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Memo

To: Alberta Transportation and
Environment and Climate Change Canada

From: Dave Brescia, Eliot Terry
Stantec Consulting Ltd.
Calgary

Project/File: Springbank Off-stream Reservoir Project/110773396

Date: May 9, 2022

Reference: Springbank Off-Stream Reservoir Project (SR1) - Bank Swallow Foraging Habitat Assessment

Introduction

This memo provides an assessment of the potential effects of the Springbank Off-stream Reservoir Project (the Project) on bank swallow foraging habitat following a meeting with Environment and Climate Change Canada (ECCC) on February 15, 2022. Specifically, ECCC recommended Alberta Transportation provide further details related to the Impact Assessment Agency of Canada (IAAC) condition 4.5.1, because the proposed low-level outlet partially overlaps bank swallow foraging habitat within 500 m of a previously identified bank swallow colony (Figure 1). Condition 4.5.1 states the following:

- maintain foraging habitat within 500 metres of bank swallow residences. If it is not technically feasible for the Proponent to maintain a distance of 500 metres, the Proponent shall provide a rationale to relevant authorities and develop and implement additional mitigation measures, in consultation with relevant authorities, to avoid effects on bank swallow. The Proponent shall submit these measures to the Agency prior to implementing them.

ECCC also provided additional guidance related to the content of this technical memo, which includes the following:

- A rationale for where it is not technically feasible for the Proponent to maintain all foraging habitat presently available within a distance of 500 metres from Bank Swallow residences due to the project's design for construction activities and permanent infrastructure. Bank Swallow foraging habitat includes open country with vegetated cover producing insects (grasslands, shrublands, pastures, hayfields, including hedgerows and shelterbelts in agricultural lands). It excludes land covers that hold limited value for sustaining insects consumed by Bank Swallows such as cropland, manicured lawns, golf courses, or hard surfaces like paved roads or exposed bedrock. Include consideration of the Project's current preferred designs for required fisheries offsetting channels.
- A description of the portions of foraging habitat where construction activities may temporarily affect foraging habitat and where the Project's built structures will permanently convert existing foraging habitat.
- A description of the areas of foraging habitat affected or lost relative to the existing and available foraging habitat maintained.

- A determination of the number of birds associated with the colony nest(s)/residences observed.
- A description of proposed and/or additional mitigation measures to be employed during construction and operation to avoid effects to bank swallow within the foraging habitat.
- An assessment of the number of birds, remaining available foraging habitat, and additional mitigation and whether it will result in a residual effect to Bank Swallow.

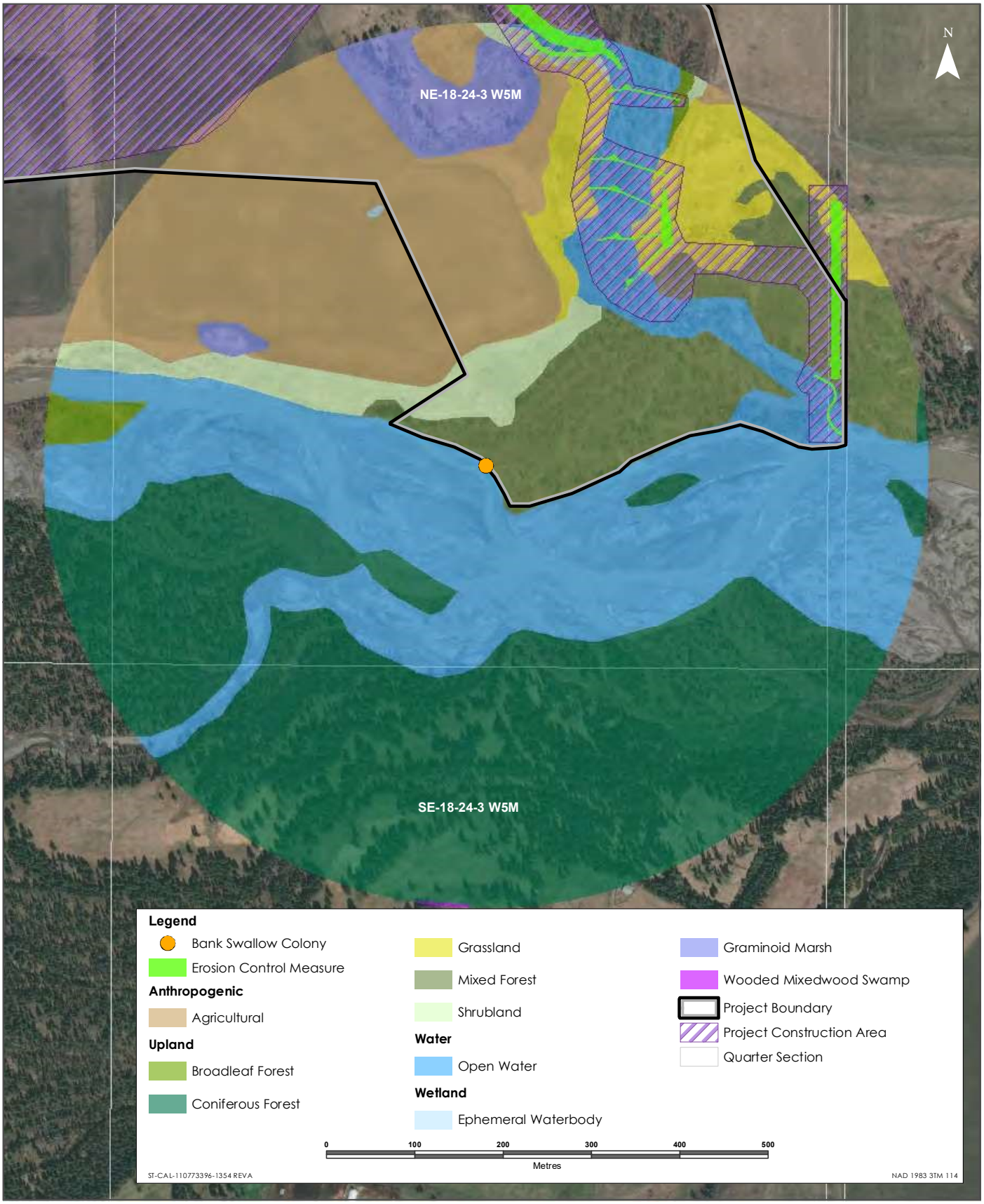
Methods

Consistent with the Recovery Strategy for Bank Swallow (*Riparia riparia*) in Canada (ECCC 2022), foraging habitat was identified within a 500-m radius of a previously identified bank swallow colony focusing on open and aquatic habitats that support insect populations (Figure 1). For this assessment, land cover types that provide potential foraging habitat (i.e., insect prey) for bank swallow within the 500-m radius included:

- open water including Elbow River and unnamed creek as well as associated riparian areas
- open upland habitats including grassland and shrubland located on the north side of Elbow River
- wetlands including one seasonal graminoid marsh and one small ephemeral water body located on the north side of Elbow River and a very small amount of wooded mixedwood swamp located on the south side of Elbow River near the southern edge of the foraging area boundary

One of the large upland polygons was initially identified as agricultural land (cropland) in the Environmental Impact Assessment (EIA) prepared for the Project; however, recent survey work in the area indicated this polygon currently contains relatively more tame grassland. Because this area will no longer be cultivated and is expected to convert to tame grassland over time, this land cover type was considered to provide potential bank swallow foraging habitat (see Figure 1). Forested areas including coniferous, broadleaf, and mixed forests were considered to provide relatively lower suitability foraging habitat compared to more open areas; and therefore, were not included in the calculation of potential bank swallow foraging habitat (Falconer et al. 2016).

The amount (ha) of each foraging habitat type within the 500-m radius was quantified using GIS to determine the amount of available foraging habitat present at baseline (existing conditions) and the amount (ha) directly affected due to the Project. Project activities within the low-level outlet construction area will include the installation of erosion control measures along unnamed creek including rip-rap and soil berms (Figure 1).



Sources: Base Data - Government of Canada. Thematic Data - Government of Alberta
Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Disclaimer: This map is for illustrative purposes to support this Stantec project; questions can be directed to the issuing agency.
4/4/2022

Potential Bank Swallow Foraging Habitat within 500m of Nesting Habitat

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ALBERTA TRANSPORTATION SPRINGBANK OFF-STREAM RESERVOIR PROJECT

Figure 1

Existing Conditions

There is approximately 44.4 ha (56.5%) of potential bank swallow foraging habitat within 500 m of the previously identified bank swallow colony (Table 1). The primary aquatic foraging habitat includes open water (27.3%) along Elbow River and unnamed creek. Potential terrestrial foraging habitat is dominated by tame grassland (17.7%) with smaller areas of other native grassland, shrubland, and wetland (Table 1).

Table 1 Bank Swallow Foraging Habitat within a 500 m radius and the Low-Level Outlet (LLOW) Construction Area and LLOW Footprint

	Existing Condition				Change from Existing Condition	
	Within 500-m Radius		LLOW Construction Area		LLOW Footprint (Erosion Control Measures)	
Cover Type	ha	%	ha	%	ha	%
Open Water	21.4	27.3	1.8	8.4	-0.25	-1.2
Wetland	2.3	3.0	0.01	0.4	-0.0	0.0
Grassland	4.0	5.1	1.2	30.0	-0.15	-3.8
Shrubland	2.8	3.5	0.17	6.1	-0.04	-1.4
Tame Grassland (previously dominated by agricultural cropland)	13.9	17.7	0.1	0.7	0.0	0.0
Foraging Habitat subtotal	**44.4**	**56.5**	**3.3**	**7.4**	**-0.44**	**-1.0**
Forested Habitats subtotal	34.2	43.5	1.1	3.2	-0.16	-0.5
Grand Total	**78.6**	**100.0**	**4.4**	**5.6**	**-0.6**	**-0.8**

NOTE:
Land cover types represent vegetation mapping provided in the EIA 2018. Upland land units (ecosites) were classified using Range Plant Communities and Range Health Assessment Guidelines for the Foothills Parkland Subregion of Alberta and wetland land units classified using the Alberta Wetland Classification System.

Mitigation

Construction activities associated with the low-level outlet channel have potential to directly affect foraging habitat for bank swallow. Mitigation measures to reduce potential effects on bank swallow foraging habitat are described below:

- Restrict construction activities to the approved construction footprint.
- Avoid areas of high suitability foraging habitat including the Elbow River and the wetland located on the west side of the low-level outlet.
- Existing access roads and previously disturbed areas will be used, where feasible.
- Temporary workspaces will be reclaimed using native species as outlined in the Vegetation and Wetland Revegetation and Monitoring Plan.
- Do not apply herbicide within 30 m of plant species or ecological communities of management concern, wetland or waterbody.

Residual Effects

The Project construction area (4.4 ha) consists of 0.6 ha of erosion control measures and 3.8 ha of temporary workspace. During construction, the Project will result in a permanent direct loss of 0.44 ha (1%) of bank swallow foraging habitat, which includes small amounts of open water, grassland and shrubland (Table 1.0). Although temporary workspaces will be used during construction, vegetation removal is expected to be minimal. Any potential foraging habitat disturbed within temporary workspaces will be reclaimed, which will reduce direct habitat loss within the Project construction area. Construction activities (e.g., heavy machinery, road access) also have potential to result in indirect foraging habitat loss due to sensory disturbance. However, potential sensory disturbance will be temporary and is expected to decrease after installation of the erosion control measures.

Alberta Transportation has proposed to offset SR1 Project effects on critical habitat of bull trout (*Salvelinus confluentus*) with the reestablishment of side channels along Elbow River. The proposed side channel offset will result in an increase in open water and riparian vegetation, which has the potential to increase insect prey and foraging habitat for bank swallow and potentially counterbalance any permanent loss associated with the erosion control measures.

Reference: Bank Swallow Foraging Area Assessment

Conclusion

It is not technically feasible to maintain all bank swallow foraging habitat due to Project design features (i.e., low-level outlet). However, the amount of foraging habitat permanently affected would be very small (0.44ha or 1%) compared to the availability of foraging habitat remaining within 500 m of the previous bank swallow nesting colony. The remaining foraging habitat will continue to provide insect prey and foraging opportunities for the relatively small colony of 12 individuals. Overall, the installation of the erosion control measures along the low-level outlet are not expected to result in a measurable change in insect prey within 500 m of nesting habitat or bank swallow abundance at the existing colony.

As discussed in the Wildlife Mitigation and Monitoring Plan (WMMP) prepared for the Project, the previously identified bank swallow colony along Elbow River will be surveyed twice during the breeding period (May 1-August 31) and monitoring results will be provided in the annual report. Currently, the status of the bank swallow colony is scheduled to be checked twice between June 1 and July 15, 2022. Consistent with IAAC condition 4.11.1, Alberta Transportation will monitor bank swallow use during construction, for the first three years of operation and every five years thereafter.

Respectfully,

STANTEC CONSULTING LTD.

<Original signed by>

Eliot Terry M.Sc., P.Biol.
Senior Wildlife Biologist
Phone: <Personal information removed>
Mobile: <Personal information removed>
<Email address removed>

<Original signed by>

Dave Brescia, M.Sc., P.Biol.
Senior Principal, Environmental Services
Phone: <Personal information removed>
<Email address removed>

References

ECCC (Environment and Climate Change Canada). 2022. Recovery Strategy for the Bank Swallow (*Riparia riparia*) in Canada. Species at Risk Act Recovery Strategy Series. Environment and Climate Change Canada, Ottawa. ix + 125 pp..

Falconer, M., K. Richardson, A. Heagy, D. Tozer, B. Stewart, J. McCracken, and R. Reid. 2016. Recovery Strategy for the Bank Swallow (*Riparia riparia*) in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources and Forestry, Peterborough, Ontario. ix + 70 pp.