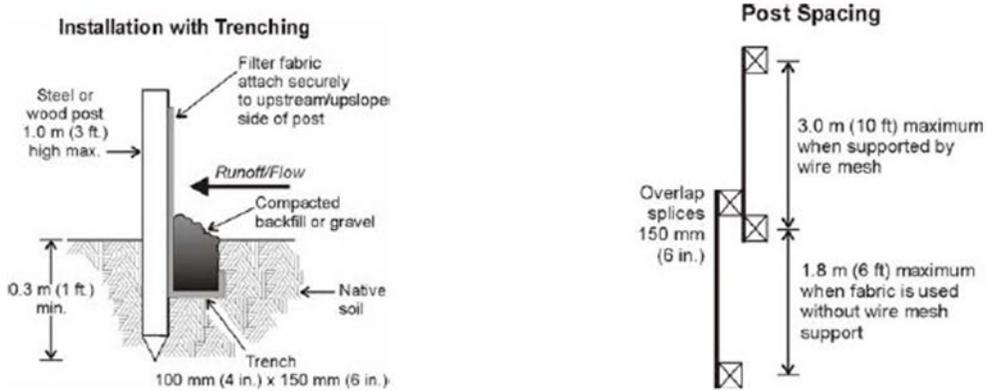
Diversion Berms

- a. diversion berms (Figure 4), which are a temporary ridge of compacted soil constructed above, on, or below a slope, will be installed where deemed appropriate; berms prevent run-off from entering an area or prevent sediment-laden run-off from leaving a disturbed area by diverting run-off to an acceptable stable site (i.e., dense vegetation); berms will remain in place until permanent drainage features are installed and/or slopes are stabilized; and
- b. if necessary, permanent diversion berms will be installed in conjunction with final clean up and reclamation on moderate and steep slopes to divert surface water off the work site or right-of-way.

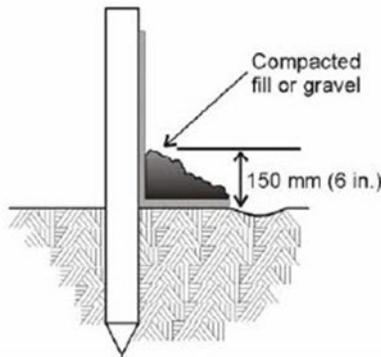
Table C-1: Comparison of Erosion and Sediment Control Measures

Technique	Description	Application	Advantages	Disadvantages	Useful Life	Comments
Vegetation: Preservation & Replanting	Maintain vegetation (trim to well below required height standards), reduce grubbing and maintain root mat, seed/replant	Slopes, stream banks, floodplains	Inexpensive, permits infiltration, minimum surface disturbance	Potential for site congestion, fire hazard	Permanent	Aids reclamation, good in sensitive areas, standard procedure
Silt Fences	Filter fabric secured with rebar or wooden stakes	Slopes with erodible soils; adjacent to surface water	Reduces erosion, inexpensive, easy to install/remove	May fail if not properly installed, possible obstacle, maintenance required	6 months (maintenance required)	Temporary measure, used prior to slope revegetation, use in low flows only (See Figure C-1)
Erosion Control Blankets	Natural fiber matting used to reduce surface erosion	In areas with surface run-off or channels; areas susceptible to wind erosion	Minimal slope erosion, easy to install	Labour intensive	Temporary or permanent; biodegradable	Little maintenance requirements (see Figure C-2)
Plastic or Poly Covers	Tarp to cover erosive soils	In non-vegetated areas	Temporary until site stabilized	Maintenance required	Temporary	Run-off needs to be controlled
Sediment Traps or Basins	Excavated minor depressions to allow sediment to settle	Where high volumes of sediment-laden water occur	May be used with silt fencing or bales, can hold large water volume	May create larger disturbance, spoil generated, need adequate area	Temporary	Very effective for settling sediment-laden waters
Check Dams	Small dams to reduce the velocity of storm water flows in swales/ditches or down slopes	In small open channels; on slopes	Alternative to lining a channel when not practical/feasible	Maintenance required	Remove when erosion is no longer a concern	Constructed of sand bags, bales, rock, wood, or other products (See Figure C-3)
Diversion Berms	Temporary ridge of compacted soil constructed above, below, or on a slope	Slopes	Effective at diverting surface water flow, inexpensive, and can be easily installed and repaired	Due to low profile of berm(s), over topping/washout can occur during major precipitation events.	Temporary or permanent	Common practice, permanent berms may replace temporary berms during clean-up/reclamation (See Figure C-4)

Figure C-1 - Silt Fences



Installation without Trenching



Procedure:

An alternate method of installing a silt fence is recommended when it is not possible to use earth moving equipment. However, this alternate method may allow water to undercut the silt fence in areas of high runoff.

1. Unroll, stretch the fabric and drive the stakes until the fabric is snug on the soil surface to the colored installation mark.
2. Using shovels, cut and blade at least 150 mm (6 in.) of fill against the fabric edge, creating a depression on the upslope side of the fence and allowing the fabric to be snug against the soil surface.
3. Remove after slope or area is stabilized and work is complete.

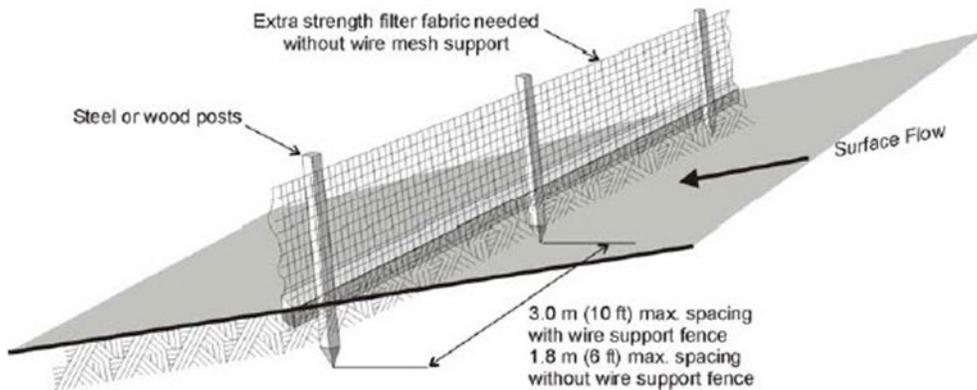


Figure C-2 - Erosion Control Blankets

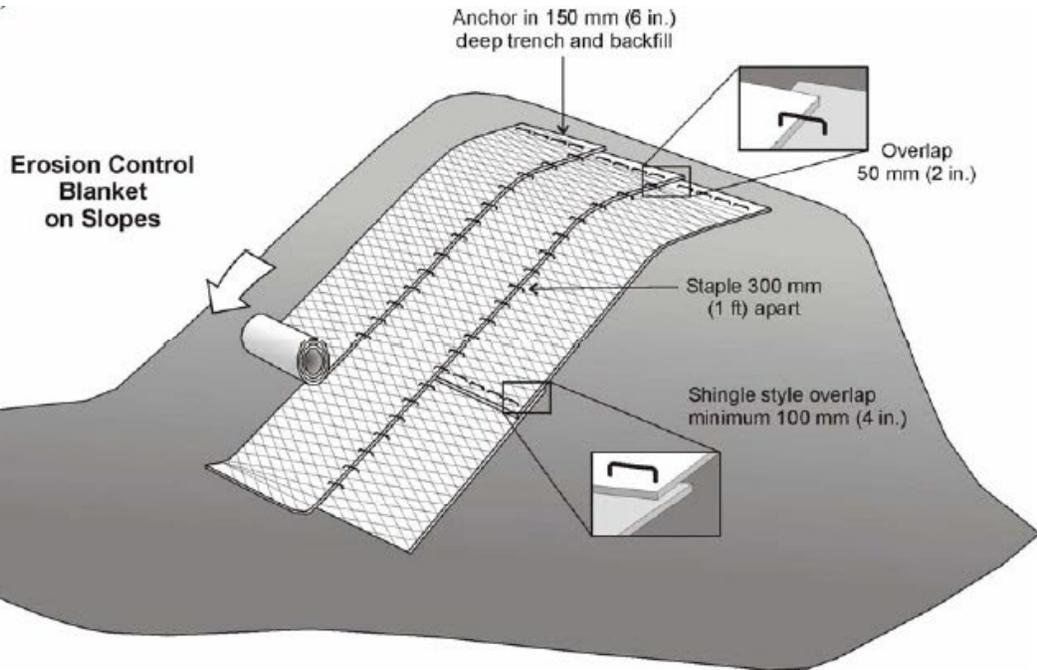


Figure C-3 - Check Dams

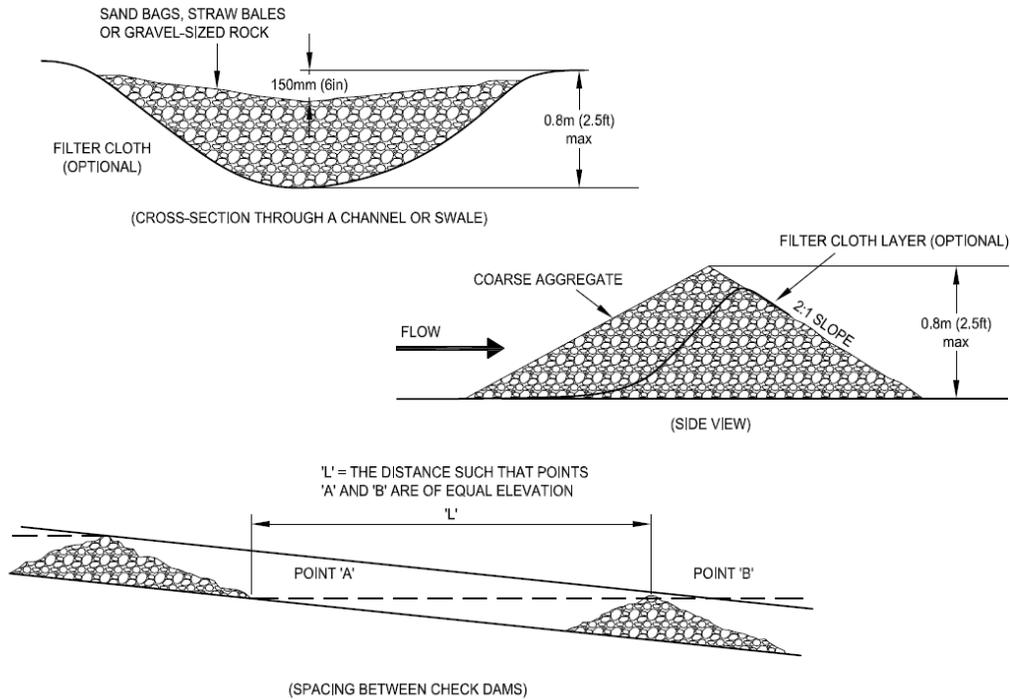
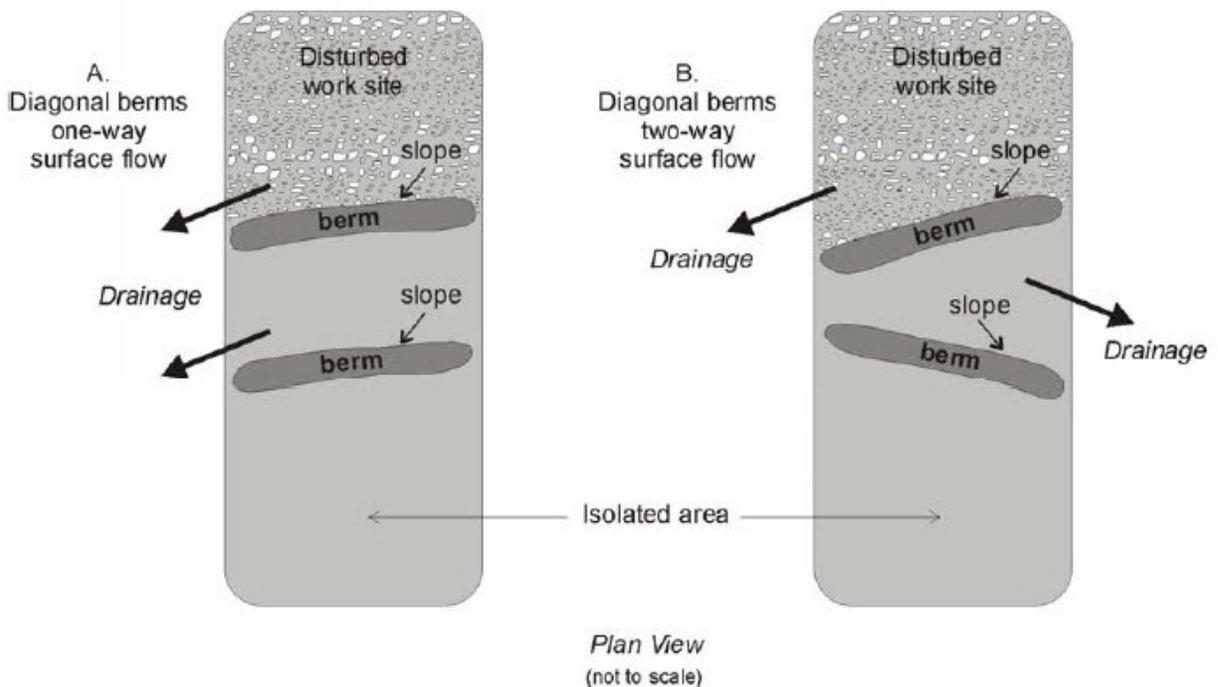


Figure C-4 - Diversion Berms



Appendix D Nest and Perch Deterrents and Artificial Nests and Shelters

Table D.1-1 - Nest and Perch Deterrents and Artificial Nests and Shelters

Species	Deterrents
<p>Raptors (e.g., hawks and eagles)</p>	<p>Fibreglass, HDPE or PVC Nest and perch diverters installed on transmission and distribution cross arms.</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>Triangles</p> </div> <div style="text-align: center;">  <p>Offsprey</p> </div> <div style="text-align: center;">  <p>Zena Hollonest and Cones</p> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="text-align: center;">  <p>Zena Flex</p> </div> <div style="text-align: center;">  <p>Zena Flex</p> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="text-align: center;">  <p>Raptor Guard</p> </div> <div style="text-align: center;">  <p>Firefly Diverters</p> </div> </div>
<p>Swallows</p>	<p>Block entrances if they are inside buildings. Consider use of vinyl or plastic strip doors (allow passage of vehicles but not birds).</p> <div style="display: flex; align-items: center;">  <div style="margin-left: 20px;"> <p>No Nasty Nest</p>  <p>Self Adhering Strip Clear Plastic 131" 8" Moist Filament Lines hang down to dissuade nesting birds</p> </div> </div>

Table D.1-1 - Nest Deterrents cont'd

	<p>Consider the use of netting, swallow spikes or vertical hangers to minimize potential nesting. If using netting, monitoring for entrapment is required.</p> 
	<p>Low friction (e.g., Teflon) panels or paint.</p> 
	<p>Artificial nest shelters to provide a better substitute to nesting on or in buildings</p> 
<p>Woodpeckers</p>	<p>Galvanized, welded ¼ inch, 19 gauge or higher wire mesh wrapped around areas of initial impact. Contact Distribution Asset Management for best products for hole filling and standards to assess safety and replacement need.</p>
<p>Pigeons</p>	<p>Pigeon spikes on buildings and properties where pigeons commonly perch.</p> 

Appendix E –Emergency Maintenance Activity Screening and Notification Requirements

Emergency Maintenance Activity Screening and Notification Requirements

Transmission and distribution emergencies requiring immediate repair can occur at all times of the year and in all ground disturbance conditions. Completing maintenance work under emergency status allows work to proceed without acquiring typical required permits (e.g., AHPP). However, the work must meet the definition of an emergency or hazardous condition as defined in *The Power Corporation Act*. These include conditions that may endanger the safety of the customer or the public. Emergency scenarios typically include:

- outages;
- fire;
- imminent health, safety or environmental risk;
- infrastructure damage or imminent risk of damage.

In the event of an emergency, SaskPower will implement the mitigation within the BMP to the extent practical.

Follow the SaskPower Environmental screening and ENV notification process flow (following page) as applicable.

For emergency work in water and/or on provincial crown land, a notification to the Ministry of Environment (ENV) and a Closure Report may be required following completion of the work as directed by EA (Refer to notification template on following page). Notification is not required for activities exempted from notification as per the Environmental Protection Plan for Working in or Near Surface Water and for activities that fall under provincial Crown land exemptions. A Closure Report template is included in Appendix F. Crew leads are responsible for completing and submitting back closure reports to SaskPower Environment for final submission to ENV.

During emergencies with immediate risk to life and property (e.g., storm events with multiple outages and /or fires), there is no notification requirement. Please inform SaskPower Environment (306-566-6200) and they will assist with coordination of post construction assessment and follow-up with ENV if applicable.

Emergency Scenario

Depending on the scenario, Engineering, District Operating Staff or Construction Management Coordinators to send:

- **Site photos** (before)
- Construction plan
- Summary of emergency scenario
- Timing and method of repair

to the environmental consultants at the appropriate email address) and follow-up with a phone call.

distnorthscreening@saskpower.com
distsouthscreening@saskpower.com
transnorthscreening@saskpower.com
transsouthscreening@saskpower.com
vegmanagementscreening@saskpower.com

Environmental Consultant to respond ASAP with acknowledgement of receipt and add file to ESS

Environmental Consultant to notify ENV (if required) via e-mail using standard template and a follow-up phone call.

Environmental Consultant to respond back same day to CMC with clearance and applicable mitigation/BMPs.

Field crew lead to provide Closure Report (refer to Template in Appendix F) to SaskPower Environment/Consultant Contact for final submission to ENV.

Ministry of Environment Emergency Notification Template:

We have received notification of an emergency project to install/repair XXX at XXXXXX. Below is a summary of the proposed activities:

Proponent

- Saskatchewan Power Corporation

Location

- XX-XX-XX-XX (see attached map).
- UTM (NAD 83 Zone XX) Easting Northing (centre of project)

Proposed Schedule

- Provide date and time work is to occur.

Proposed Activity

- Provide brief description of proposed activity including ground disturbance, access plan, set-backs and waste disposal if applicable

Sensitivities

- SCDC search, water, crown land, wildlife species, native grassland, sand hill, etc.

Procedure and Reasoning for Emergency Work

- Provide rationale for emergency
- Provide detailed work plan

Comments

- Reference BMPs to be followed.
- Reference attachments including follow-up photos, maps and commit to submission of as-built photos.

I will follow up with a phone call to discuss the project details and determine any additional mitigation.

Appendix F – Environmental Closure Report Form

SaskPower Environmental Closure Report

Please complete the following form when a Closure Report is identified in the ESS screening results or upon completion of emergency work. This form must be submitted as soon as possible after project completion.

CONTACT INFORMATION

NAME		DATE
TITLE	COMPANY	PHONE #

PROJECT DETAILS

SERVICE ORDER NUMBER	PROJECT TYPE
PROJECT NAME	
PROJECT START DATE	PROJECT COMPLETION DATE
LAND LOCATION	
GPS COORDINATES	

DETAILED INFORMATION

HAVE THERE BEEN ANY SPILLS? YES NO IF YES, PROVIDE SPILL DETAILS
WHAT WERE THE GROUND CONDITIONS DURING CONSTRUCTION? WET DRY FROZEN IF WET, WHAT MITIGATION WAS USED? NONE TRACKED EQUIPMENT RIG MATTING REACHING IN FROM DRY GROUND OTHER
IF NONE, EXPLAIN
WAS THERE ANY RUTTING? YES NO
HAS THERE BEEN ANY VARIANCE FROM THE BMPs or the EPP Conditions? YES NO IF YES, EXPLAIN

BEFORE AND AFTER PHOTOS

IMAGE 1 - BEFORE	IMAGE 2 - BEFORE	IMAGE 3 - BEFORE
IMAGE 1 - AFTER	IMAGE 2 - AFTER	IMAGE 3 - AFTER

ADDITIONAL COMMENTS	
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Send form to EnvirScreening@saskpower.com and they will forward to the ENV as required.
Please attach any additional photos along with any other relevant documentation to the e-mail.
Include photos of any areas that required reclamation (e.g. smoothing ruts,etc.)

Send Form

Reset Form