

October 4, 2024

EDI Project No: 24C0068

Alberta Utilities Commission  
1400, 600 Third Avenue SW  
Calgary, AB T2P 0G5

**RE: Environmental Protection Plan | Wild Rose 2 T10 and T11 Project**

Wild Rose 2 Wind Inc. (Wild Rose 2), a subsidiary of Capstone Infrastructure Corporation, holds an approval under the Alberta Utilities Commission (AUC) Proceeding 27729 (Approval # 27729-D02-2024) to construct and operate the Wild Rose 2 Wind Power Project located approximately 25 km southeast of Medicine Hat, AB in townships 09-04 W4M, 10-04 W4M, 09-05 W4M, and 10-05 W4M. Wild Rose 2 received AUC approval for 36 of the 38 turbines in the Wild Rose 2 Wind Power Project on July 5, 2024 and construction commenced in August.

Wild Rose 2 is submitting a new application to the AUC for the Wild Rose 2 T10 and T11 Project (herein referred to as the Project), which will involve construction of two new wind turbines (T10 and T11) and associated infrastructure (access roads, collector lines) in SW- and NW-01-10-05 W4M, within the Wild Rose 2 Wind Power Project Area. The following Environmental Protection Plan (EPP) has been prepared in fulfillment of information requirement WP17 of AUC Rule 007 (Alberta Utilities Commission 2022) and is consistent with the Conservation and Reclamation Directive for Renewable Energy Operations (Government of Alberta 2018). The EPP describes the mitigation measures and monitoring to be implemented during the Construction and Operations phases of the Project to reduce the potential for adverse effects on the environment.

Pending receipt of all required permits and approvals, construction of the Project is intended to occur concurrently with construction of the Wild Rose 2 Wind Power Project, using the same contractor. To reduce potential confusion and avoid any overlap or redundancy of work, the Project will follow the approved Wild Rose 2 Wind Power Project EPP (presented in Attachment 1), which covers the entire wind farm project including the new turbines T10 and T11. The EPP is intended to be used in conjunction with site-specific information located in the Environmental Evaluation report and Conservation and Reclamation Plan prepared for the Project. As required, a Pre-Disturbance Site Assessment (PDSA) will be completed in SW- and NW-01-10-05 W4M, and Appendix A of this EPP will be updated prior to start of Project construction.

Yours truly,



**EDI Environmental Dynamics Inc.**

Kerri Oseen, M.Sc.  
Regulatory Specialist



**ATTACHMENT 1. ENVIRONMENTAL  
PROTECTION PLAN – WILD  
ROSE 2 WIND POWER PROJECT**

# ENVIRONMENTAL PROTECTION PLAN

## Wild Rose 2 Wind Power Project



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## ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
AEP	Alberta Environment and Parks
AEPA	Alberta Environment and Protected Areas
AUC	Alberta Utilities Commission
C&R	Conservation and Reclamation
CWS	Canadian Wildlife Service
ECCC	Environment and Climate Change Canada
EDI	EDI Environmental Dynamics Inc.
EPP	Environmental Protection Plan
ESC	Erosion and Sediment Control
GOA	Government of Alberta
GPS	Global Positioning System
HDD	Horizontal Directional Drill
hr	hour
km	kilometre
m	metre
MSDS	Material Safety Data Sheets
PDSA	Pre-Disturbance Site Assessment
the Project	Wild Rose 2 Wind Power Project
RAP	Restricted Activity Period
ROW	Right-of-Way
Wild Rose 2	WR2 Wind GP Corp. (a subsidiary of Capstone Infrastructure Corporation)





## 1 INTRODUCTION

WR2 Wind GP Corp. (Wild Rose 2), on behalf of Wild Rose 2 Wind LP (each a subsidiary of Capstone Infrastructure Corporation), is proposing to construct and operate the Wild Rose 2 Wind Power Project (the Project), a wind energy facility in Cypress County, Alberta. The Project, located approximately 30 km south-east of Medicine Hat, Alberta, is situated within townships 09-04 W4M, 10-04 W4M, 09-05 W4M, and 10-05 W4M. This Environmental Protection Plan (EPP) is prepared in fulfillment of information requirement WP17 of AUC Rule 007 (Alberta Utilities Commission 2022) and consistently with the Conservation and Reclamation Directive for Renewable Energy Operations (Government of Alberta 2018). The EPP describes the mitigation measures and monitoring to be implemented during the Construction and Operations phases of the Project to reduce the potential for adverse effects on the environment.

### 1.1 PROJECT DESCRIPTION AND PHASES

The Project will consist of the construction and installation of thirty-eight (38) wind turbines, construction of a network of access and ancillary facilities (e.g., substations and collector lines) and various laydowns and temporary workspaces. The EPP addresses the following activities:

#### Construction Phase

- Site surveying and staking;
- Clearing and grading (i.e., civil earthworks);
- Construction of staging areas and workspaces (i.e., for equipment and materials storage);
- Construction of access roads;
- Installation of perimeter fencing and security lighting, if/when required;
- Construction of pads/foundations for turbines and ancillary facilities;
- Installation of power plants and ancillary facilities;
- Installation of collector cables (e.g., via ploughing-in, horizontal directional drilling, and/or trenching);
- Vehicle fueling and maintenance;
- On-site waste management and disposal; and
- Interim Reclamation and Revegetation of the Project footprint (as per the design specification).

#### Operation Phase

- Monitoring and maintenance of Project infrastructure:
  - Maintenance of roads and facilities;
  - Maintenance of erosion and sediment controls (ESC);
  - Weed identification and control if/when required;
  - Third-party inspections.
- Vehicle and equipment traffic; and
- On-site waste management and disposal.



## 1.2 REGULATORY FRAMEWORK

The following key federal legislation and regulations applicable to the Project include:

- *Pest Control Act*;
- *Plant Protection Act* and Regulations;
- *Seeds Act* and Regulations;
- *Species at Risk Act*; and,
- *Migratory Birds Convention Act*.

The following key provincial legislation and regulations applicable to the Project include:

- *Hydro and Electric Energy Act*;
- *Environmental Protection and Enhancement Act* and Conservation and Reclamation Regulation;
- *Soil Conservation Act*;
- *Weed Control Act* and Weed Control Regulation;
- *Wildlife Act*;
- *Water Act* and Codes of Practice;
- Alberta Wetland Policy;
- *Forest and Prairie Protection Act*;
- *Public Lands Act*;
- *Historical Resources Act*;
- *Agricultural Pests Act*;
- *Municipal Government Act*; and,
- *Highways Protection Act*.

The relevant directives, standards, and best management practices applicable to Project include:

- Alberta Clubroot Management Plan (Government of Alberta 2014);
- Beneficial Management Practices for Renewable Energy Projects (Neville 2017)
- Conservation and Reclamation Directive for Renewable Energy Operations (GOA 2018a);
- Conservation Assessments in Native Grasslands (AEP 2018);
- Revegetation Using Native Plant Materials (GOA 2003);
- Principles, Guidelines and Tools for all Industrial Activity in Native Grasslands in the Prairie and Parkland Landscapes of Alberta (AEP 2016);
- 2010 Reclamation Criteria for Wellsites and Associated Facilities for Cultivated Lands (Alberta Environment and Alberta Environment 2013); and,
- Wildlife Directive for Alberta Wind Energy Projects (Government of Alberta 2018b).



## 2 RELATIONSHIP TO OTHER DOCUMENTS

This EPP is intended to be used in conjunction with the following Project-specific assessments/studies and management plans:

- Pre-Disturbance Site Assessment (PDSA) Report (EDI Environmental Dynamics Inc 2024)
- Conservation and Reclamation Plan (EDI Environmental Dynamics Inc 2024b), and
- Snake Protection Plan (Golder Associates Ltd. 2020; provided in Appendix B)

### 2.1 PERMITS, APPROVALS AND AUTHORIZATIONS

A list of potential permits, approvals and/or authorizations that may be required for the Project is provided in Table 1.

**Table 1. Permits, Approvals and Authorizations that may be required for the Project.**

<b>Regulator</b>	<b>Permit, Approval, Authorization or Notification</b>
Alberta Utilities Commission	Power Plant Approval, Substation Permit and Licence
Alberta Environment and Parks	Renewable Energy Referral Report, <i>Water Act</i> approvals, Code of Practice Notification(s)
Alberta Ministry of Culture	<i>Historical Resources Act</i> Clearance
Transport Canada	Safety Lighting for Wind Turbine Operators
NavCanada	Aeronautical Obstruction Clearance
Cypress County	Development Permit, Road Use Agreement
Alberta Transportation	Roadside Development Permit



### 3 ROLES AND RESPONSIBILITIES

OWNER: Wild Rose 2 Wind LP (Wild Rose 2; a subsidiary of Capstone Infrastructure Corporation)

As owner and operator of the Project, Wild Rose 2 is ultimately responsible for the Project schedule, scope, and budget. Wild Rose 2's Project Manager (or equivalent) will be responsible for verifying that all Project activities meet or exceed current federal, provincial, and municipal regulatory requirements and that all work is completed as per regulatory approvals and permits.

PRIME CONTRACTOR: Borea Construction

The Prime Contractor is the company/entity awarded the role of coordinating, organizing, and overseeing all activities at the Project, including health and safety activities of contractors and subcontractors.

The Prime Contractor's Project Manager (or equivalent) will oversee the implementation of construction activities and obtain all necessary licences and approvals prior to the initiating of construction activities. The Project Manager will coordinate with Wild Rose 2 and the retained Environmental Monitor to address any areas of environmental non-compliance. The Prime Contractor will be responsible for the implementation of mitigation measures in this EPP.

The Prime Contractor is expected to conduct scheduled environmental auditing to document implementation of the EPP; summary reports will be submitted to Wild Rose 2 following each environmental auditing site visit. Any deficiencies identified by the Prime Contractor will be communicated to Wild Rose 2, and remedial actions will be developed and implemented in consultation with Wild Rose 2 and the Environmental Monitor.

ENVIRONMENTAL MONITOR: To Be Determined

The Project Owner will retain a qualified professional Environmental Monitor, as appropriate. They will be responsible for monitoring activities and provide advice to verify that the Project is constructed in compliance with environmental commitments and regulatory requirements. Tasks include (but are not limited to):

- Regularly reviewing management plans and mitigations and making recommendations for adaptive management (if/where required);
- Verifying and documenting environmental compliance and environmental management activities;
- Liaising with Construction representatives to identify and discuss environmental sensitivities, commitments, and recommended mitigation measures;
- Conducting regular/scheduled site inspections to identify environmental issues that may arise and work closely with the Owner and Prime Contractor to implement corrective management actions; and,
- Documenting any/all adaptive management measures implemented and tracking until environmental concerns have been rectified.



## 4 EDUCATION AND TRAINING

All employees and contractors at the Project will require an employee orientation appropriate to the work they are undertaking. This includes knowledge and understanding of the Project’s environmental sensitivities, requirements and commitments, and employee/contractor roles and responsibilities for meeting these obligations. The Prime Contractor will be responsible for the delivery of this training, with the oversight and approval of the Owner’s Project Manager. Key personnel will be provided resources to help identify environmental features and sensitivities that may require mitigation (e.g., erosion, soil degradation, soil stripping guidelines, noxious weeds).

## 5 ENVIRONMENTAL PROTECTION MEASURES

### 5.1 PRE-CONSTRUCTION PHASE

Table 2 summarizes recommended mitigation measures to be implemented prior to construction.

**Table 2. Mitigation | Pre-Construction Activities**

Activity/Concern	Mitigation Measure(s)
Approvals, Licenses and Permits	<ul style="list-style-type: none"> <li>• A Ground Disturbance Call (Utility Safety Partners) will be made to identify and delineate all buried facilities on the Project footprint.</li> <li>• All approvals, licences, and permits required for the Project will be retained prior to commencing construction activities.</li> <li>• Any disturbances to wetlands and/or water bodies that cannot be avoided by the Project will be addressed appropriately as per the requirements of the <i>Water Act</i> and/or the Alberta Wetland Policy.</li> </ul>
Pre-Disturbance Site Assessment	<ul style="list-style-type: none"> <li>• In accordance with the Conservation and Reclamation Directive for Renewable Energy Operations (Government of Alberta 2018a), a Pre-Disturbance Site Assessment (PDSA) will be completed prior to construction to inform site-specific reclamation. Any resource-specific locations will be clearly marked in the field where additional mitigation may be necessary.</li> </ul>
Pre-construction Wildlife Surveys	<ul style="list-style-type: none"> <li>• A pre-construction nest sweep will be completed for previously undisturbed areas, no more than 7 days before commencing work, and if construction occurs during the breeding bird season (April 1 to August 28) — that includes both the grassland breeding bird season (April 1-July 15) and the general nesting period for migratory birds (April 27-August 24). The nest sweep will be redone if work stops for more than 7 days during these windows. The search area will include the proposed disturbance area plus a 100 m buffer.</li> <li>• In accordance with the Directive (Government of Alberta 2018a), site-specific wildlife surveys will be kept current until the Project is commissioned, to identify nesting/breeding areas, and appropriate mitigation will be applied.</li> </ul>



	<ul style="list-style-type: none"> <li>• Prior to construction activities occurring within 100 m of all Class III or higher wetlands, a non-intrusive field survey will be conducted by an experienced wildlife biologist to determine the presence of breeding amphibians and, if necessary, appropriate mitigation will be applied to reduce any adverse effects on breeding amphibians as per Appendix A in the Directive. The findings and the need for additional mitigation will be discussed with AEPA so that potential residual effects on amphibians are acceptable.</li> <li>• Prior to Project construction activities occurring within 100 m of all Class III or higher wetlands, a non-intrusive survey will be conducted by an experienced wildlife biologist to determine the potential for the habitat affected by the Project footprint to support hibernating/dormant amphibians. Survey results and proposed mitigation would be provided to AEPA for review.</li> <li>• A pre-construction wildlife clearance survey will be completed for all Project components, as appropriate, to verify the status of all known wildlife habitat features and identify new wildlife habitat features (if present) to inform appropriate mitigation (e.g., activity restriction buffers).</li> <li>• Key results of the surveys and any associated mitigation will be shared with the Project Environmental Monitor and the Prime Contractor.</li> </ul>
Pre-Job Meeting	<ul style="list-style-type: none"> <li>• A pre-job meeting will be conducted prior to construction for all key Prime Contractor personnel.</li> </ul>
Flagging/Staking	<ul style="list-style-type: none"> <li>• Layout components will be surveyed, and all Project construction activity will be restricted to designated work areas.             <ul style="list-style-type: none"> <li>○ Off-site access will be restricted.</li> <li>○ Site access will be defined along specified travel routes/access corridors.</li> </ul> </li> <li>• Areas of planned soil disturbance within the Project footprint (e.g., access roads, laydown areas) will be delineated and clearly marked (flagged/staked) to avoid accidental encroachment into surrounding areas.</li> <li>• The boundaries of all wetlands and water bodies within the Project footprint will be clearly flagged/staked to reduce incidental disturbance.</li> <li>• The boundaries of all native pasture within the Project footprint will be clearly flagged/staked to reduce incidental disturbance.</li> <li>• Environmentally sensitive features (e.g., nests) or their associated setback will be clearly marked prior to the start of construction.</li> </ul>
Clubroot Management	<ul style="list-style-type: none"> <li>• There are no known clubroot infestations in Cypress County (Sulz 2022).</li> <li>• The Prime Contractor will develop a Clubroot Mitigation Plan implementing best management practices as described in the current Alberta Clubroot Management Plan (Government of Alberta 2014), as appropriate.</li> </ul>



## 5.2 CONSTRUCTION PHASE

### 5.2.1 VEHICLE AND EQUIPMENT CONTROL

Table 3 summarizes guidelines for vehicle and equipment use on the Project footprint to reduce the potential for adverse environmental effects. A traffic accommodation strategy will be developed and implemented by the Prime Contractor to maintain public safety and limit soil disturbance to designated areas of the Project footprint.

**Table 3. Mitigation | Vehicle and Equipment Control.**

Activity/Concern	Mitigation Measure
Vehicle and Equipment Control	<ul style="list-style-type: none"> <li>• Areas to be used for access into and within the Project footprint will be clearly flagged/staked.</li> <li>• Traffic will be limited to essential personnel within designated areas only:                             <ul style="list-style-type: none"> <li>○ Signage will be posted at road access points within the vicinity of the construction activities.</li> <li>○ Traffic speeds will be limited on temporary access within the Project footprint.</li> <li>○ Road entrances to the work site will be fenced off to reduce unauthorized access.</li> <li>○ Vehicle and equipment parking will be restricted to designated areas.</li> <li>○ Project activities will be scheduled to limit the number of vehicles and equipment on site.</li> </ul> </li> </ul>



## 5.2.2 GENERAL CONSIDERATIONS

Table 4 summarizes general mitigation measures to avoid or minimize potential effects on the environment during Project construction.

**Table 4. Mitigation | General Considerations and Activities.**

Activity/Concern	Mitigation Measure
Approved Workspace	<ul style="list-style-type: none"> <li>Construction activities will be restricted beyond flagged/staked boundaries unless additional workspace has been approved by the Owner.</li> </ul>
Scheduling	<ul style="list-style-type: none"> <li>Where feasible, construction activities will be scheduled and completed during dry or frozen conditions to minimize adverse effects on soil quality.</li> <li>Wildlife timing windows described in Section 5.2.5 will be followed to the extent practical.</li> <li>Construction will occur as quickly and as safely as possible on or near sensitive areas to limit the potential for disturbance to wildlife and wildlife habitat.</li> </ul>
Site Drainage	<ul style="list-style-type: none"> <li>Drainage will be maintained across the construction area.</li> </ul>
Site Monitoring – General	<ul style="list-style-type: none"> <li>All stockpiles will be monitored during the growing season for sign of wind and water erosion and mitigation measures to control erosion will be implemented, as needed.</li> <li>The status and stability of soil stockpiles will be periodically monitored (at the discretion of the Owner).</li> <li>Exposed soil will be monitored for introduction and proliferation of invasive plants and weeds. Known occurrences will be controlled as needed.</li> </ul>
Erosion and Sedimentation – General	<ul style="list-style-type: none"> <li>Erosion and sediment control measures will be implemented as warranted within the Project footprint.</li> <li>Erosion and sediment control structures will be regularly monitored and repaired/replaced when necessary.</li> </ul>
Erosion – Water	<ul style="list-style-type: none"> <li>Temporary sediment fencing will be installed for any activity in or near watercourses or waterbodies. Follow mitigation measures for wetlands and waterbodies discussed in Section 5.2.4.</li> <li>Areas exhibiting surface water erosion will employ erosion and sediment control structures as outlined in Section 6.2.</li> <li>Surface water management infrastructure (e.g., drainage ditches) will be installed/constructed if/where applicable and as per design specifications.</li> </ul>
Erosion – Wind	<ul style="list-style-type: none"> <li>Soil stripping/salvage will be scheduled during low winds, where feasible.</li> <li>Areas exhibiting excessive wind erosion will employ mitigation measures as outlined in Section 6.2.</li> </ul>





### 5.2.3 INVASIVE PLANTS AND WEEDS

Table 5 summarizes mitigation measures relating to invasive plants and weeds to be implemented during Project construction, as warranted.

**Table 5. Mitigation | Invasive Plants and Weeds.**

Activity/Concern	Mitigation Measure
Invasive Plants and Weeds – Prevention	<ul style="list-style-type: none"> <li>• Prohibited Noxious weeds known to occur in Cypress County include Russian, spotted and diffuse knapweeds and nodding thistle. Noxious weeds of greatest concern in Cypress County include field bindweed, Canada thistle, leafy spurge, downy brome, baby’s breath, scentless chamomile, yellow toadflax, Dalmatian toadflax, and hoary cress (Sulz 2022).</li> <li>• Where feasible, weed control will be completed (e.g., mechanical or chemical) prior to earth works, as appropriate.</li> <li>• All equipment and vehicles will be cleaned and inspected to verify they are free of soil and plant material prior to arrival to site to minimize potential for the introduction of invasive plants.</li> <li>• Exposed soil will be revegetated as soon as practicable.</li> <li>• Seed mixes will be selected to reduce the potential for introduction of weeds and invasive plants.</li> <li>• Only certified weed free seed mixes with a valid “Certificate of Seed Analysis” will be used.</li> <li>• Any seeding equipment brought to site (e.g., seed drills) will be purged and cleaned prior to site entry.</li> </ul>
Invasive Plant and Weeds – Monitoring	<ul style="list-style-type: none"> <li>• Invasive plant and weed surveys will be conducted during a biologically appropriate time of year (e.g., when invasive plants can be identified).</li> <li>• The incidence of observed invasive plant and/or weed species will be documented; information collected for each occurrence should include: <ul style="list-style-type: none"> <li>○ Date and surveyor information;</li> <li>○ Plant species;</li> <li>○ Geographic location (e.g., GPS point);</li> <li>○ Estimated size of the population (e.g., by pacing the length and width or delineating with a GPS track);</li> <li>○ Density and distribution of the population; and,</li> <li>○ Photo documentation.</li> </ul> </li> </ul>



## 5.2.1 SPILL PREVENTION AND WASTE MANAGEMENT

Table 6 summarizes mitigation measures relating to spill prevention and waste management to be implemented during Project construction. Spill response is described in Section 6.1.

**Table 6. Mitigation | Spill Prevention and Waste Management.**

Activity/Concern	Mitigation Measure
Spill Prevention	<p>Mitigation measures with a focus on containment will be implemented to prevent spills at the source.</p> <ul style="list-style-type: none"> <li>• Any fuelling or servicing of equipment will take place over an impervious tarp or tray to contain accidental spills.</li> <li>• Fueling and storage equipment will be equipped with overfill shut-off systems in good working order.</li> <li>• All hazardous substances and fuels will be stored in proper containment systems to prevent release. Containment areas will be built with the capacity to hold at least twice the volume of hazardous substances stored.</li> <li>• Fuel, lubricating fluids, hydraulic fluids, herbicides, or other chemicals will be disposed of at approved facilities and not on the ground.</li> <li>• All hazardous materials will be transported, handled, used, and disposed of in accordance with provincial and federal regulatory requirements.</li> <li>• The Prime Contactor’s site plan for handling all chemicals on site will be followed.</li> <li>• Designated re-fueling areas will be clearly identified and marked and established at least 100 m from any waterbody.</li> <li>• Waste materials (spent oil, lubricants, filters, etc.) will be collected and disposed of off site at an appropriate facility.</li> <li>• The spill response plan and spill response kits will be readily available on-site. Construction personnel will be appropriately trained in their use and in the associated reporting protocol.</li> </ul>
Waste Management	<ul style="list-style-type: none"> <li>• Waste materials (debris, litter, etc.) resulting from construction activities will be removed from site.</li> <li>• Materials will be reused or recycled where possible.</li> <li>• Waste material will be disposed of in appropriate off-site waste management facilities and secure loads transported with appropriate vehicles.</li> <li>• Portable toilets used during construction will be secured from tipping over in the wind. They will be cleaned and maintained, and the waste will be transported to an off-site facility.</li> </ul>



## 5.2.2 SOIL MANAGEMENT

Table 7 summarizes mitigation measures to be implemented during any soil disturbance activity. Minimizing effects on soil quality and quantity is crucial to provide an appropriate medium for desirable vegetation to establish. The degradation of soil resources, admixing of soil horizons, and improper spoil storage will adversely affect revegetation success on the Project footprint. Soil disturbance will be limited to the installation of Project infrastructure, laydown areas and access roads to the extent practical.

**Table 7. Mitigation | Soil Management.**

Activity/Concern	Mitigation Measure
Hydro Excavation (Hydrovac)	<ul style="list-style-type: none"> <li>All hydrovac tanks will be verified to arrive onsite clean and free of contaminants.</li> <li>Hydrovac trucks will only be emptied onto subsoil at approved sites identified by the Prime Contractor or empty off site at an approved facility.</li> </ul>
Snow Management	<ul style="list-style-type: none"> <li>Snow will be left on the Project footprint (if safe and practical) prior to topsoil salvage to avoid soil exposure and subsequent thawing.</li> <li>Snow will be stored in a way that prevents sediment directly entering wetlands or waterbodies, with appropriate erosion controls installed, as warranted.</li> </ul>
Soil Stripping/Salvage – Schedule	<ul style="list-style-type: none"> <li>Where feasible, topsoil will be salvaged during dry/frozen conditions.</li> <li>Where feasible, soil salvage will be scheduled when the potential for environmental effects (e.g., thawing soils, soil rutting, high potential for wind or water erosion) are low.</li> </ul>
Soil Stripping/Salvage – General	<ul style="list-style-type: none"> <li>All equipment and vehicles will be clean and inspected to verify they are free of soil and plant material prior to arrival to site to minimize potential for the introduction of invasive plants.</li> <li>A two-lift soil salvage will be implemented to avoid soil degradation through admixing. A two-lift soil salvage is defined as the first lift removing topsoil and the second lift removing subsoil.</li> </ul>
Topsoil Salvage Depth – General	<ul style="list-style-type: none"> <li>Soil stripping activities will be directed using the information and recommendations provided in Appendix A.</li> <li>Stripped topsoil will be stockpiled separately from subsoil.</li> </ul>
Soil Stripping/Salvage – Soil Conditions	<ul style="list-style-type: none"> <li>Environmental conditions will be monitored, and contingency measures may be implemented under very dry, very wet, and/or windy conditions, where feasible, to avoid wind and/or water erosion. Contingency measures are further described in Section 6.2.</li> </ul>
Topsoil Salvage – Frozen Soil Conditions	<ul style="list-style-type: none"> <li>Site conditions will be evaluated to determine the best method of topsoil salvage during frozen conditions to reduce the risk of admixing and over stripping.</li> </ul>
Topsoil Stripping/Salvage and Storage – Trenching Collector Lines	<ul style="list-style-type: none"> <li>Where trenching methods will be employed, the following mitigation measures will be implemented:                             <ul style="list-style-type: none"> <li>Soil stripping will be restricted to the trench-line, with topsoil salvaged from the work side of the trench.</li> <li>The trench will be excavated to depth, storing the subsoil as close as possible to the trench.</li> <li>The trench will be backfilled with the excavated material, replacing material in reverse order of excavation: subsoil will be replaced and compacted, followed by replacement of topsoil.</li> <li>The area will be reseeded with the appropriate seed mix; erosion and sediment control measures will be implemented as required.</li> </ul> </li> </ul>



	<ul style="list-style-type: none"> <li>• The size/area of temporary subsoil stockpiles will be minimized during excavation and construction. To the extent practical, subsoil material remaining at surface and/or in direct contact with the topsoil interface will be avoided.</li> <li>• Subsoil will be stored on subsoil. Where this is not possible, geotextile material will be used to provide a barrier between the topsoil and subsoil material. All subsoil material will be returned to its source/origin or be transferred to an appropriate long-term stockpiling location on-site.</li> </ul>
Soil Storage	<ul style="list-style-type: none"> <li>• Topsoil will be stored separately from subsoil; stockpile locations will be labeled, georeferenced and photo-documented.</li> <li>• Topsoil (first lift) will be stored on topsoil (i.e., on adjacent crop land/pasture).</li> <li>• Subsoil (second lift) will be stored on subsoil or on geotextile or other material to separate it from topsoil.</li> </ul>
Stockpile Erosion Control	<ul style="list-style-type: none"> <li>• Temporary erosion measures will be installed during soil storage to reduce risk of soil loss through water and wind erosion.</li> <li>• Temporary erosion measures will be regularly monitored throughout construction and repaired/replaced when required.</li> </ul>



### 5.2.3 NATIVE PASTURE

Portions the Project footprint occur on native pasture. Based on the Principles for Minimizing Surface Disturbance in Native Grassland (AEP 2016), the principles and best management practices presented in Table 8 have been developed to avoid, minimize and mitigate disturbance of and adverse effects on native pasture within the Project footprint. Decommissioning and reclamation of the Project within native pasture is discussed in the Project-specific C&R Plan (EDI Environmental Dynamics Inc 2024b).

**Table 8. Mitigation | Native Pasture.**

Activity/Concern	Mitigation Measure
Siting and Planning	<ul style="list-style-type: none"> <li>• Infrastructure siting in native pasture has been avoided to the extent feasible. Where infrastructure have been sited in native pasture, the proposed footprint has been limited to the extent practical.</li> <li>• Planning and design of the Project has emphasized the use of existing/established access corridors and anthropogenically disturbed areas, where practical.</li> <li>• Scheduling and sequencing of construction activities has been planned to minimize adverse effects on native pasture and associated habitat (AEP 2016).                             <ul style="list-style-type: none"> <li>○ Timing of construction avoids (to the extent possible) the Restricted Activity Periods (RAPs) for wildlife.</li> <li>○ Civil earthworks and grading activities (i.e., soil stripping) will be completed in accordance with Section 5.2.2: Soil Management.</li> </ul> </li> <li>• Pre-construction surveys will be completed to identify sensitive areas for avoidance.</li> </ul>
Scheduling	<ul style="list-style-type: none"> <li>• Work within native pasture will be scheduled to avoid the grassland bird breeding season (April 1 to July 15; Government of Alberta 2018b). When construction within native pasture is required after July 15, but before the end of the migratory bird nesting period for nesting zone B3 (April 27 to August 24; Government of Canada 2018), a non-intrusive nest survey will be conducted by a qualified wildlife biologist to determine the presence of breeding birds. If active nests (i.e., nest under construction or constructed, with or without eggs present) are found or suspected to be present based on bird behaviour, each confirmed or suspected nest location will be appropriately buffered until the fledglings leave the nest.</li> </ul>
Construction	<ul style="list-style-type: none"> <li>• Washing, re-fueling or equipment maintenance activities will not occur within native pasture.</li> <li>• Construction will occur on cleared work areas.</li> <li>• Topsoil will be stripped and salvaged for use during reclamation.</li> <li>• Weed surveys will be conducted and outbreaks resulting from the Project will be addressed proactively.</li> </ul>



## 5.2.4 WETLANDS AND WATERBODIES

Table 9 describes mitigation measures to be implemented with respect to wetlands and waterbodies within the Project footprint.

**Table 9. Mitigation | Wetlands and Waterbodies.**

Activity/Concern	Mitigation Measure
Siting and Planning	<ul style="list-style-type: none"> <li>Any disturbance to wetlands and/or waterbodies that cannot be avoided will be addressed by following all terms and conditions within approvals and/or permits (e.g., <i>Water Act</i> Approval and adhering to relevant requirements (Alberta Wetland Policy, AEP Code of Practice for Watercourse Crossings) for protection of wetlands and ephemeral waterbodies, as applicable.</li> <li>Wetland replacement fees, as appropriate, will be paid to AEPA in accordance with Alberta Wetland Policy requirements.</li> <li>Boundaries of all wetlands and ephemeral waterbodies within the Project footprint will be flagged/staked to reduce incidental disturbance.</li> </ul>
Scheduling	<ul style="list-style-type: none"> <li>Work will be scheduled within setbacks or direct disturbances to wetlands with the potential to support amphibian populations outside of the breeding period or will have an experienced wildlife biologist onsite if construction during the breeding period is necessary.</li> </ul>
General Mitigation	<ul style="list-style-type: none"> <li>All equipment will arrive on-site clean, free of leaks and in good working condition. An inspection prior to arriving on site will be conducted to verify that all foreign material has been removed including dirt, mud, debris, grease, oil, hydraulic fluid or other substances. As well, any identified leaks will be repaired and then appropriately cleaned.</li> <li>Washing, refuelling, servicing and storage of fuel, oil or other hazardous material will take place away from wetlands or waterbodies to the extent feasible, and in a manner that prevents fuel and hazardous materials from entering any waterbody.</li> <li>A spill response plan will be in place and an emergency spill response kit will be on site during construction activities. The containment kit will have the capacity to handle twice the maximum spill possible.</li> <li>Concrete work areas will be isolated from waterbodies or wetlands to prevent uncured or partly cured concrete from interfacing with waterbodies and wetlands.</li> <li>Where temporary wetland crossings are required, crossings will be conducted during dry or frozen conditions if safe and where feasible.</li> </ul>
Erosion and Sediment Control	<ul style="list-style-type: none"> <li>Erosion and sedimentation controls will be installed where warranted (i.e., within the 100 m buffer of Class III or higher wetlands and waterbodies) to prevent sediment and other material from entering the wetland or waterbody.</li> <li>ESC measures will be inspected regularly during construction and repaired and/or replaced as necessary.</li> </ul>
Water Management	<ul style="list-style-type: none"> <li>Site drainage will be maintained as appropriate, (e.g., with the use of appropriately sized and installed culverts, ditches, berms, site grading practices). Site reclamation will be designed to re-establish natural drainage patterns.</li> <li>Surface water connectivity will be maintained within wetlands and water bodies to avoid flooding and/or sediment mobilization during snow melt or heavy precipitation.</li> </ul>



	<ul style="list-style-type: none"> <li>• Any construction related dewatering will be discharged to a sufficiently vegetated area which will slow the velocity of water and prevent sediment from entering wetlands or waterbodies. If the water contains excessive sediment or deleterious substances, it will be disposed of off-site at an appropriate disposal/treatment facility.</li> <li>• Storm water from the construction site will be intercepted or slowed as required and prevented from entering wetlands or waterbodies.</li> </ul>
Wetland Soil	<ul style="list-style-type: none"> <li>• Work within wetlands will be completed during dry or frozen ground conditions to lessen soil compaction and erosion, where possible.</li> <li>• If work within wet soil conditions is required, equipment and techniques that distribute ground pressure will be used to avoid soil compaction and admixing.</li> <li>• Topsoil stripping activities will be scheduled to occur in accordance with favourable environmental (i.e., weather) and site/soil conditions (i.e., dry, frozen).</li> </ul>
Wetland Vegetation	<ul style="list-style-type: none"> <li>• Where practical, vegetation buffers (where applicable) will be maintained around wetlands and waterbodies.</li> </ul>
Collector Line Installation	<ul style="list-style-type: none"> <li>• Where feasible, the collector system will be installed using a combination of HDD and plough-in methods through wetlands, or adjacent to sensitive wildlife features to reduce the potential for adverse effects on wildlife habitat.</li> </ul>



## 5.2.5 WILDLIFE AND WILDLIFE HABITAT

Table 10 describes mitigation measures to be implemented with respect to wildlife and wildlife habitat.

**Table 10. Mitigation | Wildlife and Wildlife Habitat.**

Activity/Concern	Mitigation Measure
Scheduling	<ul style="list-style-type: none"> <li>• Work within native pasture will be scheduled to avoid the grassland bird breeding season (April 1 to July 15; Government of Alberta 2018b). When construction within native pasture is required after July 15, but before the end of the migratory bird nesting period for nesting zone B3 (April 27 to August 24; Government of Canada 2018), a non-intrusive nest survey will be conducted by a qualified wildlife biologist to determine the presence of breeding birds. If active nests (i.e., nest under construction or constructed, with or without eggs present) are found or suspected to be present based on bird behaviour, then each confirmed or suspected nest location will be appropriately buffered.</li> <li>• Work within tame pasture will be scheduled to avoid the grassland bird breeding season (April 1 to July 15) as the Project schedule allows. Where the Project schedule does not allow this avoidance, mowing will occur prior to the onset of the grassland breeding bird season and re-mowing will occur as appropriate (i.e., reduce the habitat suitability) to support Project activities, with nest surveys conducted by a qualified wildlife biologist. If active nests (i.e., nest under construction or constructed, with or without eggs present) are found or suspected to be present, then mitigation measures (e.g., species-specific setback buffer, on-site monitor) will be designed and implemented, and forwarded to AEPA for their review.</li> <li>• All construction within 1,000 m of a Ferruginous Hawk nest will occur outside of the critical nesting period of March 15 to July 15 (Government of Alberta 2018b).</li> <li>• Project construction activities will occur outside of the active lekking period from March 15 - June 15 (Government of Alberta 2018b), where they occur within the Sharp-tailed Grouse lek setbacks.</li> <li>• Construction will be scheduled within setbacks or direct disturbances to wetlands with the potential to support amphibian populations outside of the breeding period or will have an experienced wildlife biologist onsite if construction during the breeding period is necessary.</li> </ul>
Construction - General	<ul style="list-style-type: none"> <li>• A speed limit of 30 km/hr will be established during construction and operations to minimize dust and collision risk for wildlife on Project access.</li> <li>• Construction will occur as quickly and as safely as possible on or near sensitive areas to limit the potential for disturbance to wildlife and wildlife habitat.</li> <li>• Permanent met towers will be free standing to the extent practicable. Should guy wires on the met towers be required, they will be equipped with markers specifically designated to reduce the potential for bird collision.</li> <li>• A member of the on-site construction staff will be trained in protocols to respond to and report environmental and wildlife issues identified on site.</li> <li>• Project personnel will be required to report wildlife issues, incidents with wildlife, nuisance wildlife, injured or dead wildlife as soon as it is safe to do so to the on-site Project Manager, who will determine in collaboration with the Owner's environmental representative corrective and/or emergency action to be taken in the field and what regulatory reporting is required. In the event that an injured or dead species listed provincially (AEP 2020)</li> </ul>





	<p>and/or federally (Government of Canada 2022) is observed on site, the local AEPA Wildlife Biologist will be promptly notified.</p> <ul style="list-style-type: none"> <li>• Project personnel will be prohibited from carrying firearms and being accompanied by domestic animals. An exception applies to the potential use of trained dogs during mortality searches.</li> </ul>
Construction – Collector Lines	<ul style="list-style-type: none"> <li>• The collector system will be installed using a combination of HDD and plough-in methods through native pasture and wetlands, or adjacent to sensitive wildlife features at noted locations to reduce the potential for adverse effects on wildlife habitat.</li> <li>• Should adverse subsurface conditions preclude HDD or plough-in methods, collector lines will be trenched as described in Section 5.2.2.</li> </ul>
Construction – Monitoring	<ul style="list-style-type: none"> <li>• When construction of infrastructure occurs within the setbacks of Class III or higher wetlands (i.e., during the terrestrial phase of the amphibian lifecycle from July 16 to Sep 30), an experienced wildlife biologist familiar with amphibian species will be on site to monitor wildlife behaviour and to propose on-site mitigation to reduce risk to wildlife (as per Standard 100.3.16 of the Directive; (Government of Alberta 2018b).</li> <li>• Where avoidance of environmentally sensitive features or their associated setbacks was not possible during Project design, a resource specialist (e.g., experienced wildlife biologist) will be present on site, as required, to assess the features and to inspect or monitor construction activities at or near sensitive areas.</li> <li>• During construction in environmentally sensitive areas (e.g., within setbacks), an Environmental Monitor, or equivalent, may be on site to guide implementation, monitor and report on the effectiveness of the mitigation measures, as appropriate.</li> </ul>
Amphibians	<ul style="list-style-type: none"> <li>• Amphibian exclusion fencing will be established along the edge(s) of the construction footprint within 100m of wetlands Class III or higher, as appropriate.</li> </ul>
Snakes	<ul style="list-style-type: none"> <li>• The Project will adhere to the existing Snake Protection Plan (Golder 2020; Appendix B).</li> </ul>



## 5.2.6 HORIZONTAL DIRECTIONAL DRILLING

Table 11 describes mitigation measures to be implemented during Horizontal Directional Drilling.

**Table 11. Mitigation | Horizontal Directional Drilling**

Activity/Concern	Mitigation Measure
Horizontal Directional Drilling	<ul style="list-style-type: none"> <li>• The HDDs will be completed in as short a time as possible, as safety allows, to minimize effects on the environment.</li> <li>• The composition of the drilling fluid will be limited to fresh water and high yield bentonite conforming to or exceeding American Petroleum Institute specifications. Other additives or substitutions will require Owner approval before being used in the drilling fluid. An MSDS sheet will be maintained on the work location for all drilling fluid additives.</li> <li>• The amount of fluid return to the mud tank/pit and the amount of make-up drilling fluid required in the mixing tanks during drilling of the pilot hole and hole opening will be monitored. A detailed log of all drilling activities to correlate drilling status with potential seepage events will be maintained.</li> <li>• The drill path and adjacent area will be monitored for signs of drilling mud release.</li> <li>• Vacuum truck(s) will be on site and available during pullback operations.</li> <li>• Entry and exit pits that contained drilling mud will be closed immediately after completion of drilling and will be remediated to meet the applicable government regulations or guidelines and landowner requests.</li> </ul>
Drilling Fluid Release (Frac-Out)	<ul style="list-style-type: none"> <li>• In the event of an unintentional fluid (drilling mud) release during HDD operations, the following general guidelines will be followed: <ul style="list-style-type: none"> <li>○ Drilling operations will be immediately stopped and the Environmental Monitor notified;</li> <li>○ The drilling mud will be contained to limit the area affected using sandbags, silt fence and/or other approved material, or excavating a sump;</li> <li>○ The Environmental Monitor or the Owner will immediately notify the Alberta Environment Energy and Environmental Response Line at 1-800-222-6514 if the drilling mud enters any watercourse, wetland or waterbody.</li> <li>○ If the drilling mud release can be effectively contained and prevented from spreading further, drilling operations may continue. Otherwise, the drill will be moved and a new re-drill attempted in a different location.</li> <li>○ The released drilling mud will be cleaned up in a manner that minimizes disturbance to vegetation and soil (e.g., hydrovac, pumping or manual removal with shovels).</li> <li>○ Drilling mud will be disposed of in accordance with provincial requirements.</li> </ul> </li> </ul>

## 5.2.7 INTERIM RECLAMATION AND REVEGETATION

The objective of interim reclamation is to replace subsoil, recontour, replace topsoil, and re-establish drainage and site stability on all areas where soils were disturbed during construction activities – this is further described within the C&R Plan (EDI 2024b).



### 5.3 OPERATION PHASE

Table 12 describes mitigation measures and monitoring to be implemented during Project operation.

**Table 12. Mitigation | Operation.**

Activity/Concern	Mitigation Measure
Vehicle and Equipment Control	<ul style="list-style-type: none"> <li>A speed limit of 30 km/hr will be established during construction and operations to minimize dust and collision risk for wildlife on Project access.</li> </ul>
Invasive Plant and Weed Management	<ul style="list-style-type: none"> <li>The Project footprint will be regularly monitored for weed infestations during operation, and plant species designated as prohibited noxious or noxious (Government of Alberta 2008) that are observed to be present as a result of Project activities will be eliminated or controlled. Control techniques will reflect site conditions and the nature of infestation, and could include a combination of hand pulling, mowing and spot spraying with appropriate herbicides.</li> </ul>
Wildlife and Wildlife Habitat	<ul style="list-style-type: none"> <li>Project personnel will be prohibited from carrying firearms and being accompanied by domestic animals. An exception applies to the potential use of trained dogs during mortality searches.</li> <li>Project personnel will be required to report wildlife issues, incidents with wildlife, nuisance wildlife, injured or dead wildlife as soon as it is safe to do so to the on-site Project Manager, who will determine in collaboration with the Owner's environmental representative corrective and/or emergency action to be taken in the field and what regulatory reporting is required. In the event that an injured or dead species listed provincially (AEP 2020) and/or federally (Government of Canada 2022) is observed on site, the local AEPA Wildlife Biologist will be promptly notified.</li> <li>The Snake Protection Plan will be adhered to (Golder 2020; Appendix B).</li> <li>For compliance with standard 100.4.7 of the Directive, the local AEPA Wildlife Biologist will be notified of any mortality of provincially (AEP 2020) or federally (Government of Canada 2022) listed wildlife species, or high levels of mortality as defined by the AEP Bat Mitigation Framework AEP 2013b). Additionally, the carcasses of species at risk and sensitive species will be collected, identified, labelled, frozen, and submitted to the AEPA wildlife lab in Edmonton for compliance with Standard 100.4.9 in the Directive (Government of Alberta 2018a).</li> </ul>
Operation – General	<ul style="list-style-type: none"> <li>Lighting for on-the-ground Project infrastructure will use down-shielded lamps controlled by proximity sensors where feasible.</li> </ul>
Erosion and Sediment Control	<ul style="list-style-type: none"> <li>ESC structures will be periodically monitored for their effectiveness and repair as/when required.</li> </ul>
Monitoring - Wildlife	<ul style="list-style-type: none"> <li>Post-construction surveys will be completed as directed by the Post-Construction Survey Protocols for Wind and Solar Energy Projects (Alberta Environment and Parks 2020b) and the Conservation and Reclamation Directive for Renewable Energy Operations (Government of Alberta 2018a). If mortality is greater than accepted mortality rates identified in AEPA policy, then mitigation that addresses the mortality risk will be implemented and monitored as per AEPA Policy.</li> </ul>



<p>Invasive Plants and Weed Species</p>	<ul style="list-style-type: none"> <li>• Invasive plant and weed surveys will be conducted during a biologically appropriate time of year (e.g., when invasive plants can be identified) within areas where soil was exposed during construction activities (e.g., temporary access routes, laydowns, collector line trenches) during the first growing season following construction.</li> <li>• The incidence of observed invasive plant and/or weed species will be documented; information collected for each occurrence should include:             <ul style="list-style-type: none"> <li>○ Date and surveyor information;</li> <li>○ Plant species;</li> <li>○ Geographic location (e.g., GPS point);</li> <li>○ Estimated size of the population (e.g., by pacing the length and width or delineating with a GPS track);</li> <li>○ Density and distribution of the population; and,</li> <li>○ Photo documentation.</li> </ul> </li> <li>• Invasive plants and weeds will be controlled using the following treatment options (alone or in combination):             <ul style="list-style-type: none"> <li>○ mechanical control (involves the physical removal of the plants);</li> <li>○ chemical control (involves application of synthetic and/or natural herbicides); and,</li> <li>○ biological control measures (involves the use of living organisms [e.g., rusts, insects] to control selected invasive plant species).</li> </ul> </li> <li>• Treatment options for an invasive plant/weed occurrence will be based on the identity of the weed/invasive plant, its designation in Cypress County, the size and extent of the occurrence, time of year, the proximity of the occurrence to sensitive areas (e.g., livestock grazing areas, waterbodies), and the available control options.</li> <li>• Invasive plants will be controlled in consultation with a qualified professional to minimize potential effects on surrounding land uses.</li> <li>• If required, herbicide selection and use on site will comply with all applicable laws and regulations.</li> <li>• Previously identified occurrences of invasive plants and/or weeds will be periodically monitored within the Project footprint in subsequent years to verify efficacy of control measures and allow for early detection of recolonization and/or spread.</li> </ul>
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## 6 CONTINGENCY PLANS

### 6.1 SPILL RESPONSE

The release of harmful substances into the environment can have adverse effects on the environment, historic resources, and human health and safety. This section discusses spill response protocols, including spill reporting. The spill response plan will be readily available and understood by all personnel on site. Spills will be addressed in a timely manner, and the response will depend on the location, quantity and substance released, based on the specific nature of the spill. In the event of a spill, the first person on the scene will:

- if possible, without further assistance, control danger to human life (i.e., remove ignition sources);
- identify the material spilled and implement appropriate safety procedures, based on the nature of the hazard;
- cut off the source of the spill if possible and safe to do so;
- immediately obtain the assistance of others and begin to contain and clean up the spill if safe to do so; and
- notify the Prime Contractor and the Environmental Monitor.

The Prime Contractor is responsible for directing appropriate spill clean-up under the direction of the Owner representative and/or Environmental Monitor; therefore, all spills are to be reported to the Owner. The Owner representative will then initiate the spill response, as required. The Owner will notify applicable regulatory agencies and local stakeholders. As outlined within the *Environmental Protection and Enhancement Act* and the Release Reporting Regulation, spills are to be reported to regulatory agencies if one or more of the following criteria are met:

- the amount exceeds the quantities or emission levels set out for the substance;
- the release is into a watercourse or into the groundwater or surface water in any quantity; or
- the release falls under the jurisdiction of the *Transportation of Dangerous Goods Act* 1992.

If a spill is deemed to be reportable, AEPA should be notified immediately (1-800-222-6514). When reporting a spill, the following details must be provided:

- the location and time of the release;
- a description of the circumstances leading to the release;
- the type and quality of substance released;
- the details of any action proposed or taken at the release site; and
- a description of the immediate surrounding area.

Upon completion of the initial spill report, a written report must be submitted to the AEPA Director within seven days.



## 6.2 CHANGING ENVIRONMENTAL CONDITIONS

Additional mitigation measures will be implemented should environmental conditions change such that the initial mitigation measures are no longer effective. This could include times when the soil becomes wet or thawed, or in times of excessive wind. Additional mitigation measures for these circumstances are presented in Table 13.

**Table 13. Contingency Measures for Changing Environmental Conditions.**

Activity/Concern	Measure
Excessively Wet Soils Contingency Measures	<ul style="list-style-type: none"> <li>• Excessively wet/thawed soils are identified if one or more of the following indicators are present:                             <ul style="list-style-type: none"> <li>○ topsoil rutting causing admixing of topsoil and subsoil;</li> <li>○ excessive wheel slip;</li> <li>○ excessive build-up of mud on tires and tracks;</li> <li>○ puddles forming within areas of active construction; or,</li> <li>○ structure damage during soil handling procedures.</li> </ul> </li> <li>• When excessively wet/thawed soils are identified, employ one or a combination of the following contingency measures:                             <ul style="list-style-type: none"> <li>○ Restrict construction equipment to low-ground pressure tires or wide pad tracks.</li> <li>○ Restrict rubber-tired traffic from traveling within areas of active construction.</li> <li>○ Suspend construction activities in sensitive areas (e.g., near wetlands, ephemeral drainages, areas of steeper terrain) and shift activities to other areas (e.g., well drained soils).</li> <li>○ Install geotextiles or matting in areas exhibiting excessively wet or thawed soil conditions.</li> <li>○ Halt construction and vehicle travel until conditions improve.</li> </ul> </li> <li>• <b>Note:</b> The decision to shut down construction activities due to excessively wet/thawed soil conditions will be made by the Prime Contractor's Project Manager in consultation with the Environmental Monitor and Owner.</li> </ul>
Erosion – Water	<ul style="list-style-type: none"> <li>• Should unintentional channelization of surface water flow be observed within the Project footprint, appropriate mitigation measures to avoid soil erosion and mobilization will be implemented:                             <ul style="list-style-type: none"> <li>○ Interrupt and/or slow water flow with installation of erosion and sediment control measures such as temporary berms, sandbags or straw bales.</li> </ul> </li> </ul>
Erosion – Wind	<ul style="list-style-type: none"> <li>• If wind erosion is identified to be problematic (e.g., heavy winds result in visible soil mobilization), one or a combination of the following measures will be implemented, as warranted and appropriate:                             <ul style="list-style-type: none"> <li>○ Soil stripping/salvage will be scheduled during low winds, where feasible.</li> <li>○ Tackifier will be applied on soil stockpiles according to product instructions.</li> <li>○ Water will be regularly applied to stockpiles and heavily traveled areas to reduce wind mobilization.</li> <li>○ Wind fences will be installed perpendicular to the prevailing wind to reduce wind speeds and resultant wind erosion at targeted areas of exposed soils resulting from Project construction.</li> </ul> </li> </ul>



### 6.3 DISCOVERY OF WILDLIFE SPECIES OF CONCERN

In the event a wildlife species of concern or a wildlife habitat feature is discovered during construction activities, all work will immediately stop, and the discovery will be reported to the on-site Environmental Monitor and the Supervisor. The appropriate mitigation measures will be guided by consultation with AEPA, Environment and Climate Change Canada (ECCC), and/or the Canadian Wildlife Service (CWS), and will depend on the proximity of the wildlife species or the habitat feature to the proposed disturbance area, the possibility of landscape features providing a barrier between said species/feature and construction activities, the timing constraints between construction and the wildlife species/feature, and the possibility of altering construction activities to minimize or avoid disturbance. Only once the appropriate mitigation has been determined and under the approval from the Supervisor and Environmental Monitor will work resume.

Mitigation measures which will be implemented, as appropriate, include:

- Follow the timing constraints of the Wildlife Directive for Alberta Wind Energy Projects (Government of Alberta 2018b);
- Follow the setback distances recommended in the Wildlife Directive for Alberta Wind Energy Projects (Government of Alberta 2018b);
- Limit the proposed area of disturbance and protect the site using snow fencing, flagging and/or signage;
- Adjust or postpone construction activities to avoid causing sensory disturbance in the area;
- Increase the length of HDD bores to avoid or minimize disturbance to a site;
- Update all personnel on the access restrictions regarding the fenced site;
- Avoid the site by realigning the route;
- If practical, and with consultation from the regulator, relocate wildlife species or habitat features only with the appropriate permits and/or approvals/regulatory consent; and,
- Replace or enhance habitat through the installation of nest boxes, platforms or other features during reclamation.

### 6.4 DISCOVERY OF HISTORICAL RESOURCES

In the event of a discovery of archaeological, historical or paleontological resources during construction:

- All work will immediately stop.
- The discovery will be reported to the on-site Environmental Monitor and Supervisor.
- The Environmental Monitor will determine whether construction may resume or notify the appropriate regulatory agency (i.e., Alberta Ministry of Culture).
- The Environmental Monitor will develop an appropriate mitigation strategy in consultation with the Prime Contractor and the Owner. The discovery and the site will be assessed based on the significance of the site, the proximity of the site to the Project footprint, the possibility of avoiding the resource by rerouting or adjusting the footprint, and the decision/advice of the regulatory agency (Alberta Ministry of Culture).



## 7 ADAPTIVE MANAGEMENT

### 7.1 ADAPTIVE MANAGEMENT APPROACH

A philosophy of adaptive management will be adopted to verify that the EPP and associated mitigation measures are meeting performance targets. This will be achieved through periodic reviews of the EPP and the results of monitoring programs. The EPP is a living document that should be reviewed and improved as site conditions change and following the evaluation of monitoring and sampling data collected through the life of the Project, with the goal of continual improvement.

Deteriorating trends will be studied to determine the root cause. When the cause is identified, a suitable corrective action will be developed and implemented in a timely manner. Examples of corrective actions could include:

- Additional training of employees and contractors on procedures;
- Enhancement of maintenance and monitoring measures;
- Development and implementation of additional mitigation measures; and/or
- Additional supervisory oversight.

### 7.2 DOCUMENTATION

The Prime Contractor will be responsible for keeping and maintaining appropriate records to demonstrate due diligence and compliance with the EPP and regulatory requirements. No amendments to these documents may be made without the approval of the Owner's Operations Team. Key information should include:

- Information on materials/guidance provided to contractors as part of the general site education and orientation procedures.
- Records of cleaning and disinfection of vehicles and equipment that are on site.
- Soil salvage procedures, timelines, and storage locations.
- Information on any environmental incidents and occurrence of non-compliance.
- Photo records of implemented mitigation measures, monitoring and inspections (e.g., flagging/staking of boundaries, equipment inspections, soil replacement, site preparation, seeding).
- Records of invasive plant and weed species monitoring including date, type of monitoring, personnel completing work, type of treatment or control used, location, and monitoring observations.
- Seed mixture quality and certification of weed free status documents.
- Record of any site investigations performed and the outcome of the visit.
- Record of any erosion and sediment control measure used, effectiveness, issues and applied adaptive management.





## 8 EMERGENCY CONTACT INFORMATION

The following contacts have been provided in the event of emergencies. This information will be updated prior to the commencement of construction.

Contact	Telephone Number	Additional Contact Information
<b>Emergency Contacts</b>		
Emergency Services (Emergency Medical Services/Fire/Royal Canadian Mounted Police)	911	—
STARS Emergency Link Centre	1-888-888-4567 or *4567 (cell phone)	—
Hospital	403-529-8000	Medicine Hat Regional Hospital 555 5 Street SW Medicine Hat, Alberta T1A 4H6
Energy and Environmental Emergency 24 Hour Response Line Alberta Environment and Parks	1-800-222-6514	email: ERC.Environment@gov.ab.ca
<b>Non-Emergency Contacts</b>		
Medicine Hat Fire and Emergency Services	403-529-8282	—
Royal Canadian Mounted Police - Redcliff	403-548-2222	—
Environment and Climate Change Canada	1-800-668-6767	email: ec.enviroinfo.ec@canada.ca
Canadian Wildlife Service	Paul Gregoire 780-951-8695	email: paul.gregoire@canada.ca
Alberta Environment and Parks – Wildlife Management Unit	Joel Nicholson 403-529-3680	email: joel.nicholson@gov.ab.ca
Fisheries and Oceans Canada	1-855-852-8320	email: FisheriesProtection@dfo-mpo.gc.ca
Alberta Forest Fire Reporting	310-3473 (310-FIRE)	—
Alberta Ministry of Culture Historic Resources Management	780-431-2300	—



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# APPENDICES



## APPENDIX A      GUIDANCE FOR SOIL CONSERVATION



## SOIL STRIPPING RECOMMENDATIONS

Depending on the nature of construction and the type of landscape disturbance, it is beneficial to salvage stripped topsoil prior to construction to maintain the agricultural capability of the site. Recommended topsoil (A Horizon) stripping depths based on pre-disturbance conditions are provided hereafter. Figure 2 presents a soil stripping map with sample point locations and topsoil stripping conditions. If/when stripping, remove the topsoil and stockpile separately from the subsoil. Where designated as good — referring to colour change greater than two chroma difference according to the Munsell (2009) colour profile — the colour change between the topsoil (A horizon) and the subsoil (AB horizon or B horizon) can be used as a stripping guide. Construction personnel should be aware that this colour change may be seasonably variable and colour contrast may not be as distinct during construction. The recommended topsoil stripping depths should always be used as a primary guideline. The colour change within the Project footprint was often poor (under moist/dry conditions) and characterized by Dark Brown, and Brown soil hues; examples of soil profiles and colour change provided hereafter. Colour change may be not expected to be evident during construction. Construction personnel and operators are advised make note of any changes in soil textures and structure as key soil stripping indicators.



Soil Profile at E06 (Cultivated Cropland) with Silty Clay Loam Textured Ap, Bm and Cca horizons. Colour Change is Poor. (2022-09-24)



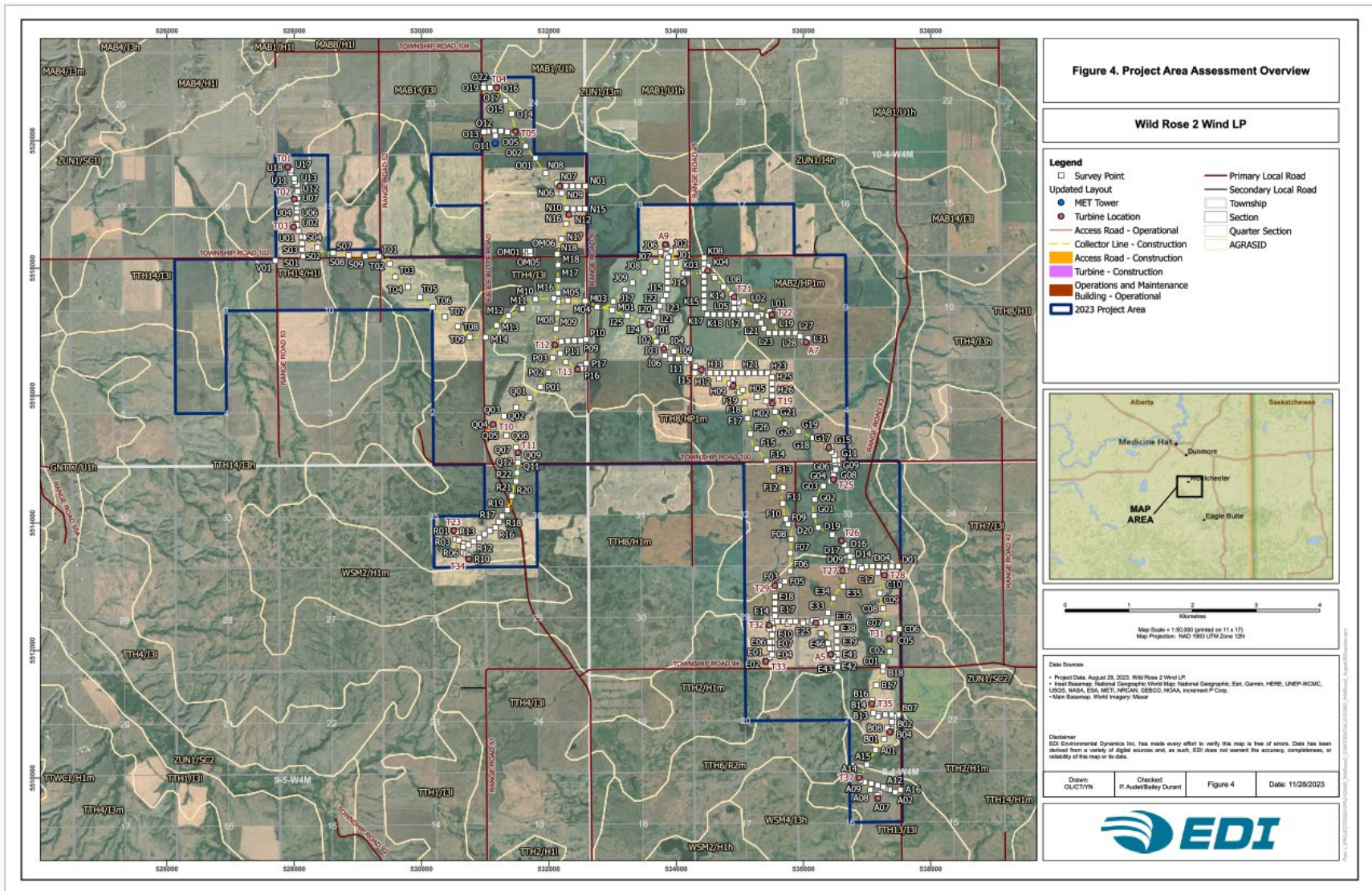
Soil Profile at A04 (Hayland) with Silty Clay Loam Textured Ah and Cca horizons. Colour Change is Moderate/Poor. (2022-09-25)



Soil Profile at E48 (Cultivated Cropland) with Sandy Clay Loam Textured Ap, Bm and Cca horizons. Colour Change is Poor. (2022-09-24)



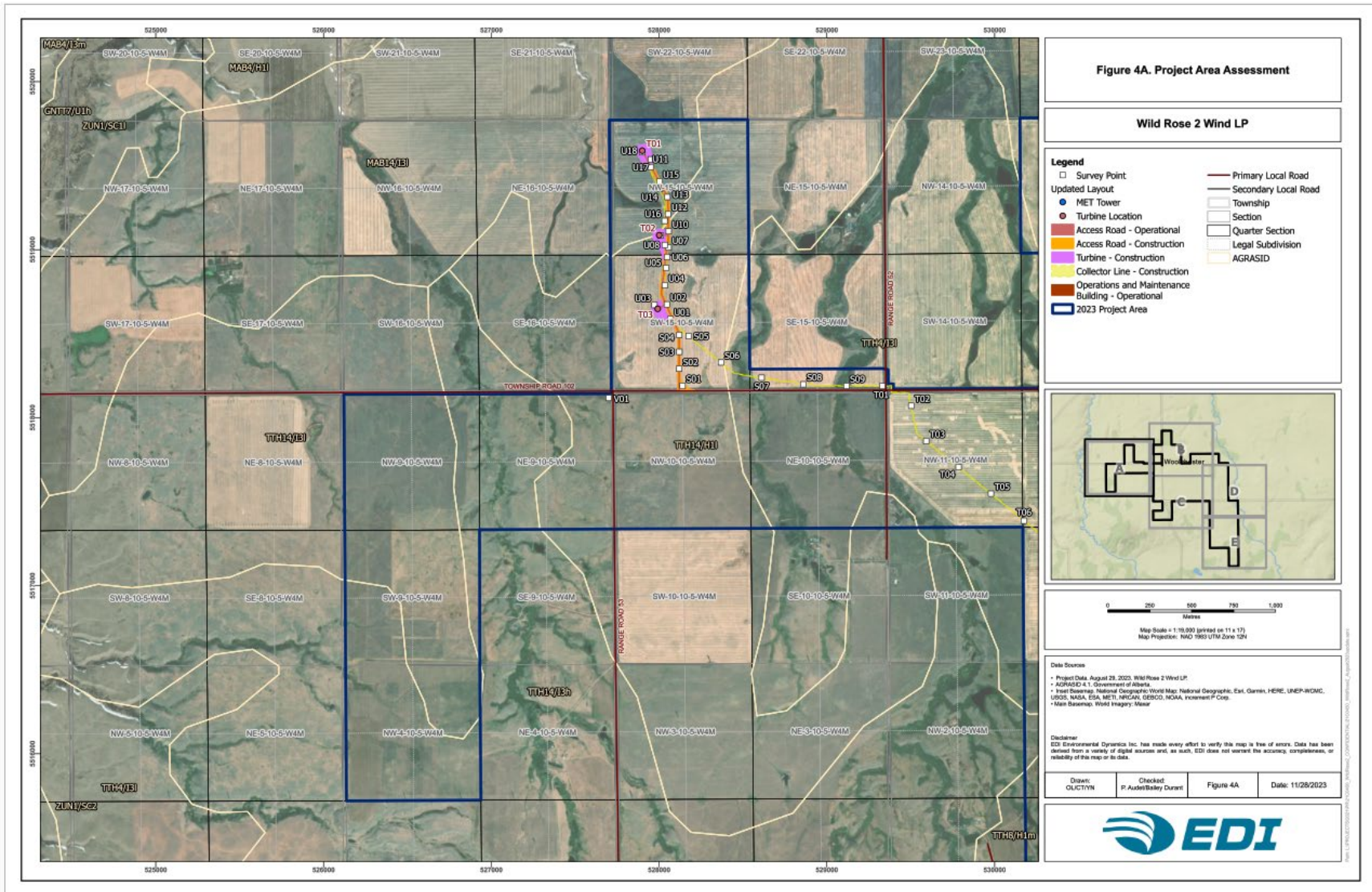
Soil Survey Sites (Project Overview)





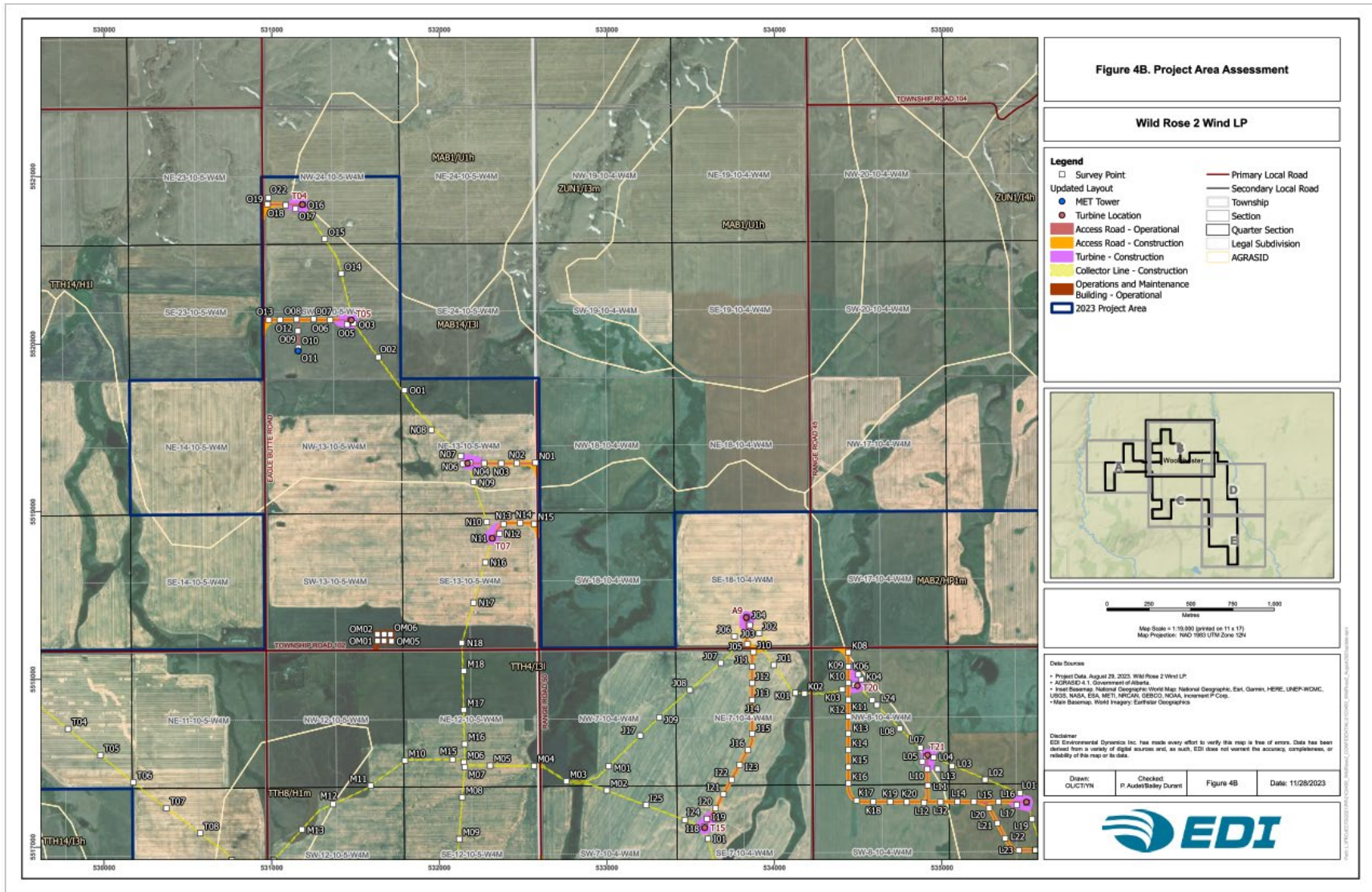


Soil Survey Sites (Precis)



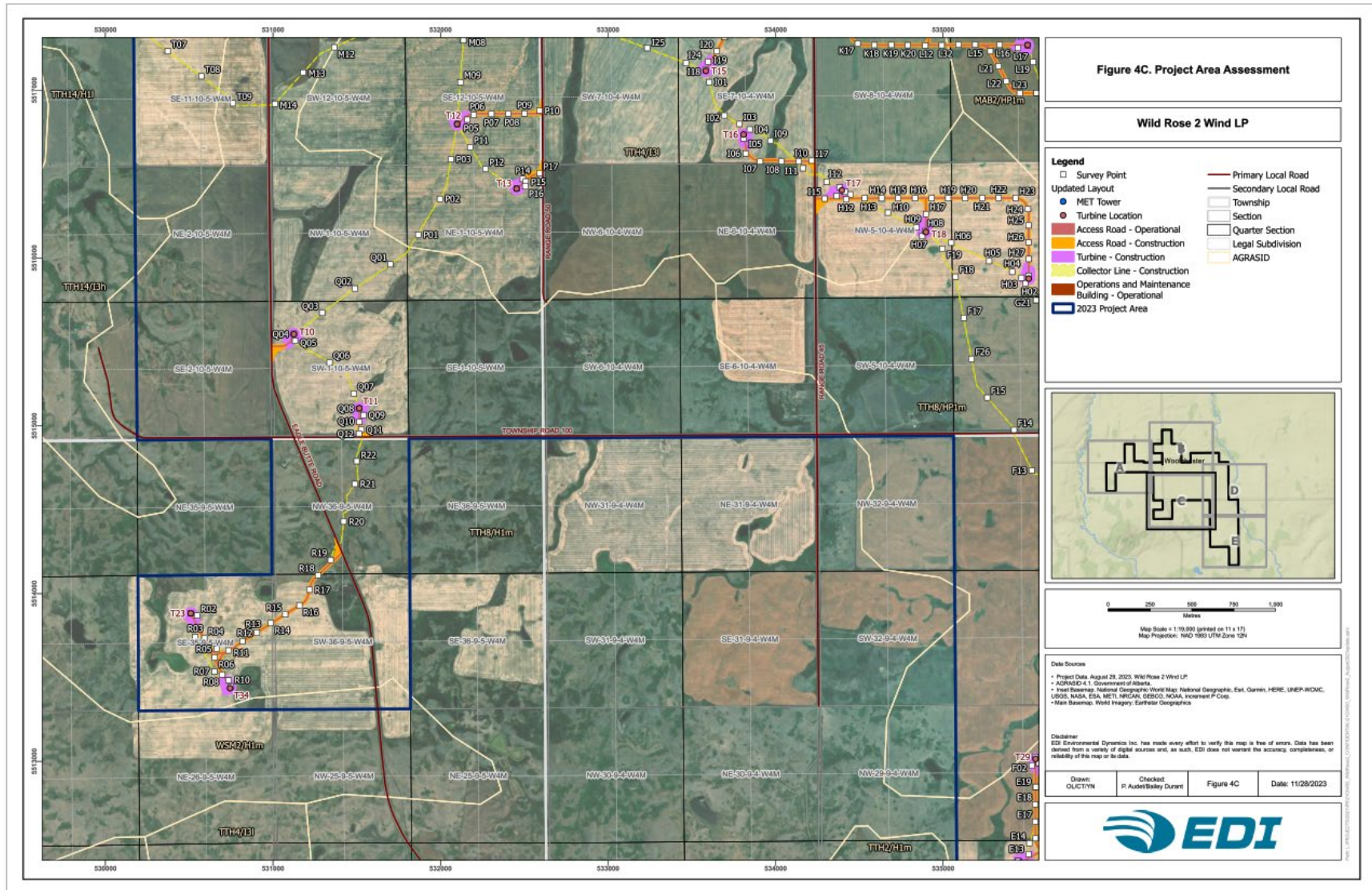


Soil Survey Sites (Precis)



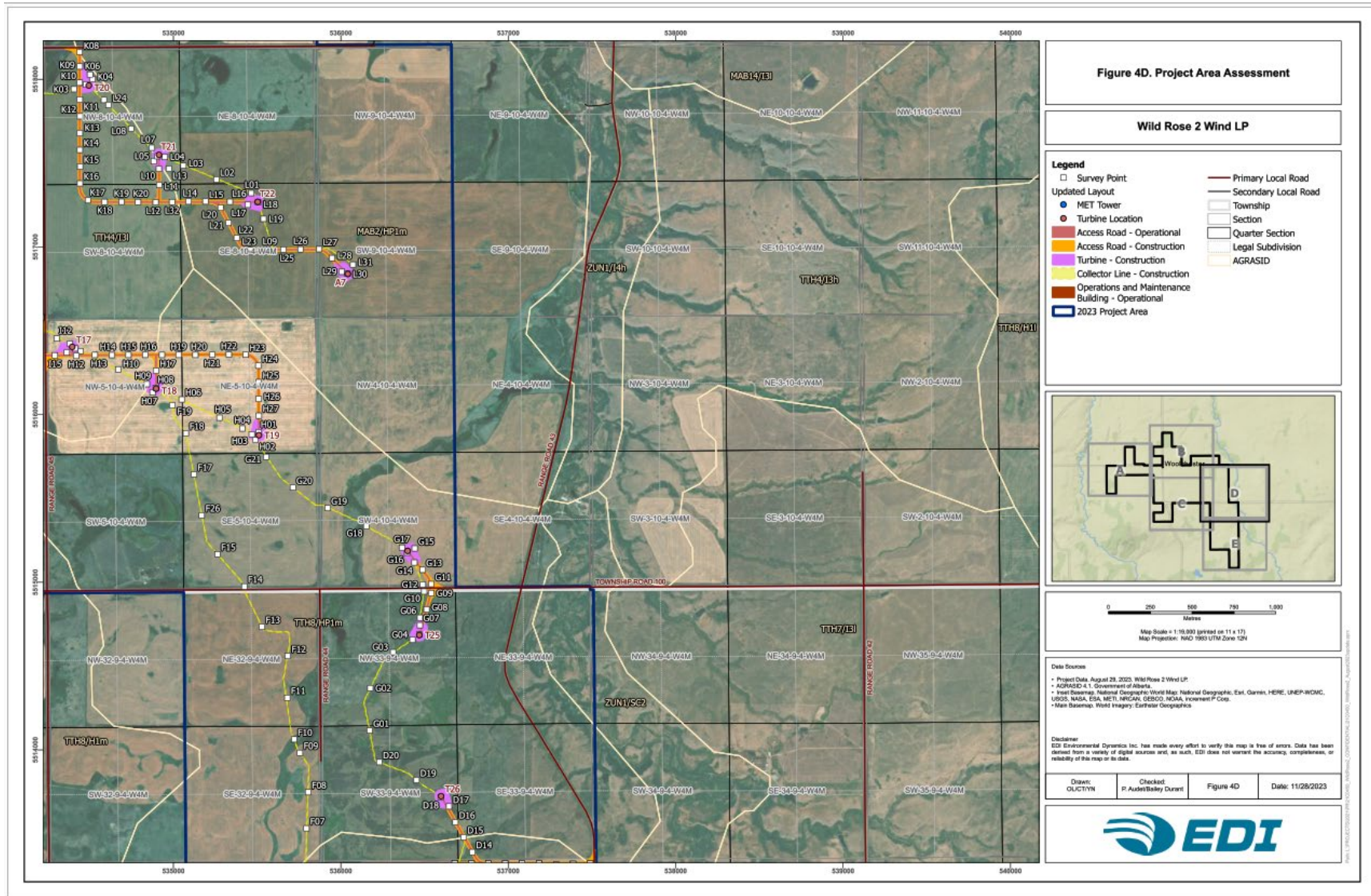


Soil Survey Sites (Precis)



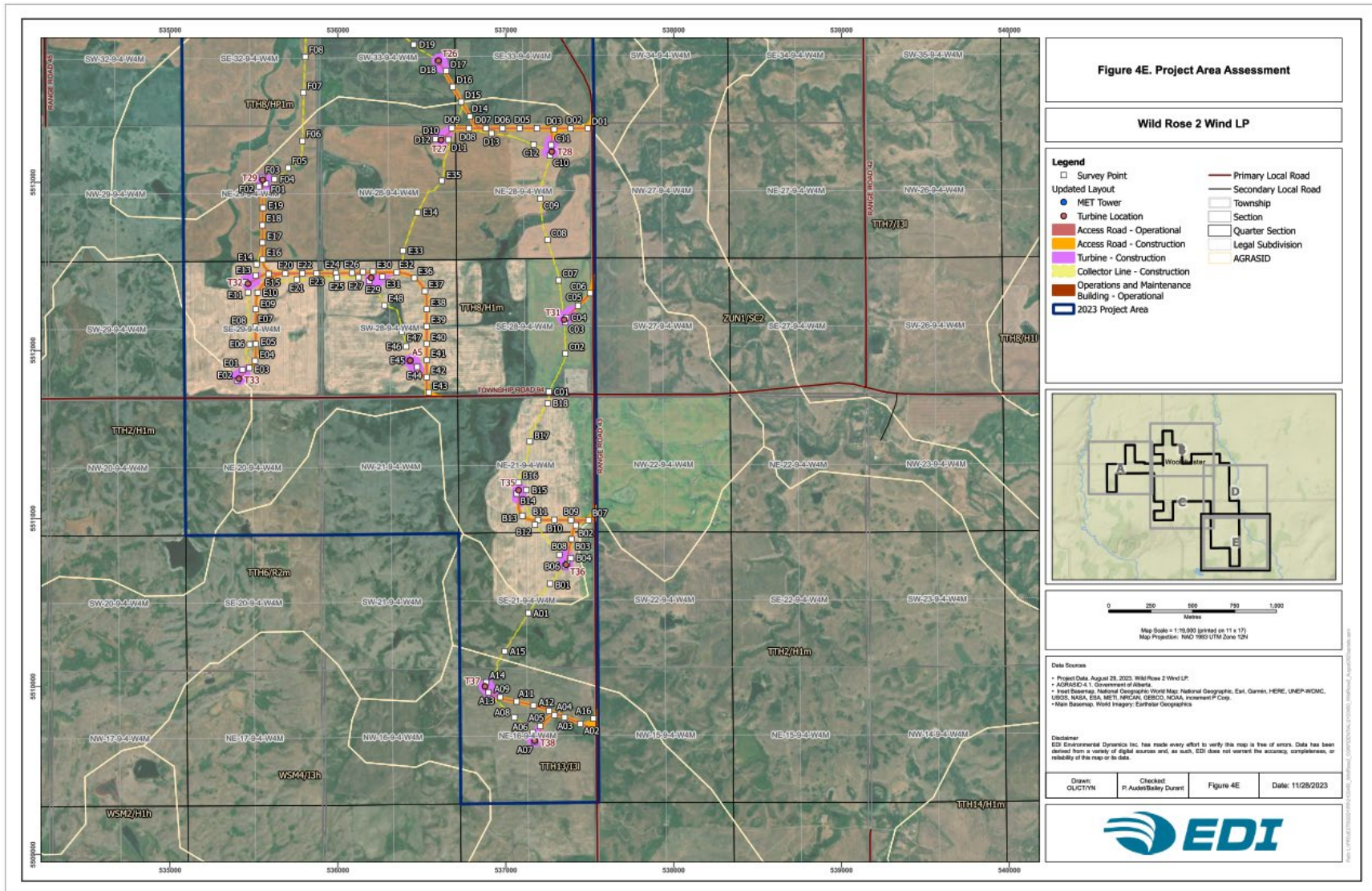


Soil Survey Sites (Precis)





Soil Survey Sites (Precis)





Pre-Construction | Topsoil Depths and Stripping Recommendations.

Sample Point	Surface Organic Layer (cm)	A Horizon (cm)	Topsoil Depth & Stripping Recommendations		Sample Point	Surface Organic Layer (cm)	A Horizon (cm)	Topsoil Depth & Stripping Recommendations	
A01	6	19	25	Poor	B16		7	7	Good
A02	6	2	8	Poor	B17		6	6	Poor
A03	6	3	9	Poor	B18		9	9	Poor
A04	4	13	17	Poor	C01		15	15	Poor
A05	8	10	18	Poor	C02		23	23	Good
A06	5	12	17	Poor	C03		15	15	Poor
A07	6	8	14	Poor	C04		25	25	Good
A08	6	25	31	Poor	C05		11	11	Poor
A09	1	6	7	Poor	C06		7	7	Good
A10	1	8	9	Poor	C07		10	10	Poor
A11	1	8	9	Poor	C08		10	10	Poor
A12	3	12	15	Good	C09		12	12	Poor
A13	2	14	16	Good	C10		14	14	Poor
A14	3	10	13	Good	C11		13	13	Poor
A15	7	9	16	Poor	C12		10	10	Good
A16	4	7	11	Poor	D01		6	6	Good
B01		12	12	Good	D02		7	7	Good
B02		10	10	Poor	D03		16	16	Poor
B03		9	9	Poor	D04		15	15	Poor
B04		8	8	Poor	D05		14	14	Good
B05		8	8	Poor	D06		14	14	Good
B06		10	10	Poor	D07		16	16	Good
B07		14	14	Poor	D08		13	13	Poor
B08		14	14	Poor	D09		11	11	Poor
B09		11	11	Good	D10		9	9	Good
B10		13	13	Good	D11		15	15	Poor
B11		14	14	Poor	D12		6	6	Poor
B12		16	16	Poor	D13		12	12	Poor
B13		12	12	Poor	D14		11	11	Poor
B14		12	12	Good	D15		37	37	Poor
B15		13	13	Good	D16		12	12	Poor



Sample Point	Surface Organic Layer (cm)	A Horizon (cm)	Topsoil Depth & Stripping Recommendations		Sample Point	Surface Organic Layer (cm)	A Horizon (cm)	Topsoil Depth & Stripping Recommendations	
D17		6	6	Poor	E13		10	10	Good
D18		10	10	Poor	E17		19	19	Poor
D19		7	7	Good	E18		15	15	Poor
D20		14	14	Good	E19		14	14	Good
E01		25	25	Poor	E20		10	10	Poor
E02		12	12	Poor	E21		14	14	Poor
E03		19	19	Good	E22		13	13	Poor
E04		16	16	Poor	E23		8	8	Poor
E05		15	15	Good	E24		8	8	Poor
E06		18	18	Poor	E25		10	10	Good
E07		14	14	Good	E26		11	11	Poor
E08		18	18	Poor	E27		11	11	Good
E09		14	14	Poor	E28		15	15	Poor
E10		18	18	Good	E29		11	11	Poor
E11		15	15	Poor	E30		14	14	Poor
E12		21	21	Good	E31		15	15	Poor
E13		10	10	Good	E32		16	16	Poor
D17		6	6	Poor	E33		15	15	Good
D18		10	10	Poor	E34		9	9	Poor
D19		7	7	Good	E35		15	15	Good
D20		14	14	Good	E36		10	10	Poor
E01		25	25	Poor	E37		11	11	Poor
E02		12	12	Poor	E38		9	9	Poor
E03		19	19	Good	E39		12	12	Poor
E04		16	16	Poor	E40		9	9	Poor
E05		15	15	Good	E41		15	15	Poor
E06		18	18	Poor	E42		25	25	Poor
E07		14	14	Good	E43		19	19	Poor
E08		18	18	Poor	E44		14	14	Poor
E09		14	14	Poor	E45		17	17	Poor
E10		18	18	Good	E46		15	15	Poor
E11		15	15	Poor	E47		18	18	Poor
E12		21	21	Good	E48		19	19	Poor



Sample Point	Surface Organic Layer (cm)	A Horizon (cm)	Topsoil Depth & Stripping Recommendations		Sample Point	Surface Organic Layer (cm)	A Horizon (cm)	Topsoil Depth & Stripping Recommendations	
F01		20	20	Good	G15		14	14	Good
F02		20	20	Poor	G16		9	9	Poor
F03		20	20	Poor	G17		9	9	Good
F04		15	15	Poor	G18		12	12	Poor
F05		16	16	Poor	G19		7	7	Poor
F06		12	12	Poor	G20		10	10	Poor
F07		18	18	Good	G21		4	4	Poor
F08		20	20	Good	H01		13	13	Poor
F09		9	9	Poor	H02		20	20	Poor
F10	8	34	42	Poor	H03		0	0	Poor
F11		18	18	Good	H04		14	14	Poor
F12		15	15	Poor	H05		13	13	Poor
F13		10	10	Good	H06		9	9	Poor
F14		12	12	Good	H07		10	10	Poor
F15		15	15	Poor	H08		0	0	Poor
F16		13	13	Poor	H09		9	9	Poor
F17		10	10	Poor	H10		10	10	Poor
F18		31	31	Poor	H11		12	12	Poor
F19		14	14	Poor	H12		6	6	Poor
G01	4	5	9	Good	H13		8	8	Poor
G02	1	19	20	Good	H14		6	6	Poor
G03	1	8	9	Poor	H15		8	8	Poor
G04	1	10	11	Good	H16		8	8	Poor
G05	1	0	1	Good	H17		5	5	Poor
G06	1	7	8	Poor	H18		8	8	Poor
G07	1	5	6	Poor	H19		6	6	Poor
G08	1	7	8	Poor	H20		8	8	Poor
G09	1	16	17	Poor	H21		4	4	Poor
G10		10	10	Poor	H22		6	6	Poor
G11		6	6	Poor	H23		10	10	Poor
G12		8	8	Poor	H24		12	12	Poor
G13		8	8	Poor	H25		4	4	Poor
G14		11	11	Poor	H26		8	8	Poor





Sample Point	Surface Organic Layer (cm)	A Horizon (cm)	Topsoil Depth & Stripping Recommendations		Sample Point	Surface Organic Layer (cm)	A Horizon (cm)	Topsoil Depth & Stripping Recommendations	
H27		8	8	Poor	J08		13	13	Poor
I01		19	19	Poor	J09		15	15	Poor
I02		24	24	Poor	J10		9	9	Good
I03		14	14	Poor	J11		11	11	Poor
I04		17	17	Poor	J12		9	9	Poor
I05		17	17	Poor	J13		8	8	Poor
I06		19	19	Poor	J14		9	9	Poor
I07		22	22	Poor	J15		9	9	Poor
I08		23	23	Poor	J16		6	6	Poor
I09		22	22	Poor	J17		22	22	Poor
I10		22	22	Poor	K01		24	24	Poor
I11		18	18	Poor	K02	7	40	47	Poor
I12		18	18	Poor	K03		14	14	Poor
I13		20	20	Poor	K04		11	11	Poor
I14		31	31	Poor	K05		40	40	
I15		9	9	Poor	K06		21	21	Good
I16		7	7	Poor	K07		10	10	Poor
I17		4	4	Poor	K08		9	9	Poor
I18		11	11	Poor	K09		10	10	Poor
I19		12	12	Poor	K10		12	12	Poor
I20		6	6	Good	K11		9	9	Poor
I21		11	11	Poor	K12		9	9	Poor
I22		8	8	Good	K13		8	8	Poor
I23		4	4	Poor	K14		15	15	Poor
I24		7	7	Poor	K15		12	12	Poor
I25		9	9	Poor	K16		10	10	Poor
J01		10	10	Poor	K17		14	14	Poor
J02		10	10	Poor	K18		11	11	Poor
J03		11	11	Poor	K19		8	8	Poor
J04		12	12	Poor	K20		14	14	Poor
J05		7	7	Poor	L01		7	7	Poor
J06		9	9	Poor	L02		6	6	Good
J07		14	14	Poor	L03		11	11	Poor



Sample Point	Surface Organic Layer (cm)	A Horizon (cm)	Topsoil Depth & Stripping Recommendations		Sample Point	Surface Organic Layer (cm)	A Horizon (cm)	Topsoil Depth & Stripping Recommendations	
L04		12	12	Poor	M06		9	9	Poor
L05		6	6	Poor	M07		12	12	Poor
L06		7	7	Good	M08		10	10	Poor
L07		10	10	Good	M09		5	5	Poor
L08		16	16	Poor	M10		4	4	Poor
L09		13	13	Poor	M11		8	8	Poor
L10		9	9	Poor	M12		9	9	Poor
L11		11	11	Poor	M13		9	9	Good
L12		9	9	Poor	M14		5	5	Good
L13		8	8	Poor	M15		8	8	Poor
L14		12	12	Poor	M16		5	5	Poor
L15		10	10	Poor	M17		14	14	Poor
L16		11	11	Poor	M18		0	0	Poor
L17		11	11	Poor	N01		11	11	Poor
L18		6	6	Poor	N02		4	4	Poor
L19		9	9	Poor	N03		5	5	Poor
L20		9	9	Poor	N04		5	5	Poor
L21		10	10	Poor	N05		6	6	Poor
L22		11	11	Poor	N06		9	9	Poor
L23		9	9	Poor	N07		8	8	Poor
L24		8	8	Poor	N08		9	9	Poor
L25		7	7	Poor	N09		13	13	Poor
L26		10	10	Poor	N10		13	13	Poor
L27		9	9	Poor	N11		12	12	Poor
L28		8	8	Poor	N12		7	7	Poor
L29		10	10	Poor	N13		10	10	Poor
L30		7	7	Poor	N14		10	10	Poor
L31		10	10	Poor	N15		8	8	Poor
M01		9	9	Poor	N16		10	10	Poor
M02		13	13	Poor	N17		7	7	Poor
M03	3	11	14	Poor	N18		14	14	Poor
M04		0	0	Poor	O01		5	5	Poor
M05		6	6	Poor	O02		7	7	Poor



Sample Point	Surface Organic Layer (cm)	A Horizon (cm)	Topsoil Depth & Stripping Recommendations		Sample Point	Surface Organic Layer (cm)	A Horizon (cm)	Topsoil Depth & Stripping Recommendations	
O03		7	7	Good	P11		11	11	Poor
O04		2	2	Good	P12		14	14	Poor
O05		7	7	Good	P13		10	10	Poor
O06		12	12	Poor	P14		10	10	Poor
O07		9	9	Poor	P15		24	24	Poor
O08		9	9	Poor	P16		11	11	Poor
O09		9	9	Poor	P17		34	34	Poor
O10		9	9	Poor	Q01		11	11	Poor
O11		12	12	Poor	Q02		11	11	Poor
O12		9	9	Poor	Q03		13	13	Poor
O13		4	4	Poor	Q04		13	13	Poor
O14		10	10	Poor	Q05		16	16	Poor
O15		9	9	Good	Q06		13	13	Poor
O16		5	5	Poor	Q07		11	11	Poor
O17		3	3	Poor	P15		24	24	Poor
O18		8	8	Poor	P16		11	11	Poor
O19		9	9	Poor	P17		34	34	Poor
OM1		5	5	Poor	Q01		11	11	Poor
OM2		6	6	Poor	Q02		11	11	Poor
OM3		4	4	Poor	Q03		13	13	Poor
OM4		7	7	Poor	Q04		13	13	Poor
OM5		8	8	Poor	Q05		16	16	Poor
OM6		9	9	Poor	Q06		13	13	Poor
P01		11	11	Poor	Q07		11	11	Poor
P02		12	12	Poor	Q08		36	36	Poor
P03		17	17	Poor	Q09		28	28	Poor
P04		13	13	Poor	Q10		9	9	Poor
P05		7	7	Poor	Q11		12	12	Poor
P06		12	12	Poor	Q12		10	10	Poor
P07		9	9	Poor	R01		18	18	Poor
P08		8	8	Poor	R02		14	14	Poor
P09		12	12	Poor	R03		14	14	Poor
P10		14	14	Poor	R04		14	14	Good



Sample Point	Surface Organic Layer (cm)	A Horizon (cm)	Topsoil Depth & Stripping Recommendations		Sample Point	Surface Organic Layer (cm)	A Horizon (cm)	Topsoil Depth & Stripping Recommendations	
R05		11	11	Good	T07		9	9	Poor
R06		11	11	Good	T08		10	10	Poor
R07		10	10	Good	T09		7	7	Good
R08		13	13	Good	U01		18	18	Poor
R09		12	12	Poor	U02		15	15	Poor
R10		9	9	Poor	U03		14	14	Poor
R11		15	15	Good	U04		14	14	Poor
R12		8	8	Poor	U05		13	13	Poor
R13		13	13	Good	U06		16	16	Poor
R14		11	11	Poor	U07		11	11	Poor
R15		12	12	Poor	U08		9	9	Poor
R16		11	11	Good	U09		0	0	Poor
R17		22	22	Good	U10		13	13	Good
R18		23	23	Good	U11		8	8	Poor
R19	7	17	24	Good	U12		7	7	Good
R20	4	27	31	Good	U13		13	13	Poor
R21	4	26	30	Poor	U14		17	17	Poor
R22	6	8	14	Poor	U15		13	13	Poor
S01		10	10	Poor	U16		11	11	Poor
S02		10	10	Poor	U17		15	15	Poor
S03		12	12	Good	U18		15	15	Poor
S04		12	12	Good					
S05		13	13	Good					
S06		11	11	Good					
S07		14	14	Poor					
S08		15	15	Poor					
S09		7	7	Good					
T01	3	8	11	Good					
T02		11	11	Good					
T03		9	9	Poor					
T04		6	6	Poor					
T05		5	5	Poor					
T06		5	5	Good					



## APPENDIX B     SNAKE PROTECTION PLAN



**REPORT**

# NaturEner Wild Rose 2 Wind Power Project Snake Protection Plan

Submitted to:

**NaturEner Energy Canada Inc.**

Suite 1000, 888 – 3rd Street SW  
Bankers Hall, West Tower  
Calgary, Alberta T2P 5C5

Submitted by:

**Golder Associates Ltd.**

2800, 700 – 2nd Street SW  
Calgary, Alberta  
T2P 2W2

20138237

March 2020



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Figure 1: Project Area and Sensitive Snake Range ..... 2

## 1.0 INTRODUCTION

NaturEner Energy Canada Inc. (NaturEner; the Proponent) retained Golder Associates Ltd. (Golder) to conduct wildlife surveys for changes the Alberta Utilities Commission (AUC) approved Wild Rose 2 Wind Power Project (the Project; AUC Approval Number 21968-D01-2017). The Project is located approximately 20 kilometres (km) southeast of the City of Medicine Hat, Alberta and 10 km south of the Town of Dunmore, in Cypress County, Alberta. The Project does not occur within 500 metres (m) of the sensitive snake species range (Alberta Environment and Parks [AEP] 2020) (Figure 1); however, the Project occurs north and east of the sensitive snake species range. As a result, AEP has requested that a Snake Protection Plan (SPP) be developed to provide guidance and recommendations to implement mitigations during Project construction and operations.

### 1.1 PURPOSE

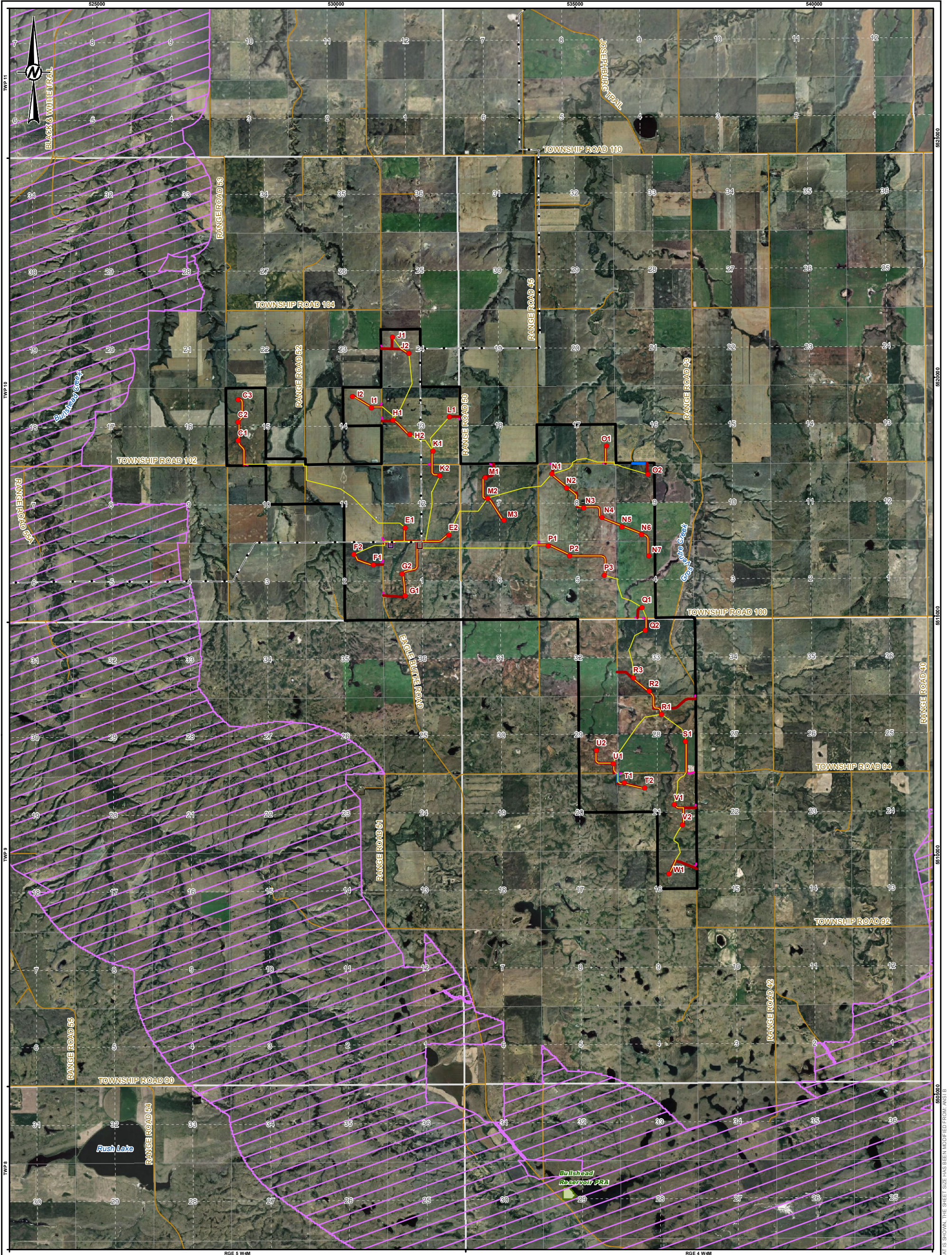
This SPP was developed to provide recommendations to avoid or reduce potential adverse effects to sensitive snake species during the construction and operation of the Project. This SPP applies to the Project Area, which includes the sections and quarter sections that were determined to be potentially affected by developments associated with the Project (Figure 1). The focus of the SPP is on the construction phase when the potential for the Project to interact with snakes is greatest. Activities during Project operations that would trigger implementation of the SPP include motor vehicle operation or additional earth works, should any be required. The Alberta *Wildlife Act* prohibits disturbing, injuring, or destroying a nest, den, or house of prescribed wildlife throughout the year (Government of Alberta [GOA 2018]). Therefore, a mitigation plan is required to help the Proponent comply with the Alberta *Wildlife Act*.

The Wildlife Directive for Alberta Wind Energy Projects (the Directive) lists the time restrictions and setback distances for snake hibernacula and rookeries and are included in Table 1 (AEP 2018). For turbines, setback distances are measured from the closest edge of the rotor swept area to the closest edge of the wildlife feature (e.g., hibernaculum, rookery), and other infrastructure (e.g., roads, feeder lines) are measured from the edge of the disturbance to the edge of the wildlife feature (AEP 2018). The Directive defines a rookery as the birthing location and nursery of wildlife, and a hibernaculum is defined as a shelter used by a hibernating animal or group of animals during the winter months (AEP 2018). Snake hibernacula have a year-round setback distance of 500 m for High Disturbance projects, such as wind power turbine construction (Table 1).

A list of listed (sensitive) and non-listed snake species that have potential to occur in the Project Area, and their recommended setback distances are provided in Table 1. Sensitive snakes in this region include bullsnake (*Pituophis catenifer sayi*), prairie rattlesnake (*Crotalus viridis*), and western hognose snake (*Heterodon nasicus*). Sensitive snakes are defined by the following criteria:

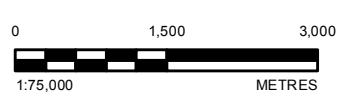
- Listed under Schedule 1, Schedule 2, or Schedule 3 of the federal *Species At Risk Act* (SARA) as Special Concern, Threatened, or Endangered (Government of Canada [GOC] 2020).
- Listed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) as Special Concern, Threatened, or Endangered (GOC 2020), but not yet listed under SARA.
- Recognized in any federal species management or guidance documents (Environment Canada 2009).
- Listed by Alberta Endangered Species Conservation Committee (GOA 2017) as Special Concern.
- Listed as At Risk, May Be At Risk, or Sensitive by the General Status of Alberta Wild Species (AEP 2015).





- LEGEND**
- PROJECT AREA
  - OPERATION FOOTPRINT
  - TURBINE LOCATION
  - ACCESS ROAD
  - EXISTING TRAIL UPGRADE
  - OPERATION AND MAINTENANCE
  - SUBSTATION
  - CONSTRUCTION FOOTPRINT
  - COLLECTOR SYSTEM
  - TEMPORARY ACCESS ROAD

- BASE FEATURES**
- EXISTING 2 x 240kV TRANSMISSION LINE
  - LOCAL ROAD
  - PARK / PROTECTED AREA
  - SENSITIVE SNAKE RANGE



**REFERENCE(S)**

1. PROJECT FOOTPRINT COMPONENTS DATA OBTAINED FROM NATURENER, JUNE 2019.
2. ALBERTA DIGITAL BASE DATA MAY BE OBTAINED FROM GEOGRATIS, © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED, ALTALIS LTD. © GOVERNMENT OF ALBERTA 2016. ALL RIGHTS RESERVED. , IHS MARKIT CANADA ULC., OR © GOVERNMENT OF ALBERTA, FISH AND WILDLIFE DIVISION 2018.
3. IMAGERY COPYRIGHT © 20150115 ESRI AND ITS LICENSORS. SOURCE: S\_ALBERTA\_2015, AB COUNTY. USED UNDER LICENSE, ALL RIGHTS RESERVED. PROJECTION: UTM ZONE 12 DATUM: NAD 83

CLIENT  
**NATURENER**

PROJECT  
**WILD ROSE 2 WIND POWER PROJECT**

TITLE  
**PROJECT AREA AND SENSITIVE SNAKE RANGE**

CONSULTANT		DATE
GOLDER		2020-03-19
DESIGNED	BJ	
PREPARED	LMS	
REVIEWED	KS	
APPROVED	TC	

PROJECT NO.	PHASE	REV.	FIGURE
20138237	3000	0	1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: A3S110

**Table 1: Snake Species with Potential to Occur in the Wild Rose 2 Project Area**

Common Name <sup>(a)</sup>	Scientific Name	Provincial Status <sup>(b)</sup>	COSEWIC Rank <sup>(c)</sup>	SARA Rank <sup>(c)</sup>	Time of Year	Key Wildlife Feature	Recommended Setback Distance (m) <sup>(d)</sup>
<b>bull snake</b>	<i>Pituophis catenifer sayi</i>	Sensitive	Endangered	Schedule 1: Endangered	year round	Hibernacula	500
					year round	Birthing rookery	200
plains gartersnake	<i>Thamnophis radix haydenii</i>	-	NA	NA	year round	Hibernacula	500
<b>prairie rattlesnake</b>	<i>Crotalus viridis</i>	Sensitive	Special Concern	Schedule 1: Special Concern	year round	Hibernacula	500
					year round	Birthing rookery	200
red-sided gartersnake	<i>Thamnophis sirtalis parietalis</i>	-	NA	NA	year round	Hibernacula	500
wandering gartersnake	<i>Thamnophis elegans vagrans</i>	-	NA	NA	year round	Hibernacula	500
<b>western hognose snake</b>	<i>Heterodon nasicus</i>	May Be At Risk	NA	NA	year round	Hibernacula	500
					year round	Birthing rookery	200

a) Species in *italics* = provincially (AEP 2015) listed species. Species in *italics* and **bold** = provincially (AEP 2015) and federally (GOC 2020) listed species.

b) AEP 2015.

c) GOC 2020.

d) AEP 2018.

m = metres; NA = not applicable; - = not assessed.

## 2.0 APPROACH

This SPP includes information from the Directive and industry Best Management Practices (BMPs) for reducing potential impact on snakes during project construction and operations. The Project-specific mitigation measures outlined in Section 4.0 focus on mitigating potential effects on sensitive snake species; however, all snakes (regardless of status) will be relocated from the work area if encountered.

Snakes may congregate in the Project Area during fall as they migrate towards their hibernacula to hibernate, and in the spring as they disperse. Individual snakes may travel over 20 km from a den site during migration periods (ESRD 2013), increasing their vulnerability to mortality due to collisions with moving equipment and vehicles. Similarly, the congregation of snakes at hibernacula and their high fidelity to den sites increases their vulnerability to disturbance during hibernation if a hibernaculum is damaged or destroyed during construction or operations (ESRD 2013). Additionally, vibration from moving equipment has the potential to cause hibernacula to collapse, even if located beyond the Project Area.

Inactive equipment and stock-piled materials may also provide shelter for snakes that are migrating through the area, and when the equipment/materials are moved the snakes could be subject to harm. Snakes are at the greatest risk of being harmed or killed during the following time periods (ESRD 2013):

- Spring migration: Snakes moving out of their hibernacula (April 1 to June 15).
- Fall migration: Snakes moving to their hibernacula (August 15 to October 31).
- Hibernacula: Snakes are overwintering in their hibernacula (November 1 to March 30).

This SPP was developed to address the most likely scenarios that may be encountered during the construction and operations of the Project.

## 2.1 APPLICATION

The Proponent will train onsite construction staff in protocols to report all snakes identified onsite to the Proponent's onsite environmental representative. The Proponent's onsite environmental representative will consult an appropriately trained Wildlife Monitor, who will complete all handling and relocations of snakes, if required. The method and approach to snake mitigation is dependent on the timing of construction and the species present. If snakes are observed in the construction area and it is determined by the Proponent's onsite environmental representative, in consultation with the Wildlife Monitor, that exclusion fencing is required, the Proponent will be responsible for installing all fencing under the direction of the on-site environmental representative.

The capture and handling of snakes in Alberta requires a research permit and collection licence from AEP. A permit will be acquired by the designated Wildlife Monitor prior to the implementation of this mitigation plan. The recommended mitigation measures described below apply to individual snake observations and when a sensitive snake hibernaculum and/or rookery is encountered within the Project Area.

## 3.0 MITIGATION FRAMEWORK

The mitigation framework is based on the concept of first seeking avoidance, then reduction, then reversal of negative effects that the Project may pose on snake species.

Avoidance is the first step towards reducing the risk of adverse effects on snakes and can be achieved through design or seasonal timing restrictions. However, if activities cannot avoid disturbance either spatially or temporally, then additional measures must be implemented to reduce risk to snake species. The Proponent's contractor will apply this SPP during construction and operations.

## 4.0 MITIGATION

Mitigation measures will be implemented by the Proponent in an effort to minimize potential effects of construction and operations activities on snake species and were developed considering approved projects of similar scope. Potential impacts to wildlife from construction and operations activities may include physical harm or mortality (incidental take), habitat destruction, and sensory disturbance. Disturbance may displace individuals, cause stress and abandonment of dens or breeding sites, and result in reduced breeding success or indirect mortality (ESRD 2013). Disturbance to snake hibernacula is unlikely to occur as the Project is located outside of 500 m from the sensitive snake species range (AEP 2020) and no hibernacula or rookeries were observed within the Project Area. However, construction and operations activities may cause harm to snakes that may travel through the Project Area during migration and summer foraging periods.

The following mitigations are intended to protect sensitive snake species (e.g., prairie rattlesnake, bull snake, western hognose snake) and potential hibernacula and rookeries that may occur in the Project Area.

### 4.1 Project Specific Mitigation Measures

- A properly trained Wildlife Monitor will be available to address all worker-snake interactions and will be in charge of handling and translocating all snakes that may be found on the work site. The Wildlife Monitor will have the authority to implement a written Stop Work order. If a Stop Work order is issued, the Proponent will discuss the biological rationale for the Stop Work Order and the need for additional mitigation with AEP-WM so that potential residual effects on snakes are acceptable before resuming construction activities.
- The on-site contractor health and safety training curriculum will include:
  - Snake awareness training for all workers, including safety around venomous snakes, and zero tolerance for wildlife harassment.
  - A review of the SPP.
- Discussion of snake awareness during tailgate meetings should occur daily during construction, or as necessary when onsite activities with the potential to harm snakes are being completed during operation of the Project (i.e., additional earthworks should any be required).
- In the event that a snake is discovered during construction, onsite staff and contractors will stop work immediately and promptly inform the Proponent's onsite environmental representative. The Proponent's onsite environmental representative, in consultation with the Wildlife Monitor, will take the following actions:
  - Identify the species of snake, if possible.
  - Determine if translocation is required, and if so, inform the AEP-WM Wildlife Biologist or appropriate regulating body. In most cases, individual snakes can be removed with snake tongs and relocated outside the construction zone. The prairie rattlesnake is Alberta's only poisonous snake and possesses venom that is harmful to humans; therefore, only qualified individuals (i.e., Wildlife Monitors) will be involved in snake translocation.

- The Proponent's onsite environmental representative will do daily checks under and around equipment and around stored materials before entering and starting equipment or working in the area to reduce potential snake mortality and to minimize worker-snake interactions.
- Open excavations (e.g., turbine pads, collector lines) will be checked daily by the Proponent's onsite environmental representative or a designate for snakes, and if present, a qualified individual will safely translocate them away from the work site.
- Minimize the amount of time that excavations are left open to reduce the likelihood of snakes entering them, especially during spring and fall seasonal movements (April 1 to October 31).
- A speed limit of 30 kilometres per hour (km/hr) is enforced on all grid and access roads within the Project Area during construction to mitigate potential snake road mortalities.
- In the event that a hibernaculum is discovered during construction, the AEP-WM Wildlife Biologist or appropriate regulating body will be contacted immediately to determine the most appropriate course of action.
- All observed Species At Risk features (e.g., snake hibernacula, rookeries) identified within the Project Area will be buffered by the appropriate setback distances specific to that species (Table 1).
- The installation of exclusion fencing may be considered around open excavations or the work site if snakes are observed during construction activities.
- Erosion control matting, if used, may result in snake mortality due to entrapment in material (Kapfer and Paloski 2011); therefore, alternative erosion control matting (e.g., loose mulch, straw bales, net-less erosion control blankets) will be used if snakes are observed during construction activities.

## 4.2 Best Management Practices

Recommendations and BMPs were committed to in the Renewable Energy Project Submission to Alberta Environment and Parks document (Golder 2019) and will apply in the event that a sensitive snake or habitat feature (hibernaculum or rookery) is observed within the Project Area. Recommendations and BMPs included:

- A site-specific Environmental Protection Plan for the construction phase of the Project will be developed for NaturEner staff and contractors. The Environmental Protection Plan will include details related to site-specific environmental concerns (e.g., sensitive wildlife and vegetation), and procedures (e.g., salvage of topsoil and control of soil erosion) identified for this Project.
- NaturEner will develop a wildlife education and observation reporting program for staff and contractors to be implemented throughout the construction phase of the Project.
- Project personnel will be trained to report wildlife issues, incidents with wildlife, nuisance wildlife, injured or dead wildlife as soon as it is safe to do so to NaturEner's on-site Project Manager, who will determine in collaboration with NaturEner's environmental representative corrective and/or emergency action to be taken in the field and what regulatory reporting is required.
- In the event that an injured or dead species listed provincially (AEP 2020) and/or federally (GOC 2020) is observed on-site, NaturEner will promptly notify the local AEP-WM Wildlife Biologist.

- Where avoidance of environmentally sensitive features was not possible during the planning of the Project, the activities will be scheduled outside the sensitive timing periods (refer to Appendix A of the Directive), or alternatively an experienced wildlife biologist will be on site to conduct pre-disturbance surveys for active nests, dens, breeding sites, or other sensitive wildlife habitat
- Speed limits will be established at 30 km/hr during construction and 50 km/hr during operations to minimize dust and collision risk for wildlife. During operations, the speed limit on the access road to turbines 1 and 2 located in native grassland will be 30 km/hr. Additional areas, such as stretches of road within 100 m of class III or higher wetlands, may be subject to a 30 km/hr speed limit during operations if pre-construction surveys indicate that a wetland supports amphibians.
- During sensitive species timing periods, the number of Project personnel, vehicle or daily activities will be minimized where Project site is located within an environmentally sensitive feature setback.

## 5.0 REPORTING

Reporting of snakes and/or hibernacula encountered during construction and operations will be completed by the Proponent's onsite environmental representative. The format and delivery method of reports shall be determined by the Proponent's onsite environmental representative. The details of these reports will include site identifiers (UTM coordinates and a site name), date, name of the Proponent's onsite environmental representative and Wildlife Monitor, and the details of any snakes or hibernacula found, the actions taken to protect sensitive snake species and the outcome of those actions. Photos, whenever reasonable to obtain, will be included with the report.

All information will be stored in a single project folder to ensure the data remains organized and complete. This includes information on snakes observed both within and outside of the construction limits, and pertinent information from completed field surveys. Records of consultation will be included in the project folder, including advice or specific recommendations. Reports will include evidence to confirm that the appropriate provincial government authorities were consulted.

## 6.0 LIMITATIONS

This SPP was prepared for the exclusive use of the Proponent, its assignees and representatives. It is intended to provide recommendations related to sensitive snake management for the NaturEner Wild Rose 2 Wind Power Project. It is not intended to apply to snakes outside of the Project Area or for other purposes than that stated herein.

The recommendations in this SPP have been prepared for specific application to the Project and have been developed in a manner consistent with the level of care normally exercised by environmental professionals currently practicing under similar conditions in the jurisdiction. Golder makes no other warranty, expressed or implied.

Any use which a third party makes of this SPP, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Golder accepts no responsibility for damages, if any suffered, by any third party as a result of decisions made or actions based on this SPP.

## 7.0 CLOSURE

We trust that this SPP is sufficient for your present requirements. If you have any questions, please do not hesitate to contact the undersigned.

Yours Truly,

**Golder Associates Ltd.**

*Original Signed by:*

Brianne Jonsson, BSc  
*Terrestrial Biologist*

*Original Signed by:*

Kristine Sare, MSc, PBIOL  
*Senior Wildlife Biologist*

*Original Signed by:*

Trevor Cuthbert, MSc, PMP  
*Associate, Project Director*

BHJ/KS/TC/pls

## 8.0 REFERENCES

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