



**CASCADE ENVIRONMENTAL**  
RESOURCE GROUP LTD

# **Construction Environmental Management Plan**

## **Big White, BC**

**Prepared by:**

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**Prepared for:**

Big White Ski Resort

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<b>Emergency – Kelowna</b>			<b>911</b>
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Ambulance – Kelowna			911
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## **Statement of Limitations**

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## 1 Introduction

Big White Ski Resort retained Cascade Environmental Resource Group Ltd. (Cascade) to conduct an Environmental Review (ER) of the Controlled Recreation Area (CRA), as described in the Big White Ski Resort Updated 2020 Master Plan (BHA, 2025). This Construction Environmental Management Plan (CEMP) has compiled recommendations and mitigation measures from environmental reports and management plans produced as part of the Major Project review.

These documents include the following:

- Invasive Species Management Plan (ISMP) (Cascade, 2025a)
- Wildlife and Management and Monitoring Plan (WMMP) (Cascade, 2025b)
- Grizzly Bear Hazard/Conflict Assessment (Cascade, 2025c)
- Grizzly Bear Management Plan (GBMP) (Cascade, 2025d)
- Environmental Review (ER) Big White Ski Resort Updated 2020 Master Plan (Cascade, 2025e)
- Hydrologic Water Quality Assessment, Big White Controlled Recreation Area (WSP, 2025)
- Old Growth Assessment Report Big White Ski Resort Ltd (Cabin, 2025a)
- Forest Health Assessment and Management Plan Big White Ski Resort Ltd (Cabin, 2025b)

### 1.1 CEMP Document Goal

This CEMP provides a baseline document that is intended to be utilized and adapted upon initiation of a proposed site-specific development as described within the Big White Master Plan.

The CEMP aims to be utilized as a tool to ensure the consideration of valued components and mitigate the potential for impact both during the early planning stage as well as during construction and development. The CEMP is intended to:

1. Inform the Terms of Reference for future, site-specific, environmental impact assessments as the resort is planning and preparing for future development applications (prior to development); and,
2. Inform construction and environmental management during development.

Future site-specific environmental assessments to be conducted in the early planning stage are described in this document under each applicable section under the titles named “Site Planning Stage”. Mitigation measures have also been described specifically for the construction stage.

As the Master Plan proposed developments are in concept form, the CEMP will be adapted to address site-specific developments. Details on the context of the mitigation measures and the environmental regulatory framework guiding the CEMP can be found within the environmental documents listed above.



## 2 Environmental Monitoring Program

A monitoring schedule for a development should include a site visit at the start and additional site visits periodically throughout works and during construction involved in any environmentally sensitive areas within the CRA (e.g. riparian areas), and a follow-up visit should be made at the completion of work. It is the proponent's responsibility to hire a Qualified Environmental Professional (QEP) as an Environmental Monitor (EM) and inform them of the construction schedule to ensure that all activities comply with any applicable permitting requirements, commitments from the Master Development Agreement and requirements from the CEMP.

The environmental monitoring program will be based on the CEMP outlined in this document and on any applicable permit conditions that been approved for the development. The following can be expected from the EM with regards to the Environmental Monitoring Program:

- The EM shall be on-site at all times during environmentally sensitive project activities or at other times that the EM or the Project Manager deems necessary for the protection of the environment.
- The EM will have full authority to stop work deemed threatening or potentially threatening to the ecosystem's integrity.
- The EM shall ensure that all project activities associated with the works adhere to the guidelines contained in this CEMP.
- The EM shall conduct, or have conducted on their behalf, any water quality measurements and soil analyses required by Federal, Provincial, and/or Municipal governments for fulfillment of any permits or authorizations.
- The EM shall monitor if all water leaving the construction site complies with federal and provincial Water Quality Guidelines for the Protection of Aquatic Life (MOE, 2017) (Environment Canada, 2001).

Should any development activities be non-compliant with the *Water Sustainability Act* or the federal *Fisheries Act*, the non-compliant activities will be reported to the Mountain Resorts Branch and any other applicable government offices in a timely manner.

### 3 Environmental Training Plan

To ensure effective implementation of the CEMP, it is imperative that contractors and workers receive comprehensive education and training on its contents. Contractors and their teams bear the responsibility for executing and upholding the identified mitigation measures and best management practices. Regular site visits conducted by the EM will verify adherence to these plans.

Prior to any pre-work or site orientation meeting, contractors should thoroughly review the CEMP. This review provides an opportunity for contractors to seek clarification on best practices and mitigation measures that may impact their specific work activities. Individual contractors are then accountable for training their employees according to the relevant sections of the CEMP.

Every person working on the project site will be fully informed of their duties and potential liabilities should environmental protections not be upheld. Additionally, all personnel will have access to the CEMP for guidance and communication protocols in the event of environmental concerns or emergencies during construction. The CEMP includes an emergency contact list and outlines procedures for promptly alerting both the Project Manager and the EM in case of emergencies or environmental incidents

### 4 Aquatic Mitigation Measures

Early site planning development activities and an erosion and Sediment Control Plan, stormwater management plan and a water quality protection plan should be developed for site-specific development within the CRA to protect aquatic values within the CRA, following measures described below.

#### 4.1.1 Site Planning Stage

- Design any water intake or usage measures for development activities as per WSP Hydrologic Water Quality Assessment, Big White Controlled Recreation Area (WSP, 2025).
- Proposed development should be designed outside of the 30 m setback from any watercourse where possible in order to minimize impact to water quality and the aquatic environment. Should development be required within the 30 m riparian assessment area, a Riparian Area Protection Assessment should be conducted by a QEP at sites of disturbance near watercourses to determine appropriate clearing setbacks for the protection of fish habitat values and water quality.
- A site level search should be conducted for possible watercourses not presented in the ER (Cascade, 2025e) by a QEP and appropriate riparian buffers applied using RAPR as a guideline.
- Wetlands should be retained and left undisturbed (see ER report for locations, Cascade 2025e). All wetlands with the exception of bogs are protected below the top of bank under the *Water Sustainability Act*. Cascade recommends maintaining a 15 to 30 m vegetated setback adjacent to wetlands using the RAPR setbacks as a guideline.
- A detailed Erosion and Sediment Control Plan should be developed by a qualified professional, specific to the project site with details and content listed in Section 4.1.2.1. The ESC plan must specify:
  - Inspection and maintenance schedule of ESC measures
  - Adaptive management actions related to monitoring results
- A detailed Stormwater Plan should be developed by a qualified professional, specific to the project site, with details and content listed in Section 4.1.2.2. A construction phase run-off plan should be included within the Stormwater Plan and explicitly address:
  - Direction and containment of runoff
  - Temporary diversion structures or sediment basins
  - Inspection and maintenance schedule during rainfall events
- A Water Quality Plan should be developed by a QEP, specific to the project site with details and content listed in Section 4.1.2.3. The water quality plan should explicitly address:
  - Water quality sampling locations on nearby watercourses that may be impacted by site development.



- Frequency of monitoring
- Parameters and action thresholds
- Adaptive management actions to monitoring results
- Construction protocols for water management in case of extreme events (sudden groundwater inflow or heavy rainfall).

#### **4.1.2 During Construction**

- Riparian setbacks should be delineated on the ground with bright flagging or fencing prior to site clearing works and restrictions clearly communicated to site workers.
- An Environmental Monitor (EM) should be retained to monitor the riparian setback boundaries and employ additional measures if vegetation is being encroached during development.
- An EM should be retained to monitor water quality protection using handheld equipment during construction activities, as described in Section 4.1.2.3. The EM will recommend adaptive management actions to current conditions based on site monitoring results.

##### **4.1.2.1 Erosion and Sediment Control Plan**

The objective of the Erosion and Sediment Control Plan is to minimize site erosion and protect the water quality of downstream fish-bearing watercourses during development within the CRA. A comprehensive Erosion and Sediment Control (ESC) Plan should be developed by a Qualified Professional and should be adhered to during all construction activities.

The ESC Plan will include mitigation measures to minimize soil erosion and impacts to water quality, fish, and fish habitat around the project area. These measures are standard erosion control practices in British Columbia and are based on guidelines and recommendations from the Land Development Guidelines for the Protection of Aquatic Habitat (Chilibeck et al., 1992) and Section 3 of Develop with Care: Environmental Guidelines for Urban and Rural Land Development in British Columbia (BC MOE, 2014).

Soil exposed or stockpiled during land clearing activities is subject to erosion and transportation by water and wind. The amount of erosion can be controlled by properly planning project activities, covering disturbed soils, revegetating slopes and minimizing the amount of exposed soil available on site. Exposed, erodible soils and/or stockpile materials shall be protected from erosion by one or more of the following methods as approved by the Environmental Monitor (EM):

- Installation of perimeter silt fence.
- Grading to achieve low angle and less susceptible slopes.
- Surface roughening with machine tracks or woody debris.
- Covering with a suitable material such as polyethylene plastic liner, or geotextile.
- Establishment of a temporary cover of vegetation.
- Application of a soil binding spray or mulch.
- Establishment of permanent vegetation or temporary graminoid cover.
- If inclement weather is forecast the contractor will cover exposed soils prior to any rain events.

Areas of potential sedimentation concern in the project area are excavation works and soil deposition adjacent to watercourses within the CRA. Where required (at direction of the QEP) sediment fence should be installed. The sediment fence should be checked regularly via scheduled inspections and maintenance, to minimize risk of sediment or construction debris breaching the sediment fence and discharging into any watercourses.



#### 4.1.2.2 Stormwater Management Plan

Effective stormwater management plans both preserve water quality and limit peak flows originating from development areas, thus maintaining pre-development natural runoff patterns adjacent to the development site. General objectives as defined in *Stormwater Planning: A Guidebook for British Columbia* (2002a) for stormwater management plans include:

- Drainage Objectives: reduce potential drainage, erosion, and flooding concerns.
- Stream Protection Objectives: Protect stream health, including riparian and aquatic habitat.
- Water Quality Objectives: Identify, remediate, and reduce potential water quality problems.

The concept for the Stormwater Management Plan is to maintain pre-development conditions by using low impact development (LID) techniques and by using small, decentralized bio-retention areas such as rain-gardens that promote the infiltration of stormwater. Low Impact Development (LID) is defined as land use and development practices and standards that reduce the impact of land development on the natural environment.

The goal of LIDs are to mimic a site's predevelopment hydrology by using design techniques that infiltrate, filter, store, evaporate, and detain runoff close to its source. The LID approach includes five basic tools:

- 1) encourage conservation measures.
- 2) promote impact minimization techniques such as impervious surface reduction.
- 3) provide for strategic runoff timing by slowing flow using the landscape.
- 4) use an array of integrated management practices to reduce and cleanse runoff; and
- 5) advocate pollution prevention measures to reduce the introduction of pollutants to the environment.

Recommended LIDs to reduce the effective impervious area for the development include:

- Conserve natural areas by minimizing site disturbance.
- Minimize impervious areas (e.g., narrower roads, limited use of impervious surfaces).
- Disconnect impervious surfaces (e.g., roof leaders that drain to pervious grassed and/or landscaped areas).
- Increase absorbent soil depths in pervious areas to capture rainfall.
- Enhance landscaping that increases transpiration and evaporation.
- Apply infiltration techniques such as stormwater detention ponds to store runoff until it can be infiltrated.

#### 4.1.2.3 Water Quality Protection Plan

WSP recommends the following actions as per the Hydrologic Water Quality Assessment, Big White Controlled Recreation Area (WSP, 2025):

- Adhere to applicable BMPs and guidance documents throughout the construction phase.
- Prepare a CEMP for the project prior to construction.
- Retain a qualified environmental professional to conduct watercourse and water quality monitoring during construction.

- Where relevant, utilize the existing groundwater and surface water quality monitoring program for the Big White Wastewater Treatment Plant (WWTP) with emphasis on data from Trapping Creek and Copperkettle Creek to inform the development of a Water Quality Monitoring Plan as a component of the CEMP (This data will supplement the on-site water quality monitoring conducted by the EM)

The following aims to capture these recommendations:

Protection of water quality is an essential component of healthy ecosystems. In addition, Section 36 of the federal *Fisheries Act* prohibits the discharge of deleterious substances in a watercourse or any place where those substances might enter a watercourse (DFO, 2019). The CRA contain various watercourses that proposed developments may be developed close to and rigorous water quality sampling, including turbidity assessments, should be conducted on the watercourses. This monitoring aims to verify compliance with BC Water Quality Guidelines for the Protection of Aquatic Life (BC MOE, 2021).

To avoid water quality issues, Best Management Practices (BMPs) outlined for protecting water quality in the Environmental Guidelines for Urban and Rural Land Development in BC (MOE, 2014) as well as the Requirements and Best Practices for Making Changes In and About A Stream in BC (BC Gov, 2022) should be implemented, which includes the following aspects:

- Protecting water sources, through the maintenance of buffers and healthy riparian areas
- Minimizing the release of sediment and silt into nearby watercourse (as outlined in the ESC plan).

To ensure comprehensive protection of water quality, customized protocols should be developed to advise contractors on permissible activities within environmentally sensitive areas. A robust water quality monitoring program, focusing on parameters such as pH and turbidity, will be implemented to continuously assess the effectiveness of sediment and erosion control measures alongside other mitigating actions. Existing groundwater and surface water quality monitoring program for the Big White Wastewater Treatment Plant (WWTP) could be incorporated into this water quality monitoring program.

In instances necessitating heightened attention, on-site assessments should be supplemented with laboratory-based water quality sampling. This approach will be particularly emphasized if concerns emerge during field evaluations. Moreover, swift action will be taken in response to petroleum-based spills or any signs of potential water quality degradation, such as surface water sheens or odors, through prompt oil and grease analyses.

Trenching may be required during utilities installation works or other excavation works. Should groundwater seepage result in a build up of sediment-laden water in the trench, it will be pumped to a sediment retention pond or stable, well-vegetated area to enable sediment to settle out prior to re-entry into any watercourse. Groundwater seepage may also occur into a culvert installation site, and result in a build up of sediment-laden water. No sediment-laden water may be pumped directly into a watercourse, or to a location where surface flow could result in sediment-laden water entering a watercourse. Water management for extreme weather events should be developed in the case of heavy rainfall or sudden groundwater inflow. Weather monitoring should be conducted for significant rainfall events, and protocols should be employed 48 hours in advance. Protocols could include a reduction in construction activity on site or an increase in ESC measures employed.

Sediment fencing will be installed as required during works, or at the direction of the EM.



## 5 Vegetation Mitigation Measures

### 5.1.1 Site Planning Stage

- Retain old forest structural stages where possible and follow OGDA and OGMA recommendations for site design as listed in Cabins Old Growth Assessment Report Big White Ski Resort Ltd (Cabin, 2025)
- Follow recommendations to develop a forest health strategy to monitor, inventory and mitigate forest health factors that may impact vegetation within the CRA as per Cabins Forest Health Assessment and Management Plan (Cabin, 2025b).
- Large tree islands should be preserved between ski runs to provide adequate shelter for resident fauna and to prevent excessive windthrow. Larger tree islands will allow for preservation of standing wildlife snags while maintaining safe distances from ski runs, trails and roads.

### 5.1.2 During Construction

- Retain existing ground vegetation and trees where possible within the development area.
- Clearing boundaries should be clearly delineated prior to site clearing works on the ground to prevent unnecessary encroachment of vegetation.
- Existing access roads and trails should be used wherever possible to limit vegetation removal.
- Minimize the extent of cut and fill required for road construction and instead conform to the natural contours of the landscape where possible.
- All cut and fill slopes should be treated with growing medium, hydroseeded, and planted with native vegetation
- Where feasible, wood waste from vegetation clearing can be used for habitat enhancement opportunities, such as scattering along forest edges as coarse woody debris (CWD), or placement in riparian or aquatic areas as CWD habitat enhancements.
- Vegetation debris and wood waste not used for habitat enhancement will be transported off site for processing.
- Wherever possible, wildlife features will be maintained.

## 5.2 Rare and endangered Plant Species

### Site Planning Stage

- Minimize the footprint of disturbance into existing vegetation where possible
- Environmental assessments conducted by QEP at the site level during aquatic assessments etc. should have an identification guide of the potential plant species at risk that could occur in the CRA (See ER document (Cascade, 2025e)). If these plants are discovered during incidental detections, BMP's to conserve or transplant these occurrences should occur to minimize disturbance from development.

### During Construction

- Cutting vegetation for runs should minimize disturbance to understory vegetation and mosses where possible.

## 5.3 Whitebark Pine

### 5.3.1 Site Planning Stage



- Areas where ski runs, lift infrastructure or Altitude Restaurants are planned within or adjacent to the special management area or TEM polygon 7VC 3FC5 (See ER document for mapping and TEM (Cascade, 2025e) a survey for whitebark pine trees should be conducted prior to final site development. This will allow for retention of this tree species wherever possible. Infrastructure and runs should avoid whitebark pine occurrences whenever possible.

Best Management Practices for Ski Areas for whitebark pine are listed below and referenced from the Draft Best Management Practices for whitebark pine (*Pinus albicaulis*) (Moody, 2021):

- Inventory whitebark pine in proposed development areas and mark trees to be retained during all run creation and maintenance activities
- Limit skier impacts by not creating trails or runs in high density stands
- Identify and implement restoration that coincides with ski area management such as thinning competition and planting seedlings where appropriate.
- Conduct outreach and include volunteers in restoration.
- Apply verbenone (pine beetle repellent) to protect high value healthy trees
- Support or permit cone collections in ski area.

### **5.3.2 During Construction**

- Educate workers on the identification of whitebark pine to mitigate accidental removal during development.
- Prune branches as opposed to cutting trees to create tree skiing opportunities.
- Do not cut whitebark pine to build heli pads.

## **5.4 Old Growth Areas**

### **5.4.1 Site Planning Stage**

- Follow recommendations as listed within the Cabin Old Growth Assessment Report (Cabin, 2025a) to retain old growth areas within the CRA during.

### **5.5 Invasive Plant Control**

View the ISMP (Cascade, 2025a) for a detailed list of management recommendations for specific potential invasive plant species that could be observed in the CRA. Below is a summary of recommendations

#### **5.5.1 Site Planning Stage**

- Invasive plants discovered during site-specific environmental assessments for development should be identified by species and locations recorded for control and management as listed within the ISMP.

#### **5.5.2 During Construction**

##### **Minimising Soil disturbance**

Soil disturbance should be kept to a minimum during all construction and maintenance activities. Exposed soils provide ideal conditions for the establishment and spread of invasive plant species. Strategies to minimize disturbance include:

- Limiting the footprint of equipment and work areas.
- Preserving existing vegetation where possible.
- Using protective mats or barriers to reduce soil compaction and erosion.



### **Re-vegetating exposed soils**

Areas that will remain undeveloped for at least one growing season should be revegetated promptly using a native vegetation seed mix. Early replanting helps stabilize soils, reduce erosion, and inhibit the establishment or re-growth of invasive species, supporting long-term site health and ecological integrity.

### **Cleaning vehicles and Equipment**

All vehicles, machinery, and equipment entering or leaving the Big White CRA for maintenance or construction purposes should be cleaned regularly and thoroughly to remove soil, plant material, seeds, and other debris that could carry invasive species. Regular cleaning prevents the unintentional spread of noxious or invasive plants within site and to surrounding areas.

### **Using Invasive-free Seed Mix**

No seed is completely free of weeds, but seeds are sold in different grades with varying tolerances for noxious and other weed seeds. The main grades are Canada and Common, each subdivided into No. 1 (higher quality) and No. 2. Sellers or packagers must provide information on any noxious weed seeds upon request; this is not listed on the label, so buyers should ask for germination test results. Using higher-quality seed reduces the risk of introducing new invasive species and is more cost-effective than reseeding contaminated areas.

## 6 Wildlife Mitigation Measures

Wildlife Mitigation Measures have been extracted from the WMMP (Cascade, 2025b). For a more detailed account on background of the measures and monitoring recommendations, refer to the WMMP document (Cascade, 2025b).

### 6.1 Best Management Practices

The effects of the Project on wildlife and their habitats will be minimized through the application of recognized provincial BMPs. These BMPs provide clear, science-based guidance to avoid, minimize, or mitigate impacts to wildlife and sensitive habitats during land development and operation activities. The following BMPs should be used to inform planning, design, construction, and operations in the CRA:

- Best Management Practices for Amphibian and Reptile Salvages in BC (2016);
- Best Management Practices for Bats in BC (2016);
- Guidelines for Raptor Conservation during Urban and Rural Land Development in BC (2013);
- Best Management Practices for Raptor Conservation during Urban and Rural Land Development in British Columbia (2005);
- Guidelines for Amphibian and Reptile Conservation During Urban and Rural Development in BC (2014);
- Guidelines for Amphibian and Reptile Conservation During Road Building and Management Activities in BC (2014)
- Environmental Best Management Practices for Urban and Rural Land Development: Special Wildlife and Species at Risk (2004)

These measures are informed by field observations and the ecological characteristics of the project area. In general, the following measures should be implemented during the development and operation in the CRA:

- Avoid and/or reduce human activity in sensitive habitat areas, especially during key wildlife periods (e.g., nesting, denning, rearing);
- Minimize the loss of high-quality habitat and disruption to wildlife movement corridors by carefully planning the location of ski runs, lifts, and access roads;
- Identify and protect potential mineral licks;
- Avoid the destruction or disturbance of active dens, nests, or roosts during all project phases;
- Implement protocols to avoid and/or reduce wildlife mortality during both construction and operations.

Potential effects on wildlife associated with resort development and ongoing operations may vary depending on the timing and location of activities. In general, these impacts may include:

- Changes to habitat connectivity and wildlife movement patterns as a result of land clearing and the development of linear features (e.g., roads, ski runs, lift lines);
- Reduction in habitat availability for critical life functions such as mating, foraging, denning, nesting, or overwintering;
- Increased sensory disturbance due to construction noise, 24-hour operations (e.g., grooming, snowmaking), lighting, and human presence;
- Risk of direct and indirect mortality (e.g., wildlife-vehicle collisions, infrastructure hazards);



- Attraction of wildlife to resort areas due to improper storage or disposal of food, garbage, or other attractants;
- Potential health effects on wildlife from exposure to fuels, lubricants, or chemicals stored or used on site.

## 6.2 Pre-Clearing Surveys

Prior to any land clearing or site preparation, pre-clearing surveys should be conducted under supervision of a Qualified Environmental Professional (QEP) with experience in wildlife habitat assessment. The wildlife sweep should be completed during daylight hours and appropriate weather conditions. It is also recommended that a Q.E.P. performs a wildlife sweep as part of their initial site assessment to ensure any features are accounted for during planning activities and can be avoided during future operations.

These surveys will identify previously undocumented wildlife features or sensitive habitat types, such as active nests, dens, hibernacula, mineral licks, wallows, or wildlife movement corridors. The findings will inform site-specific mitigation strategies to ensure the protection of key habitat elements.

When important wildlife features are encountered, they will be documented with GPS coordinates, photographs, and a written description. These features should be avoided to the greatest extent feasible. Where complete avoidance is not possible, disturbance will be minimized through activity setbacks, timing windows, or protective barriers. Any work in proximity to these features will require site-specific mitigation, and in some cases, consultation with regulatory authorities may be necessary (e.g., nests of species listed under the *Wildlife Act* or SARA).

Wildlife trees, including standing live or dead trees with cavities, nests, or structural features used by bats, birds, or small mammals, are critical habitat elements that should be retained wherever possible. Trees with high wildlife value, such as those containing active nests or bat roosts, should be clearly marked and protected with a no-work buffer zone. This buffer is typically one to two tree lengths in radius, depending on the tree height and local site conditions.

Where a wildlife tree presents a safety hazard, safety considerations will take precedence; however, any work must still comply with applicable legislation protecting active nests and roosts. If a hazardous tree is actively used by wildlife, necessary construction safety measures should be implemented to allow work to proceed without disturbing the wildlife.

Once a wildlife tree, whether hazardous or not, is no longer actively used by birds or bats, and retention is not feasible, the tree may be removed following confirmation by a QEP.

## 6.3 Traffic Management

Currently, resort-controlled and managed roads include Horsefly Road, a hard-packed gravel road with a posted speed limit of 30 km/h, as well as other small maintenance roads where the rough surface and steep grades naturally prevent vehicles from exceeding 30 km/h. Vehicle traffic is infrequent on resort maintenance roads outside of the Horsefly Road.

During current operations wildlife collisions or mortality have low risks on resort-controlled and managed roads. If, during additional in-resort road development and construction phases, wildlife collisions are observed to be at a higher risk, clear protocols and mitigation measures should be employed to minimize wildlife disturbance and reduce the risk of vehicle-related mortality. These measures would apply during both construction and operation phases where required and would maintain safe conditions for wildlife, staff, and guests. Wildlife will be given the right-of-way at all times along all resort-controlled and managed roads.



All personnel operating vehicles or equipment should receive training on wildlife safety procedures, including recognition of high-risk areas, proper reporting of wildlife incidents, and protocols for reducing attractants.

To ensure prompt response and adaptation, any vehicle-wildlife collision will be documented and reported immediately. Incident records will include species, location (GPS coordinates if available), date, time, and circumstances. These will be submitted to the environmental lead, who will notify provincial agencies as needed. Locations with repeated incidents will be flagged for further mitigation, which may include:

- Additional signage or reflective markers;
- Further reduced speed limits;
- Vegetation clearing to improve line-of-sight;

On resort-controlled and managed roads, vegetation and roadside management should be carried out to reduce the attractiveness of roadsides to wildlife while maintaining driver visibility. This includes:

- Routine vegetation trimming to discourage foraging along road edges;
- Maintenance of road ditches and culverts to prevent pooling water, which could attract amphibians and other wildlife;
- Ensuring gates and signage restricting public or unauthorized vehicle access are functional and clearly visible at all times.

Dust on access and construction roads can impair visibility and contribute to habitat degradation, if dust becomes an issue on resort-controlled and managed roads, the following measures should be used:

- Enforcing posted speed limits ;
- Applying water as the preferred dust suppressant during dry conditions;
- Considering alternative, wildlife-safe dust suppressants only if water proves insufficient, and evaluating all products for potential ecological effects before use.

This traffic management approach should be reviewed periodically, particularly if repeated wildlife incidents are reported. Adaptive management strategies should be applied as needed to address emerging risks or patterns. These may include enhanced driver training, improved signage placement, or changes to operational practices to ensure continued alignment with wildlife protection objectives.

## **6.4 Noise Management**

Noise generated from construction equipment, grooming machinery, generators, and vehicle traffic can disturb sensitive wildlife, particularly during breeding, nesting, or denning periods. The resort should implement the following protocols to minimize the acoustic footprint of its operations:

- Avoid unnecessary noise by turning off machinery and equipment when not actively in use;
- Maintain all equipment regularly to ensure proper functioning and reduce excessive mechanical noise (e.g., replacing worn parts, ensuring proper lubrication);
- Where feasible, install sound-muffling components or dampening systems (e.g., mufflers, acoustic panels) on heavy equipment and machinery, particularly those used near sensitive wildlife habitat;
- Use physical sound barriers (e.g., acoustic enclosures for generators or snowmaking compressors) in areas where noise could propagate into key wildlife zones, such as riparian corridors or forested patches known to support roosting or denning;



- Plan high-noise activities during periods when wildlife is less active (e.g., mid-day for nocturnal species) and outside of key seasonal windows (e.g., nesting or fawning periods).

Where noise-sensitive species are known to occur, the implementation of noise management should be monitored and adapted as needed based on observed responses or new wildlife data.

## **6.5 Light Management**

Artificial lighting can disrupt circadian rhythms, alter predator-prey dynamics, and displace species that rely on low-light conditions. Resort activities such as night grooming, snowmaking, early morning operations, night skiing, cross country skiing, tubing and use of multipurpose trail networks will require lighting in certain areas. These activities are mostly limited to winter months, when wildlife presence is less frequent in the CRA.

The following protocols should be followed to reduce light-related impacts on wildlife during operations and included in future development:

- Use only the minimum level of illumination required to maintain safe and enjoyable conditions in operational and recreational areas;
- Direct all lighting downward and use shielding to focus light only on the work or recreational area, avoiding unnecessary light spill into adjacent forested or open habitats;
- Utilize motion-activated or timer-controlled lighting systems where appropriate to limit continuous exposure and reduce energy use;
- Choose full-spectrum LED fixtures that emit lower levels of heat and ultraviolet light, reducing insect attraction and subsequent bat activity around artificial light sources;
- Avoid lighting riparian areas, wetland edges, and forest canopies wherever possible, as these habitats are particularly sensitive to light disturbance and are often used by nocturnal or crepuscular species.

## **6.6 Waste/Attractant Management**

To minimize the risk of attracting wildlife to the resort site and reduce potential human-wildlife conflicts, strict attractant and waste management protocols should be implemented throughout all phases of development and operation. Food waste, garbage, and other attractants should not be left unattended or stored unsecured on site for extended periods. All workers should be required to follow a “pack-in, pack-out” policy, ensuring that all food-related waste and personal garbage are removed daily from work areas. Outside of winter, any onsite waste storage should be limited to bear-proof or wildlife-resistant containers that meet provincial standards to prevent wildlife access.

All sightings of nuisance or attractant-conditioned wildlife must be promptly reported to the designated Environmental Monitor (EM) or Environmental Coordinator. The responsible authority will liaise with the appropriate wildlife management agencies, such as the BC Conservation Officer Service, to address and mitigate potential conflicts.

Chemical attractants, including fuels, lubricants, and other hazardous materials, will be securely stored, transported, and handled to prevent environmental contamination and accidental ingestion by wildlife. Preventative measures include regular inspection and maintenance of machinery to ensure surfaces remain free of grease, oil, and residues. Fuel and lubricant storage must comply with provincial regulations, requiring placement at least 30 meters from any waterbody such as streams, lakes, or wetlands. Large containers (exceeding 454 liters) will be housed within secondary containment systems to mitigate spill risks. Spill response protocols will be in place, with spill kits accessible on site at all times to enable rapid containment and cleanup of accidental releases.

Training programs should be provided to all personnel to educate them on proper waste handling, attractant management, and the importance of minimizing human-wildlife interactions. Monitoring efforts should include recording instances of waste mismanagement, detailing the location, date, time, and type and quantity of waste observed. Additionally, any observations of wildlife interacting with waste—including species identification, number of individuals, behaviour, and condition—should be documented to inform management actions.

Should monitoring identify wildlife accessing improperly managed waste, a management response will be initiated. This response will investigate the source of the problem and develop site-specific adaptive strategies to mitigate future occurrences. All problem wildlife must be reported to local wildlife authorities to ensure appropriate intervention measures are taken.

Additional attractant and waste management practices include:

- Disposal of all refuse in accordance with a site Waste Management Plan, emphasizing secure containment and regular removal;
- Management of vegetation along resort-controlled and managed roads to improve visibility for drivers and discourage wildlife from foraging near roadways;
- Prompt removal of carrion or animal carcasses found along resort-controlled and managed roads to prevent attracting scavengers;
- Avoidance of creating or allowing formation of roadside pools or water pooling, which may attract amphibians and other wildlife.

Together, these measures aim to reduce wildlife attractants, lower the potential for hazardous wildlife encounters, and maintain ecological integrity within and around the resort area.

**6.7 Species-Specific Mitigation and Management Measures**

**6.7.1 Species-Specific Timing Windows**

Certain periods in the year are particularly sensitive for wildlife due to their vulnerability to disturbance and habitat changes. Whenever feasible, project activities, especially during construction phases like vegetation clearing, should be scheduled to avoid these sensitive times. If avoiding these periods isn't possible, pre-construction surveys will be carried out to locate important wildlife features, and suitable measures will be implemented to reduce potential negative impacts during the initial clearing stage.

Table 1 details critical timing windows for the VC listed species that could occur within the CRA, along with the recommended timing periods when project activities pose the least risk to them.

**Table 1: Species-Specific Timing Windows**

Species	Risk Timing Windows	Risk Timing Windows Dates
<b>Moose</b>	<p>The calving period (including late parturition, birth and post-parturition) from late May to June is considered a high-risk period (BC Gov., 2023).</p> <p>Additionally, the rutting season and the late winter months, when food sources are limited, are regarded moderate risk period requiring caution (BC Gov., 2023). However, the CRA is unlikely to provide suitable winter habitat</p>	<p>High risk: Calving- late May to June (BC Gov., 2023)</p> <p>Moderate risk: Rutting- September to November (BC Gov., 2023)</p> <p>Low risk: July, August and December to early May</p>



Species	Risk Timing Windows	Risk Timing Windows Dates
<b>Mule Deer</b>	<p>The fawning period (including late parturition, birth and post-parturition) from Late May to early June is considered a critical period</p> <p>Additionally, the rutting season and the late winter months, when food sources are limited, are regarded as sensitive times requiring caution. However, the CRA is unlikely to provide suitable winter habitat.</p>	<p>High risk: Fawning- Late May to early June (BC Gov, N.D.)</p> <p>Moderate risk: Rutting - November and early December (MELP, N.D.)</p> <p>Low risk: Late June to October and late December to early May</p>
<b>American Badger</b>	<p>Maternal dens are typically occupied (<i>i.e.</i>, March 15 to July 15). Maternal dens are utilized for longer periods of time with young typically dispersing by mid-July.</p>	<p>High risk: March 15 and July 15 (Transmountain, 2024)</p> <p>Moderate risk: October 16 to March 14</p> <p>Low Risk: July 16 to October 15</p>
<b>Migratory Birds</b>	<p>To avoid contravention of both the <i>Wildlife Act</i> and the Migratory Birds Convention Act, vegetation clearing should be outside of the nesting window (March 5, to September 1)</p>	<p>Moderate risk: March 5 to September 1</p> <p>Low risk: September 2 to March 31</p>
<b>Raptors</b>	<p>The courtship/egg laying/early incubation periods are the most sensitive phases of the breeding season as the birds have less invested in a particular nest site at that time and are more likely to abandon it if disturbed; particularly if the disturbance is at or directly above the nest (BC Gov., 2013).</p>	<p>High risk: January to September (Varies based on species) (BC Gov., 2013)</p> <p>Low risk: October to December (Varies based on species)</p>
<b>Bats</b>	<p>There are key seasonal periods when bats use hibernation and birthing sites. Where possible, vegetation clearing will be planned outside of the sensitive hibernation period (November 1 to March 31, if present) and the maternity roosting period (April 1 to August 31) (Craig <i>et al.</i>, 2014). If clearing cannot be scheduled outside these windows, pre-clearing surveys will be carried out to identify any bat habitat features within the project area.</p>	<p>High Risk:</p> <ul style="list-style-type: none"> <li>• Maternity roost sites: April 1 to August 31</li> <li>• Hibernaculum sites: November 1 to March 31</li> </ul> <p>Low Risk: September 1 to October 31</p>

## 6.7.2 Species-Specific Mitigation Measures

### 6.7.2.1 Overview

As project activities during both construction and operation phases may potentially impact wildlife, the WMMP is designed to avoid, minimize and/or manage identified effects to reduce detrimental impacts to local wildlife populations and their habitat. Particular attention is paid to species during vulnerable periods of the life cycle (e.g., denning and breeding and species at risk)



## 6.7.2.2 Mammals

### 6.7.2.2.1 Ungulate

Because the CRA provides limited suitable winter habitat for moose and mule deer, these species are more likely to use the area during spring and summer. Therefore, resort development should, where feasible, be scheduled outside their rutting and calving seasons. If development is planned within the rutting and calving season the following mitigation measures should be implemented as below:

General mitigation measures:

- Active searches for mineral licks and wallows should be conducted prior to initial land clearing, where required, to identify any previously undocumented wildlife habitat features. These searches may be carried out on a Phase-by-Phase or project-by-project basis, depending on the scope and location of planned works. In addition to these targeted searches, resort staff and contractors will remain vigilant for wildlife habitat features during regular operations and maintenance activities, and will report any observations of mineral licks, wallows, or associated wildlife trails to the EM or environmental coordinator. Locate mineral licks and wallows and avoid development in those areas. It is recommended to avoid development within 250 m of mineral-lick sites and along wildlife trails connecting to these mineral licks. Where roads or linear corridors, facilities or other developments cannot be avoided near mineral licks, ensure that connectivity to adjacent forested areas is maintained. For existing roads or other linear features near wildlife habitat features, minimize use and disturbance during critical-use periods; and, avoid disruptions to drainage and groundwater near mineral licks and wildlife habitat features.
- Avoid development in known moose habitat areas (e.g., riparian areas, wetlands).
- Install wildlife crossing and speed limit signs on resort-controlled and managed roads, and ensure workers comply with posted limits and respect wildlife crossings.
- Yield to wildlife on project roads; workers must wait until animals have moved off the roadway before continuing.
- Do not feed ungulates. Outside of winter, all food waste and garbage must be packed out or stored in bear-proof containers—no refuse is to be left unsecured on site.

Mitigation measures for work within the rutting and calving season:

- Maintain safe distances from ungulates to prevent disturbing their behavior (recommended distance: more than 500 m line-of-sight).
- Avoid disturbing fawns and calves; give mothers with young a wide berth.
- Use caution during rutting season, as ungulates may become aggressive and charge. Be alert for warning signs such as lowered heads and flattened ears, and identify escape routes if needed.

### 6.7.2.2.2 American badger

American Badgers have not been recorded in the Big White CRA. The CDC American badger occurrence polygon overlaps the CRA covers broad landscapes extending from Vernon to Osoyoos. A total of 498 badger sightings have been recorded within the habitat polygon that encompasses the CRA, with most observations collected between 1995 and 2012 (BC Gov, 2025b). The American badgers are most commonly found at valley bottom elevations; however, they can be found at any elevation. As American badgers can utilize dynamic/ephemeral habitat types (e.g., temporary clearings resulting from forest harvest) which is associated with the CRA. Therefore locations of core critical habitat that could support denning should also be mitigated during initial clearing activities (COSEWIC, 2012). A SARA safe movement critical habitat area for American badger overlaps the CRA (COSEWIC, 2012). Resort development and planning should avoid and minimize impacts to the biophysical features and attributes



listed for the critical habitat. That includes a continuous habitat not impeded by anthropogenic barriers (e.g. Paved roads, buildings and fencing) to safe movement (COSEWIC, 2012). The following mitigation measures should be implemented:

- Preconstruction sweeps should be conducted from March 15 to October 15 to identify maternal dens or summer dens during initial clearing activities in possible American badger habitat with Bio-physical attributes as listed in point 3 below. Maternal dens are utilized for longer periods of time with young typically dispersing by mid-July. Summer dens are used for shorter durations (in some cases only a day). Winter dens are difficult to determine occupancy, therefore, if clearing and construction activities are scheduled to be initiated between October 16 and March 14 when there can be snowfall accumulation, a pre-construction survey in areas with known potential to support badgers will be conducted prior to snowfall to identify potential dens that have evidence of recent use (Transmountain, 2024).
- To minimize vegetation and ground cover loss construction should remain within designated clearing boundaries.
- Big White staff should be vigilant in observing and recording any American badger presence in the CRA. The following biophysical attributes are required for the American badger habitat (Transmountain, 2024):
  - Habitats with soil types that allow for digging (both in pursuit of prey and to establish dens) (i.e., Brunisols, Chernozems and Aeolian soil types with Glaciolacustrine, Lacustrine and Fluvial parent materials and low coarse fragments).
  - Non-forested habitats that support an abundance of small-mammal prey;
    - non-forested habitat types that support small-mammal prey for badger - natural grasslands, pasture, open forested sites, as well as recently cleared areas and burned sites,
    - prey - primarily Columbian ground squirrels (*Urocitellus columbianus*), but also yellow-bellied marmots (*Marmota flaviventris*), northern pocket gophers (*Thomomys talpoides*), voles (*Microtus spp.*) and muskrat (*Ondontra zibethica*).
- Employ measures to reduce ground disturbance during construction for resort development where possible limiting grading and grubbing
- Proper soil handling technique should be used to avoid compaction of soil and erosion.

#### **6.7.2.2.3 Bats**

Resort development activities can potentially impact the quality of bat habitat and bat populations. Altering forest habitat can destroy or degrade winter and summer roosting habitat, in addition to foraging habitat. Active maternity roosts or hibernacula may occur within the CRA. Pre-clearing surveys will be conducted by an appropriately trained QEP to identify potential species present and their roosting habitats within and adjacent to proposed resort development. If a significant roost is identified, proponents are encouraged to plan activities to limit impacts on bats and their habitat. Buffer zones should be established around any habitat feature identified as a hibernacula or roost. The most effective methods of minimizing potential negative effects to bats are to

1) avoid damaging habitat and

2) conduct activities when bats are not present. If there is an identified loss of bat habitat due to operations or development, an offset of roosting structures must be implemented.

#### **6.7.2.3 Amphibians and Reptiles**



Best management practices must be implemented when working in or around amphibian or reptile habitat. Appropriate mitigation (i.e., maintain water quality, maintaining riparian vegetation or salvage), must be conducted prior to development in and around waterways used by amphibians. Best Practices for working near amphibians and reptiles include the following:

- Avoid the development of talus fields and apply construction buffer identified in the CRA that could contain an important habitat for reptiles.
- Avoid development in riparian setback areas to maintain suitable habitat for amphibians.
- Avoid development that infills or disturbs wetlands, pools, streams, however small or seasonal associated with amphibian habitat including the wetland bog identified in the CRA.
- Resort development and construction activities should follow the Guidelines for *Amphibian and Reptile Conservation during Urban and Rural Land Development in British Columbia* (2014). Best management practices include (MOE, 2014):
- Maintain habitat connectivity from wetlands and riparian areas to surrounding terrestrial forest.
- Retain coarse wooded debris and stumps wherever possible to retain riparian and amphibian habitat.
- Prevent road mortality: Avoid developing roads near wetlands and any locations where migration activities are observed.
- Maintain hydrological features of wetlands and watercourses.
- Stormwater management plans should avoid outfalls into wetlands and pools to preserve hydrological conditions that are favorable to amphibians.
- Reduce pollution in wetland and riparian areas.
- Protect vegetated borders around parking lots to reduce the transport of sediments and contaminants into watercourses.
- Install oil/water separators to remove hydrocarbons and other contaminants from roads and parking lots before they enter storm sewers and the aquatic environment.
- A Construction Environmental Management Plan (CEMP) should be produced for construction works that implement Erosion and Sediment Control (ESC) measures and spill containment and response plans to protect aquatic and riparian features.

#### **6.7.2.4 Birds**

A bird nest search should be conducted for any clearing works that occur at any time of the year for the bird species nests that are protected year-round by the *Migratory Birds Act*, *Wildlife Act* and SARA that potentially occur in the CRA. These species include:

- Pileated woodpecker
- Eagle
- Peregrine falcon
- Gyrfalcon
- Osprey
- Yellow-breasted chat
- Western screech owl



Vegetation clearing should occur outside of the bird migratory nesting season for the Northern Okanogan Ecodistrict of March-September wherever possible.

If vegetation clearing activities are planned between March 5<sup>th</sup> and September 1<sup>st</sup>, a bird nest survey should be completed under the supervision of a QEP prior to works to ensure an active bird nest is not impacted. Outside of these dates, nest sweeps are not required. However, raptor nests (eagles, hawks, falcons, owls and pileated woodpeckers) are protected year-round.

Appropriate buffers will be employed if an active nest is found, and construction cannot occur within these buffers until the nest is assessed as inactive by the QEP.

## **6.8 Species At-Risk**

Fifty-five (55) species at risk were determined to have the possibility to utilize habitat found within the CRA. These species were grouped in categories and general mitigation measures are provided for each group.

### **6.8.1 Birds**

Nineteen (19) of the species at risk listed were bird species. Measures listed in Section 6.7.2.4 will mitigate impacts to these possible species during resort development activities.

### **6.8.2 Aquatics**

Two (2) of the species at risk listed were aquatic species which included the speckled dace and striated fingernail clam. Avoiding impact to watercourses and following erosion sediment control measures presented in the CEMP will mitigate impacts to these potential species during resort development activities.

### **6.8.3 Invertebrates**

Twenty-one (21) of the species at risk were invertebrate species. The majority of the invertebrates listed depend on aquatic and wetland areas during their life cycle and following measures presented in the CEMP will mitigate impacts to these potential species during resort development activities.

### **6.8.4 Mammals**

Ten (10) of the species at risk listed were mammal species. American badger occurrences within the CRA are addressed in section 6.7.2.2 for applicable mitigation measures. Conducting pre-clearing survey in addition to following the measures listed in Section 6.7.2.2 will also mitigate impacts to these species from resort development.

## **6.9 Grizzly Bear**

Mitigation measures specific to grizzly bear have been extracted from the GBMP (Cascade, 2025d). For a more detailed account on background of the measures and monitoring recommendations, refer to the GBMP document (Cascade, 2025d).

### **6.9.1 Attractant/Conflict Management**

#### **6.9.1.1 Site Planning Stage**

#### **Hiking and Biking Trails Within High Value Huckleberry Patches**

- Recreational development should avoid high-use bear habitats such as riparian corridors, huckleberry patches and known travel corridors, when possible. If huckleberry patches cannot be



avoided, mitigation measures should be employed to design trails on existing ski runs, improving sightlines and reducing disturbance within forested habitat. Shrubs should also be removed within a 1.5 m buffer on each side of the trail to reduce surprise encounters on the trail.

- If future trails are planned within high value huckleberry patches, they should be managed for speed by designing trails to reduce speed and potential of surprise encounters in these areas where possible (Scallion and Titchener, 2025).
- Ensure any rest nodes or viewpoints are outside of high value black huckleberry habitat (Scallion and Titchener, 2025).
- Ensure high repetitive use areas, e.g. skills park areas are outside of high value black huckleberry habitat (Scallion and Titchener, 2025).
- Try to bundle trails together in high-value grizzly black huckleberry habitat which cannot be avoided leaving spaces for habitat use (Scallion and Titchener, 2025).

### **Infrastructure**

- Establish defensible space zones around buildings by removing brush and low-hanging branches within a minimum 3–5-meter radius (Angus *et al*, 2018).
- Maintain clear sightlines around public spaces and infrastructure by trimming dense vegetation that could provide cover for bears.

### **6.9.2 During Construction**

- Prior to clearing or ground disturbance a den survey should be conducted.
- Any work involving vegetation clearing or ground disturbance should be scheduled for the late summer and fall season. This will avoid the period when grizzly bears are denning and potential interactions with occupied grizzly bear dens will be avoided (Transmountain, 2017a).
- If possible, attractant vegetation, including but not limited black huckleberry should be removed from and adjacent to the construction footprint before they flower to reduce natural attractants in the area.
- When a grizzly bear is observed within 50 m of a worksite, contractors should halt work and not approach the bear. Contractors should cease work in the 50 m buffer until the animal is out of sight
- Grizzly bear should not be fed or harassed. Food should not be store in beds of pick-up trucks or areas readily accessible to wildlife. See Section 6.13 for additional measures.
- All garbage should be stored in wildlife-proof containers when potential wildlife/human conflicts may occur.
- Pets should be prohibited on the works site. During operation of the resort expansion, pets should be kept on leash.

### **6.9.3 Forage Habitat mitigation**

#### **6.9.3.1 Site Planning Stage**

- A survey for glacier lily and whitebark pine should be conducted by a QEP prior to the construction of the upper terminal of the Sapphire Chair, the Sapphire Restaurant and Rhonda Lake ski runs. A survey should also be conducted for the ski terrain that overlaps with the whitebark pine and glacier lily prediction on the provincial mapping. If feasible, the design should be adjusted as needed to avoid impacts on whitebark pine and glacial lily that are identified during the field assessment.



- Proposed residential development within the Black Forest and Ridge Valley areas were flagged as moderately high rated impact development areas for forage habitat (see GBMP(Cascade,2025d)). Where possible, residential development should avoid high rated black huckleberry forage habitat areas (see GBMP(Cascade,2025d)). This may include re-routing final designs in these areas. If development cannot be avoided in these areas, black huckleberries found within the perimeter of the development should be removed to create a 3-5 m defensible radius (Angus et al, 2018), discouraging bears from lingering near residential development.
- The aerial adventure course, alpine coaster and bike park expansion areas were rated as moderately low impact areas and should retain black huckleberry where possible during development. However, remove these shrubs if overlapping in high traffic human areas.
- Follow measures from Table 2 and Table 3 below.

**Table 2: Management Measures to ensure compliance with WHA Order #8-232 and 8-373.**

WHA Condition	Management Measures
<p><b>WHA 8-232(2) &amp; 8-373(7)</b> Forest harvesting along avalanche tracks, that are at least 40 meters in width, will result in forest stands that are at least 15 meters in height for: 100 meters on one side of the avalanche track or 50 meters on both sides of the avalanche track.</p>	<p>Big White CRA does not have the terrain features for significant large avalanche tracks that is associated with grizzly bear habitat. If avalanche tracks are encountered in the field that are at least 40 m in width then these should be protected by buffers prescribed in the condition</p>
<p><b>WHA 8-232(3)</b> Timber harvest and site preparation practices will not inhibit <i>Vaccinium spp.</i> productivity.</p>	<p>If timber clearing is considered in identified high value black huckleberry patch area as detailed in the ER document (Cascade, 2025e), methods will be employed to maintain black huckleberry productivity during ski run glading and cutting:</p> <ul style="list-style-type: none"> <li>• Root grubbing must be restricted to areas where soil removal is necessary to reduce surface disturbance and encourage natural regeneration of black huckleberries.</li> <li>• Retain a dispersed overstory to provide preferred growing</li> <li>• Conduct logging in the winter to reduce soil and understory disturbance</li> <li>• Use of low ground pressure equipment</li> <li>• Conduct cable harvesting operations to minimize soil and shrub disturbance</li> <li>• Minimize skid trails to reduce impacts on shrubs and soil.</li> <li>• Broadcast burn rather than mechanical vegetation maintenance on ski runs and summer terrain where possible to encourage huckleberry patch regeneration (Mowat <i>et al.</i> 2017).</li> </ul>
<p><b>WHA 8-232(4) &amp; 8-373(8)</b> Planting of tree seedlings in harvested riparian site series will result in stocking densities that are consistent with maintaining plant communities that produce bear forage. Areas that did not have forest cover before timber harvesting was carried out will not be subject to planting of trees.</p>	<p>In some cases, fill and hydroseeding are used to smooth slope surfaces and create lower-skill-level ski terrain. When seeding these areas, the following grizzly forage species must be included where feasible and located 3-5 m away from summer use trails and infrastructure to reduce conflict interaction:</p> <ul style="list-style-type: none"> <li>- Glacier lily</li> <li>- Buffaloberry</li> <li>- Black huckleberry</li> <li>- Sitka mountain ash</li> </ul>
<p><b>WHA 8-373(3)</b> Do not construct roads or trails within 50 m of habitat features described below, except for:</p>	<p>Contract a QEP (Qualified Environmental Professional) to conduct an assessment of the proposed timber removal areas</p>



<p>a) required stream crossings; and</p> <p>b) the construction of a maximum of one road or trail crossing in avalanche tracks with no existing road or trail crossings:</p> <ul style="list-style-type: none"> <li>- Avalanche tracks</li> <li>- <i>Hedysarum</i>, glacier lily (<i>Erythronium</i>) and spring beauty (<i>Claytonia</i>) complexes greater than 0.5 hectare</li> <li>- Subalpine parkland meadows</li> <li>- Riparian site series listed in Table 3, greater than 1.0 ha.</li> </ul>	<p>to confirm the presence/absence of the features described within 50 m of a proposed harvesting road or trail.</p> <p>If any of the noted features are identified during the assessment 50 m buffers must be applied from haul roads and forestry trails.</p>
<p><b>WHA-8-373 (6)</b> Retain coarse woody debris (CWD) and wildlife trees that are representative (in terms of species, age and size) of pre-harvest conditions across each harvested cut block in site series identified in Tables 3 (Riparia areas) and (Berry producing sites)4.</p>	<p>CWD in riparian areas and high value huckleberry patch areas identified in the ER document (Cascade, 2025e) and will be retained and moved outside of trail alignments and development footprints when feasible to the surrounding forest. These areas will provide likely foraging habitat for grizzly bears and sources of invertebrate prey as part of their diet.</p>
<p><b>WHA-8-373 (9)</b> Maintain non-merchantable vegetation, except where required for stream crossings, to the extent practicable:</p> <p>a) within 50 m of wetlands greater than 0.5 ha, and</p> <p>b) in Riparian Management Areas where the contiguous canopy opening is greater than 40 hectares.</p>	<p>Non-merchantable vegetation must be maintained to the extent practicable within the riparian areas and wetlands identified within the CRA as displayed in ER document (Cascade, 2025e)</p>

**Table 3: Special Management Strategies for Grizzly Bear Forage Habitat in the 2024 Study Area.**

Polygon #	Comments	Grizzly Bear Forage Mitigation Measure
Polygon #9_24	Highest grizzly bear forage prominence rating throughout the study area in sites series 102	<p>Avoid:</p> <p>Minimize run development and infrastructure where possible.</p> <p>Avoid impacts to whitebark pine as per recommendations in this report.</p> <p>Minimize:</p> <p>Minimize vegetation removal to what necessary</p> <p>Employ methods to maintain black huckleberry productivity during ski run glading and cutting.</p> <ul style="list-style-type: none"> <li>• Root grubbing should be restricted to areas where soil removal is necessary to reduce surface disturbance and encourage natural regeneration of black huckleberry.</li> <li>• Retain a dispersed overstory to provide</li> </ul>



Polygon #	Comments	Grizzly Bear Forage Mitigation Measure
		<p>preferred growing conditions</p> <ul style="list-style-type: none"> <li>• Conduct winter logging to reduce soil and understory disturbance</li> <li>• Conduct cable harvesting operations to minimize soil and shrub disturbance</li> <li>• Minimize skid trails to reduce impacts to shrub and soils.</li> </ul>
Polygon #10_24	Highest grizzly bear prominence rating within wetter seepage areas and riparian areas of site series 110 and 111	<p>Avoid:</p> <p>Protect riparian vegetation around all watercourses and wetlands during development.</p> <p>Minimize:</p> <p>Create connectivity through landscape via these riparian corridors.</p>

### 6.9.3.2 During Construction

- Root grubbing should be restricted to areas where soil removal is necessary to reduce surface disturbance and encourage natural regeneration of black huckleberry.
- Retain a dispersed overstory to provide preferred growing conditions
- Conduct winter logging to reduce soil and understory disturbance
- Conduct cable harvesting operations to minimize soil and shrub disturbance
- Minimize skid trails to reduce impacts to shrub and soils.
- Retain a dispersed overstory to provide preferred growing
- Use of low ground pressure equipment
- Minimize skid trails to reduce impacts on shrubs and soil.
- Broadcast burn rather than mechanical vegetation maintenance on ski runs and summer terrain where possible to encourage huckleberry patch regeneration (Mowat *et al.* 2017).

### 6.9.4 Wildlife Movement/Connectivity

#### 6.9.4.1 Site Planning Stage

- Develop a trail plan in this area to utilize existing resource roads through the area (in collaboration with the forestry tenure holder) to reduce impacts from trail construction and concentrate future trail development within a relatively narrow corridor.



- Resource roads should be decommissioned in this area in collaboration with the forestry tenure holder to reduce zones of influence and road density and reduce impacts on grizzly bear movement.

## **6.10 Talus Slopes**

### **6.10.1 Site Planning Stage**

- Avoid development within identified Talus Areas (See ER for mapping (Cascade, 2025e)) during site design.

### **6.10.2 During Construction**

- Follow best management for reptiles in development design as listed in Section 6.7.2.3.

## **6.11 Wildlife Trees**

### **6.11.1 Site Planning Stage**

- During initial environmental site investigations for site design (e.g. riparian assessments), wildlife trees should be recorded when observed along with GPS coordinates to avoid removal from development.
- Follow recommendations for potential bird nest and cavity searches as listed in section 6.7.2.4.
- Follow recommendations for potential bat searches as listed in section 6.7.2.2.3

### **6.11.2 During Construction**

- Wildlife trees should be retained wherever possible. A Danger Tree Assessment of all wildlife trees in close proximity to development should be surveyed by certified Danger Tree Assessor for safety integrity too surrounding development. Mitigation measures to retain wildlife trees that are dangerous trees include modification to retain some parts of the tree or leaving a 2 - 3 m stump that still provides some ecological benefit.

## **6.12 Wildlife Habitat Features-Kootenay Boundary Region**

The WHF mitigation measures would only be applicable to CRA lands within the Kootenay Boundary Natural Resource Region.

### **6.12.1.1 Site Planning Stage**

- Conduct further field assessments into the three WHF points identified in the CRA if development is planned to impact these features.
- Utilize the potential WHF habitat maps in the appendix of the ER document (Cascade, 2025e) of this document over proposed overlapping development area to determine which WHF features could be within the area to refine search techniques.
- A QEP should note incidental findings of WHF's during environmental assessments in areas of development using the WHF field guide (MOECCS, 2018). Construction personnel involved in vegetation site clearing should also be educated on the Wildlife Habitat Features Field Guide (Kootenay Boundary Region) and filed cards to record any observations.



#### **6.12.1.2 During Development**

- If a WHF is identified during pre-construction survey or works, appropriate BMP's from the guidelines should be employed to minimize impacts on these features.

#### **6.13 Human-Wildlife Interactions**

The Human-Wildlife Interaction Plan is intended to ensure public, guest, employee and worker safety as well as to protect wildlife from activities associated with the project. Due to the mountainous and forested nature of the project area, it can be difficult to avoid wildlife. Wildlife avoidance strategies should be employed as appropriate to ensure minimal disturbance to wildlife as detailed in the Wildlife Avoidance Response Protocol below in Section 6.15.

Potentially dangerous wildlife that may occur in the project area include black bear, grizzly bear and cougar. Management objectives related to potentially dangerous wildlife include:

- Eliminating wildlife attractants.
- Implementing appropriate responses to wildlife encounters(see Section 6.15: Wildlife Avoidance Response Protocol)
- Educating guests, employees, and contractors on safe and responsible behaviour around wildlife.

When human food attractants are secured away from wildlife, potential human-wildlife conflicts and unnecessary deaths of wildlife can be avoided. Wildlife that learns to associate humans and human developments with food (food-conditioning) tend to react more boldly with humans and are more likely to cause human injury and property damage than wildlife that are not food-conditioned. Some wildlife, particularly bears, may only need to access human food attractants once or twice to change their behavior toward humans. It is therefore imperative that all potentially attractive sources of food for wildlife are secured using tested and approved wildlife-resistant containers.

#### **6.14 Ensure no natural wildlife attractants accumulate within the CRA.**

Potential wildlife attractants on site may include human food, garbage, recycling, compost and petroleum products. Bears will tip over garbage cans, break into sheds and hang around garbage compactor sites. Common bear proofing procedures include using tested and approved wildlife-resistant containers, keeping all food waste and recycling receptacles inside well-built (i.e., completed) buildings, and ensuring that the receptacles are emptied at the end of the workday.

Any person in the CRA who observes potentially "dangerous wildlife" should immediately notify their supervisor, site lead or resort employee who will in turn notify the EM or Environmental Coordinator and others on site. The area should be avoided for at least 30 minutes. If it is safe to do so (i.e., from a vehicle or inside a building), making noise may scare the animal off the site. All wildlife sightings and locations should be documented by the person responsible for safety. If a potentially dangerous animal remains in the vicinity or is observed near areas accessible to the public, the resort should issue notifications through its communication channels (e.g., website, social media, or guest alerts) advising people to avoid the area, and temporary closures of affected zones should be implemented as necessary to ensure safety.

#### **6.15 Guest Education and Awareness**

To support the objectives of the Human–Wildlife Interaction Plan, Big White should develop and/or implement a guest education and awareness program aimed at reducing human–wildlife conflict. The program will include high-level messaging and materials on themes such as:

- Avoiding the feeding or approach of wildlife;



- Securing food, garbage, and other attractants; and
- Recognizing and responding appropriately to encounters with potentially dangerous wildlife (e.g., bears, moose, or cougars).

Where feasible, Big White will adopt or integrate existing educational resources and initiatives (e.g., provincial Bear Smart program or existing resort safety campaigns) to ensure consistent messaging and efficient implementation. Guest education materials may be delivered through signage, maps, the resort website, and other public communication channels.

### **6.16 Wildlife Avoidance Response Protocol**

If a bear or other large mammal is observed within 50 m of a worksite, trail or public area:

- All persons (including contractors, employees, and guests) should immediately halt activity and remain calm.
- Make a wide detour around the animal or leave the area immediately if it is safe to do so.
- If near the animal, keep calm, maintain visual contact, avoid direct eye contact, and move away slowly without running.
- Be aware that a single animal may have young nearby and could act defensively.
- Do not resume activity until the animal has moved out of sight.
- Report all bear and large mammal sightings excluding deer to the Environmental coordinator as soon as possible.
- Report aggressive animal behavior to the Conservation Officer Service immediately.

Additional recommendations:

- Avoid conflict by managing food and waste attractants.
- Remain alert and make noise regularly (talking, shouting, use of machinery).
- Listen to your surroundings, especially when working or recreating alone.
- Watch for signs of recent wildlife activity, such as droppings, tracks, digging, claw or bite marks on trees, or carrion. If signs are fresh, leave the area and report the observation.
- Work or travel in groups whenever possible.
- Dogs should be kept on a leash at all times.
- Keep bear spray accessible to staff, contractors, and designated personnel. Ensure all staff and key personnel are trained in its safe use.

If you encounter a bear:

- Stop and stay calm. Screams or sudden movements may trigger an attack.
- Never run, running may cause a bear to pursue you.
- Stay in a group if possible.
- Bears may approach or stand on hind legs to look at you or pick up your scent. This is a way to identify you and may not be aggressive.
- Scan the area for young bears, as mothers can act aggressive and territorial if you are near cubs.



- Speak calmly and firmly to indicate you are not a prey animal. Appear passive.
- If bear spray is available, prepare for use. Take note of the direction and strength of wind. Bear spray is also effective at deterring attacks from other dangerous wildlife.

## **7 Air Quality and Dust Control Plan**

The proposed project's construction activities have the potential to reduce local air quality temporarily. While these impacts are expected to be short-term, they may still be significant. Activities like vehicle traffic and machinery movement will generate emissions through:

- Combustion emissions: Heavy-duty diesel and gasoline-powered vehicles and equipment will release exhaust fumes containing pollutants like nitrogen oxides and particulate matter.
- Worker commute emissions: Vehicles used by workers commuting to and from the site will contribute to overall air pollution.
- Fugitive dust: Soil disturbance and land clearing will release dust particles into the air, impacting air quality.

### **7.1 Mitigation Measures**

Sources of pollution from project activities include heavy construction vehicles and equipment, emissions from worker commuter trips and fugitive dust.

#### **7.1.1 Heavy Construction Vehicles and Equipment**

The contractor will implement the following mitigation measures to minimize the release of air pollutants from construction-related heavy-duty vehicles and equipment.

- All equipment shall be fitted with standard emission control devices appropriate to the equipment and in compliance with Federal and Provincial regulations and standards.

#### **7.1.2 Dust and Silt Control**

Dust emissions are a common concern associated with excavation, earth moving, material storage and handling, and vehicle movement. The extent of these impacts depends on several factors, including the existing air quality baseline, the affected area's size, and the construction activity's intensity.

If dust becomes a problem during construction activities, these mitigation measures will reduce impacts

- Minimize hauling of construction materials, including "one trip" handling procedures during cut and fill activities.
- Control of dust through the duration of construction works using environmentally acceptable dust suppressants or non-potable water. Water will be preferred, with consideration for water conservation, drainage, and sediment control where appropriate.
- Conduct regular visual inspections of the site perimeter to check for dust deposition on vegetation, cars, and other objects to gauge the effectiveness of dust control activities.
- Sweep site access points at the end of each workday or whenever sediment tracking from tires is observed.
- Rehabilitate and revegetate disturbed areas as quickly as possible.

#### **7.1.3 Employee Training and Awareness:**

Educate construction workers on the importance of air quality management and the proper use of dust control measures.



## 8 Solid Waste Management Plan

Project-related sources of waste include tools and parts packaging, food scraps and packaging, fuel containers, and construction waste and garbage (e.g., wooden pallets and plastics). Waste and litter have a negative impact on the environment and may injure fish and wildlife if not handled properly.

Contractors will adhere to the provisions outlined in the *Wildlife Act (2024)* and the following waste best management protocols and recommendations:

*“A person must not leave or place an attractant in, on or about any land or premises where there are likely to be people, in a manner in which the attractant could a) attract dangerous wildlife to the land or premises, and b) be accessible to dangerous wildlife” – Wildlife Act (2024)*

- Promoting Material Reuse: Prioritize the utilization of materials with recycled content or those sourced from previous job sites, such as reclaimed concrete forms.
- Effective Waste Sorting: Furnish receptacles with clear labels indicating acceptable and unacceptable materials. By segregating waste, reusable items will remain on-site while recyclable materials will be collected by designated recycling services.
- Returning Packing Materials: Ensure that packaging materials like crates or pallets, which can be reused by suppliers, are returned rather than discarded.
- Handling Hazardous Waste: Segregate potentially hazardous materials like oily rags or spill pads from regular waste and arrange for their proper disposal. Additionally, ensure that hazardous substances and their containers, such as lubricants and fuels, are appropriately managed.
- Food Waste Management: Separate food waste from general construction waste and store it exclusively in designated bear-proof receptacles, emptied at regular intervals.
- Regular Waste Inspection: Conduct routine visual inspections of waste receptacles to prevent cross-contamination between recyclable and non-recyclable materials.
- Off-site Waste Disposal: Any waste unsuitable for on-site reuse will be transported off-site for proper disposal.
- Personal Garbage Disposal: All contractors and subcontractor personnel will be instructed to dispose of personal waste appropriately.
- Portable Toilet Maintenance: Ensure the provision of portable toilets where necessary, maintaining regular servicing and cleanliness.
- Vegetation Debris Disposal: Vegetative debris not repurposed on-site will be transported off-site for disposal.

Through the implementation of the Solid Waste Management Plan, waste will be organized to maximize recycling and reusing of construction materials while minimizing waste requiring disposal. Upon completion of work in a particular part of the site, the site will be cleaned up to the satisfaction of the Project Manager and the EM.

## 9 Hazardous Waste and Spill Management Plan

### 9.1.1 Site Planning Stage

A Hazardous Waste and Spill Management Plan should be completed, specific to the project site, with details and content listed below in Section 9.1.2. The Hazardous Waste and Spill Management Plan should include construction specific BMP's related to the site and thresholds for potential hazardous materials (e.g. fuels, lubricants, construction chemicals) that could impact water quality and other environmental conditions.

### 9.1.2 Construction Stage

Certified professionals will manage all hazardous waste resulting from project operations, ensuring full adherence to relevant regulations and documentation protocols. Hazardous materials are defined as substances presenting substantial risks to human health and safety and those deemed toxic to aquatic and terrestrial ecosystems. This category encompasses fuel and petroleum derivatives, contaminated soil or water, batteries, solvents, anti-freeze, explosives, concrete wash water/leachate, and any waste containing pesticides, corrosives, poisons, or dioxins.

To mitigate risks, hazardous wastes will be securely stored in designated containment areas, clearly labelled, and equipped with secondary containment measures. These storage facilities will be strategically located away from water bodies to prevent potential contamination.

#### 9.1.2.1 Fuel Storage and Handling

- Petroleum storage, including propane storage, fuel storage, lubricant storage, and storage of other petroleum products shall be designed to meet or exceed the existing safety regulations of the Provincial Petroleum Association, the National Fire Code, and the Workers' Compensation Board. All storage tanks associated with the project will be installed and operated in compliance with the CCME Environmental Code of Practice for Aboveground Storage Tank Systems Containing Petroleum Products (2003) and the BC Field Guide to Fuel Handling, Transportation and Storage (MWLAP, 2002b).
- Underground storage of petroleum products shall not be permitted.
- The refuelling of equipment will be conducted in designated areas, isolated from water and surface water drainages. Refuelling will take place a minimum distance of 30 m from the top of bank of all water or surface drainages.
- Where possible, fuelling and lubricating of equipment should only be conducted after the equipment to be serviced is moved to a constructed service pad with a separate drainage collection system, as far as possible from detention or sedimentation facilities and leave strips.
- Equipment is to be in good operating condition and free of any leaks, excessive oil, and grease.
- All equipment should be checked daily to ensure there are no leaks of any fluids.
- Petroleum storage facilities shall be located away from watercourses. Storage facilities shall be located at a minimum distance of 30 m from any water.
- Any fuel or lubricants stored on site must have secondary containment capable of holding 110% of the contents of the container. This may be achieved through double-walled storage tanks, secondary containment trays, or constructing a polyethylene-lined containment berm beneath fuel containers.
- Fuel storage areas should be covered with polyethylene tarps to prevent the accumulation of rainwater.



- Construction personnel shall be instructed to hand-hold the fuel nozzle rather than lock the nozzle open to minimize the potential for fuel spillage.
- Care will be taken not to overfill any vehicle or equipment fuel tanks.
- Waste fuel, oil, solvents, and other petroleum products shall be disposed of off-site at a location that is approved by the regulatory authorities.
- Any spill of petroleum products shall be reported immediately to the EM. Clean up of such spills shall commence immediately. Reporting of petroleum spills to authorities shall be as set out in the appropriate legislation and regulations. Such reporting is the responsibility of the contractor. The contractor is also responsible for reporting all spills larger than 100 litres of flammable liquids (or a spill of any amount into a watercourse) to Emergency Management BC (EMBC) of the Ministry of the Solicitor General.

### 9.1.2.2 Spill Prevention and Emergency Response Plan

Potential environmental damage can be caused by the accidental spillage of petroleum products and chemicals during project activities. To minimize the possible adverse effects on the environment of such a spill, this Spill Prevention and Emergency Response Plan (SPERP) outlines mitigative action to deal with a possible emergency. The SPERP includes guidelines for reporting a spill, training procedures, resource allocations, and supervision of containment and restoration procedures.

The SPERP will be presented to all workers and contractors working on the project. In addition, a detailed site map will be provided to all contractors identifying all watercourses, red-listed ecological communities, and other potentially environmentally sensitive areas.

In accordance with the Spill Reporting Regulation of the *BC Environmental Management Act* (MOE, 2017) the following spills will be reported immediately to the EM and EMBC as per the protocol outlined below:

- A spill or release of any amount of material which impacts waterways
- Hydrocarbons;  $\geq 100$  litres where the hydrocarbon contains no toxic materials and does not impact water ways
- Produced/salt water; 200 litres where the fluid contains no toxic materials
- Fresh water; 10,000 litres
- Drilling or invert mud; 100 litres
- Sour Natural gas; 10 kg or 15 m<sup>3</sup> by volume where operating pressure is  $>100$  PSI
- Condensate; 100 litres
- Any fluid including hydrocarbons, drilling fluids, invert mud, effluent, emulsions, etc. which contain toxic substances; 25 litres

### 9.1.2.3 Pre-Emergency Planning

**Hazardous Identification:** The contractor will identify the potential hazards on the project site. A Safety Data Sheet will identify all hazardous compounds coming on site, and this information will be available to all personnel. Hazardous compounds will be stored in secure locked containers on site in secured enclosures.

**Resources Available:** The contractor will use its own resources to clean up a spill. If required, emergency response for larger spills will be available. First responders, such as fire departments, have



the capability to clean up a variety of spills. Other resources, such as local environment spill clean-up companies, can also be called upon on an emergency basis.

**Internal Alerting:** Because timely and accurate reporting of an accidental spill can help to ensure a quick and efficient response, this plan includes detailed information regarding notification and emergency response procedures.

### **9.1.3 Emergency Response Plan**

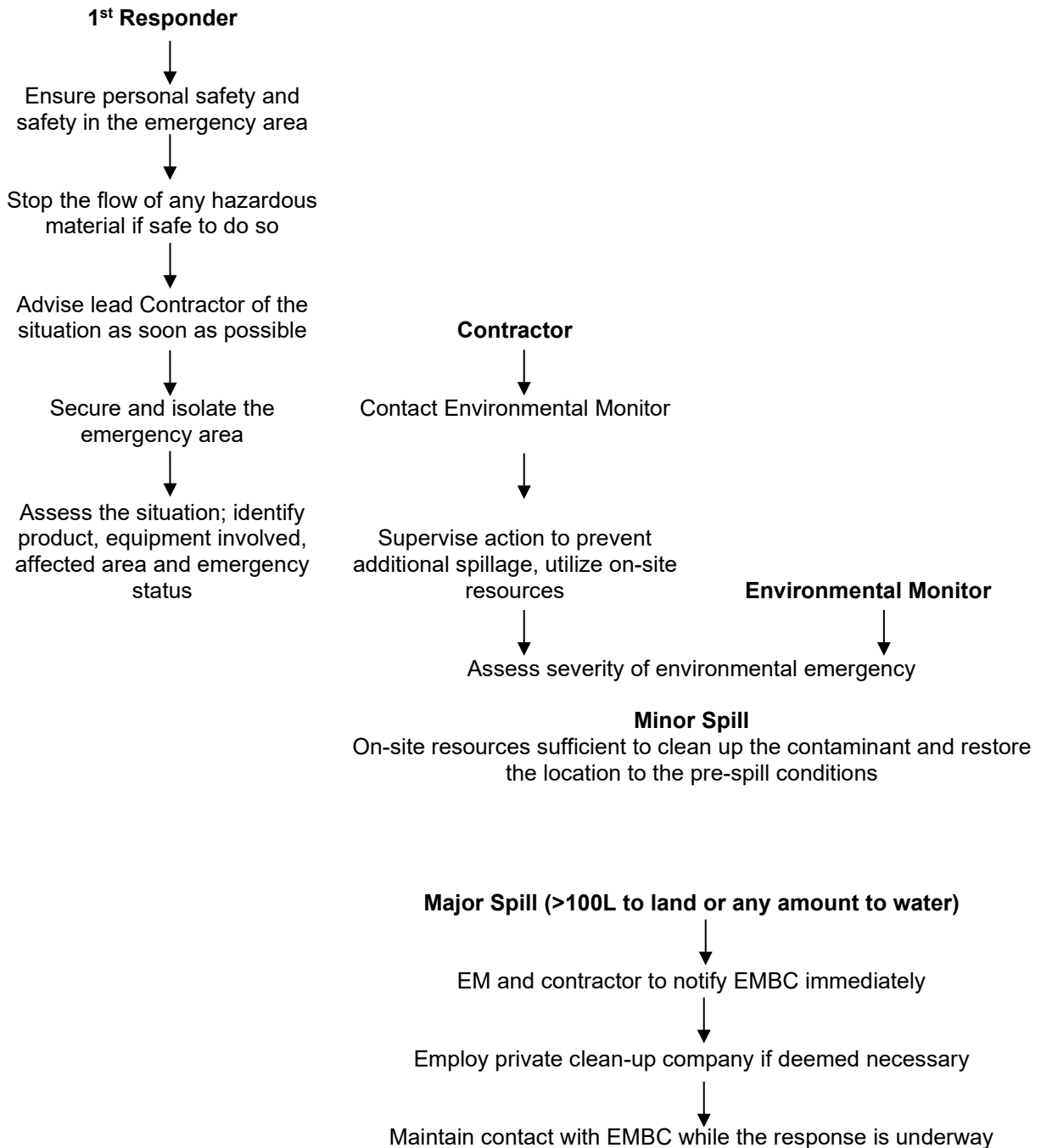
Immediate reporting and proper response protocols must be followed for any environmental emergencies observed on the project site, in accordance with the guidelines outlined in Table 4. A comprehensive list of emergency contacts can be found at the outset of this Environmental Management Plan.

Environmental emergencies encompass a range of situations, including but not limited to the following:

- Fuel spills
- Encounters with aggressive wildlife, or collisions with wildlife
- Large sediment release into watercourses
- Wildfires
- Accidents involving large machinery



**Table 4: Environmental Emergency Response Plan**



### 9.1.3.1 General Procedures and Reporting

Immediate notification to the EM is mandatory for any spill involving petroleum products. Swift documentation and mitigation measures must be enacted without delay. Reporting procedures for petroleum spills to the appropriate authorities are outlined in Table 4.

The contractor bears the responsibility for promptly notifying the EM of all spills. Moreover, spills affecting watercourses or exceeding 100 liters will necessitate immediate reporting to Emergency Management British Columbia (EMBC).

### 9.1.3.2 Spills on Land

The first action for clean-up of land-based spills is to prevent the spread to watercourses or drainage ditches through containment and damming. Second, limit the saturation of the material deep into the soils by removal of the liquid by absorbents or pumping. When the free liquid is contained, steps can then be taken to collect all contaminated soil for later disposal.

### 9.1.3.3 Spills into Drainage Ditches or Water Bodies

These spills have the potential to cause environmental damage. All spills near or into water, require immediate attention and reporting to the EM and external reporting to EMBC. The first response should be to stop the spread of the spilled material downstream immediately. This can be accomplished with the use of absorbent booms and absorbent material designed to pick up oil. These spills will be immediately reported to EMBC by the EM.

### 9.1.3.4 Internal and Other Spill Response Resources

Spill kits should be kept in a clearly marked location and available on the construction site where heavy machinery is being used. All spill kits should be fully stocked and restocked as soon as possible if used. Example contents of a spill kit may include but are not limited to:

- 2 each - 10' Oil Only Socks
- 15 each - Polypropylene Sorbent Pads (oil only) 18" x 18" x 3/8"
- 2 each - 10 Quart Cellulose Sorbent Material, Oil Only
- 1 each - Barrier Ribbon, Yellow "Caution Do Not Enter"
- 1 each - Poly Disposal Bags (45-gallon drum size, minimum 6 mil)
- 1 each - Blank Labels for Plastic Bags
- 1 each - Plastic Bag Tie
- 1 each - Epoxy Plug Compound (hydrocarbon compatible)
- 1 each Spill Kit Container Marked "Spill Response Kit"

In the case of a very large spill, Spill Kit inventory and off-site materials can be called upon. Other materials available for spill response from outside and on-site contractors include:

- Shovels
- Vacuum trucks
- Booms
- Excavators
- Bags of absorbent
- Loaders



#### **9.1.3.5 Emergency Back-up**

It is assumed that in the case of large spills, the Project Manager will call on the resources of commercial spill clean-up companies, the EMBC, and local fire response teams.

#### **9.1.4 Plan Communication**

The plan will be made available to all employees and sub-contractors on site. It will also be discussed at the initial site meeting and safety training sessions.

#### **9.1.5 Monitoring of Clean-up and Restoration**

The clean-up and restoration of every spill will be monitored by the Project Manager and EM. The Project Manager or EM will be in contact with the appropriate government agencies, as required. The Contractor will be responsible for restoring the contaminated site to its previous state.

#### **9.1.6 Debriefing**

After the clean-up of a significant spill is complete, the EM and the Project Manager will hold a debriefing with all involved personnel. This debriefing will include the following:

- What caused the spill? Review all stages of the incident from first identification to final clean-up.
- What can be done to prevent a similar incident from happening again?
- Review with response personnel why the incident went right/wrong.
- What equipment was useful or not useful?
- Was there sufficient equipment?
- Nature of response; could the incident have been avoided?
- How could the response have been improved?
- Safety procedures.

#### **9.1.7 Report Filing**

At the end of the clean-up, a detailed environmental report will be filed with the Province of BC and government regulatory agencies, if required.

## **10 Signature**

Please do not hesitate to contact the undersigned should you have any questions about this report.

Simon Fry, B.Sc., R.P.Bio  
Biologist and Resource Manager  
Cascade Environmental Resource Group Ltd.

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