



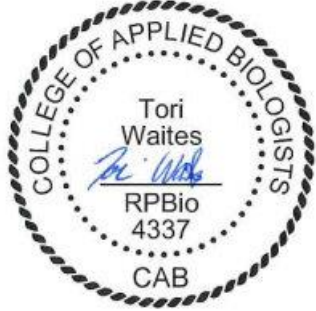
# Trans-Canada Highway No. 1 Sackum Overhead Amphibian and Reptile Salvage Plan

Ministry of Transportation and Infrastructure

September 2024



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## Disclaimer

This report is rendered solely for the use of the Ministry of Transportation and Infrastructure (MOTI; the Client) and the Canadian Wildlife Service (CWS) in connection with the Sackum Overhead bridge Replacement project (the Project), and no person may rely on it for any other purpose without Triton Environmental Consultants Ltd.'s prior written approval. Should a third party use this report without Triton's approval, they may not rely upon it. Triton accepts no responsibility for loss or damages suffered by any third party as a result of decisions made or actions taken based on this report.

This report is based on facts and opinions contained within the referenced documents, including the results of any data collection programs carried out in relation to this report. We have attempted to identify and consider facts and documents relevant to the scope of work, accurate as of the time period during which we conducted this analysis. However, the results, our opinions, or recommendations may change if new information becomes available or if information we have relied on is altered.

We applied accepted professional practices and standards in developing and interpreting data. While we used accepted professional practices in interpreting data provided by the Client or third-party sources, we did not verify the accuracy of any such data.

This report must be considered as a whole; selecting only portions of this report may result in a misleading view of the results, our opinions, or recommendations.

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## 1.0 Introduction

### 1.1 Project Background

The Ministry of Transportation and Infrastructure is planning on constructing a new overhead bridge at Sackum Creek to replace the existing bridge crossing over Sackum Creek (WSC: 120-136100) and the Canadian Pacific Kansas City Railway. The existing Sackum Overhead Bridge was built in the 1950s and is reaching the end of its serviceable life, therefore the bridge requires replacement to maintain Trans-Canada Highway No. 1 transportation connectivity.

The proposed Project will shift the crossing location to upstream (east) of the existing bridge and the existing bridge will remain open until the replacement overhead bridge is completed, at which time the existing bridge will be demolished. Planned construction activities associated with the Project at Sackum Creek Overhead Bridge include clearing, stripping, grubbing, piling, bridge construction, access road upgrades, bridge approach/highway realignment, grading, and paving. Design considerations were taken into account and the current design provides the smallest construction footprint, reduced from previous design iterations, which will minimize disturbance, and thus potential impact to habitats and individuals of wildlife species that are potentially present.

Several species of amphibians and reptiles have the potential to occur within the Project footprint, including provincially and federally listed species at risk. Additionally, the Project footprint partially overlaps federal land parcels with critical habitat polygons for Western Rattlesnake (*Crotalus oreganus*) (Critical Habitat ID 90982). The replacement overhead bridge will minimize impacts to wildlife species by avoiding interaction with individuals, implementing best management practices, and mitigation measures during construction to minimize and mitigate adverse effects to potential individuals that may be incidentally encountered within the Project footprint, and will restore disturbed areas of critical habitat.

### 1.2 Species With the Potential to Occur

The following species have been identified as having the potential to occur within the Project footprint based on their known or expected ranges as well as the presence of potentially suitable habitat features:

- Long-toed Salamander (*Ambystoma macrodactylum*)
- Great Basin Spadefoot (*Spea intermontana*)
- Western Toad (*Anaxyrus boreas*)
- Northern Pacific Treefrog (*Pseudacris regilla*)
- Columbia Spotted Frog (*Rana luteiventris*)
- Western Rattlesnake (*Crotalus oreganus*)
- Great Basin Gophersnake (*Pituophis catenifer deserticola*)

- Northern Rubber Boa (*Charina bottae*)
- North American Racer (*Coluber constrictor*)
- Common Garter Snake (*Thamnophis sirtalis*)
- Western Terrestrial Garter Snake (*Thamnophis elegans*)
- Northern Alligator Lizard (*Elegaria coerulea*)

## **2.0 Amphibian and Reptile Salvage Plan**

The Project is located predominantly within the existing road right-of-way, with one watercourse crossing at Sackum Creek (10U 614229E 5574440N). Sackum Creek is non-fish-bearing due to steep gradients and fish migration barriers that limit upstream migration from the Thompson River and provides no over-wintering habitat or suitable breeding habitat for amphibians due to the velocity, ephemeral flow, and shallow depth.

While no amphibian or reptile over-wintering habitat has been identified within the planned construction areas, potentially suitable over-wintering habitat has been identified outside, but adjacent to the Project footprint. A cliff face is present approximately 350 m southeast of the bridge with a subsequent talus slope below, which borders the eastern side of Highway 1, and the associated talus located at the bottom of the cliff provides suitable habitat for talus animals, which includes amphibians (salamanders) and reptiles (snakes).

This amphibian and reptile salvage plan has been developed to outline species-appropriate capture and handling methods as well as outline general survey and salvage plans, to be tailored to address site-specific needs based on the season, short- and long-term construction plans, habitat features present, and species observations. No salvage activities are planned or anticipated during the sensitive over-wintering period (October-March).

It is anticipated that the Contractor's Environmental Representative (to be determined) will also develop a site-specific wildlife management plan that will include procedures for crews in the event that wildlife species are encountered during construction.

### **2.1 Salvage Plan**

Qualified Environmental Professionals (QEPs) with species experience will complete any amphibian and reptile salvage activities that may be required. A pre-construction survey will be conducted by a QEP prior to the commencement of ground disturbance activities to identify individuals and species present within the Project footprint (and relocate, if appropriate), as per permit conditions, as well as identify potential habitat features within the Project footprint that may require additional monitoring or salvage. The survey(s) will be timed to be seasonally appropriate and to avoid periods of inclement weather.

Where biophysical attributes are identified within the Project footprint that comprise significant habitat features for Western Rattlesnake, or other reptiles or amphibians that may be present, including at-risk and non-at-risk species, such as large woody debris piles, cover objects, or accumulations of talus, etc., a salvage will be completed prior to construction. The salvage will include capture and relocation of any individuals present within that habitat feature, as well as salvage of the habitat feature components (e.g., large woody debris), which will be retained and replaced upon completion of the Project.

Where amphibian or reptile individuals are encountered incidentally within the Project footprint during construction, the QEP(s) will complete a salvage of any amphibians and reptiles encountered, as per the *Species-at-Risk Act* (SARA) Permit conditions, and the conditions of the Provincial *Wildlife Act* General Wildlife Permit in place for the Project. If amphibians or reptiles are observed, the individuals will be salvaged and additional systematic searches will be conducted within the work zone area, looking for all life stages in suitable habitat including under moveable objects that may be used for cover. Additional survey/capture techniques may be required depending on the habitat type, encountered species, seasonal timing, and life stages. All amphibians and reptiles encountered on the Project footprint during construction will be moved out of the work zone and out of harm's way, by a QEP, to nearby suitable habitat.

The QEP will verify the suitability of the release location and ensure that it will be within the same general habitat (within proximity of capture site, but outside the work zone), or within suitable habitat in close proximity to the salvage site (i.e., within daily/seasonal movement distances, up to 500 m). It is anticipated that if any amphibians or reptiles are captured, they will be relocated to outside of the work zone to suitable adjacent habitat. The relocation of individuals within relatively close proximity to their capture site is expected to have limited spatial scope of impact or risk to amphibian or reptile species, populations or their habitat.

In areas where individuals are repeatedly observed (i.e. daily) or are observed to be congregating, the QEP will be retained on site to monitor the site and complete salvage activities. Areas where amphibians/reptiles have been encountered and/or salvaged will be assessed by the QEP to determine if isolation fencing is warranted, and the QEP will determine where the isolation fencing will be placed to exclude amphibians or reptiles from work areas, using a field-fit method that considers site conditions, habitat features, topography, and activities underway. Where warranted, fencing will be installed using guidance provided in Section 5.7 of the *Best Management Practices for Amphibian and Reptile Salvages* (2016). Fencing will be monitored regularly during the active period for reptiles and amphibians to ensure its integrity and functionality and will be repaired or replaced when necessary. Any fencing installed will be removed upon completion of Project activities, and any habitat features that were disturbed will be restored.

## **2.2 Capture and Handling**

Standard capture and handling techniques of all salvaged wildlife will be used and holding time will be minimal. *Best Management Practices for Amphibian and Reptile Salvages in British Columbia* (BC MFLNRO, 2016) were used to guide the development of these salvage protocols. Detailed information is provided below. Areas will be considered salvaged when no amphibians/reptiles are encountered during additional sweeps of the salvage area.

### **2.2.1 Amphibians**

All amphibians encountered incidentally during construction activities will be moved out of the work zone to an area that they will not be disturbed or harmed by the Project. Capture methods suitable to the season and life stage encountered will be used (BC

MLFNRO 2016).

Adult and juvenile amphibians will be captured by hand, or using a small dip net, and placed into a bucket or container for immediate transport out of the work zone and into adjacent suitable habitat (BC MFLNRO 2016). Should aquatic life-stages be identified, un-baited floating aquatic funnel traps may be used, if necessary, to ensure that all individuals within the workspace are captured. If used, aquatic funnel traps will be installed with air spaces available. All equipment will be cleaned regularly following standard hygiene protocols established by the BC Ministry of Environment to avoid the spread of disease among individuals (BC Ministry of Environment, 2008).

While no amphibian breeding/rearing habitat has been identified within or adjacent the Project footprint, if encountered, egg masses and tadpoles will be scooped using a small net and placed into a bucket with fresh water from the site of capture for immediate transport out of the work zone and into adjacent suitable habitat (BC MFLNRO 2016). Egg masses attached to aquatic vegetation will be collected and handled carefully to ensure that the egg mass stays attached to the vegetation.

It is anticipated that animals captured will be able to be released within 200 m of the capture site, however the maximum total distance from construction area to the transfer/release location will be less than 1 km.

### **Methods of Handling:**

General considerations for the handling of amphibians within the Project area will be aligned with those considerations described in the *Canadian Council on Animal Care Guidelines for Amphibians and Reptiles*, and will include the following:

- Individuals will ensure that their hands are clean and free of residual chemicals such as sunscreen and insect repellents, etc. before coming into contact with the animals;
- Gloves will be worn when handling amphibians (where applicable);
- Gloves will be changed between amphibian species;
- Hands will be cooled in the adjacent stream before capturing amphibians;
- Handling time is to be as short in duration as possible; and
- All equipment being used for capture and release will be sterilized with the appropriate cleaning agents before being re-used (see reference – *The Declining Amphibian Task Force Fieldwork Code of Practice*)

Field crews will implement MOE's *Interim Hygiene Protocols for Amphibian Field Staff and Researchers* (2008) during amphibian salvage activities and the *Best Management Practices for Amphibian and Reptile Salvages in BC* (FLNRO 2016).

Amphibians will be placed into a bucket or container for immediate transport out of the work zone. Adult and juvenile amphibians will be placed in individual clean, well-

ventilated containers. Egg masses (including attached vegetation) or tadpoles will be scooped into a bucket or container with a ventilated lid containing fresh water from the capture site. All animal care protocols will be adhered to (e.g., gloves worn, animals kept separate, etc.). Amphibians will be kept at an appropriate temperature between salvage and release sites (e.g., in the shade). Amphibians will be released at the release location immediately, where feasible. All captured amphibians will be released within 2 hours of capture. Extra care will be taken to relocate sensitive life stages (e.g., tadpoles) in an expeditious manner. All equipment will be sanitized before use and cleaned regularly following the *Interim Hygiene Protocols for Amphibian field staff researchers* established by the BC Ministry of Environment (2008) and the Canadian Herpetofauna Health Working Group (2017) to avoid the spread of disease among individuals.

### 2.2.2 Reptiles

All reptiles encountered incidentally during construction activities will be moved out of the work zone to an area that they will not be disturbed or harmed by the Project. All works within or adjacent to areas associated with potential reptile habitat will be timed to avoid periods of inclement weather. In the event a reptile is incidentally encountered during clearing or construction activities, a Qualified Environmental Professional will be engaged to complete a salvage using guidance from the visual encounter methods provided in Section 5.1 of the *Best Management Practices for Amphibian and Reptile Salvages in British Columbia* (2016). In areas where reptiles or suitable reptile habitat features are encountered, the QEP will determine the frequency of inspection and monitoring activities based on reptile activity.

The capture of reptiles will be conducted using active searches and collection using nets, snake hooks and snake tongs (Graeter *et al* 2013, RIC 1998). Methods to capture and handle snakes were developed from the *Inventory Methods for Snakes - Standards for Components of British Columbia's Biodiversity No. 38. Version 2.0* (BC MOELP 1998a) and *Live Animal Capture and Handling Guidelines for Wild Mammals, Birds, Amphibians and Reptiles – Standards for Components of British Columbia's Biodiversity No. 3* (MC MOELP, 1998b). Reptiles will be gently captured by hand when appropriate (for non-venomous species only) or using a net or snake hook/tongs and lifted or directed into a suitable carrying container or sack. Suitable containers include plastic or Rubbermaid boxes without sharp edges that have pre-drilled, small (<1 cm) ventilation holes to allow fresh air flow or large thick cotton sacks that can be tied or sealed at the open end.

All equipment (e.g., containers, nets, snake hooks, and snake tongs) used during salvage will be cleaned when soiled, in between holding individual animals, and at the end of each day as per standard hygiene protocols (Canadian Herpetofauna Health Working Group, 2017).

#### **Method of Handling:**

Handling methods of snakes and reptiles will be adopted from the *Live Animal Capture and Handling Guidelines for Wild Mammals, Birds, Amphibians & Reptiles – Standards for Components of British Columbia's Biodiversity No. 3* (BC MOELP 1998b), and *Best Management Practices for Amphibian and Reptile Salvages in BC* (BC MFLNRO 2016) which includes:

- Field staff will ensure that hands are free of sunscreen, insect repellent, etc. when reptiles are handled.
- Handlers will avoid the use of excessive force when restraining the animal to avoid injury; hooks, tongs, nets, or containers may be used to capture larger animals and avoid injury.
- The length of time individuals are handled will be limited to reduce stress and the likelihood of injury.
- Adequate numbers of containers will be available to keep reptile species separate and minimize the number of individuals within each holding container.

Capture and handling techniques as well as the use of large suitable holding containers will minimize the amount of handling time required and reduce or eliminate the contact between handler and animal. Salvage and handling of venomous snakes will be completed by QEPs with significant experience in venomous snake handling, however the methods that will be used for capture and handling of venomous snakes will be the same methods used for non-venomous snakes (i.e., using hooks, tongs, nets, or containers).

Reptiles will be held for a maximum of 1 hour in the container before release. Containers with reptiles will be stored in a safe, quiet location and will be clearly marked "Live animals – Do Not Open or Disturb". Containers will also be labeled with the species and capture location. All containers will be placed in cool, shady areas for the duration of occupancy in order to keep the animals from overheating. Captured animals will not be marked.

### **2.3 Release Locations**

Specific relocation sites will be determined through a field assessment conducted by the QEP prior to the commencement of salvage activities, however general release locations have been identified on the east side of the Project footprint and are illustrated in Figure 1. Amphibians and reptiles that are captured in areas not near any of the mapped release areas will be released in suitable, adjacent habitat outside of the Project footprint.



**Figure 1. Project footprint (red) with general potential amphibian and reptile release area (blue), Province of BC, 2024**

#### Amphibians

The release sites will be within the same (contiguous) habitat as the capture site but outside (east) of the work zone. The relocation of individuals within close proximity to their capture site is expected to have limited spatial scope of impact or risk to amphibian species, populations or their habitat.

#### Reptiles

Salvaged snakes and reptiles will be moved to safe relocation sites to a maximum of 500 m from their capture site (further distance may be needed if no suitable release sites are identified within 500 m). Relocation sites will be selected to include suitable habitat features as where the animal was captured. Reptiles will be released at cover objects (e.g., rocks, coarse woody debris, etc.) or waterbodies - species dependent.

## 2.4 Contingency Plan

Where amphibians or reptiles are injured but do not require euthanasia a veterinarian will be consulted, and if required, animals will be transported to the nearest wildlife rehabilitation centre or clinic for treatment.

BC Wildlife Park (Fawcett Family Wildlife Health Centre): 250-573-3242 ext. 230

- Animal Care Manager: Tracey Reynolds

Local Wildlife Officers (BC Conservation Officer Service) may be called if necessary:

- Jared Connatty: 877-952-7277 (Thompson Nicola - Kamloops)
- Jesse R Jones: 877-952-7277 (Thompson Nicola - Kamloops)

Mortalities are not expected or planned, however a QEP will be on-site during salvage activities and any animals encountered and requiring euthanasia, will be assessed by the onsite QEP, and if euthanasia becomes necessary, it will be carried out using methods described below.

## 2.5 Euthanasia

Injury is unlikely but in the case that an amphibian or reptile is seriously injured during trapping or handling, it will be euthanized following directions outlined in provincial standards (BC MFLNRO, 2017) and the American Veterinary Medical Association (AVMA 2020). If an amphibian or reptile in distress is found, consultation with local wildlife officers or veterinarians will take place before field euthanasia is performed. Injured animals will be transported to a nearby wildlife rescue centre, in consultation with local wildlife officers.

### 2.5.1 Amphibians

In the case of accidental severe injury where euthanasia becomes necessary, it will be carried out using benzocaine hydrochloride. Euthanasia can be accomplished by administering benzocaine hydrochloride, which is water soluble and can be used directly at a concentration > 250 mg/L for euthanasia. Death will be verified following euthanasia via cervical dislocation prior to disposal. A separate bucket and anesthetic will be available in the field at all times during the amphibian salvage. The body of the animal will be handled and surrendered according to specific permit requirements, such as submission to the Royal BC Museum.

### 2.5.2 Reptiles

In the event of accidental serious injury where euthanasia becomes necessary, it will be carried out by using a physical method to result in rapid loss of brain function: decapitation followed by pithing.

The preferred method of disposal is to preserve euthanized specimens for use in research or as teaching aids. Alternately reptiles that are euthanized using physical methods will be buried as per protocols outlined in CCAC (2003).

### 2.5.3 Invasive Species

In the event that any invasive amphibian species are encountered (i.e. American Bullfrog or Green frog) the regional and provincial biologists will be contacted immediately and the individual euthanized via a physical method that results in a rapid loss of brain function (i.e. decapitation followed by pithing or immersion in buffered tricaine methanesulphate or MS-222).

## **2.6 Reporting**

All amphibian and reptile individuals captured will be documented and reported as per SARA and *Wildlife Act* permit conditions. Information that will be documented and reported will include, date, species, number of species, life stage of each individual, size of reptile individuals – measured from snout to vent, capture location (UTM or lat/long) and release location (UTM or lat/long), and any occurrences of injury or mortality.

### 3.0 References

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