



**DRAFT ENVIRONMENTAL PROTECTION PLAN**  
**WATERCHARGER BATTERY ENERGY STORAGE FACILITY**

Prepared for:  
**TRANSALTA CORPORATION**

Prepared by:  
**MATRIX SOLUTIONS INC.**

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## TABLE OF CONTENTS

1	INTRODUCTION.....	1
	1.1 Purpose .....	1
	1.2 Finalizing the Environmental Protection Plan.....	2
2	REGULATORY REQUIREMENTS .....	2
3	PROJECT DETAILS .....	4
	3.1 Construction Schedule .....	4
4	ENVIRONMENTAL SETTING.....	4
5	ROLES AND RESPONSIBILITIES .....	7
	5.1 Proponent.....	8
	5.2 Construction Manager (EPCM) .....	8
	5.3 Environmental Monitor .....	9
6	ENVIRONMENTAL TRAINING .....	9
7	COMPLIANCE MONITORING AND ENVIRONMENTAL INSPECTION .....	10
8	COMMUNICATIONS .....	11
	8.1 Reporting .....	11
	8.2 Regulatory Agencies and the Community .....	11
	8.3 Stakeholder Issues Tracking.....	11
	8.4 Records Management.....	12
	8.4.1 Environmental Records Management Delegation.....	12
	8.4.2 Information Available Onsite.....	13
9	ENVIRONMENTAL PROTECTION MEASURES.....	13
	9.1 Pre-construction Phase.....	14
	9.2 Construction Phase .....	15
	9.3 Operational Phase.....	29
10	CONTINGENCY AND EMERGENCY RESPONSE PLANNING.....	32
	10.1 Contingency and Emergency Response Plan: Spills.....	32
	10.2 Contingency and Emergency Response Plan: Erosion and Sediment Control.....	33
	10.3 Contingency and Emergency Response Plan: Fire .....	33
	10.4 Contingency and Emergency Response Plan: Wildlife.....	34
	10.5 Nest Discovery Contingency Plan .....	34
	10.6 Contingency and Emergency Response Plan: Archaeology and Heritage .....	34
	10.7 Noise Complaint Resolution Plan.....	35
11	SPECIAL CONSIDERATIONS.....	36
12	REFERENCES.....	38

## IN-TEXT TABLES

TABLE 1	Regulatory Requirements .....	3
TABLE 2	Baseline Conditions for Valued Component/Environmental Resources .....	5
TABLE 3	Pre-construction Mitigation Measures .....	14
TABLE 4	Construction Mitigation Measures .....	16
TABLE 5	Operations Mitigation Measures .....	29
TABLE 6	Adaptive Management .....	37

## APPENDICES

APPENDIX A	Project-specific Drawings
APPENDIX B	Project Approvals, Permits, Consents
APPENDIX C	Regulatory and Environmental Commitments Tracking List
APPENDIX D	Contact Information
APPENDIX E	Snake Protection Plan
APPENDIX F	Emergency Contact Information
APPENDIX G	Spill Response Form
APPENDIX H	Issue Tracking Form

# 1 INTRODUCTION

This environmental protection plan (EPP) outlines environmental protection measures to avoid or reduce potential effects during the construction and operation phases of the TransAlta Corporation's WaterCharger battery energy storage system (BESS) facility (the Project). The Project development footprint is approximately 3.6 hectares, on land that is currently owned by TransAlta. Project-specific drawings for further reference are provided in Appendix A.

## 1.1 Purpose

The EPP is written in construction specification format and is intended to be read in conjunction with project-specific environmental documents. These documents provide information specific to project-specific environmental issues.

The EPP provides project-specific environmental protection measures and commitments to be considered and carried out during the construction and operation phases of the Project.

Specifically, the EPP:

- Summarizes relevant environmental regulatory requirements and contents of the EPP to ensure TransAlta, its authorized representatives, contractor(s), and subcontractor(s) are aware of the commitments and obligations required for the Project.
- Summarizes the Project details and environmental setting for the Project area.
- Summarizes the roles and responsibilities of the construction staff.
- Outlines the training required for Project personnel during construction.
- Describes the compliance monitoring and environmental inspection process.
- Outlines communications in terms of reporting, consultation with regulatory agencies and stakeholders, issues tracking, and records management.
- Summarizes environmental protection measures related to Project construction and operations activities as reference information to Project personnel to support decision making and provide links to more detailed information.
- Provides instructions for carrying out construction and operation activities to avoid or minimize potential environmental effects.
- Outlines contingency and emergency response plans that will address unanticipated events to ensure that the environment, public, and infrastructure are protected.

- Outlines adaptive management measures to follow to modify or create new procedures to address site conditions not anticipated in the EPP.

## 1.2 Finalizing the Environmental Protection Plan

The EPP will include both generic and site-specific environmental protection measures that have been developed based on past Project experience, and consultation with stakeholders and regulators. These measures will reflect current industry best management practices where they are applicable to Project activities. Steps to finalize the EPP before construction include:

- incorporating the regulatory framework, permits, approval conditions, and commitments developed by TransAlta;
- developing environmental protection mitigations for approval by TransAlta;
- refining monitoring activities to conduct as assurance of the environmental protection mitigations;
- incorporating the results of supplemental studies; and
- continuing ongoing engagement programs with stakeholders.

## 2 REGULATORY REQUIREMENTS

Regulatory guidelines applicable to the Project are outlined in Table 1. Copies of the Project's regulatory approvals, licenses, and permits will be added to Appendix B of this EPP as they are received for the Project. Conditions of the regulatory approvals, licenses and permits, and commitments made in the environmental evaluation, will also be added to Appendix C (Regulatory and Environmental Commitments Tracking List).

**TABLE 1 Regulatory Requirements**

Regulations	Requirements
<i>Hydro and Electric Energy Act</i> (Province of Alberta 2019)	<ul style="list-style-type: none"> <li>• Applications to be submitted in accordance with Section 11 - Approval of Power Plant.</li> </ul>
Alberta Utilities Commission (AUC) <i>Rule 007: Applications for Power Plants, Substations, Transmission Lines, Industrial System Designations and Hydro Developments and Gas Utility Pipelines</i> (Rule 007; AUC 2021a)	<ul style="list-style-type: none"> <li>• Provides AUC approval for the construction, alteration, operation, and connection of power plants, hydro developments, substations, transmission lines, battery storage facilities, and industrial system designations, pursuant to the <i>Hydro and Electric Energy Act</i>.</li> <li>• Applications to be submitted under Rule 007, TP16 to TP22 which outline the requirements for an environmental evaluation.</li> </ul>
AUC <i>Rule 012: Noise Control</i> (Rule 012; AUC 2021b)	<ul style="list-style-type: none"> <li>• This rule requires that the noise from a facility, measured cumulatively with noise from other energy-related facilities, does not exceed the permissible sound level determined in accordance with this rule.</li> <li>• Pertains to Sections 2 through 5 of AUC Rule 012.</li> </ul>
<i>Environmental Protection and Enhancement Act</i> (Province of Alberta 2020)	<ul style="list-style-type: none"> <li>• Applications are required to be submitted under the <i>Environmental Protection and Enhancement Act</i> for the Project.</li> <li>• Includes guidelines on Alberta Ambient Air Quality Objectives.</li> </ul>
<i>Historical Resources Act</i> (Province of Alberta 2016a)	<ul style="list-style-type: none"> <li>• Provides historical resources approval from the Province of Alberta to complete work.</li> <li>• Provides guidelines to follow if any historical resources are found during construction.</li> </ul>
<i>Water Act</i> (Province of Alberta 2017a) and <i>Alberta Wetland Policy</i> (ESRD 2013a)	<ul style="list-style-type: none"> <li>• Whenever activities are within wetlands or ephemeral water bodies.</li> <li>• Temporary diversion of water.</li> </ul>
<i>Weed Control Act</i> (Province of Alberta 2017b)	<ul style="list-style-type: none"> <li>• Eradicate or control prohibited noxious or noxious listed weed species.</li> </ul>
<i>Wildlife Act</i> (Province of Alberta 2018)	<ul style="list-style-type: none"> <li>• Outlines the requirement for authorization to alter wildlife habitat and ecological lands within Crown land.</li> </ul>
<i>Migratory Birds Convention Act, 1994</i> (Government of Canada 2017)	<ul style="list-style-type: none"> <li>• Federal legislation that prohibits the disturbance, destruction, or alteration of nests, eggs, or nest shelters of any migratory birds, whether or not they are considered a species at risk.</li> </ul>
<i>Species At Risk Act</i> (Government of Canada 2019)	<ul style="list-style-type: none"> <li>• Federal legislation that identifies and protects species of special concern.</li> </ul>
Rocky View County Land Use Bylaw C-8000-2020 (Rocky View County 2021)	<ul style="list-style-type: none"> <li>• Municipal development plan and bylaws that outline the land use zoning and approved or permitting activities for the Project area.</li> </ul>



### **3 PROJECT DETAILS**

The Project will operate as a as a BESS facility consisting of modular battery units with a total capacity of 180 megawatts (MW). The Project will be charged by electricity generated by TransAlta’s operational Ghost hydroelectric facility and connected to the existing Ghost 20S Substation. The Project will allow energy generated at the Ghost hydroelectric facility (i.e., Ghost Dam) to be stored during periods of lower demand to be dispatched to the electrical grid during periods of higher demand. The Project provide reliable electricity service to the Alberta electrical grid and support the development of additional renewable energy for Albertans.

The Project is in a portion of SE-13-026-06 W5M approximately 15 km west of the Town of Cochrane, Alberta, in Rocky View County, entirely on private land owned by TransAlta. The Project footprint area is 3.3 ha and includes the physical disturbance area required for construction of the Project, a temporary construction facilities area, and a site access road.

The Project components include modular battery units, inverters, battery management system, thermal management system, transformers, switchgear, safety systems, protection and controls, and an access road. The Project foundations for the modular battery units (up to 7 m long by 2 m wide) will either be concrete slabs reinforced by steel piles or shallow concrete slab-on-grade foundations , depending on the results of geophysical investigations. The Project infrastructure will be surrounded by a chain-linked fence topped with barbed wire.

#### **3.1 Construction Schedule**

Project construction is expected to take approximately 9 months starting in March 2023 with an in-service date of December 2023.

### **4 ENVIRONMENTAL SETTING**

The Project is located on private land owned by TransAlta. Information for the site overview and characterization of the existing conditions for the environmental setting was collected by desktop assessment and field surveys. Most of the land surrounding the Project site is modified grassland, mixedwood, coniferous, and deciduous wooded areas, and water bodies (Ghost Lake and Bow River). The Project is directly south of the confluence of Ghost Lake and the Bow River, and a residential area and campground are located north and northwest of the Project. Field assessments were completed for soil and terrain, fish and fish habitat, wetlands, vegetation, rare plant and weeds, and wildlife in 2021.

The existing environmental setting or baseline conditions description based on the results of the desktop and field assessments completed for the Project are summarized in Table 2.

**TABLE 2 Baseline Conditions for Valued Component/Environmental Resources**

Valued Component/Resource	Environmental Setting/Baseline Conditions
Soil and Terrain	<ul style="list-style-type: none"> <li>• Topsoil checks were completed on foot by a qualified soil scientist on September 20, 2021.</li> <li>• The topsoil in the Project footprint has moderate wind erosion risk as a result of the silt loam surface texture.</li> <li>• The topography across the Project footprint is gently undulating with slope gradients ranging from 0% to 0.5% (Slope Class 1).</li> <li>• The risk of water erosion for the Project is low.</li> </ul>
Surface Water, Aquatics Species, and Habitat	<ul style="list-style-type: none"> <li>• There are no watercourses or aquatics species habitat within the Project footprint.</li> <li>• The Project is adjacent to the north side of an unnamed watercourse that appears to be an old channel associated with the Bow River.</li> <li>• The watercourse is not mapped on the Code of Practice for Watercourse Crossings – Calgary Management Area Map (ESRD 2012); however, due to its proximity to the Bow River, it is designated as Class C with a restricted activity period from September 16 to April 15.</li> </ul>
Groundwater	<ul style="list-style-type: none"> <li>• The Valley Train aquitard/aquifer underlies the Project footprint and is anticipated to range in thickness between 6.5 and 45 m.</li> <li>• The drillers logs from the nearest water wells within 1 km of the Project indicate lithology predominantly composed of sand and gravel sediments interbedded with clay and sandy clay.</li> <li>• Based on topography, the interpreted flow direction of shallow groundwater in the Valley Train aquitard/aquifer within the Project footprint is generally to the north, towards the topographic low associated with Bow River valley.</li> <li>• Groundwater elevations are expected to fluctuate seasonally and will be highest after periods of heavy or prolonged precipitation and snowmelt.</li> <li>• A total of 11 water well records were identified within 1 km of the Project footprint. Eight wells have a proposed domestic use and three wells a proposed industrial use. The majority of well records are reported to have a total depth of less than 50 m.</li> <li>• There are three active groundwater diversion licences and one surface water diversion licence within 1 km of the Project. Groundwater licences are for diversion from unnamed aquifers for recreation purposes (including fairgrounds, entertainment centres, sporting complexes, halls, zoos, restaurants, cafes, clubhouses, or stables). The surface license is for hydro-power purpose.</li> </ul>
Wetlands	<ul style="list-style-type: none"> <li>• There is one wetland (shrubby swamp) located adjacent to the south boundary of the Project footprint.</li> <li>• No open or standing water was observed during the assessments; however, the wetland may collect water earlier in the growing season and during periods of snow melt and high precipitation.</li> </ul>

Valued Component/Resource	Environmental Setting/Baseline Conditions
Vegetation Species and Communities	<ul style="list-style-type: none"> <li>• There are two dominant plant communities in the terrestrial assessment area (TAA; Project footprint plus 30 m buffer) – modified grassland, and deciduous dominant wooded (native vegetation).</li> <li>• No rare plants or rare ecological communities were observed in TAA during the surveys. Based on the vegetation communities and species observed, the habitat has low potential for rare plants.</li> <li>• No prohibited noxious weeds were observed in the TAA.</li> <li>• Multiple noxious and non-native invasive species were observed during the 2021 field assessments throughout the TAA, including, creeping thistle (<i>Cirsium arvense</i>), common toadflax (<i>Linaria vulgaris</i>), and perennial sow-thistle (<i>Sonchus arvensis</i>), listed as noxious weeds under the Alberta Weed Control Regulation (Province of Alberta 2016b).</li> </ul>
Wildlife Species and Habitat	<ul style="list-style-type: none"> <li>• The wildlife assessment area (WAA; within 1,000 m of the Project lease) is within the sharp-tailed grouse survey area, sensitive raptor range (i.e., bald eagle, golden eagle, and prairie falcon), mountain goat and sheep areas – disease Buffer, and a Key Wildlife and Biodiversity Zone. No other provincially designated sensitive wildlife areas overlap with the WAA.</li> <li>• During the nocturnal auditory amphibian surveys, boreal chorus frog was the only amphibian species heard calling from within the Project footprint and a 100 m buffer. One wetland, a seasonal shrubby swamp, was identified in the TAA although it is unlikely to contain suitable habitat for amphibian breeding. The unnamed watercourse south of the Project footprint does contain some breeding habitat for amphibian species. No amphibian species at risk (SAR) were heard during the nocturnal auditory amphibian surveys.</li> <li>• Two wildlife SAR were detected during the wildlife reconnaissance surveys: bald eagle and golden eagle. Bald eagle and golden eagle are listed provincially as Sensitive (AEP 2021a) and federally as Not at Risk by COSEWIC (COSEWIC 2020).</li> <li>• Three wildlife features potentially requiring setbacks were identified during the wildlife reconnaissance surveys: <ul style="list-style-type: none"> <li>✦ One beaver lodge located within 100 m of the Project footprint, activity status unknown.</li> <li>✦ One inactive stick nest located in the Project footprint; species and activity status could not be determined at time of survey.</li> <li>✦ One den located in the Project footprint; species and activity status could not be determined at time of survey.</li> </ul> </li> <li>• No sharp-tailed grouse or signs of sharp-tailed grouse leks were observed during the fall surveys. However, some habitat with lekking potential is located within the WAA (e.g., modified grassland, tame pasture).</li> <li>• There are several SAR with ranges that overlap the WAA that could occur where suitable habitat is present (e.g., potential for golden eagle and prairie falcon nesting on steep cliffs along the Bow River).</li> </ul>

Valued Component/Resource	Environmental Setting/Baseline Conditions
Historical Resources	<ul style="list-style-type: none"> <li>• TransAlta received <i>Historical Resources Act</i> requirements (HRA Number 4940 21 0075 001) on October 25, 2021, for the Project activities (Appendix B). Pursuant to Section 37(2) of the <i>Historical Resources Act</i>, a Historical Resources Impact Assessment (HRIA) was required for all portions of the Project footprint.</li> <li>• A HRIA was completed for the Project on November 25 and 26, 2021 under Permit 21-207. There were no findings that warranted the delineation of a historical site or further work at the site. Historical Resource Act approval will be recommended by the historic resources consultant that completed the HRIA and the results of the HRIA will be reported to ACMSW in December 2021</li> </ul>
Land Use and Environmentally Significant Areas	<ul style="list-style-type: none"> <li>• The predominant land use for the WAA is water bodies (Ghost Lake and Bow River), modified grassland, and unproductive ((e.g., substation, campground, residential area).</li> <li>• The Project has been sited to avoid ESAs.</li> <li>• Land within the WAA is designated Agricultural, General District as per the Rocky View County's land use bylaw (Rocky View County 2021). TransAlta has submitted a Re-designation application to Rocky View County requesting a Direct Control District (NEW) bylaw for the Project site to accommodate the operation of a battery energy storage Project. The land in the Project footprint is currently leased and used for camping and livestock (horse) grazing and boarding.</li> </ul>

TAA - terrestrial assessment area

WAA - wildlife assessment area

EPEA - *Environmental Protection and Enhancement Act*

HRA - *Historical Resources Act*

ESA - environmentally significant area

## 5 ROLES AND RESPONSIBILITIES

The environmental management team (EMT) includes individuals who (through their combined efforts) are responsible for overseeing compliance with required environmental protection measures presented in this EPP. Specifically, the EMT includes:

- The Proponent (TransAlta)
- Construction Manager (Engineering, Procurement, Construction Management [EPCM] consultant)
- Construction Contractor (Company supervised by the EPCM that carries out the construction activities)
- Environmental Monitor (Third party environmental consultant)

Staff working on this Project will be familiar with and follow TransAlta's health, safety, and environment management system and environmental and/or standard operating practices. Contact information for the Project team is provided in Appendix D.

## 5.1 Proponent

TransAlta will provide site inspection to verify compliance with regulatory environmental and construction requirements and specifications, as well as environmental requirements and mitigation measures as described in this EPP. Protection of the environment is the responsibility of all Project personnel, and all Project personnel will be expected to act and react in a manner that meets all environmental commitments related to the Project. The Construction Manager is responsible for managing construction of the Project, and Project personnel will be required to comply with all environmental requirements related to the contract(s).

## 5.2 Construction Manager (EPCM)

The Construction Manager is responsible for coordinating various disciplines during construction, which includes ensuring all disciplines are conducting construction activities in compliance with the Project environmental commitments and the EPP. The responsibilities of the Construction Manager include:

- Understand the Project's environmental commitments as described in the EPP and develop, oversee, and implement Project execution plans in accordance with those requirements.
- Mitigation measures are implemented, and non-compliance issues are resolved as directed by the proponent and/or the Environmental Monitor.
- Communicate the Project's environmental commitments and EPP specifications to internal management and crew leads.
- Proactively discuss environmental concerns, non-compliance issues, and requirements with the Environmental Monitor and the proponent, as required.
- Provide final direction to disciplines on environmental activities, including any internal environmental inspector(s).
- Allocate resources to ensure the Project's environmental commitments are being met by each discipline, including during upset or non-ideal construction conditions, and immediately take corrective and contingency actions related to non-compliance issues.
- Establish and oversee communication between disciplines to facilitate sharing of environmental information.
- Monitor and act on environmental non-compliance trends, and ensure they are documented in a prompt and effective manner.
- Ensure resources are in place to rectify internal or external environmental problem areas or non-compliances and monitor to ensure corrective action(s) are completed.
- Support the proponent and/or the Environmental Monitor in communicating with regulators regarding construction activities, tasks, specifications, or environmental concerns, as required.

The Construction Manager for the Project will be responsible for managing a qualified contractor, experienced with the installation of all erosion and sediment control measures. Project personnel will report directly to the Construction Manager and confirm that potential environmental issues for the Project are addressed consistently in the field.

### **5.3 Environmental Monitor**

TransAlta will hire an Environmental Monitor for the Project who will work independently of the Construction Manager on the Project site. The Environmental Monitor will serve as TransAlta's field environmental representative who will be in direct communications with the Construction Manager to verify compliance with and implementation of the EPP during all phases of construction. The Environmental Monitor will report directly to TransAlta. If the Construction Manager or Construction Contractor have an internal or contracted environmental inspector/auditor, those responsibilities are not defined in this EPP.

Responsibilities of the Environmental Monitor include:

- Monitor, assess, inspect, investigate, and verify compliance with the EPP and report non-compliance or risks of non-compliance to TransAlta and the Construction Manager.
- Implement and oversee the reporting and communication of compliance activities to TransAlta and the Construction Manager in a consistent manner.
- Perform regular site inspections to assess environmental compliance as well as gauge the effectiveness of applied mitigation measures.
- Work with and advise the Construction Manager and Construction Contractor to ensure the specifications in the EPP are understood and met.
- Regularly meet with the Construction Manager and address any compliance issues and proactively communicate and reinforce the Project's environmental commitments as described in the EPP.
- Assist TransAlta in being a point of contact for regulatory agencies.

## **6 ENVIRONMENTAL TRAINING**

Environmental training and orientation will be conducted in accordance with TransAlta's policies regarding training, sustainability, and environmental, health and safety. All Project personnel involved with the Project will receive environmental training prior to initiating work to enhance their awareness of environmental regulations, requirements, and commitments related to the Project. Specifically, the training will ensure all workers are aware of any environmentally sensitive areas (e.g., active wildlife dens, wetlands, active raptor stick nests), communication and reporting procedures, and knowledgeable of the Environmental Monitor's role for the Project. The environmental awareness training will be repeated for any new personnel arriving onsite, or when a new phase of the Project begins (e.g., clearing and grading, excavation, equipment installation). The Environmental Monitor, with guidance from the TransAlta

environmental specialist, will be responsible for providing the environmental awareness training during the initial Project kickoff meeting prior to the start of construction and the subcontractor completing initial siteworks for the site (roads, transformers, battery units). This same information will be provided by TransAlta environmental specialist during subsequent kickoff meetings with new personnel/crews headed to site. In addition, the Environmental Monitor will review key environmental sensitivities with these crews during weekly onsite meetings to confirm new crews/disciplines are aware of these sensitivities.

## **7 COMPLIANCE MONITORING AND ENVIRONMENTAL INSPECTION**

The compliance monitoring program is designed with consideration for the potential short- and long-term effects of the Project on the environment. The Environmental Monitor and Construction Manager will inspect and monitor construction activities on a weekly basis during active construction, and after significant rain events, to confirm compliance with all environmental regulations and commitments.

Construction activities will require regular inspection and monitoring to confirm necessary erosion and sediment control structures are appropriately installed, maintained, and removed when no longer required. The Construction Contractor will oversee the construction, operation, and maintenance of any temporary watercourse crossings to confirm proper installation, and that mitigation commitments (as detailed below) are met.

TransAlta and the Construction Manager have authority on the work site and the ability to issue stop work orders. Generally, the Construction Manager will request (verbally) that the Construction Contractor address a concern, which the Construction Contractor(s) must deal with in a timely manner (depending on the nature of the concern). TransAlta and the Construction Manager can also issue a Directive (written order) to the contractor, which would detail the concern to be addressed as well as the date and time by which the concern must be resolved. All issues will be identified and corrected at the field level if possible. The Construction Manager will undertake a weekly meeting detailing the planned construction activities and potential issues that could arise that week. This meeting will be documented in the safety meeting template.

## 8 COMMUNICATIONS

### 8.1 Reporting

Reporting requirements for the construction phase as it relates to the environmental component of the Project and performance against the requirements of this EPP will include:

- Details and outcomes of regulatory and environmental commitments, as identified in Appendix C
- Review and assessment of the EPP

### 8.2 Regulatory Agencies and the Community

Ongoing contact with regulatory agencies and the community may be required at various times during the construction phase. Examples might include:

- Notification to regulators of additional works
- Notification to regulators of an environmental incident

### 8.3 Stakeholder Issues Tracking

A concerns/complaints and inquiry handling system will be implemented during the construction and operations phase. All stakeholder concerns/complaints will be handled through our stakeholder reporting system during construction (and operations).

Stakeholders will be provided with a toll-free number and email to report any concerns/complaints by way of regular construction update mailings. The Construction Manager is to report any stakeholder concerns to TransAlta's stakeholder relations liaison during construction:

**Rhonda Cummings**

**Lead Advisor, External Stakeholder Relations – Hydro**

**Phone: (403) 267-3676**

**Email: [Rhonda\\_Cummings@transalta.com](mailto:Rhonda_Cummings@transalta.com)**

Stakeholders may also speak directly with the onsite Construction Manager to report any issues.

A concern/complaint shall be recorded if it is about an issue that has caused, or has reasonable potential in the future to cause:

- An adverse effect on human health, safety, or the environment



Details of the concerns/complaints raised will be recorded in a Stakeholder Issue Tracking document, and will include:

- Date, time and nature of the complaint or inquiry
- Type of communication (telephone, letter, meeting, etc.)
- Name, address and contact information
- Nature of the complaint
- Response details including follow up or resolution

The Construction Manager will be responsible for reporting concerns/complaints directly to TransAlta within 24 hours. TransAlta will be responsible for addressing concerns through direct contact with stakeholders. Resolution or mitigation measures to stakeholder concerns will be communicated to the Construction Manager during daily/weekly construction meetings.

A summary of stakeholder concerns / complaints will be prepared for discussion during monthly County construction update meetings.

## **8.4 Records Management**

### **8.4.1 Environmental Records Management Delegation**

The Construction Manager will be responsible for the management of the following environmental records:

- Inspection reports
- Training records
- Stakeholder Issue Tracking documents
- Audit reports and follow up (internal and external)
- Subcontractor monitoring
- Waste management records
- Weed control records
- Correspondence

TransAlta and the Environmental Monitor will be responsible for the management of the following environmental records:

- The EPP
- Monitoring environmental planning obligations
- Communicating monitoring results to regulators
- Regulator communications

For any non-compliance event, personnel should attempt to rectify it immediately, or as soon as practicable, and an incident report will be completed and submitted to the Environmental Monitor and TransAlta. If required by permit conditions, legislation, or best management practices, copies of the report shall be submitted to the applicable regulatory authority. Incidents that are not rectified in a timely manner or have the potential to cause significant harm to the environment, human health, or property will be investigated. The Environmental Monitor will work with the Construction Manager and TransAlta to communicate deficiencies, identify root-causes, and determine corrective actions to ensure the incident is not repeated.

All documents and records will be held in accordance with TransAlta environment, health and safety (EHS) records life cycle process and environment, health and safety (EHS) document and records management policies.

#### **8.4.2 Information Available Onsite**

The following information will be available onsite:

- EPP
- Copies of the Project's regulatory approvals, licenses, and permits
- Occupational Health and Safety Act and Regulations
- Safety Manual
- Material Safety Data Sheets for products used or stored onsite

## **9 ENVIRONMENTAL PROTECTION MEASURES**

This section of the EPP describes the project-specific environmental mitigation measures that were committed to in the Project application, amendments, permits, and approvals, and are also best management practices for this work. The measures will be used to protect sensitive environmental features. The EPP will be finalized before construction and will include approval conditions as well as any new information.

TransAlta is committed to taking responsibility for potential environmental effects of the Project through informed environmental planning, assessment, mitigation, and reclamation. Indefinite terms may be included in some environmental protection measures to provide TransAlta with the flexibility needed during all phases to accommodate unique situational circumstances where general environmental protection measures must be refined or site-specific environmental protection measures applied as part of the adaptive management process.

## 9.1 Pre-construction Phase

This section outlines general measures to be undertaken prior to the commencement of construction. The objectives of these environmental protection measures are to ensure:

- resources are properly identified and marked in the field before the initiation of vegetation clearing and ground disturbance to avoid or minimize potential project effects;
- the construction footprint is properly delineated to prevent inadvertent trespass; and
- accesses to and from the work sites are properly marked to maintain safety and environmental compliance.

Mitigation measures for resources and activities or concerns for the pre-construction phase are provided in Table 3.

**TABLE 3 Pre-construction Mitigation Measures**

Potential Effect/Resource	Mitigation Measure(s)
Trespass and Property Damage	<ul style="list-style-type: none"> <li>• The contractor(s) will flag the clearing limits prior to clearing activity.</li> <li>• Mark and locate all foreign lines and cables using One-Call services before the start of construction to ensure the safety of the workers and public.</li> </ul>
Worker and Public Safety	<ul style="list-style-type: none"> <li>• Clearly delineate areas that have access restrictions with signage. Restrict access to construction personnel only.</li> <li>• Fence perimeter of Project as soon as practicable.</li> <li>• Mark and locate all foreign lines and cables using One-Call services before the start of construction to ensure the safety of the workers and public.</li> <li>• The local public and potentially affected stakeholders will be notified of the construction schedule via a project mailout and signage posted along Secondary Highway 810 1A and at entry points to the Project site.</li> <li>• Prominent “Stop” signage will be installed at intersections, where not already present.</li> </ul>
Disturbance of Sensitive Resources	<ul style="list-style-type: none"> <li>• The Construction Manager will confirm any flagging required for environmental protection (e.g., wetland boundary, archaeological resources) is completed prior to commencement of construction.</li> <li>• Following clearing, re-mark all sensitive resources as necessary, and supplement markings with signage.</li> <li>• The Environmental Monitor will confirm the accuracy of all environmentally sensitive resource locations and will ensure marking is maintained during construction.</li> </ul>
Disturbance of Nesting Birds	<ul style="list-style-type: none"> <li>• Construction activities that pose a high risk to nesting birds (e.g., mowing ground vegetation and clearing shrubs and trees) will be conducted outside of the raptor nesting period (March 15 through July 15; ESRD 2013b) and the migratory bird nesting period (Zone B4; April 15 to August 31; ECCC 2018).</li> <li>• If construction occurs within these windows, a nest sweep will be conducted no more than 7 days prior to construction to identify active nests.</li> <li>• If an active nest is found, it will be subject to site-specific mitigation measures. Measures may include a protective nest setback, modifying the construction schedule to avoid activities until fledging has concluded, or non-intrusive nest monitoring.</li> </ul>

Potential Effect/Resource	Mitigation Measure(s)
	<ul style="list-style-type: none"> <li>• Work will be conducted in compliance with the <i>Migratory Birds Convention Act</i>.</li> </ul>
<p>Pre-construction wildlife sweeps</p> <p>Disturbance of sensitive wildlife features (e.g., dens, stick nests)</p>	<ul style="list-style-type: none"> <li>• A wildlife sweep for important wildlife features (e.g., amphibian species at risk breeding sites, overwintering dens) will be conducted prior to clearing during appropriate seasonal timing to understand the status of any features identified. During sensitive periods (i.e., raptor and migratory bird nesting periods in spring and summer) the wildlife sweep should be completed within 7 days of construction activities. In less sensitive seasons (i.e., fall and winter), the wildlife sweep can be completed at a more flexible schedule (i.e., generally within 10 days of construction activities). If important habitat features are identified, additional site-specific mitigation measures may be required.</li> <li>• Based on available snake hibernacula habitat adjacent to south and west of the Project footprint and the observation of a snake at site during wildlife surveys for the Project, a snake hibernacula survey should be conducted in the spring (typically late April) prior to the start of construction to survey for active snake hibernacula. Snake hibernacula can have a year-round setback of up to 200 m (Boukall 2021, Pers. Comm).</li> <li>• If a snake hibernacula is found during the snake hibernacula survey or snake mortality become a concern at site, TransAlta will implement measures from the snake protection plan (Appendix E).</li> </ul>

## 9.2 Construction Phase

This section outlines general measures to be undertaken during construction. The objectives of these environmental protection measures are to:

- avoid and minimize the potential environmental effects associated with general construction activities;
- minimize surface disturbance to the extent practical;
- restrict the construction footprint to approved workspace; and
- implement project-specific construction mitigation measures to minimize disturbance to environmental features, where avoidance is not technically or economically practicable.

Mitigation measures for resources and activities or concerns for the construction phase are provided in Table 4.

**TABLE 4 Construction Mitigation Measures**

Activity/Potential Project Effect	Mitigation Measures
<b>Health &amp; Safety</b>	
Improper monitoring, recording, and house keeping	<ul style="list-style-type: none"> <li>• An onsite Environmental Monitor and Construction Manager, with experience providing environmental recommendations, will provide oversight and monitoring of the construction activities.</li> </ul>
Trespass and public safety	<ul style="list-style-type: none"> <li>• Fence perimeter of Project as soon as practicable.</li> </ul>
Fire safety	<ul style="list-style-type: none"> <li>• The BESS will be designed, constructed and operated to meet applicable fire safety codes and standards.</li> <li>• A project-specific emergency response plan (ERP) will be developed in conjunction with the Rocky View fire department prior to the start of construction.</li> <li>• The battery cells and module will be manufactured to minimize risk of fire (thermal runaway) which may include:               <ul style="list-style-type: none"> <li>○ appropriate selection of battery material</li> <li>○ design of battery separator</li> <li>○ fire-retardant packing to prevent spread of fire between packs</li> </ul> </li> <li>• Qualified vendors with a proven reputation for battery energy storage construction and installation will be selected by TransAlta.</li> <li>• Installation and commissioning will be conducted by qualified technicians.</li> </ul>
<b>Waste Storage and Management</b>	
Waste disposal	<ul style="list-style-type: none"> <li>• All wastes must be disposed of in an appropriate and environmentally acceptable manner, in accordance with all applicable permits, laws, regulations and guidelines.</li> <li>• Excavated soils, unsuitable for use as fill or for dressing slopes, are to be disposed of at a site approved by the Construction Manager.</li> <li>• All field personnel will carry out their personal garbage daily or deposit it in appropriate receptacles provided by the contractor.</li> <li>• Disposal areas for excess soil/rock shall not block natural drainage into a wetland or watercourse. As well, disposal areas must not be located within 30 m of a watercourse or wetland.</li> <li>• The contractor must provide sufficient control of runoff from all excess soil/rock disposal sites, to control sediment transport and prevent the possibility of pollution or obstruction of watercourses.</li> <li>• The burning of vegetation debris or other wastes is not allowed without a fire permit issued by the Rocky View County Fire Services.</li> <li>• All measures to divert waste from landfills will be taken, such as onsite use of materials (i.e., uncontaminated rock, soil, and brush) that meet local or provincial standards and guidelines, and the disposal of construction and demolition debris at approved sites.</li> <li>• Disposal areas for excess soil/rock shall be stabilized to the satisfaction of the Construction Manager, immediately upon completion of site use.</li> <li>• All access roads/trails shall remain unobstructed by waste material.</li> </ul>

Activity/Potential Project Effect	Mitigation Measures
<b>Fuel Storage and Handling</b>	
Fuel storage and Handling	<ul style="list-style-type: none"> <li>• The contractor will be responsible for the safe handling (storage and transfer) of all fuels and other hazardous materials being used at the construction site. Gasoline, diesel fuel, grease and oil that are needed for equipment are WHMIS controlled substances and subject to proper labelling, handling, and storage procedures.</li> <li>• TransAlta procedures and provincial and federal regulations for storage and handling of hazardous materials will be implemented.</li> <li>• Project personnel responsible for storage and handling of hazardous materials will be appropriately trained and made aware of contingency plans.</li> <li>• TransAlta will comply with the Alberta Fire Code and the National Fire Code.</li> <li>• Stored oils, grease, gasoline, diesel and other fuels, designated fueling stations or storage areas (for any hazardous materials) will be located on level ground at least 100 m from any watercourse, wetland, known groundwater source or private well.</li> <li>• Vehicle fueling will occur at least 30 m from any watercourse or wetland.</li> <li>• Petroleum spill kits will accompany each piece of heavy equipment/machinery and there will be adequate supplies in each kit to address the worst-case scenario in which a spill could occur on the ground, in surface water, or in groundwater.</li> <li>• All handling, storage or transfer, of petroleum products will be carried out in such a way as to prevent the contamination of groundwater and surface water.</li> <li>• Machinery will be inspected regularly to confirm that it is properly maintained and free from petroleum, oil, or lubricant (POL) leaks and drips. Contractors and subcontractors will be required to implement appropriate control measures to prevent POL leaks during construction activities</li> <li>• All necessary precautions will be exercised to minimize spillage, misplacement, mislabeling, or loss of fuels and other hazardous materials used during construction.</li> <li>• Spills will be handled in accordance with environmental contingency plans (Section 10.1).</li> </ul>
<b>Dust and Noise</b>	
Dust emissions Noise levels	<ul style="list-style-type: none"> <li>• Application of dust suppressant (i.e., water or calcium chloride) during periods of heavy activity and/or dry or windy periods will be conducted to keep airborne dust below the ambient standard.</li> <li>• Activities that generate large quantities of fugitive dust will be reduced during high winds.</li> <li>• Discuss dust suppressant options with local County officials. Where TransAlta is directed to undertake dust suppression on county gravel roads used to access the Project area, the preference would be to use calcium chloride or other non-hydrocarbon based material prior to the start of construction activity and to apply water or other dust suppressant during periods of heavy activity and dry/windy periods to dampen disturbed areas of soil, as needed and appropriate.</li> </ul>

Activity/Potential Project Effect	Mitigation Measures
	<ul style="list-style-type: none"> <li>• All equipment will be maintained in good working order, including emission and noise suppression equipment.</li> <li>• Construction equipment will have mufflers that comply with guidelines for sound and emission levels.</li> <li>• Impulsive sources (e.g., hammering and pile driving, if required) will be avoided at night and in the early morning, Sundays, holidays, and on weekends during summer months (June through August).</li> <li>• Prior to heavy noise activities such as pile driving, neighbouring residents will receive notice of this activity.</li> <li>• Respond and resolve noise complaints during construction.</li> </ul>
<b>Soil</b>	
Soil salvage and handling	<ul style="list-style-type: none"> <li>• Soil salvage will be conducted during construction. Soils will be salvaged using appropriate excavation, handling, and stockpiling and will be used for reclamation.</li> <li>• Prior to construction, soil conditions (i.e., moisture levels) that may require special consideration or handling will be identified.</li> <li>• Vegetation and soil disturbance will be minimized by restricting grading to the area required for the access and safe operation of equipment and vehicles in native vegetation cover. In areas of native vegetation cover where construction activities occur, but stripping or grading is not required, the integrity of the sod and topsoil will be conserved through minimized fencing and working during frozen conditions. If work cannot be completed during frozen conditions, matting or geotextiles will be used.</li> <li>• Stripped topsoil will be stored in windrows on other topsoil or on geotextiles, a minimum of 2 m from embankments, slumps, cuts, wetlands, and 1 m from excavation areas. If the soil is prone to wind erosion, topsoil stockpiles and windrows will be covered or packed with approved equipment and/or seed mix.</li> <li>• Subsoil will be stored on previously stripped areas or geotextile material. Sufficient space (minimum of 1 m) will be left between the edge of the topsoil storage pile, the subsoil storage pile, and excavation areas, to ensure the materials do not slough into each other or back into the excavation.</li> <li>• If the winds are too high such that visible wind erosion is occurring, and other mitigation are not practical and functional, soil handling activities will be postponed. Soils that have a high risk of wind erosion include all major soil series in the Project area.</li> </ul>
Erosion and sedimentation control	<p>Erosion and sediment control (ESC) measures will be implemented during Project construction, until revegetated areas are stable, and erosion and sediment controls are no longer needed. These controls will include:</p> <ul style="list-style-type: none"> <li>• Temporary erosion berms of sandbags, subsoil, or weed-free hay bales will be installed to slow overland flow and prevent sedimentation downslope.</li> <li>• Silt fences will be installed downslope of areas where grading is to occur to mitigate sediment laden water from depositing sediment further downslope or scouring the slope further.</li> </ul>

Activity/Potential Project Effect	Mitigation Measures
	<ul style="list-style-type: none"> <li>• Sediment traps will be installed in areas of soils erosion potential. Such measures will include: silt fencing, rolled erosion control products (i.e., matting or geotextiles), tackifiers, and weed-free hay bales.</li> <li>• Where topsoil stripping is required, it will be stock piled 100 m from any water body for use in final grading and revegetation.</li> <li>• Silt fencing or other mitigation measures to prevent sediment mobilization to wetlands, will be placed only in areas required to intercept overland flow. Wetlands will not be completely encircled with fencing to allow access for amphibians.</li> <li>• All areas must be stabilized if further disturbance is not expected to occur within 30 days or as soon as possible once complete. Potential stabilization options include temporary seeding, covering, or application of tackifier.</li> <li>• Mud mats or a similar product, will be installed at site entrances to prevent mud from being tracked off-site, and to clean incoming vehicles or machinery.</li> <li>• Work that includes ground disturbance will not be completed during significant rainfall (&gt;12 mm per 24 hours) in areas prone to erosion.</li> <li>• Direct grading may occur in areas where little or no vegetation exists after a light rain; however, verify that no grading will occur directly following heavy rains to reduce potential sediment laden runoff.</li> <li>• Regularly maintain and/or clean (i.e., remove sediment accumulation from silt fencing or sediment traps) ESC measures for effectiveness.</li> <li>• ESC measures will be inspected on a regular basis to identify areas in need of repair or further mitigation.</li> <li>• Inspections will occur after each significant rainfall event or weekly, whichever is more frequent, and complete deficiencies such as repair, cleaning, or additional ESC measures, will be completed or installed in a timely manner.</li> </ul>
Soil compaction due to construction equipment and machinery	<ul style="list-style-type: none"> <li>• Prior to construction, soil conditions (i.e., moisture levels) that may require special consideration or handling will be identified.</li> <li>• During construction, direct employees and contractors/suppliers will remain within the designated Project construction area. If tracked or wheeled equipment is required outside of this area, low ground pressure tires, matting, or wide-pad tracks will be used.</li> <li>• Low ground pressure tires or wide-pad tracks will be used during construction to minimize ground disturbance.</li> <li>• Vegetation and soil disturbance will be minimized by restricting grading to the area required for the access and safe operation of equipment and vehicles.</li> <li>• If work cannot be completed during frozen conditions, matting or geotextiles will be used in areas identified to require special consideration or handling.</li> <li>• Operating construction vehicles during wet soil conditions or high rain fall events will be avoided when soil compaction may be increased.</li> <li>• Soil salvage will be paused during time of heavy rainfall.</li> </ul>



Activity/Potential Project Effect	Mitigation Measures
Reduction of soil quality from accidental spills or releases of contaminants	<p>Industry best management practices for spill prevention and spill response will be implemented to prevent or minimize the release of deleterious substances from construction machinery and the BESS equipment. Spill prevention measures will include:</p> <ul style="list-style-type: none"> <li>• Primary and secondary leak containment are integrated into the design of the battery cells, modules, and surrounding metal enclosures: <ul style="list-style-type: none"> <li>○ Individual battery cells contain an electrolyte in a viscous gel or paste. The cell contains the electrolyte, the anode/cathode, and separator. The cell itself is fully enclosed. The individual cells are contained in a fully sealed module.</li> <li>○ The module itself will provide primary containment in the unlikely event a cell were to leak electrolyte.</li> <li>○ The modules are contained in racks, with the racks being placed inside a sealed, NEMA-rated enclosure (container). The enclosure would provide further secondary containment to the cells/modules.</li> </ul> </li> <li>• Emergency spill kits will be kept onsite at designated centralized areas and will contain at a minimum, the following: <ul style="list-style-type: none"> <li>○ personal protective equipment</li> <li>○ sorbent pads or dikes and shovels</li> <li>○ emergency contact list for appropriate agencies</li> <li>○ flashlights</li> </ul> </li> <li>• Secondary containment (drip trays) will be used to prevent leaks of contaminants into soil during servicing.</li> <li>• Bulk fuel, servicing vehicles, vehicles with box-mounted fuel tanks will carry spill prevention, containment, and spill cleanup materials appropriate to clean up a spill to the volume of fuels or hazardous materials they contain.</li> <li>• Heavy equipment and light vehicles will have access to spill cleanup materials.</li> <li>• All fuel transfer vehicles will have spill kits, and additional spill kits will be located at designated centralized areas.</li> <li>• All fuel tanks will comply with environmental standards. Fuel tanks will be installed and maintained in an approved manner under appropriate regulation with all necessary containment, drip collection, nozzle requirements, and spill kits.</li> <li>• An impervious barrier will be used underneath equipment and vehicles when servicing and refueling.</li> <li>• All hazardous materials will be stored and secured in approved containers and labelled according to WHMIS and Transportation of Dangerous Goods (TDG) regulations. All safety data sheets (SDS) will be available for each product stored onsite, and all oils, grease, gasoline, diesel, and other hazardous materials will be stored at least 100 m away from any wetland, drainage, or other water body. All hazardous waste and waste materials will be stored in a secure designated area (laydown yard), away from environmentally sensitive features.</li> </ul>

Activity/Potential Project Effect	Mitigation Measures
	<ul style="list-style-type: none"> <li>• All hazardous and waste materials will be disposed of regularly, in approved containers or waste facility. This may include regional landfills, recycling centres, construction/demolition disposal or recovery sites, product suppliers, and/or hazardous waste management facilities. During construction, fuel, lubricating fluids, hydraulic fluids, antifreeze, herbicides, biocides, or other chemicals will not be released on the ground or into any wetland. All garbage will be collected and disposed of in an appropriate manner.</li> <li>• In the event of a spill, the containment, cleanup, remediation, disposal, and reporting of all spills of waste / hazardous waste materials will be completed as promptly as possible.</li> <li>• If the spill exceeds the threshold for mandatory reporting, the spill will be reported to the Alberta Environmental hotline 1.800.222.6514 (24-hour emergency line) or 1-877-944-0313 (non-emergency inquiries) to self-report a spill, release, or environmental emergency.</li> </ul>
<b>Surface Water</b>	
Reduction of water quality from accidental spills, or releases of contaminants	<ul style="list-style-type: none"> <li>• Primary and secondary leak containment are integrated into the design of the battery cells, modules, and surrounding metal enclosures: <ul style="list-style-type: none"> <li>○ Individual battery cells contain an electrolyte in a viscous gel or paste. The cell contains the electrolyte, the anode/cathode, and separator. The cell itself is fully enclosed. The individual cells are contained in a fully sealed module.</li> <li>○ The module itself will provide primary containment in the unlikely event a cell were to leak electrolyte.</li> <li>○ The modules are contained in racks, with the racks being placed inside a sealed, NEMA-rated enclosure (container). The enclosure would provide further secondary containment to the cells/modules.</li> </ul> </li> <li>• Emergency spill kits will be kept onsite at designated centralized areas and will contain at a minimum, the following: <ul style="list-style-type: none"> <li>○ personal protective equipment</li> <li>○ sorbent pads or dikes and shovels</li> <li>○ emergency contact list for appropriate agencies</li> <li>○ flashlights</li> </ul> </li> <li>• Equipment used in and near watercourses will be mechanically sound, having no leaking fuel tanks or hydraulic systems or unmanaged seeping mechanical parts.</li> <li>• Designated fueling stations and storage areas (for any hazardous materials) will be located at least 100 m from any watercourse, wetland, known groundwater source or private well.</li> <li>• Vehicle fueling will occur at least 100 m from any watercourse or wetland.</li> <li>• Construction material, excess material, construction debris, and empty containers will be stored at least 30 m away from the banks of watercourses.</li> </ul>

Activity/Potential Project Effect	Mitigation Measures
Reduction of water quality or stress to fish from deleterious substances	<ul style="list-style-type: none"> <li>• TransAlta and the Construction Contractor will ensure no noticeable soil erosion or significantly increased levels of suspended sediment in any watercourse above background levels.</li> <li>• Any exposed, erodible soil within 30 m of a watercourse will be stabilized (mulched) at the end of each working day, as appropriate, and permanently stabilized upon completion of construction.</li> <li>• There will be regular inspection of all sediment and erosion control measures on a weekly basis during construction and before (if reasonably predicted) and after rain events.</li> <li>• Equipment necessary for ESC measures will be onsite during construction to address high precipitation events, or increases in water levels (e.g., spillway water release) and additional requirements that may be anticipated to arise.</li> <li>• Excavated soils or other material near the streambank will be stabilized with suitable materials to prevent erosion and subsequent potential sediment deposition into the watercourse.</li> </ul>
<b>Fish and Fish Habitat</b>	
Spread of whirling disease (i.e., disease affecting salmonid species) from equipment, vehicles, or machines working in water during a potential high-water event in the watercourse south of the Project footprint	<ul style="list-style-type: none"> <li>• Construction operations when working in or near water will follow the protocol outlined in Appendix D: Decontamination Instructions for Industrial and Construction operations in the <i>Decontamination Protocol For Work In or Near Water</i> (AEP 2020). Equipment and machinery from within Alberta require Level 1 decontamination to be used at site or to leave the site. If equipment and machinery is brought in from outside the province it requires Level 3 decontamination.</li> </ul>
<b>Groundwater</b>	
Reduction of groundwater quality from accidental spills, or releases of contaminants	<p>Industry best management practices for spill prevention and spill response will be implemented to prevent or minimize the release of deleterious substances from construction machinery and the BESS equipment. Spill prevention measures will include:</p> <ul style="list-style-type: none"> <li>• Primary and secondary leak containment are integrated into the design of the battery cells, modules, and surrounding metal enclosures: <ul style="list-style-type: none"> <li>○ Individual battery cells contain an electrolyte in a viscous gel or paste. The cell contains the electrolyte, the anode/cathode, and separator. The cell itself is fully enclosed. The individual cells are contained in a fully sealed module.</li> <li>○ The module itself will provide primary containment in the unlikely event a cell were to leak electrolyte.</li> <li>○ The modules are contained in racks, with the racks being placed inside a sealed, NEMA-rated enclosure (container). The enclosure would provide further secondary containment to the cells/modules.</li> </ul> </li> <li>• Emergency spill kits will be kept onsite at designated centralized areas and will contain at a minimum, the following: <ul style="list-style-type: none"> <li>○ personal protective equipment</li> <li>○ sorbent pads or dikes and shovels</li> <li>○ emergency contact list for appropriate agencies</li> <li>○ flashlights</li> </ul> </li> <li>• Secondary containment (drip trays) will be used to prevent leaks of contaminants into soil during servicing.</li> </ul>

Activity/Potential Project Effect	Mitigation Measures
	<ul style="list-style-type: none"> <li>• Designated fueling stations and storage areas (for any hazardous materials) will be located at least 100 m from any watercourse, wetland, known groundwater source or private well.</li> <li>• Bulk fuel, servicing vehicles, and vehicles with box-mounted fuel tanks will carry spill prevention, containment, and spill cleanup materials appropriate to clean up a spill to the volume of fuels or hazardous materials they contain.</li> <li>• Heavy equipment and light vehicles will have access to spill cleanup materials.</li> <li>• All fuel transfer vehicles will have spill kits, and additional spill kits will be located at designated centralized areas.</li> <li>• All fuel tanks will comply with environmental standards. Fuel tanks will be installed and maintained in an approved manner under appropriate regulation with all necessary containment, drip collection, nozzle requirements, and spill kits.</li> <li>• An impervious barrier will be used underneath equipment and vehicles when servicing and refueling.</li> <li>• All hazardous materials will be stored and secured in approved containers and labelled according to WHMIS and TDG regulations. All SDS will be available for each product stored onsite, and all oils, grease, gasoline, diesel, and other hazardous materials will be stored at least 100 m away from any wetland, drainage, or other water body. All hazardous waste and waste materials will be stored in a secure designated area (laydown yard), away from environmentally sensitive features.</li> <li>• All hazardous and waste materials will be disposed of regularly, in approved containers or waste facility. This may include regional landfills, recycling centres, construction/demolition disposal or recovery sites, product suppliers, and/or hazardous waste management facilities. During construction, fuel, lubricating fluids, hydraulic fluids, antifreeze, herbicides, biocides, or other chemicals will not be released on the ground or into any wetland. All garbage will be collected and disposed of in an appropriate manner.</li> <li>• In the event of a spill, the containment, cleanup, remediation, disposal, and reporting of all spills of waste / hazardous waste materials will be completed as promptly as possible.</li> <li>• If the spill exceeds the threshold for mandatory reporting, the spill will be reported to the Alberta Environmental hotline 1.800.222.6514 (24-hour emergency line) or 1.877.944.0313 (non-emergency inquiries) to self-report a spill, release, or environmental emergency.</li> </ul>
<p>Changes to groundwater quantity (dewatering of the excavation area, reduction in or obstruction of horizontal flow across the area of the aquifer from the driven piles, which can reduce groundwater flow to areas downstream of the Project Footprint)</p>	<ul style="list-style-type: none"> <li>• Prior to construction, groundwater conditions (i.e., groundwater levels, presence of perched water table and depth to bedrock) will be assessed as a part of geotechnical investigation to determine the potential risk of encountering groundwater during excavations.</li> </ul>

Activity/Potential Project Effect	Mitigation Measures
	<ul style="list-style-type: none"> <li>• If groundwater is encountered in the excavation areas for foundations, cable and wires, water will be pumped onto stable well-vegetated areas or into settling ponds, filter bags, tarpaulins, sheeting, rocks, sand bags, or other appropriate sediment filtering devices in a manner that does not cause erosion or sediment to re-enter a water body in accordance with Directive 055: Storage Requirements for the Upstream Petroleum Industry (ERCB 2001).</li> <li>• Obtain approval from the Environment Monitor for the location of all water discharge locations.</li> <li>• Ensure pumps are placed above ordinary high-water mark on an impermeable barrier.</li> <li>• Ensure pumps are stabilized and have the capacity and hoses are of adequate length to allow excavation water to be discharged at the desired location(s).</li> <li>• Avoid placing pumps within 50 m of a watercourse, drainage, wetland or water body.</li> <li>• Monitor the water discharge site to ensure that erosion, saturation of the discharge site or flooding does not occur. Suspend dewatering and apply erosion control measures, reduce the flow, or move the discharge site if it appears that the above effects could occur.</li> </ul>
<b>Wetlands and Water Bodies</b>	
Changes to water quality and quantity within the wetland	<ul style="list-style-type: none"> <li>• An undisturbed vegetated buffer strip, ideally 10 m in width, should be maintained around the wetland south of the Project footprint, if possible, to provide avoidance of unintentional direct impacts. The boundaries of the vegetation buffer will be flagged.</li> <li>• If the 10 m vegetation buffer is not required and not flagged, the boundaries of the wetland located south of the Project footprint will be flagged to alert Contractors to the presence of the wetland.</li> <li>• Equipment used in and near watercourses or wetlands will be mechanically sound, having no leaking fuel tanks or hydraulic systems or unmanaged seeping mechanical parts.</li> <li>• Construction machinery will be cleaned of mud and vegetation prior to entering and leaving wetlands within the construction area during ground breaking activities (e.g., grubbing and grading), to minimize the spread of invasive plant species.</li> <li>• Temporary ancillary elements requiring additional lands not identified during wetland investigations will be surveyed for wetlands prior to disturbance.</li> <li>• All ESC measures will be prepared in advance of construction and will be implemented and monitored to manage runoff from construction areas.</li> <li>• TransAlta and the Construction Contractor will ensure no noticeable soil erosion or significantly increased levels of suspended sediment in any wetland above background levels.</li> <li>• Any exposed, erodible soil within 30 m of a wetland will be stabilized (mulched) at the end of each working day, as appropriate, and permanently stabilized upon completion of construction.</li> <li>• New drainage channels will be routed away from wetland areas.</li> <li>• Designated fueling and storage areas will be at least 100 m from wetlands.</li> </ul>

Activity/Potential Project Effect	Mitigation Measures
	<ul style="list-style-type: none"> <li>• Equipment maintenance and refueling required in the field will not occur within 30 m of a wetland.</li> <li>• Regularly maintain and/or clean (i.e., remove sediment accumulation from silt fencing or sediment traps) ESC measures for effectiveness.</li> <li>• ESC measures will be inspected on a regular basis to identify areas in need of repair or further mitigation.</li> <li>• Inspections will occur after each significant rainfall event or weekly, whichever is more frequent, and complete deficiencies such as repair, cleaning, or additional ESC measures, will be completed or installed in a timely manner.</li> </ul>
<b>Vegetation</b>	
Spread of invasive plant species	<ul style="list-style-type: none"> <li>• Inform contractors about the importance of weed control and their responsibilities, as well as which species are present on site.</li> <li>• Complete equipment cleaning and disinfection best management practices prior to the transport of equipment and machinery to the Project.</li> <li>• Vehicles and equipment will use only designated roadways and access routes during construction.</li> <li>• Equipment shall not be used or moved if there is a risk to spreading noxious weeds or prohibited noxious weeds.</li> <li>• Construction contractors will not use lands outside the Project footprint for construction activities without TransAlta approval.</li> <li>• Weed inspection forms will be completed by contractors and periodically submitted to the County, if required, by the Environmental Monitor.</li> <li>• Revegetate soil stockpiles as soon as possible with species that provide erosion control.</li> <li>• A certified weed-free mix must be used during the reclamation of disturbance caused from construction activities.</li> <li>• Complete regular inspections of the site (late spring and mid-summer) to assess weed presence during construction.</li> <li>• Any prohibited noxious weeds identified during construction activities (and operations) will be destroyed as per the Weed Control Act.</li> <li>• Control of weeds will occur through a variety of approaches (cultural, mechanical, biological, chemical) depending on the specific plant species infestation and timing during the Project's life.</li> <li>• Weed control will be timely (i.e., will occur within the same growing season and at the appropriate growth stage for the species) and records of weed control activities will be kept.</li> <li>• During weed control, reduce uncontrolled overspray and unnecessary damage to native vegetation.</li> </ul>
Loss or alteration of native vegetation cover	<ul style="list-style-type: none"> <li>• Contractor(s) will flag the clearing limits prior to clearing activity.</li> <li>• Contractor(s) will not clear trees or other vegetation outside of flagged clearing limits.</li> <li>• During construction, direct employees and contractors/suppliers will remain within the designated Project construction area. If tracked or wheeled equipment is required outside of this area, low ground pressure tires, matting, or wide-pad tracks will be used.</li> <li>• Project footprint will be reclaimed to equivalent land capability at end-of-life.</li> </ul>

Activity/Potential Project Effect	Mitigation Measures
<p>Reduction of vegetation cover and/or health due to accidental spills, leaks from battery modules or other equipment, or other releases of contaminants on vegetation</p>	<p>Industry best management practices for spill prevention and spill response will be implemented to prevent or minimize the release of deleterious substances from construction machinery and the BESS equipment. Spill prevention measures will include:</p> <ul style="list-style-type: none"> <li>• Primary and secondary leak containment are integrated into the design of the battery cells, modules, and surrounding metal enclosures: <ul style="list-style-type: none"> <li>○ Individual battery cells contain an electrolyte in a viscous gel or paste. The cell contains the electrolyte, the anode/cathode, and separator. The cell itself is fully enclosed. The individual cells are contained in a fully sealed module.</li> <li>○ The module itself will provide primary containment in the unlikely event a cell were to leak electrolyte.</li> <li>○ The modules are contained in racks, with the racks being placed inside a sealed, NEMA-rated enclosure (container). The enclosure would provide further secondary containment to the cells/modules.</li> </ul> </li> <li>• Emergency spill kits will be kept onsite at designated centralized areas and will contain at a minimum, the following: <ul style="list-style-type: none"> <li>○ personal protective equipment</li> <li>○ sorbent pads or dikes and shovels</li> <li>○ emergency contact list for appropriate agencies</li> <li>○ flashlights</li> </ul> </li> <li>• Bulk fuel, servicing vehicles, vehicles with box-mounted fuel tanks will carry spill prevention, containment, and spill cleanup materials appropriate to clean up a spill to the volume of fuels or hazardous materials they contain.</li> <li>• Heavy equipment and light vehicles will have access to spill cleanup materials.</li> <li>• All fuel transfer vehicles will have spill kits, and additional spill kits will be located at designated centralized areas.</li> <li>• All fuel tanks will comply with environmental standards. Fuel tanks will be installed and maintained in an approved manner under appropriate regulation with all necessary containment, drip collection, nozzle requirements, and spill kits.</li> <li>• An impervious barrier will be used underneath equipment and vehicles when servicing and refueling.</li> <li>• All hazardous materials will be stored and secured in approved containers and labelled according to WHMIS and TDG regulations. All SDS will be available for each product stored onsite, and all oils, grease, gasoline, diesel, and other hazardous materials will be stored at least 100 m away from any wetland, drainage, or other water body. All hazardous waste and waste materials will be stored in a secure designated area (laydown yard), away from environmentally sensitive features.</li> <li>• All hazardous and waste materials will be disposed of regularly, in approved containers or waste facility. This may include regional landfills, recycling centres, construction/demolition disposal or recovery sites, product suppliers, and/or hazardous waste management facilities. During construction, fuel, lubricating fluids, hydraulic fluids, antifreeze, herbicides, biocides, or other chemicals will not be released on the</li> </ul>

Activity/Potential Project Effect	Mitigation Measures
	<p>ground or into any wetland. All garbage will be collected and disposed of in an appropriate manner.</p> <ul style="list-style-type: none"> <li>• In the event of a spill, the containment, cleanup, remediation, disposal, and reporting of all spills of waste / hazardous waste materials will be completed as promptly as possible.</li> <li>• If the spill exceeds the threshold for mandatory reporting, the spill will be reported to the Alberta Environmental hotline 1-800-222-6514 (24-hour emergency line) or 1-877-944-0313 (non-emergency inquiries) to self-report a spill, release, or environmental emergency.</li> </ul>
<b>Wildlife</b>	
Disturbance of migratory and nesting birds	<ul style="list-style-type: none"> <li>• Construction activities that pose a high risk to nesting birds (e.g., mowing ground vegetation and clearing shrubs and trees) will be conducted outside of the raptor nesting period (March 15 through July 15; ESRD 2013b) and the migratory bird nesting period (Zone B4; April 15 to August 31; ECCC 2018).</li> <li>• Complete clearing and remove suitable nesting vegetation (e.g., hedgerows) within the Project footprint outside of the raptor nesting period and the migratory bird nesting period.</li> <li>• If construction occurs within these windows, a nest sweep should be conducted no more than 7 days prior to construction to identify active nests. Refer to pre-construction phase mitigation measures (Section 9.1) for more details.</li> <li>• Work will be conducted in compliance with the <i>Migratory Birds Convention Act</i>.</li> </ul>
Wildlife mortality or injury	<ul style="list-style-type: none"> <li>• A wildlife sweep for important wildlife features (e.g., amphibian species at risk breeding sites, overwintering dens) will be conducted prior to clearing during appropriate seasonal timing to understand the status of any features identified. During sensitive periods (i.e., raptor and migratory bird nesting periods in spring and summer) the wildlife sweep should be completed within 7 days of construction activities. In less sensitive seasons (i.e., fall and winter), the wildlife sweep can be completed at a more flexible schedule (i.e., generally within 10 days of construction activities). If important habitat features are identified, additional site-specific mitigation measures may be required.</li> <li>• Based on available snake hibernacula habitat adjacent to the south and west of the Project footprint and the observation of a snake at site, a snake hibernacula survey should be conducted in the spring (typically late-April) prior to the start of construction to survey for active snake hibernacula. Snake hibernacula can have a year-round setback of up to 200 m (Boukall 2021, Pers. Comm.) at this site.</li> <li>• If a snake hibernacula is found during the snake hibernacula survey or snake mortality become a concern at site, TransAlta will implement measures from the snake protection plan (Appendix F).</li> <li>• A beaver lodge was observed within 100 m of the Project footprint during the wildlife surveys. The activity status of the lodge could not be determined at the time of the survey. If the beaver lodge is determined active during subsequent pre-construction surveys, a setback of 100 m may apply.</li> </ul>



Activity/Potential Project Effect	Mitigation Measures
	<ul style="list-style-type: none"> <li>• One inactive stick nest was observed in the Project footprint during wildlife surveys. The species and activity status could not be determined at time of survey. If the nest is determined active during subsequent pre-construction surveys, a setback of 100 m to 1,000 m may apply, depending on species use.</li> <li>• The inactive stick nest in the Project footprint can be removed while it is unoccupied as per AEP direction (Boukall 2021, Pers. Comm.). The nest is unlikely to be occupied prior to the start of the raptor nesting period on March 15.</li> <li>• One den was observed in the Project footprint. Use of the den by coyotes was observed; however, based on the timing of observations (e.g., November), the den is not currently an active natal den. If the den is determined to be active during subsequent pre-construction surveys, a setback of 100 m may apply while the den is active (AEP 2021b). If the den is determined to be inactive, a setback is not required (Boukall 2021, Pers. Comm.).</li> <li>• Based on the current footprint, all potential Crown owned land to be crossed during Project construction is within 100 m of existing arterial all-weather roads. Therefore, adherence to the timing restriction for the Key Wildlife and Biodiversity Zone (i.e., January 15 to April 30) is not required, provided that ground conditions during construction are favorable. Construction may continue until adverse ground conditions are encountered.</li> <li>• On private land, clearing activities within the Key Wildlife and Biodiversity Zone will be scheduled outside of the timing restriction of January 15 to April 30, where practicable.</li> <li>• All parties on site must carry out their garbage and food debris daily (to limit wildlife encounters), avoid obstruction of access trails, and take all necessary precautions to prevent pollution or obstruction of watercourses.</li> <li>• Prominent “Stop” signage will be installed at intersections, where not already present.</li> <li>• Project construction personnel will not harass, feed, or interact with wildlife.</li> <li>• In case of persistent wildlife encounters, TransAlta personnel shall notify AEP of the situation.</li> <li>• In the event of a spill, the containment, cleanup, remediation, disposal, and reporting of all spills of waste/hazardous waste materials will be completed as promptly as possible.</li> <li>• If the spill exceeds the threshold for mandatory reporting, the spill will be reported to the Alberta Environmental hotline 1.800.222.6514 (24-hour emergency line) or 1.877.944.0313 (non-emergency inquiries) to self-report a spill, release, or environmental emergency.</li> <li>• Project related wildlife injury or mortality (e.g., wildlife vehicle collisions) will be reported to the appropriate regulators (e.g., AEP, ECCC).</li> </ul>
Avoidance or disturbance of wildlife species from temporary noise and/or light pollution	<ul style="list-style-type: none"> <li>• When possible, construction activities will be scheduled to occur during daylight hours to avoid excessive noise and/or light disturbances to wildlife.</li> </ul>

Activity/Potential Project Effect	Mitigation Measures
	<ul style="list-style-type: none"> <li>• All equipment will be maintained in good working order, including noise suppression equipment.</li> <li>• Heavy machinery will have noise abatement equipment installed.</li> <li>• Impulsive sources (e.g., hammering and pile driving, if required) will be avoided at night and in the early morning.</li> <li>• Construction site lighting and building lights used during construction of the Project will be minimized, where possible, while also considering safety requirements.</li> </ul>
Historical Resources	
Loss or damage of historical resources	<ul style="list-style-type: none"> <li>• Follow conditions outlined in the <i>Historical Resources Act</i> clearance received for the Project.</li> <li>• Any temporary or permanent ancillary elements required for the Project that are not within the Project footprint, and that have not yet been identified, will be subject to an archaeological survey prior to their development.</li> <li>• Any archaeological or heritage resources in the vicinity of development will be flagged prior to construction to ensure avoidance.</li> <li>• Refer to the Archaeological Response Action Plan (Section 9.2.1.6) for response to chance findings of historical resources.</li> </ul>

ESC - erosion sediment control  
EPP - environmental protection plan  
AEP - Alberta Environment and Parks  
ECCC - Environment and Climate Change Canada

### 9.3 Operational Phase

This section outlines general measures to be undertaken during regular operations of the Project. The objectives of these environmental protection measures are to avoid and minimize the potential environmental effects associated with general operational activities.

The operation phase of the Project will have fewer potential effects than the construction phase; however, the effects may be ongoing for the duration of the Project. Mitigation measures for the operation phase of the Project are provided in Table 5. A template for tracking project-specific operational monitoring and regulatory compliance requirements is provided in Appendix C. The regulatory compliance requirements will be added to Appendix C based on the approval conditions for the regulatory approval applications submitted for the Project.

**TABLE 5 Operations Mitigation Measures**

Potential Effect	Mitigation Measure(s)
Access and safety	<ul style="list-style-type: none"> <li>• Site gate will be in place to prohibit unauthorized public access, restricting access to operations personnel only.</li> </ul>
Fire safety	<ul style="list-style-type: none"> <li>• The BESS will be designed, constructed and operated to meet applicable fire safety codes and standards.</li> </ul>

Potential Effect	Mitigation Measure(s)
	<ul style="list-style-type: none"> <li>• A project-specific emergency response plan (ERP) will be developed in conjunction with the Rocky View fire department prior to the start of construction.</li> <li>• Safety and control systems are integrated into the battery energy storage system.</li> <li>• A fire detection system will be comprised of smoke and heat detectors to enable detection of smoke or gasses indicative of a fault. In case of smoke detection, a designated alarm panel executes alarm/annunciation and will initiate the shutdown sequence and isolation of the particular energy storage component.</li> <li>• System-level protections designed to maintain battery health and safety include an automatic stop to battery operations at certain temperatures and high and low states of charge (i.e., near 100% and 0%).</li> <li>• The control system will instantly detect and categorize all device or internal communication faults. All fault occurrences will generate alerts that will be sent to monitoring systems and to the battery storage system supplier's portal, and notifications will be emailed to the Project operator. If any critical error occurs, the system stops charge/discharge operations within milliseconds and the DC contactor is opened to cut off any current flow.</li> <li>• The emergency shutdown system controller has a Human Machine Interface (HMI) that will enable an operator to view status information, including state of charge, charge/discharge modes, and the ability to input commands to operate the system in local mode. The HMI also enables a local operator to shut off the equipment in the event of an emergency such as smoke or fire.</li> </ul>
Safety maintenance	<ul style="list-style-type: none"> <li>• The battery energy storage system will be subject to routine inspection and maintenance by a qualified technician as specified by the battery manufacturer.</li> <li>• The fire suppression system will be routinely checked and maintained as recommended by the vendor.</li> </ul>
Establishment of weeds on soil piles and operation area	<ul style="list-style-type: none"> <li>• Apply weed control for noxious or prohibited noxious weed infestations.</li> <li>• Prohibit the use of herbicides within 30 m of an open body of water.</li> <li>• Use non-chemical control of weeds (e.g., mowing, cultivation, and/or hand-pulling) within 30 m of open body of water.</li> <li>• Reseed and apply weed control measures on areas of the soil berms and stockpiles with poor plant cover and exposed soil, as required.</li> </ul>
Erosion and sedimentation	<ul style="list-style-type: none"> <li>• Maintain erosion sediment control measures as required during operations to contain sediment onsite.</li> </ul>
Reduction of soil, groundwater, and surface water quality from accidental spills, leaks from battery modules or equipment, or other releases of contaminants	<p>Industry best management practices for spill prevention and spill response will be implemented to prevent or minimize the release of deleterious substances from construction machinery and the BESS equipment. Spill prevention measures will include:</p> <ul style="list-style-type: none"> <li>• Primary and secondary leak containment are integrated into the design of the battery cells, modules, and surrounding metal enclosures: <ul style="list-style-type: none"> <li>○ Individual battery cells contain an electrolyte in a viscous gel or paste. The cell contains the electrolyte, the anode/cathode, and separator. The cell itself is fully enclosed. The individual cells are contained in a fully sealed module.</li> <li>○ The module itself will provide primary containment in the unlikely event a cell were to leak electrolyte.</li> </ul> </li> </ul>

Potential Effect	Mitigation Measure(s)
	<ul style="list-style-type: none"> <li>○ The modules are contained in racks, with the racks being placed inside a sealed, NEMA-rated enclosure (container). The enclosure would provide further secondary containment to the cells/modules.</li> <li>● Emergency spill kits will be kept onsite at designated centralized areas and will contain at a minimum, the following: <ul style="list-style-type: none"> <li>○ personal protective equipment</li> <li>○ sorbent pads or dikes and shovels</li> <li>○ emergency contact list for appropriate agencies</li> <li>○ flashlights</li> </ul> </li> <li>● Secondary containment (drip trays) will be used to prevent leaks of contaminants into soil during servicing.</li> <li>● Servicing vehicles, vehicles with box-mounted fuel tanks will carry spill prevention, containment, and spill cleanup materials appropriate to clean up a spill to the volume of fuels or hazardous materials they contain.</li> <li>● Heavy equipment and light vehicles will have access to spill cleanup materials.</li> <li>● An impervious barrier will be used underneath equipment and vehicles when servicing and refueling.</li> <li>● All hazardous materials will be stored and secured in approved containers and labelled according to WHMIS and TDG regulations. All SDS will be available for each product stored onsite, and all oils, grease, gasoline, diesel, and other hazardous materials will be stored at least 100 m away from any wetland, drainage, or other water body. All hazardous waste and waste materials will be stored in a secure designated area (laydown yard), away from environmentally sensitive features.</li> <li>● All hazardous and waste materials will be disposed of regularly, in approved containers or waste facility. This may include regional landfills, recycling centres, construction/demolition disposal or recovery sites, product suppliers, and/or hazardous waste management facilities.</li> <li>● In the event of a spill, the containment, cleanup, remediation, disposal, and reporting of all spills of waste / hazardous waste materials will be completed as promptly as possible.</li> <li>● If the spill exceeds the threshold for mandatory reporting, the spill will be reported to the Alberta Environmental hotline 1.800.222.6514 (24-hour emergency line) or 1.877.944.0313 (non-emergency inquiries) to self-report a spill, release, or environmental emergency.</li> </ul>
Disturbance to wildlife from light pollution	<ul style="list-style-type: none"> <li>● Facility site lighting and building lights used during operations of the Project will be minimized and down shielded, where possible, while also considering safety requirements.</li> </ul>

## 10 CONTINGENCY AND EMERGENCY RESPONSE PLANNING

This section of the EPP describes the approach and commitment to developing and implementing contingency and emergency response plans. Contingency and emergency response plans address unanticipated events to ensure that the environment, public, and infrastructure are protected. Specific measures are described in the following sections. Contact information for emergency services are provided in Appendix F.

### 10.1 Contingency and Emergency Response Plan: Spills

All spills or leaks such as those from machinery or storage tanks must be promptly contained, cleaned up (sorbents should be available for quick containment and recovery), and reported. In the event of a spill the steps below will be followed.

1. Cleanup area of spill using the spill cleanup kit and review the material safety data sheets for proper procedure.
2. Any spill, release or emergency that “may cause, is causing, or has caused an adverse effect to the environment” must be immediately reported to Alberta Environment and Parks (AEP) , Environmental Spill Reporting at 1.800.222.6514 (24-hour toll-free number). An adverse effect can be defined as an impairment of, or damage to, the environment, human health or safety, or property. Examples of primary containment include tanks, vessels, piping systems, electrical systems, or other equipment.
3. The responsible employee will report the release to the Construction Manager, TransAlta EHS staff, and the Environmental Monitor who will complete a Spill Response Form (Appendix G).

Provide the following information to the Construction Manager:

- The location and time of the release
  - A description of the circumstances leading to the release
  - The type and quantity of substance released
  - The details of any action proposed or taken at the release site
  - A description of the immediate surrounding area
4. On the direction of TransAlta’s EHS staff, the Environmental Monitor or Construction Manager will contact AEP (see 3. above) for emergency spills, if not already done.
  5. Non-emergency spills (e.g., small drips or low-volume spills easily contained and remediated, and not in a watercourse or wetland, with no environmental consequences) will be documented and reported internally.

6. Petroleum spill kits will accompany each piece of heavy equipment/machinery and there must be adequate supplies in each kit to address a spill that could occur on the ground, in surface water, or in groundwater.
7. The contractor(s) must ensure that the appropriate permits for any onsite temporary fuel storage tanks are obtained. Emergency response plans must be in place and be implemented in the event of a chemical release to the environment.

## **10.2 Contingency and Emergency Response Plan: Erosion and Sediment Control**

In the event that unanticipated rutting/groundbreaking events occur during construction, erosion and sediment control measures will be required. Erosion and sediment control measures will be implemented, monitored, and maintained by the contractor(s). Monitoring of erosion control structures will be performed by the Environmental Monitor, Construction Manager, and the contractor(s) to confirm the structures remain in place and operate effectively throughout the construction period. Specifically, all structures will be inspected prior to and following any rainfall event, and at least daily during prolonged periods of rainfall. Any improperly installed or damaged environmental controls will be corrected by the contractor immediately upon discovery or notification by the Environmental Monitor or Construction Manager.

The Contractor(s) are responsible to ensure that the following procedures are followed:

- Construction is implemented in compliance with environmental standards and regulations.
- Regular inspections and monitoring will be performed to confirm use of proper environmental protection practices.
- Environmental protection control measures where required will be employed during construction and will be inspected regularly.

In the event of rain, the Environmental Monitor, Construction Manager, and the contractor(s) will confirm that erosion and sedimentation are addressed appropriately to reduce potential environmental effects.

## **10.3 Contingency and Emergency Response Plan: Fire**

In the event of a fire occurring as a result of construction activities and during operation, Project personnel shall contact the Cochrane fire department by calling 911.

Be prepared to provide the following facts:

- Your name
- Your telephone number
- The exact location of the fire
- A description of what is burning

- The size of the fire
- Is anyone fighting the fire?
- Access to the fire

All TransAlta and contractor vehicles will be stocked with a properly filled and certified fire extinguisher.

#### **10.4 Contingency and Emergency Response Plan: Wildlife**

In case of persistent wildlife encounters, the Project personnel shall notify the Cochrane office of AEP (403.851.2147) of the situation. Encounters can often be avoided by keeping work areas free from food debris and avoiding off road travel.

#### **10.5 Nest Discovery Contingency Plan**

The following mitigation will be implemented if a nest is discovered during clearing activities:

- A qualified wildlife biologist will be responsible for implementing flagging and establishing an initial 60 m radius (200 ft) “no-work buffer zone” around the nest or tree. However, the setback distance should be considered a starting point and may be adjusted depending on the species, and after assessing relevant factors such as the level of the disturbance and the landscape context (ECCC 2019). TransAlta will facilitate determining final buffers to be maintained during the nesting period (the estimated period for fledging of young based on the species), with the assistance of a qualified biologist.
- The location of all nests should be documented and reported to the Environmental Monitor and Construction Manager. The nest itself must not be flagged.

#### **10.6 Contingency and Emergency Response Plan: Archaeology and Heritage**

In the event of discovery of a previously undocumented archaeological site or heritage resource, TransAlta, the Construction Manager and Project personnel will follow the archaeological response action plan:

- If, at any time during construction, objects of potential archaeological significance or skeletal remains are uncovered, the Construction Manager will be notified immediately. All work shall cease in the immediate area of discovery.
- TransAlta and the Construction Manager will then notify Alberta Ministry of Culture, Multiculturalism and Status of Women. If the discovery includes human skeletal remains, the nearest detachment of the RCMP or municipal police force will also be contacted. If the artifacts are determined to be aboriginal in nature, then a representative of the local First Nations will be contacted.

- A 5 m protective barrier (fence) will be established around the find. If any additional ground breaking work within a 10 m buffer of the find is necessary, then monitoring of this activity by a permitted archaeologist will be required.

## 10.7 Noise Complaint Resolution Plan

TransAlta has a complaints and inquiry handling system that has been implemented to track complaints and comments regarding the Project. Upon receipt of a noise complaint, a confidential Issue Tracking Form should be initiated (Appendix H). These tracking forms include:

- Date, time and nature of the complaint or inquiry;
- Type of communication (e.g., telephone, letter, meeting);
- Name, address and contact information;
- Nature of the complaint; and
- Response details including follow up or resolution.

The purpose of this form will be to record the complaint, the response taken, and the resolution of the complaint. All noise complaints during construction should be managed by the construction management company's project manager with assistance from the TransAlta stakeholder relations liaison.

### **Rhonda Cummings**

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In addition, any noise complaints received from landowners or other stakeholders will be recorded and tracked in TransAlta's incident, audit, inspection, and risk management software (SYNERGI).

Approaches to the resolution of noise complaints may include:

- a site visit to validate the complaint;
- investigate and identify the source of the noise;
- noise monitoring of valid complaints, to compare with applicable thresholds; and
- mitigation of validated complaints, such as
  - ✦ inspect equipment;
  - ✦ verify adherence to work hours and other noise-related requirements; and
  - ✦ modify timing of work.



## **11 SPECIAL CONSIDERATIONS**

During construction, it may be necessary to modify or create new procedures to address site conditions not anticipated in the EPP. There may be a need to revise or refine specific measures as a result of ongoing consultation or to address unforeseen site-specific conditions that may arise during construction. If this were to occur, TransAlta will resolve the issue with the project manager, the environmental advisor, the Construction Manager, and the Environmental Monitor in consultation with the responsible regulators, as required. The adaptive management process to be followed for the Project if changes or issue resolution is required is summarized in Table 6.

**TABLE 6 Adaptive Management**

Activity	Procedures
<p>Modifications to the Environmental Protection Plan</p>	<ul style="list-style-type: none"> <li>• Contact the Environmental Monitor if site conditions warrant a change in work procedure that may have environmental implications.</li> <li>• Develop the modification to the procedure in co-operation with the Construction Manager, environmental advisor, Environmental Monitor, and TransAlta’s project management team.</li> <li>• The modification to the work procedure will include the following:               <ul style="list-style-type: none"> <li>✦ description of the modification</li> <li>✦ location</li> <li>✦ rationale for change</li> <li>✦ environmental considerations reviewed as part of modification request</li> <li>✦ environmental objectives considered as part of the modification request</li> <li>✦ equivalent or approved standard environmental protection measures</li> <li>✦ refinements to existing or additional environmental protection measures required</li> <li>✦ site sketch or photograph documentation</li> <li>✦ documented sign-off by the Construction Manager, Environmental Monitor, environmental advisor, and/or project manager as required</li> </ul> </li> <li>• If the modification meets environmental objectives, and there is no specific regulatory licence or approval required to implement the modification, no additional discussions with regulatory agencies are necessary.</li> </ul>
<p>Issue Resolution and Escalation</p>	<ul style="list-style-type: none"> <li>• Environmental issues or inquiries will be reviewed and resolved by the Environmental Monitor following consultation with construction personnel, and when additional expertise is required, the environmental resource specialist (e.g., vegetation specialist, wildlife biologist).</li> <li>• Environmental issues or inquiries may arise that require escalation for resolution. The environmental inspector will review the issue and consult with the Construction Manager or designate to consider potential options and impacts to other aspects of the Project prior to making a decision.</li> <li>• Should complex issues arise that cannot be resolved at the field level, the Construction Manager and environmental inspector will consult with the project manager and the environmental advisor or designate to fully consider potential options and impacts to other aspects of the Project prior to making a decision.</li> <li>• Project commitments related to environmental compliance will not be compromised as a result of the issue resolution. Final decision-making authority and accountability remains with the project manager.</li> </ul>

## 12 REFERENCES

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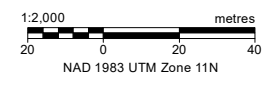
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APPENDIX A  
Project-specific Drawings



- Project Footprint
- Water Body
- ~ Watercourse
- Footprint Component**
- Battery Energy Storage System Boundary
- Temporary Construction Facilities Area
- Access Road
- Battery Enclosure
- Inverter and Transformer

Twp. 26



Reference: Data obtained from AltaLIS © Government of Alberta used under license. Imagery (2020) Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community.



TransAlta Corporation  
WaterCharger Battery Energy Storage Facility

**DRAFT**  
Project Site Layout

Date: December 2021	Project: 32868	Submitter: B. Robbie	Reviewer: M. Hansen
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APPENDIX B  
Project Approvals, Permits, Consents



Permits and approvals will be added to this Appendix when received

APPENDIX C  
Regulatory and Environmental Commitments  
Tracking List







## APPENDIX D

### Contact Information

## APPENDIX D

### CONTACT INFORMATION

Contact	Role
<p>Bryan Miller Hydro Coordinator, Ghost Hydro Plant Ghost Dam Office, Rge Rd 60 Cochrane, AB Phone: (403) 851-2651 Email: <a href="mailto:Bryan_Miller@TransAlta.com">Bryan_Miller@TransAlta.com</a></p>	TransAlta contact
<p>Aletta Corbett Senior Environmental Specialist, Hydro Operations TransAlta 110 – 12th Avenue SW PO Box 1900, Station “M” Calgary, AB T2P 2M1 Phone: (403) 267-7647 Email: <a href="mailto:Aleta_Corbett@TransAlta.com">Aleta_Corbett@TransAlta.com</a></p>	TransAlta Environmental Advisor
<p>Rhonda Cummings Lead Advisor, External Stakeholder Relations TransAlta 110 – 12th Avenue SW PO Box 1900, Station “M” Calgary, AB T2P 2M1 Phone: (403) 267-3676 Email: <a href="mailto:Rhonda_Cummings@TransAlta.com">Rhonda_Cummings@TransAlta.com</a></p>	TransAlta Lead Advisor, External Stakeholder Relations
<p>Medina Hansen Matrix Solutions Inc. 600, 214 - 11 Ave SW Calgary, Alberta T2R 0K1 Phone: (403) 206-0511 Email: <a href="mailto:mhansen@matrix-solutions.com">mhansen@matrix-solutions.com</a></p>	Matrix Technical Advisor
<p>Brett Robbie Matrix Solutions Inc. 600, 214 - 11 Ave SW Calgary, Alberta T2R 0K1 Phone: (403) 261-5211 Email: <a href="mailto:brobbie@matrix-solutions.com">brobbie@matrix-solutions.com</a></p>	Matrix Project Manager
<p>Paul Gregoire Wildlife Biologist 9250 49 Street NW, 2nd Floor Edmonton, AB T6B 1K5 Phone: (780) 951-8695 Email: <a href="mailto:paul.gregoire@canada.ca">paul.gregoire@canada.ca</a></p>	Environment Climate Change Canada (ECCC) Contact – Migratory Birds
<p>Brett Boukall Bow-Crow District Senior Wildlife Biologist Environment and Parks #228, 213-1 Street West Cochrane, AB, T4C 1B4 Phone 403-851-2147 Email: <a href="mailto:brett.boukall@gov.ab.ca">brett.boukall@gov.ab.ca</a></p>	AEP Wildlife Contact

Contact	Role
Name Role Physical Address City/Town, AB Postal Code Phone: Email:	Alberta Culture, Multiculturalism and Status of Women Contact
Name Role Physical Address City/Town, AB Postal Code Phone: Email:	Alberta Utilities Commission Contact
Name Role Physical Address City/Town, AB Postal Code Phone: Email:	General Development Contact

DRAFT



APPENDIX E  
Snake Protection Plan

# DRAFT



## Snake Protection Plan Transalta Watercharger Battery Energy Storage Facility

Prepared for:  
**TRANSALTA CORPORATION**

Prepared by:  
**MATRIX SOLUTIONS INC.**

Version 1.0  
December 2021  
Calgary, Alberta

Suite 600, 214 - 11 Ave. SW  
Calgary, AB T2R 0K1  
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# DRAFT

## SNAKE PROTECTION PLAN

### TRANSALTA WATERCHARGER BATTERY ENERGY STORAGE FACILITY

Prepared for TransAlta Corporation., December 2021

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**Corey Corbett, M.Sc., P.Biol., R.P.Bio**  
Senior Wildlife Biologist

*reviewed by*  
**Delanie Player, P. Biol., R.P.Bio.**  
Principal Wildlife Biologist

## CONTRIBUTORS

Name	Job Title	Role
Katerina Tsapraillis	Senior Wildlife Biologist	Project manager
Sandy Lam	GIS Analyst	Report figure creation

## DISCLAIMER

Matrix Solutions Inc. certifies that this report is accurate and complete and accords with the information available during the project. Information obtained during the project or provided by third parties is believed to be accurate but is not guaranteed. Matrix Solutions Inc. has exercised reasonable skill, care, and diligence in assessing the information obtained during the preparation of this report.

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# DRAFT

## VERSION CONTROL

Version	Date	Issue Type	Filename	Description
V1.0	14-Dec-2021	Final	32344-512 SPP R 2021-12-14 final V1.0.docx	Issued to Alberta Environment and Parks

## TABLE OF CONTENTS

1	INTRODUCTION.....	1
2	BACKGROUND.....	1
3	SNAKE PROTECTION MEASURES.....	3
4	REPORTING .....	5
	REFERENCES.....	5

## LIST OF TABLES

TABLE 1	Snake Species at Risk Potentially Occurring in the Project Area .....	3
TABLE 2	Potential Effects on Snakes and Snake Habitat and Proposed Mitigation Measures .....	4

## FIGURES

FIGURE 1	Snake Observation and Potential Snake Hibernacula Habitat.....	2
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## 1 INTRODUCTION

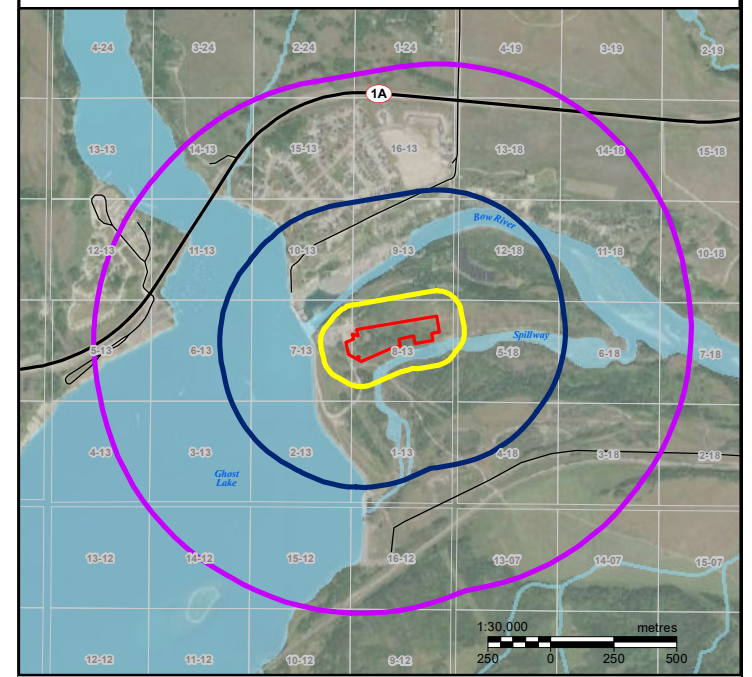
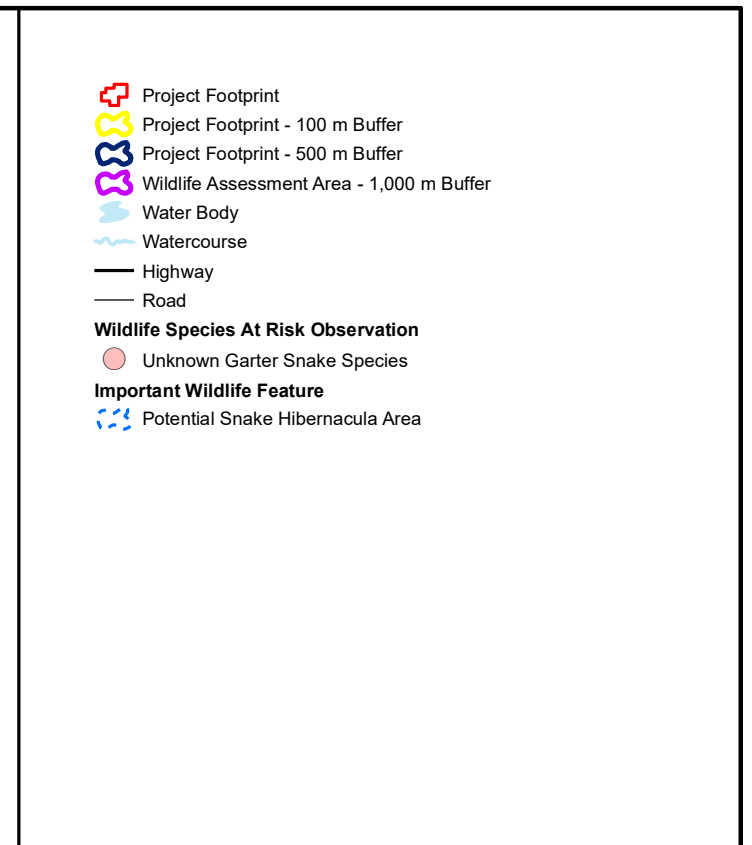
The proposed WaterCharger battery storage project (the Project) is approximately 15 km west of the Town of Cochrane, Alberta, within Rocky View County. The Project will be developed on private land owned by TransAlta. Wildlife habitat in and adjacent to the Project footprint includes modified grassland along south-facing slopes which has the potential to support sensitive snake species hibernacula. The Project is not within the sensitive snake range; however, an unknown garter snake species was detected during a vegetation survey and suitable habitat for snake hibernacula was noted during surveys (Figure 1).

A Snake Protection Plan (SPP) was created to support the Project and reduce potential impacts to snake and snake hibernacula. The *Snake Protection Plan Requirements For all Disposition Purposes and Activities* (Government of Alberta 2020) was designed for sensitive snake habitat as defined in the Landscape Analysis Tool. The Project is not within designated sensitive snake habitat; however, the document provides guidance for areas on private land that may have snake concerns. The purpose of this SPP is to protect snakes and onsite worker safety, specifically to:

- improve the management and conservation of snake species by preventing mortality by vehicles on road and trails during construction, operation, and reclamation
- prevent human-snake conflicts and ensure workplace safety by reducing or removing attractants and hiding places in snake habitat
- provide direction to comply with the Alberta *Wildlife Act* (Province of Alberta 2021).

## 2 BACKGROUND

Snakes can be found throughout Alberta and individual snakes as well as their associated hibernacula and rookeries are protected under the provincial *Wildlife Act* (Province of Alberta 2021). There are seven resident snake species that may be present in Alberta and three of these species (Table 1) have ranges that overlap with the Project. All three species potentially present are classified provincially as sensitive (AEP 2021).



Reference: Data obtained from AltaLIS © Government of Alberta used under license. Wildlife sensitivity range data obtained from Government of Alberta used under license. CBM transportation infrastructure data provided by IHS © 2021 used under license. Imagery (2020) Source: Earth Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community.

1:30,000 metres  
25 0 25 50  
NAD 1983 UTM Zone 11N

**Matrix Solutions Inc.**  
ENVIRONMENT & ENGINEERING

TransAlta Corporation  
WaterCharger Battery Energy Storage Facility

**Snake Observation and Potential Snake Hibernacula Habitat**

Date: December 2021 Project: 32868 Submitter: S. Holmes Reviewer: C. Corbett

Disclaimer: The information contained herein may be compiled from numerous third party materials that are subject to periodic change without prior notification. While every effort has been made by Matrix Solutions Inc. to ensure the accuracy of the information presented at the time of publication, Matrix Solutions Inc. assumes no liability for any errors, omissions, or inaccuracies in the third party material.

I:\Terra\32868\FiguresAndTables\EA\2021\Report\SnakeProtectionPlan\Figure\_1\_Snake\_Observation\_and\_Potential\_Snake\_Hibernacula\_Habitat.mxd - Tabled\_L\_20Dec21\_0803 AM - slym - TID005

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**TABLE 1 Snake Species at Risk Potentially Occurring in the Project Area**

Common Name	Scientific Name	AEP <sup>1</sup>	AESCC Status <sup>2</sup>	COSEWIC	SARA <sup>3</sup>
Plains garter snake	<i>Thamnophis radix</i>	Sensitive	–	–	–
Red-sided garter snake	<i>Thamnophis sirtalis</i>	Sensitive	–	–	–
Wandering garter snake	<i>Thamnophis elegans</i>	Sensitive	–	–	–

– Not Applicable

<sup>1</sup> Alberta Wild Species General Status Listing (AEP 2021)

<sup>2</sup> Alberta Species Assessed by the Conservation Committee (GoA 2017)

<sup>3</sup> Species at Risk Act (Government of Canada 2021)

An unknown garter snake was detected within 10 m of the Project footprint during vegetation surveys in and potential snake hibernacula habitat was identified within 100 m of the Project footprint during the wildlife reconnaissance surveys.

Snakes will seasonally migrate from hibernacula to foraging areas during the active snake period (April 1 to October 15; Government of Alberta 2020). Exact timing of hibernation varies from year-to-year and depends on temperatures (e.g., cold weather in the fall may encourage snakes into their hibernacula earlier than usual). Snakes may be present during construction, operation, and reclamation.

### 3 SNAKE PROTECTION MEASURES

Based on available snake hibernacula habitat adjacent to the Project footprint and the observation of a snake within 10 m of the Project footprint, a snake hibernacula survey should be conducted in the spring (typically late April) prior to the start of construction to survey for active snake hibernacula. Snake hibernacula at this site can have a year-round setback of up to 200 m (Brett Boukall 2021; Pers. Comm.). If project-related activity is required during the active snake period between April 1 to October 15, the potential project effects on snake and snake habitat and proposed mitigation to reduce risks are summarized in Table 2.



**TABLE 2 Potential Effects on Snakes and Snake Habitat and Proposed Mitigation Measures**

Potential Negative Effect	Mitigation Measure	Details of Proposed Mitigation Measure	Contingency Plan(s)
<b>Construction, Operation, and Reclamation Phases</b>			
Impacts to snake rookery or hibernaculum	Implement 200 m setback	If snake rookeries or hibernacula are found, a 200 m setback will be implemented from the edge of the rookery or hibernaculum for all project activities	If the required setback cannot be met, TransAlta will consult with Alberta Environment and Parks to discuss any proposed alternative mitigation.
Snake entrapment	Use snake-friendly erosion control products.	<ul style="list-style-type: none"> <li>Erosion control products that contain netting (e.g., plastic mesh) will be minimized in snake habitats to avoid snake entanglement.</li> <li>Remove temporary fencing when no longer needed.</li> </ul>	Additional monitoring of erosion control products will be implemented in snake habitats, if needed.
	Install temporary exclusion fencing	<ul style="list-style-type: none"> <li>If snakes become an identified concern for the Project, install temporary exclusion fencing to prevent snakes from entering the work area in high potential snake habitat from April 1 to October 15.</li> <li>A monitor will check the integrity of the fencing regularly.</li> </ul>	No contingency plan required.
Increase snake mortality due to vehicle collisions.	<p>Posting of onsite speed limits.</p> <p>Implement Snake Protection Plan.</p> <p>Vegetation management.</p>	<ul style="list-style-type: none"> <li>Speed limits will be reduced onsite and posted throughout all project phases.</li> <li>If snakes become an identified concern for the Project, snake specific warning signs will be posted and all drivers will be advised to avoid snakes on roads.</li> <li>Reduce vegetation near the access paths (i.e., vegetation management) to increase visibility of snakes and decrease use of the area snakes for hunting</li> <li>If snakes become an identified concern for the Project, A project-specific worker environmental training and monitoring plan will be developed and will include snake safety education and training.</li> </ul>	If areas of high mortality are noted, remedial actions (e.g., further reduced speeds) will be implemented.

## 4 REPORTING

During construction, operation, and reclamation, all snake sightings including mortalities will be recorded and reported to Fish and Wildlife Management Information System.

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APPENDIX F  
Emergency Contact Information

## APPENDIX F

### EMERGENCY CONTACTS

Contact	Location	Telephone and Contact Information
RCMP	359 1 St E Cochrane, Alberta 4C 1Y7	(403) 851-8000
Ambulance	Province wide	911
Hospital/Health Centre	Cochrane Community Health Centre 60 Grande Blvd Cochrane, Alberta T4C 0S4	(403) 851-6000
Alberta Emergency Management Agency	Province wide	(780) 422-9000 1-866-618-2362 (24 hour)
Environmental Emergency 24-Hour Response Line  Note: This is the same contact as Environment and Climate Change Canada (Environmental Emergencies)	Province wide	(780) 422-4505 1-800-222-6514 (24 hour)
Western Canada Spill Services	Province wide  Area P Proactive Environmental  5535 - 56 Avenue SE Calgary, AB T2C 3X6	24-Hour Emergency: 1-866-541-8888 Non-emergency: (587) 393-9620  Proactive Environmental Kale Haupt 24-HR: (403) 203-3336 Cell: (780) 514-9858 Toll Free: 1-877-471-3336
Alberta Wildfire Reporting	Province wide	(403) 310-FIRE (3473)

APPENDIX G  
Spill Response Form

## SPILL REPORT FORM

Type of Material Spilled:      Estimated Volume:

Gasoline	_____
Diesel	_____
Lube Oil	_____
Hydraulic Fluid	_____
Vehicle Antifreeze	_____
Other (specify)	_____

Date and Time of Spill or Discovery: \_\_\_\_\_  
Source of Spill: \_\_\_\_\_  
Area of Spill (m<sup>2</sup>): \_\_\_\_\_  
Depth of Spill (cm): \_\_\_\_\_  
Volume of Spill (L): \_\_\_\_\_  
Estimated Release Rate: \_\_\_\_\_  
Duration of Release \_\_\_\_\_  
Location (land, water, land and water): \_\_\_\_\_  
Soil Type (e.g., sandy, clay, etc.): \_\_\_\_\_  
Location: Easting \_\_\_\_\_ Northing \_\_\_\_\_ UTM Zone \_\_\_\_\_ KP

Land Use: \_\_\_\_\_

Environmentally sensitive areas potentially affected: \_\_\_\_\_

Weather conditions at time of discovery: \_\_\_\_\_

Procedures taken to minimize, control, or stop the release: \_\_\_\_\_

Remediation plan and schedule of implementation, if required: \_\_\_\_\_

Current status of the remediation program: \_\_\_\_\_

(dd/mm/yy) (hr:min): \_\_\_\_\_

Form Completed by:  
Name: \_\_\_\_\_ (printed) \_\_\_\_\_ (signed)  
Date: \_\_\_\_\_

APPENDIX H  
Issue Tracking Form





