

**Date:** October 11, 2023 **File:** 2022-8273  
**To:** Kirk Densmore **Page:** Page 1 of 16  
**From:** Samuel Grenier  
**Project:** Skaha Hills Environmental Assessment  
**Subject:** Wright's Property

---

## 1 INTRODUCTION

Associated Environmental Consultants Inc. (Associated) is pleased to provide this environmental assessment report for the Skaha Hills Intersection upgrade project at the south end of Penticton, BC. The project is located in an area that has already been disturbed by residential, commercial, and existing highway infrastructure. This report summarizes aquatic and terrestrial resources, soils, terrain, and land use values associated with the project, and presents the methods, results, and discussion of an environmental assessment of the area.

### 1.1 Project Background

The BC Ministry of Transportation and Infrastructure (MOTI) is improving highway safety south of Penticton by upgrading the intersection where the Old Penticton-Oliver Highway meets Highway 97. Associated was retained by MOTI to conduct an environmental assessment to characterize the existing biophysical condition and determine the potential effects of the Project on environmental values. Associated originally completed an environmental assessment in 2016, and since then the design has been updated. The original environmental assessment from 2016 has been updated to reflect the new design and current biophysical conditions.

The objective of this environmental assessment is to assess the potential effects of the Project on the environment and develop strategies to avoid, reduce, or mitigate potential effects. Specific objectives of the environmental assessment are as follows:

- Describe the baseline environment and wildlife habitat quality in the Project Area.
- Identify potential environmental effects of construction and operation of the Project.
- Determine mitigation strategies and procedures to avoid or reduce any potential effects.
- Determine if there are any residual environmental effects that cannot be reasonably mitigated and develop a compensation strategy for those effects.

This environmental assessment included a comprehensive review of information relevant to the Project. Field surveys were conducted in 2016 and again in 2022 to confirm the findings of the review and describe the environment. Results of the background review and field surveys were used to evaluate the potential effects on the environment and develop mitigation strategies for the construction and operation phases of the Project.

This environmental assessment focussed on the natural environment and did not assess the effects of the Project on archaeological, cultural, or socio-economic values.

Memo To: Kirk Densmore

October 11, 2023

- 2 -

## 1.2 Project Description

The Project is located at the northwestern end of Skaha Lake, amongst existing residential and commercial developments (Figure 1-1). Most of the Project is located within the existing MOTI right-of-way, with the proposed stormwater outfall outside the right-of-way. The Project is expected to include the following activities:

- decommissioning of the existing intersection and construction of a new intersection;
- terrain re-shaping through cut-and-fill activities;
- highway widening to accommodate new lane configurations;
- property access upgrades, where required;
- stormwater outfall into Skaha Lake; and

The effects of the Project were assessed at the following spatial scales:

- **Project Area** – A 200 m buffer on either side of the proposed alignment centreline. This area is 30.1 ha and includes the Project Footprint and Project Right-of-Way. The Project Area will be subjected to direct and indirect effects of the Project on the environment.
- **Project Footprint** – The area that will be subjected to direct Project-related effects, including vegetation clearing to accommodate roadway infrastructure, road surface placement, shoulders and fill slopes. Based on current designs, this area is 1.7 ha.
- **Project Right-of-Way** – The area cleared of vegetation outside toe of fill that may be intermittently modified by mowing or brushing during long-term maintenance of Highway 97 and the Old Penticton-Oliver Highway.

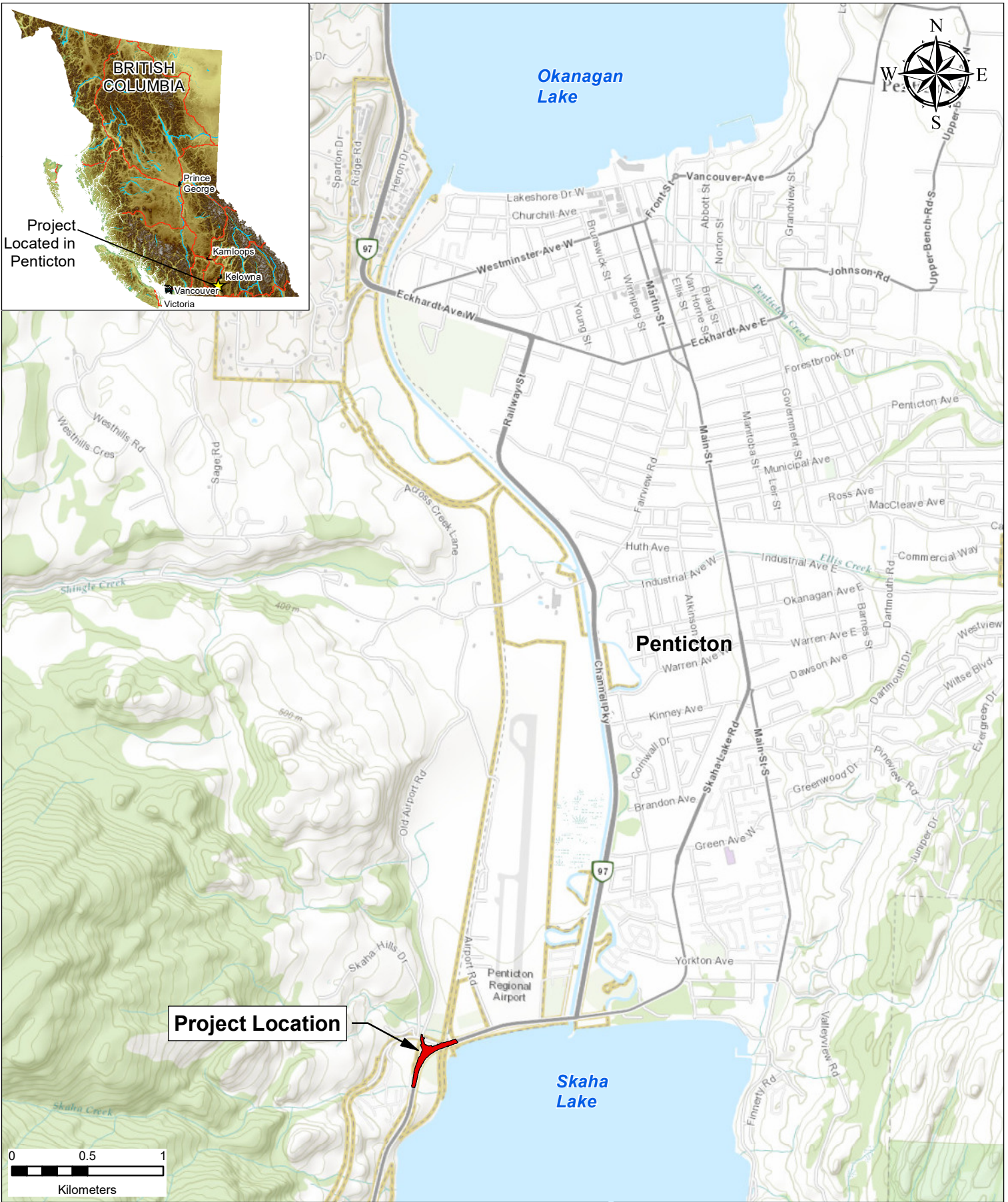


Figure 1.mxd / 2022-08-22 / 4:44:19 PM



PROJECT NO.: 2022-8273  
 DATE: August 2022  
 DRAWN BY: DA / BdJ

**FIGURE 1-1: PROJECT LOCATION**

Ministry of Transportation and Infrastructure  
 Skaha Hills Intersection Upgrade

Memo To: Kirk Densmore

October 11, 2023

- 4 -

## **2 METHODS**

Two methods were followed to collect information for the Project: 1) a background information review of relevant documents and online resources, and 2) a field assessment that verified the findings of the background review and filled any gaps in information from the background review. The following subsections outline the methods followed for each.

### **2.1 Background Information Reviewed**

Background information was gathered to describe the existing environmental conditions and generate a list of rare or endangered fish, ecosystems, vegetation, or wildlife that have potential to be affected by the Project.

Associated reviewed the following information sources during the background information review:

- relevant technical reports that discuss existing conditions near the Project;
- recent orthophotographic imagery and Google Earth© online imagery (Google Earth 2022);
- BC Conservation Data Centre (CDC) database for rare element occurrences (CDC 2022);
- DataBC search using iMapBC online resource identification tool (iMap BC 2022);
- BC Water Resources Atlas for ground and surface water information (WRBC 2022); and
- vascular and non-vascular plant identification handbooks and reference material.

The BC Conservation Data Centre (CDC) Species and Ecosystems Explorer was used to prepare lists of known and potential occurrences of species that are endangered, threatened, or of special concern within the Project Area (CDC 2022). Vegetation and wildlife species that are confirmed to occur within a 5-km radius of the Project Area were compiled using iMapBC, and potential occurrences of vegetation and wildlife were compiled in the Okanagan Shuswap Forest District, Okanagan-Similkameen Regional District (CDC 2022). Results of the database query were then refined by removing those species that did not use habitats that occur in the Project Area.

### **2.2 Field Assessment**

Keenan Rudichuk, P.Biol. and Heather Taylor (née Hansen), P.Ag. of Associated conducted the original field assessment with Elliott Tonasket (PIB) on October 25, 2016. The field assessment verified information gathered during the background review.

The terrestrial assessment focussed on the Project Footprint and lands adjacent that may be affected by construction or operation of the Project. Terrestrial ecosystems were assessed for their condition and value to wildlife, and data were collected. Information collected during the terrestrial assessment included the following:

- physical site description (e.g., slope, aspect, elevation);
- vegetation composition and condition;
- existing disturbance (e.g., type and relative amount);
- ecosystem connectivity;
- wildlife sign (e.g., type, age, distribution, and abundance);
- potential for rare plants and wildlife to occur; and

Memo To: Kirk Densmore

October 11, 2023

- 5 -

- wildlife habitat features (e.g., type and location).

A follow-up site visit was completed by Courtney Eyres, P.Ag., and Gisele Rehe, P.Ag., R.P.Bio., of Associated on August 4, 2022. The follow up site visit was to complete a mussel survey in Skaha Lake at the proposed outfall location and review existing conditions in the Project Area. The mussel survey was completed in Skaha Lake using the methods outlined in the Guidance for Freshwater Mussels in the Okanagan document (FLNRO 2018).

Data were compiled and used to determine direct and indirect Project-related effects on the environment. Mitigation measures were developed to avoid, reduce, or compensate for the potential effects of the Project.

### **2.3 Effects Assessment**

Information gathered during the background information review was used to describe the climate, biogeoclimatic zone, soil condition, and groundwater information. Information collected during the field assessment was used to describe existing environmental values, such as:

- surface water condition and location;
- fish and fish habitat potential in Skaha Lake;
- vegetation and ecosystems condition; and
- wildlife potential and wildlife habitat suitability.

To quantify effects, the Project Area was stratified into ecosystem classes mapped during the field assessment. Project effects were quantified based on the amount of area of each ecosystem class affected by the Project Footprint and Right-of-Way. The magnitude of the effects was qualified based on the condition of the existing environment relative to the proposed Project plan (e.g., if existing manicured lawns would remain following construction, then effects were considered temporary).

Project design was assessed to determine if effects could be avoided or reduced by altering design. Project effects on environmental values were assessed for the construction and operations phases of the Project.

## **3 BASELINE ASSESSMENT**

### **3.1 Local and Regional Land Use**

Land outside of the Project Right-of-Way is entirely within the Penticton Indian Reserve #1, and has been developed into residential, business, and recreational properties. Skaha Hills community and Play Estate Winery has been developed since 2016, north of the Project Footprint. The Skaha Meadows golf course parking lot is located at the north-western extent of the Project Area. The Barefoot Beach Resort is located just east of the golf course parking lot, and is accessed directly off Highway 97.

Land between Highway 97 and Skaha Lake at the northern extent of the Project Area is managed by the Wright's Beach Camp RV Park and is adjacent to the proposed stormwater outfall location to Skaha Lake. Land west of the Project



Memo To: Kirk Densmore

October 11, 2023

- 6 -

Footprint has been developed into the Riva Ridge mobile home park in the south, rural residential housing north of Riva Ridge, and commercial businesses at the northwestern extent of the Project Area (Figure 3-1). A small parcel of land that was formerly known as Okanagan Amusements was being decommissioned at the time of the field assessment in 2016, and has since been developed into Holiday Hills RV Resort. The Kettle Valley Railway right-of-way is oriented north-south through the Project Area. The railway is no longer in use, the rails and ties have been removed, and the rail bed has been re-graded.

Penticton and the land surrounding Skaha Lake experience a high volume of seasonal tourism and recreational visitation over the summer months. Highway 97 south is a popular highway corridor for travellers seeking to visit the south Okanagan. Secondary highway routes such as the Old Penticton-Oliver highway function as regular travel corridors for residents commuting to-and-from Penticton, and are popular scenic recreation routes.



Figure 3-1.mxd / 2023-10-06 / 9:46:12 AM



PROJECT NO.: 2022-8273  
 DATE: October 2023  
 DRAWN BY: DA / BdJ

**FIGURE 3-1 PROJECT AREA**

Ministry of Transportation and Infrastructure  
 Skaha Hills Intersection Upgrade

Memo To: Kirk Densmore

October 11, 2023

- 8 -

### 3.2 Fish and Fish Habitat

Skaha Lake is known to support fish and mussel species which have been summarised in Table 4-1 below (FIDQ 2022).

Table 3-1. Fish and Mussel Species Known to Occur in Skaha Lake.

Common Name	Scientific Name
Prickly Sculpin	<i>Cottus asper</i>
Western Ridged Mussel	<i>Gonidea angulata</i>
Floater Mussel (General)	<i>Anodonta sp</i>
Slimy Sculpin	<i>Cottus cognatus</i>
Black Catfish (formerly Black Bullhead)	<i>Ameiurus melas</i>
Smallmouth Bass	<i>Micropterus dolomieu</i>
Sculpin (General)	<i>Cottus sp</i>
Longnose Sucker	<i>Catostomus catostomus</i>
Whitefish (General)	<i>Prosopium sp; Coregonus sp; Stenodus sp</i>
Rainbow Trout	<i>Oncorhynchus mykiss</i>
Carp	<i>Cyprinus carpio</i>
Kokanee	<i>Oncorhynchus nerka</i>
Western Floater Mussel	<i>Anodonta kennerlyi/oregonensis</i>
Sockeye Salmon	<i>Oncorhynchus nerka</i>
Northern Pikeminnow	<i>Ptychocheilus oregonensis</i>
Chiselmouth (formerly Chiselmouth Chub)	<i>Acrocheilus alutaceus</i>
Chub (General)	
Sucker (General)	<i>Catostomus sp</i>
Mountain Whitefish	<i>Prosopium williamsoni</i>



Memo To: Kirk Densmore  
October 11, 2023

- 9 -

Common Name	Scientific Name
Burbot	<i>Lota lota</i>
Redside Shiner	<i>Richardsonius balteatus</i>
Lake Whitefish	<i>Coregonus clupeaformis</i>
Peamouth Chub	<i>Mylocheilus caurinus</i>
Largescale Sucker	<i>Catostomus macrocheilus</i>
Lake Trout	<i>Salvelinus namaycush</i>

In 2022, a mussel survey was completed in Skaha Lake in the area of the proposed stormwater outfall. The purpose of the survey was to determine to presence of non-detection of any mussel species, including provincially and federally listed Rocky Mountain ridged mussel (RMRM) (*Gonidea angulata*) and determine if specific mitigation is required to avoid impacts on mussels during the Project. The methods outlined in the Guidance for Freshwater Mussels in the Okanagan developed by the Ministry of Forests, Lands, Natural Resource Operations and Rural Development were used (FLNRO 2018).

A prescribed survey area (PSA) was defined approximately 12 m east and 18 m west of the proposed stormwater outfall location. Within the PSA, a beach walking survey was conducted to determine the presence of any mussel shells and no mussel shells were observed. A walking survey was conducted within the PSA in shallow areas up to 0.3 m in depth and no live mussels or mussel shells were observed. The snorkel survey was conducted between 0.3 m – 1.5 m in depth. A total of 23 transects were surveyed, approximately 1 m apart. An existing dock and boat lift disrupted the transects, therefore two smaller quadrants were surveyed on either side on the boat lift in lieu of transects. The survey was conducted in water temperatures above 16 °C on a calm day where visibility was greatest, to increase the chance of detection. The survey commenced at 10.45 am and concluded at 12.15 pm (1.5 hrs). Substrates in the PSA consisted of cobble and pebble in shallow areas and beyond 5 m from the wetted perimeter substrates were dominated by silt and sand. There were patches of dense aquatic vegetation on the middle of the PSA. No mussel shells were observed and one live winged floater (*Anodonta nuttalliana*) was observed in the middle of the PSA in silt and sand substrate, approximately 30 m southwest of the proposed stormwater outfall at a depth of approximately 1.3 m.

### 3.3 Vegetation and Ecosystems

Vegetation and ecosystems in the Project Area are highly disturbed by existing residential, business, and roadway developments. Land that will be directly affected by the Project is within the MOTI right-of-way, and is comprised of grass seeded and regularly mowed areas, and areas dominated by non-native vegetation. Invasive species are common in the Project Area, and provincially noxious plants observed include diffuse knapweed (*Centaurea diffusa*) and dalmatian toadflax (*Linaria genistifolia*). Land cover classifications in the Project Area is presented in Table 4-2.

Memo To: Kirk Densmore

October 11, 2023

- 10 -

**Table 3-2. Land Cover Classification in the Project Area.**

Land Cover Class	Description	Area in m <sup>2</sup> (ha)**
Manicured grass / lawn	<ul style="list-style-type: none"> <li>Existing Right-of-Way or other manicured lawn</li> <li>Native plants absent</li> <li>Permeable surface</li> </ul>	45,955 (4.6)
Vegetated disturbed	<ul style="list-style-type: none"> <li>Areas with some native vegetation</li> <li>Moderate amount of disturbance</li> <li>Permeable surface</li> </ul>	78,598 (7.9)
Old field	<ul style="list-style-type: none"> <li>Old field, grazed land</li> <li>Native plants common</li> <li>Invasive plants prominent</li> <li>Permeable surface</li> </ul>	43,457 (4.3)
Riparian (30 metre set-back) *	<ul style="list-style-type: none"> <li>Shrubby, sparse tree cover</li> <li>Manicured grass in places</li> <li>Native plants prominent</li> <li>Invasive plants common</li> <li>Permeable surface</li> </ul>	11,710 (1.2)
Existing road	<ul style="list-style-type: none"> <li>Existing paved surface, gravel road base, and shoulders visible from imagery</li> <li>Impermeable surface</li> </ul>	16,315 (1.6)
Urban	<ul style="list-style-type: none"> <li>Commercial or residential development</li> <li>Highly disturbed</li> <li>Impermeable surface</li> </ul>	64,274 (6.4)
Developed foreshore	<ul style="list-style-type: none"> <li>Disturbed beachfront</li> <li>Some permanent buildings, recreational vehicle pads,</li> </ul>	22,865 (2.2)

Memo To: Kirk Densmore

October 11, 2023

- 11 -

Land Cover Class	Description	Area in m <sup>2</sup> (ha)**
	<ul style="list-style-type: none"> <li>sparsely vegetated, sand and hard pack soils</li> <li>Permeable surface</li> </ul>	
Lake	<ul style="list-style-type: none"> <li>Skaha Lake surface area within 200 m of Project Footprint centreline</li> </ul>	18,081 (1.8)
<b>Total Area</b>		<b>301,257 (30.1)</b>

\*30 metre set-back from Skaha Creek includes only permeable surfaces (e.g., manicured grass / lawn)

\*\*m<sup>2</sup> = square metres; ha = hectares

Land east of the Project Footprint is classified as manicured grass and lawn, and is managed by the Wright's Beach Camp RV Park. Vegetation on the property is comprised of cultivated, mature deciduous trees, manicured grasses, and gravel access roads (Figure 3-1). Beach front land cover in this area is classified as developed foreshore, and is sparsely vegetated with recreational vehicle pads located just above the shoreline of Skaha Lake. Beyond the shoreline of the lake, a 30 m buffer into Skaha Lake was included in the assessment to assess potential effects of the proposed stormwater outfall and surface runoff on the foreshore and littoral zones of the lake.

## 4 EFFECTS ASSESSMENT

### 4.1 Design Phase

The design follows the existing alignment along Highway 97 and requires minimal encroachment into undisturbed lands. The new intersection approach from the Old Penticton-Oliver Highway (i.e., from the west) will be constructed on relatively level, vegetated terrain south of the existing approach to the highway. The proposed design affects already disturbed land and improves safety for motorists and pedestrians.

The design includes a stormwater outfall into Skaha Lake and has the potential to impact fish and fish habitat. Two design options were initially considered:

1. Submerged outfall to Skaha Lake – this design consists of a combination of ditches and storm pipe networks to collect all of the stormwater runoff from the west of Highway 97. The 1,050 mm outfall will extent 74 m from Highway 97 with approximately 25 m of the pipe submerged below the Skaha Lake.
2. Open channel with a headwall at Skaha Lake – the 1,050 mm outfall will tie into an open channel with a headwall, which discharges the stormwater runoff into Skaha Lake at the shoreline. The outfall will extent approximately 40 m from Highway 97 to the open channel. The open channel passes through Wright's Beach Camp and will require a wooden structural bridge to cover the open channel.

Memo To: Kirk Densmore

October 11, 2023

- 12 -

A blended solution was developed and selected during the design process. The selected location proposes a partial submerged outfall. The purpose of the selected location is to mitigate permanent impacts while reducing constructability and maintenance risks.

## **4.2 Construction Phase**

The following sections describe potential effects of the Project on the environment during the construction phase. Activities associated with the construction phase include vegetation stripping and temporary storage on-site (until it is trucked off-site), and soil grubbing and storage on-site. Potential effects of the Project can be avoided or reduced by implementing mitigation measures proposed in Section 5.

### **4.2.1 Local and Regional Land Use**

Temporary disruption to local and regional land use is anticipated during the construction phase of the Project. Construction activities will result in slowed traffic, road closure, and temporary detour in the area. Road closures may result in decreased access to local businesses or travellers using the Old Penticton-Oliver Highway, but effects are considered temporary. Following construction, the Project will result in safer pedestrian routes across the highway, and improve safety access for motorists entering and exiting Highway 97 from the Old Penticton-Oliver Highway.

Potential effects of construction can be mitigated through the development and implementation of a Traffic Control and Safety Plan that considers pedestrian traffic and any concerns raised by the local community through consultation.

### **4.2.2 Water Resources and Fish Habitat**

Construction of the stormwater outfall to Skaha Lake may require temporary disturbance below the high-water mark of Skaha Lake and either temporary or permanent disturbance above the high-water mark. Construction may cause reduced water quality and reduced habitat quality for fish.

## **4.3 Operation Phase**

The following sections describe potential effects of the Project on the environment during the operation phase. Activities associated with the operation phase include regular mowing or side-casting of materials (e.g., snow or gravel) within the Right-of-Way. Potential effects of the Project can be avoided or reduced by implementing mitigation measures proposed in Section 6.

### **4.3.1 Local and Regional Land Use**

The Project will increase safety for pedestrians crossing the highway and vehicles entering or exiting Highway 97 at the Old Penticton-Oliver highway intersection. The operation phase will improve traffic flow through Penticton during all seasons, especially during the summer when traffic is at its peak from tourism and recreation.

Memo To: Kirk Densmore

October 11, 2023

- 13 -

#### **4.3.2 Water Resources and Fish Habitat**

Operational effects on water resources and fish habitat in the Project Area are largely restricted to seasonal maintenance. Winter snow plowing and the application of salt, sands, or gravels could increase sedimentation and temporarily reduce the quality of surface water flowing to Skaha Lake, which may affect fish habitat in the lake. Patching and sealing of pavement surfaces may result in runoff of chemical compounds into surface water or leaching into groundwater resources. Since all of these applications are followed under current practice, none of these activities are expected to result in changes to water resources or fish habitat in the Project Area. There may be maintenance required on the Skaha Lake outfall in the future, however these will be managed under the appropriate approvals at the time of maintenance. Effects to water resources are anticipated to be minimal if standard environmental best practices and recommended mitigation measures are implemented (MOTI 2011).

The selected conveyance system includes an oil and grit separator (OGS). The OGS is designed to intercept and treat pollutants prior to releasing stormwater into Skaha Lake.

### **5 MITIGATIONS AND RECOMMENDATIONS**

Construction activities should follow the recommendations set out in the 2020 Standard Specifications for Highway Construction, Section 165: Protection of the Environment (MOTI 2020) in addition to developing a Project-specific Construction Environmental Management Plan (CEMP) that incorporates the findings and mitigations presented in this report. The following preliminary mitigation measures will assist MOTI in planning and executing the proposed intersection upgrade.

Before work begins, a *Water Sustainability Act* Section 11 application for works planned on Skaha Creek and Skaha Lake should be submitted to FrontCounter BC. Applications should be submitted as soon as possible to prevent Project delays or additional costs. A *Fisheries Act* Request for Project Review for works planned on Skaha Creek and Skaha Lake should be submitted to Fisheries and Oceans Canada (DFO).

#### **5.1 Design**

Before ground work begins, identify locations for stockpile of soils and vegetation to prevent the spread of invasive plants or introduction of deleterious substances into the groundwater.

#### **5.2 Construction**

Construction contractors should retain a Qualified Environment Professional (QEP) to advise on construction practices to mitigate the overall environmental effects of the Project. An Environmental Monitor (EM), under guidance from the QEP, should be on-site to monitor works around Skaha Lake to ensure mitigations are in place to prevent sedimentation of watercourses, and around the historic building to ensure the wildlife trees near the new west approach are protected from direct disturbance (e.g., cutting or felling).

Memo To: Kirk Densmore

October 11, 2023

- 14 -

Prior to construction, develop a comprehensive and site-specific Construction Environmental Management Plan (CEMP) that addresses erosion and sediment control and wildlife management, instream works, and complies with least-risk timing windows for breeding birds. Ensure that the CEMP incorporates the following recommendations to mitigate effects of the Project on the environment during road construction.

- **Prevent the spread of invasive plants.**
  - The Project Area is a source for invasive plant translocation outside of the Project Area, and spread of invasive plants off-site should be strictly controlled. Develop and implement a Weed Management Plan that considers construction personnel, soil stockpiling, equipment and machinery use entering or exiting the site.
  - Ensure that all equipment, including vehicles, clothing, and footwear, is free of invasive plant material before entering or exiting the work site.
  - Re-vegetate disturbed soils immediately following construction with a native grass seed mix to promote grass-dominated vegetation over invasive plants germination.
  
- **Protect vegetation and ecosystems and wildlife and wildlife habitat.**
  - Complete a site reconnaissance with the EM and contractor to determine the extent of site clearing activities and ensure that the Project Footprint and Right-of-Way are clearly defined, and the historic building and wildlife trees nearby are not disturbed.
  - Avoid clearing vegetation between **March 31 and August 15** during the breeding bird window. If construction is scheduled between March 31 and August 15, have an EM familiar with nesting bird surveys conduct a survey immediately prior to construction throughout the entire Project Footprint to ensure no birds are nesting during construction. If the nests are occupied, avoid disturbing the trees, birds, or nests until the chicks have fledged and the nests abandoned.
  - Construction work may need to be temporarily delayed if wildlife are observed using habitats scheduled for construction. A General *Wildlife Act* Permit will need to be obtained to disturb any wildlife using habitats in the Project Area.
  - To minimize human-wildlife conflicts, the construction site and site facilities must remain free of wildlife attractants.
  
- **Isolate Skaha Lake from construction activities.**
  - Conduct stormwater outfall work at a period of low water or in isolation of Skaha Lake.
  - If instream works are required, ensure a QEP conducts a fish salvage under a Scientific Fish Collection Permit prior to works commencing.
  
- **Protect ground water resources.**
  - Prepare a staging area that is at least 30 m away from any water receiving areas or Skaha Lake before ground clearing work begins. Isolate the area with silt fencing to prevent overland flow of deleterious materials during large rain events.

Memo To: Kirk Densmore

October 11, 2023

- 15 -

- Immediately address spills of hazardous materials (e.g., fuels or oils) in accordance with MOE operational guidelines for spill response (MOE 2014).
- **Maintain local and regional land use and traffic flow, to the extent possible.**
  - Where feasible, schedule construction activities at times when traffic volumes are lower, and implement strategies to maintain local and regional traffic flow by consulting with land users and developing and implementing a Traffic Control and Safety Plan that considers pedestrian flow, business traffic, and motorists traveling through the Project Area.

### 5.3 Operations

The following mitigation measures are intended to offset the effects of the operation and routine maintenance of the highway:

- **Protect ground water resources and fish habitat**
  - Conduct maintenance works during dry weather periods to minimize surface runoff of deleterious substances into adjacent habitat. When this is not possible, implement adequate site isolation (e.g., silt fencing) measures to keep contaminants contained.
  - For patching, sealing, seasonal surface cleaning, or salt application on Highway 97 or the Old Penticton-Oliver Highway, ensure that activities are completed with adequate environmental protection measures in place particularly when working in close proximity to water receiving areas. Silt fencing and spill response kits to prevent the release of toxic substances into the habitat may be required.
  - During outfall maintenance, ensure adequate site isolation and protection measures are implemented to prevent sediment from travelling downslope, as necessary.



Memo To: Kirk Densmore

October 06, 2023

- 16 -

## 6 CLOSURE

The report and its findings are based on the proposed design provided to Associated (dated 2022-07-07), and mitigation measures are presented in the report to avoid or reduce potential effects of the project on the environment.

Because of the extent of existing disturbance and relatively small new footprint of the project, there is not expected to be any residual or long-term effects to the environmental values identified for the project, if mitigations outlined in the report are implemented.

We trust that this report provides you with the information needed to move the project forward. If you have any questions or comments about this report please contact the undersigned.

Prepared by,

A handwritten signature in blue ink that reads 'Samuel Grenier'.

Samuel Grenier, BIT., CESCL  
Environmental Scientist

Reviewed by,

A handwritten signature in blue ink that reads 'Dave Hayward'.

Dave Hayward, R.P. Bio., CPESC  
Manager, Environmental Assessment & Planning