



October 23, 2023

Mr. John Robertshaw
Brunswick Property Holdings Ltd.
2960 Altamont Crescent
West Vancouver, BC V7V 3C1

Dear Mr. Robertshaw:

**Re: Barn Owl Habitat Rehabilitation Plan
10566, 10582, and 10620/10626 Scott Road Surrey, BC
Project No. 15934**

1. INTRODUCTION

Keystone Environmental is pleased to provide the following Barn Owl Habitat Rehabilitation Plan to support the permitting process for the redevelopment of 10566, 10582, and 10620/10626 Scott Road Surrey, BC (the Site).

Keystone Environmental was retained by Brunswick Property Holdings Ltd. (the Client/ Proponent) to complete an environmental assessment (the Assessment) for development of an industrial business park (the Project) located at (the Site, Appendix A, Figure 2). The Site is currently occupied by a vacant residence and a portable open-sided truck and tire repair structure, 10582 Scott Road is occupied by a trailer repair shop and laydown yard, and 10566 Scott Road property appears to be an industrial yard used for trailer staging (Appendix A, Figures 1 and 3).

The federal *Species at Risk Act (SARA)* Barn Owl (*Tyto alba*), Recovery Strategy has identified that the Site contains a portion of 'Critical Habitat' associated with the northern section (Appendix B, Figure 1).

This assessment report is intended to support an application as part of the Vancouver Fraser Port Authority (VFPA) environmental review process and requirements under the federal *SARA*.

The VFPA has requested consultation with the *SARA* to verify if a permit under the *SARA* is required for the destruction of defined Critical Habitat (CH) is required for the Site.

2. BACKGROUND

A report completed by Keystone Environmental entitled "Barn Owl Critical Habitat Assessment 10566, 10582, and 10620/10626 Scott Road Surrey, BC" (2023) was completed to verify the likelihood of Barn Owl presence on the Site based on current ecological conditions and existing mapped critical Barn Owl habitat by the CWS and Environment and Climate Change Canada (ECCC). The report was sent to ECCC requesting confirmation that the CH defined in by the ECCC on the Site be considered insignificant, and elimination of the small habitat area as part of the proposed development will not require a SARA permit.

Environment and Climate Change Canada reviewed the report and stated that:

".....the Canadian Wildlife Service (CWS) were unable to determine whether or not a *Species at Risk Act* (SARA) permit is required (including determinations on the quality of habitat within critical habitat polygons) outside of the SARA permitting process..... permits are required by those persons conducting activities that may affect species listed on Schedule 1 of SARA, as extirpated, endangered, or threatened and which contravene the SARA's general or critical habitat prohibitions. It is the responsibility of individuals and proponents to evaluate the risks and fully understand their obligations to be compliant with the SARA....."

2.1.1 Loss of ECCC Critical Habitat

No roosting or breeding habitat was identified at the Site for the Barn Owl however, foraging CH was identified in association with the Site for the owl is presented in Appendix B Figure 1 and has been defined in ECCC (2022), to consists of:

- Grass fields and/or naturalized meadows, open fields associated with agriculture (ideally rough pasture, non –intensively managed hayfields);
- Grassy ditches/margins between fields, and along pre-existing roads and railway tracks;
- Remnant linear strips (i.e., minimum 3 m wide) or patches of grass and/or green space in semi-urban to urban landscapes; and
- Areas that have an availability of small mammal prey.

Since there are no tree cavities or buildings that could allow for nesting on the Site, no nesting habitat is expected to be lost due to the proposed development scenario and only potential foraging areas are to be affected that include:

- Grassy ditches/margins between fields, and along pre-existing roads and railway tracks;
- Remnant linear strips (i.e., minimum 3 m wide) or patches of grass and/or green space in semi-urban to urban landscapes; and
- Areas that have an availability of small mammal prey.



Most of the Site is open bare gravel and offers no forage potential. Loss of defined CH forage areas are presented in (Appendix A, Figure 1). However, they have been considered very low for forage due to the extensive urbanization in the CH western portion of the Site. This very low value habitat amounts to the following in the defined CH of the Site.

1. Grassy ditches/margins between fields, and along pre-existing roads and railway tracks.

This type of foraging habitat in the CH for the owl on the Site is associated with the grassy ditch margins along Scott Road. They are to be replaced and enhanced with no negative effects associated, so no negative effects will result in this section of the defined CH.

2. Remnant linear strips (i.e., minimum 3 m wide) or patches of grass and/or green space in semi-urban to urban landscapes with areas that have an availability of small mammal prey.

Loss of very low-quality forage habitat in the defined CH areas will be primarily associated with the habitats as defined in Table 1 and the Scott Rd Ditches as identified in Appendix A, Figure 4.

Table 1: Loss of ECCC Defined Critical Habitat at the Site

	m ²
Total Area of CH on Site	49,937.54
South Ditch (loss but accentuated and replaced)	488.00
South Ditch A (loss but accentuated and replaced)	16.00
Scott Rd. Ditch 1 (loss but accentuated and replaced)	110.00
Scott Rd. Ditch 2 (loss but accentuated and replaced)	23.00
Scott Rd. Ditch 3 (loss but accentuated and replaced)	60.00
Ditch replacements	696.00
House Area (loss due to development footprint)	70.00
Wetland Channel (loss due to development footprint)	1,034.27
TOTAL FORAGE AREA LOST NEEDING REPLACEMENT	1,104.27

While the Scott Road Ditches (Appendix A, Figure 4), which constitute forage area only, associated with the defined CH at the Site (Appendix B, Figure 1), are to be replaced, the total loss of CH as defined by ECCC consists of vegetation surrounding the House (70m²) and the Wetland Channel (1,034.27m²). This forage habitat amounts to a total of 1,104.27m². Replacement of this area is to be located along the perimeter of Wetland D (Appendix C).



3. HABITAT REHABILITATION PROGRAM

The proposal for loss of the 1,104.27m² of CH loss will be compensated for by the required enhancement and improvement of habitat outside, but immediately adjacent to the CH areas to maintain corridor travel extending the CH further east as presented in Appendix C.

The overall change in physical riparian area is to increase the foraging habitat with shelter as a nest box for the Barn Owl and add to the possible CH for the east of the Site. Once the riparian areas are planted there is to be approximately 2,633.24 m² of riparian habitat improved for Barn Owl foraging off setting the required 1,104.27m² (Table 2). This will result in a gain of 1,528.97m² of forage and roosting habitat in the area at a 3:1 ratio Gain (Appendix C).

Table 2: Riparian Area Proposed to be Created and Enhanced

Location	Riparian Area (m ²)
Wetland A and Streams 1 and 2 Riparian Habitat Enhancement	3,479.00
Wetland B	6,796.00
Wetland D	910.00
Total Proposed Enhanced Riparian Area	2,633.24
Loss of Barn Owl Critical Habitat Due to the Development	1,104.27
GAIN (3:1) IN BARN OWL CRITICAL HABITAT FOR FORAGING AND ROOSTING	1,528.97

The proposal is to redesign and complex the riparian area of Wetland B (Appendix C). This will provide foraging and roosting habitat for Barn Owls immediately east surrounding the defined CH defined by ECCC (Appendix B, Figure 1), thereby increasing the potential for foraging and create roosting (possible nesting), beyond the defined CH.

Enhancements proposed are to contain a variable 10-12m wide rough grassland around Wetland B – a thick, matted, tussocky mix of native grass species and habitat complexing that would provide habitat for small mammals. The intent of this project will be to construct habitat where grass is allowed to grow tall in the summer reducing or eliminating cutting in the riparian areas. Fresh green blades of grass are expected to grow through the summers and allow for die-back to form a “litter layer” favored by small mammals. The process is expected to take a few years in order to establish a good litter layer that is about 70 mm deep.

This litter layer of native grass introduction (Appendix D), and the installation of large woody debris and rock clusters (Appendix C) is expected to create microclimate habitat for small mammals with the cover they need for their tunnels and nests. Over time the presence of small holes (about 40 mm in diameter) should establish that indicate small mammals are using the area. The lack of maintenance of these areas will allow for a litter-layer to establish that also will provide cover for small mammals. Permanent unmanaged rough grassland provides Barn Owls with food all year round.



The grasses will never be cut or grazed and will gradually become over-grown by brambles/scrub. The aim will also be to control scrub invasion without destroying the litter-layer. Some management will be required and can consist of removal of invasive species and strips of vegetation being cut in late July or August as part of riparian management principles. Crews can manage every 2 years by cutting alternate strips across the field to a height of about 80 mm. Further management of the grassed areas can be performed by 'topping' the areas using brush cutters and retain the lower levels; not cutting into the litter-layer. To allow for best establishment, management of the areas will require no cutting the first year the grass is seeded. This will allow the grass to grow tall, collapse and form the litter layer used by field voles.

The habitat creation is proposed to occur in two phases:

1. The first phase will involve replanting and installing habitat features such as coarse woody debris boulder clusters etc. to promote use by Barn Owl prey. Locations of placement of material and technical specifications for plant species are presented in Appendix D. Grassland species will be established by using different seed mixes that include both tall tussock-forming species and shorter softer grasses (Appendix D).
2. The second phase will involve annual monitoring for the first three years after rehabilitation to assess if follow-up efforts or maintenance are necessary. The following sections provide recommended actions for habitat rehabilitation.

3.1 MONITORING

Monitoring of each rehabilitation site will be necessary to assess the efficacy of the rehabilitation plan and determine if additional actions are needed to maintain or enhance the sites for use by Barn Owl and their prey. A three-year monitoring plan will be prepared to assess the survivorship of plantings and assess encroachment by invasive.

Monitoring is recommended on an annual basis for the first three years following site rehabilitation. Monitoring should occur during the growing season, when plant health can be assessed. The monitor shall collect data on the occurrence, density, and location of invasive plants and the relative area within each of the sites that persists with grassland or old field attributes. Additional relevant biophysical information should be collected including wildlife observations and signs of human disturbance or dumping.



4. CONCLUSIONS

The areas within the remainder of the Site (i.e., south) provide a reasonable opportunity to provide increased forage habitat for Barn Owl. This proposed area is located in Wetland B riparian area that is to compensate for the loss of the defined foraging habitat located in the CH defined by ECCC. Further, at all proposed rehabilitation sites, dense populations of invasive species are present which may encroach into rehabilitation areas once mowing is discontinued. It is recommended that maintenance provide some invasive species management through a plan. Removing the invasive species is likely to further improve the sites as Barn Owl habitat, and reduce the likelihood of further habitat loss within the region.



5. LIMITATIONS

Keystone Environmental Ltd. confirms that this letter report has been prepared in a manner consistent with that level of care and skill normally exercised by other members of the environmental science and engineering profession practicing under similar circumstances in the area at the time of the performance of the work.

This report has been prepared solely for the internal use of Brunswick Property Holdings Ltd. pursuant to the agreement between Keystone Environmental Ltd. and Brunswick Property Holdings Ltd. By using this letter report Brunswick Property Holdings Ltd. agrees that they will review and use the letter report in its entirety. Any use which other parties make of this letter report, or any reliance on or decisions made based on it, are the responsibility of such parties. Keystone Environmental Ltd. accepts no responsibility for damages, if any, suffered by other parties as a result of decisions made or actions based on this letter report. If you need clarification of any part of this report, please contact the undersigned.

Sincerely,

Keystone Environmental Ltd.

Libor Michalak R.P.Bio.
Senior Biologist

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ATTACHMENTS:

- Appendix A: Figures
- Appendix B: ECCC Defined Barn Owl Critical Habitat Figure
- Appendix C: Offsetting Strategy Figures



REFERENCES

- B.C. Conservation Data Centre. (2015). Conservation Status Report: *Tyto alba*. B.C. Minist. of Environment. Available: <http://a100.gov.bc.ca/pub/eswp/> (accessed Apr 15, 2020).
- B.C. Ministry of Environment (BC MOE). (2014). *Recovery Plan for the Barn Owl (Tyto alba) in British Columbia*, Victoria, BC.
- Campbell, R.W., Manuwal, D.A., and A.S. Harstad A.S. (1987). *Food habits of the Common Barn-Owl in British Columbia*, Can J. Zool. 65: 578-586.
- City of Richmond. (2015). *Invasive Species Action Plan*, Richmond, BC.
- Committee on the Status of Endangered Wildlife in Canada (COSEWIC). (2010). *COSEWIC Assessment and Status Report on the Barn Owl Tyto alba in Canada*. Available: <https://www.sararegistry.gc.ca/default.asp?lang=En&n=DC7FBFA4-1&peditable=true> (accessed April 15, 2020)



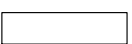
APPENDIX A

FIGURES



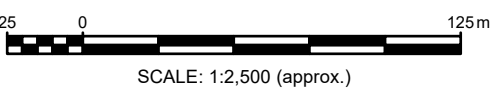


LEGEND

-  SITE
-  PROPERTY LINE
-  LOT LINES

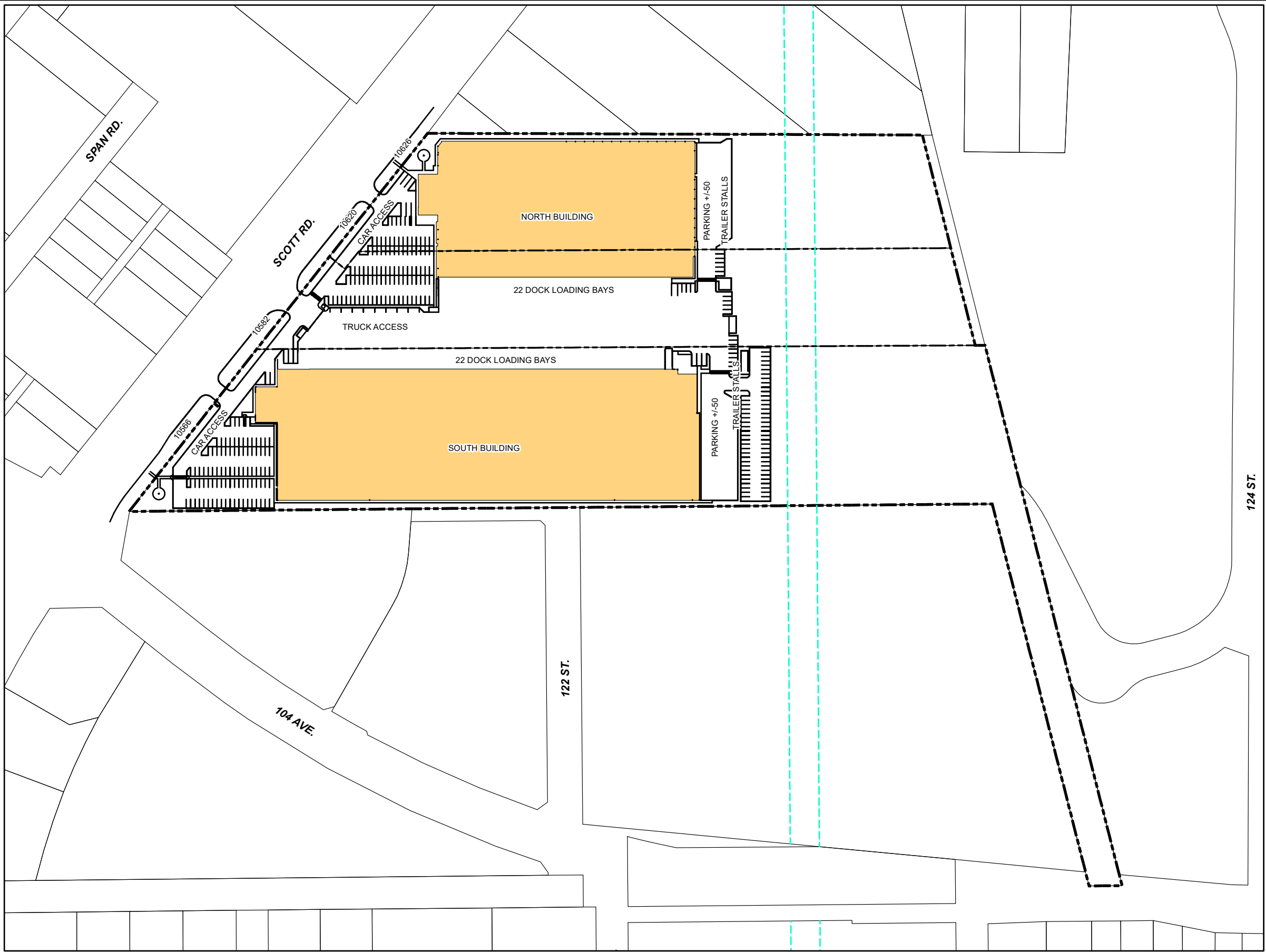


NOTES:
1. THIS DRAWING IS FOR GENERAL INFORMATION ONLY.
LOT BOUNDARIES AND FEATURES ARE APPROXIMATE.
2. THE DATE OF AERIAL PHOTO IS 2019.



10626 Scott Road Surrey, B C Brunswick Property Holdings Ltd.		
REVISION No.	DATE	PROJECT No.
C	Nov. 2021	15934-104

Figure 1
Site Location



LEGEND

- SITE
- PROPERTY LINE
- LOT LINES
- PROPOSED BUILDING OUTLINE
- PROPOSED ROAD AND PARKING OUTLINE
- GAS RIGHT OF WAY



Keystone Environmental

NOTES:
1. THIS DRAWING IS FOR GENERAL INFORMATION ONLY.
LOT BOUNDARIES AND FEATURES ARE APPROXIMATE.
2. DRONE (UNMANNED AERIAL VEHICLE) ORTHOMOSAIC IMAGERY COLLECTED ON FEBRUARY 7, 2021



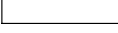
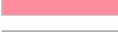
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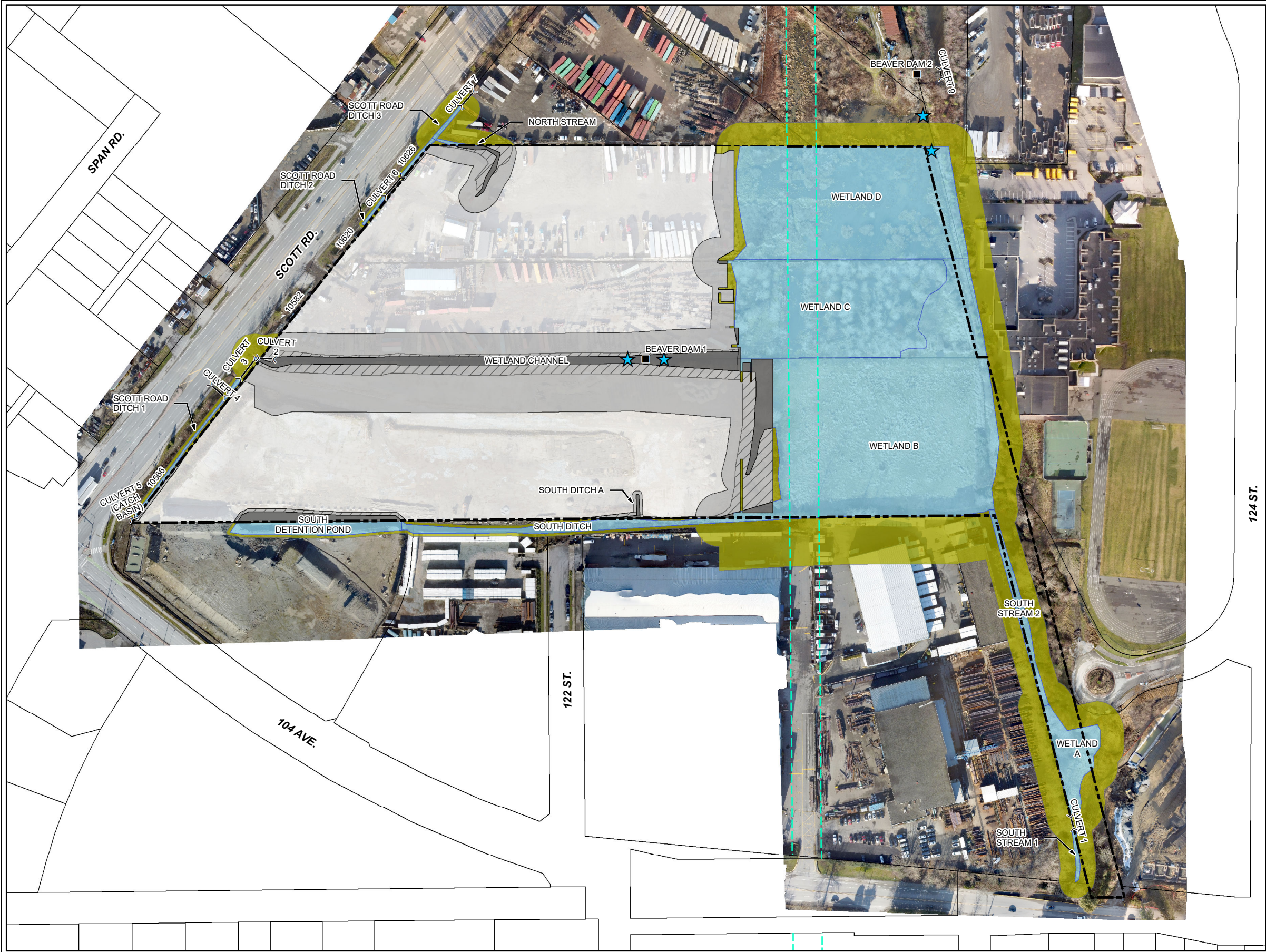
10626 Scott Road Surrey, B C Brunswick Property Holdings Ltd.		
REVISION No.	DATE	PROJECT No.
D	Nov. 2021	15934-104

Figure 2
Project Description



LEGEND

-  SITE
-  PROPERTY LINE
-  LOT LINES
- INVASIVE SPECIES**
-  POLICEMAN'S HELMET
-  GIANT HOGWEED
-  HIMALAYAN BLACKBERRY
-  KNOTWEED SPP.
-  PURPLE LOOSESTRIPE
-  REED CANARY GRASS
-  GAS RIGHT OF WAY
- SPECIES AT RISK**
-  BEGGERTICK SPP.



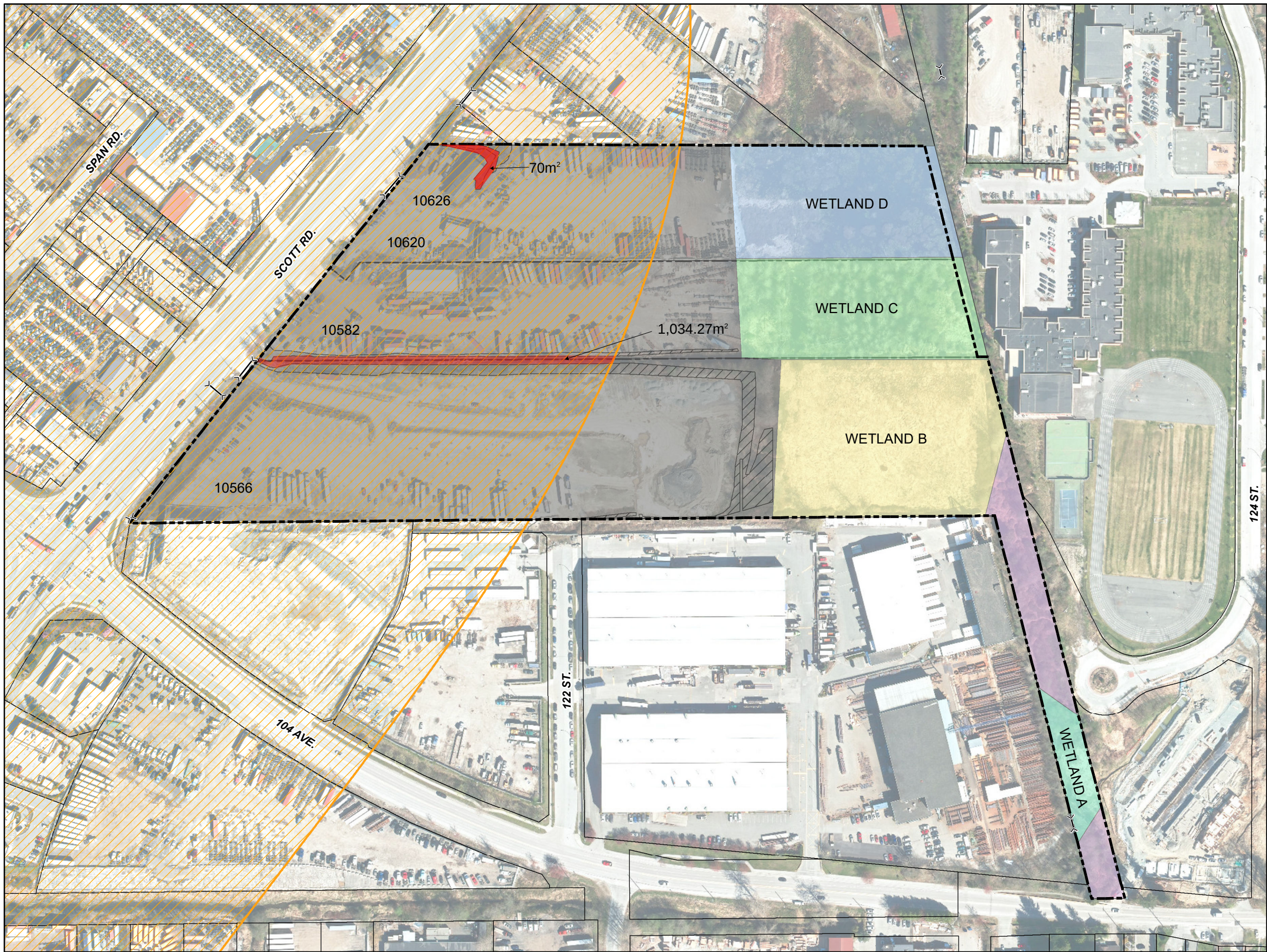
LEGEND

- SITE
- PROPERTY LINE
- LOT LINES
- EXISTING RIPARIAN HABITAT
- INFILLED AQUATIC
- RETAINED AQUATIC
- INFILLED RAPR SPEA
- RETAINED RAPR SPEA
- PROPOSED DEVELOPABLE FOOTPRINT
- GAS RIGHT OF WAY
- CULVERT
- FISH SAMPLING LOCATIONS
- BEAVER DAM

APPENDIX B

ECCC DEFINED BARN OWL CRITICAL HABITAT FIGURE





LEGEND

- SITE
- PROPERTY LINE
- LOT LINES
- BARN OWL CRITICAL HABITAT
- HABITAT TYPE**
 - HIMALAYAN BLACKBERRY
 - INDUSTRIAL
 - OPEN REED CANARYGRASS HARDHACK MARSH
 - PERMANENTLY FLOODED SWAMP
 - REED CANARYGRASS WETLAND
 - SWAMP/MARSH
 - VEGETATED
 - CULVERT

APPENDIX C
OFFSETTING STRATEGY FIGURES



APPENDIX D
NATIVE GRASSES



BC Native Grasses

NAME	GROWTH FORM	HEIGHT OF GROWTH	EROSION CONTROL	B.C. PROVENANCE	ECOLOGY AND NOTES
<i>Agrostis exarata</i> , Spike Bentgrass	Bunchgrass	30-120 cm	Excellent	Coastal and Interior (limited to moist sites in the Interior)	Occurs in a wide variety of habitats including forest openings, grasslands, wet meadows, freshwater and high tidal marshes, as well as along streams, rocky beaches, and lake margins. It is most common in moist open places.
<i>Agrostis scabra</i> , Hair Bentgrass	Bunchgrass	20 - 50 cm	Poor	Coastal and Interior low to mid elevations	Also called Ticklegrass and Rough Hairgrass. Dry to wet clearings, rocky slopes and gravelly river bars.
<i>Bromus ciliatus</i> , Fringed Brome	Bunchgrass	70-120 cm	Very Good	Interior mid to subalpine	Moist forests, meadows and wetlands.
<i>Bromus marginatus</i> , Mountain Brome	Bunchgrass	60 - 120 cm	Very Good	Coastal and Interior low to mid elevations	Syn. California Brome (<i>B carinatus</i>). Grows in open woods and moist meadows.
<i>Bromus sitchensis</i> , Alaska Brome	Bunchgrass	50 - 180 cm	Very Good	Primarily Coastal from sea level to subalpine elevations	Also known as Sitka Brome. Occurs in moist meadows and open forests. Also common on streambanks and beaches in rocky sandy soil.
<i>Calamagrostis canadensis</i> , Bluejoint	Rhizomatous	to 150 cm	Very Good	Coastal and Interior low to high elevations limited to moist sites.	Easy establishment. Adapted to wetland and riparian sites. Pinegrass (<i>Calamagrostis rubescens</i>) is a similar species however since it rarely forms seed heads commercial availability of seed is also rare.
<i>Danthonia californica</i> , California Oatgrass	Bunchgrass	30-100	Good	Coastal and Interior south half of Province. Low to Mid elevation.	Sandy and rocky ridges, Coastal meadows and shorelines.
<i>Deschampsia caespitosa</i> , Tufted Hairgrass	Bunchgrass	20 - 120 cm	Good	Coastal and Interior	Common throughout most regions in moist meadows, on slough margins and in boggy areas.

BC Native Grasses

NAME	GROWTH FORM	HEIGHT OF GROWTH	EROSION CONTROL	B.C. PROVENANCE	ECOLOGY AND NOTES
<i>Deschampsia elongata</i> , Slender Hairgrass	Bunchgrass	25 to 80 cm	Good	Coastal and Interior South half of Province	Open forests, stream banks, shorelines, clearings, meadows, grasslands, marshes and floodplains.
<i>Elymus glaucus</i> , Blue Wildrye	Bunchgrass	50 - 150 cm	Excellent	Coastal and Interior low to mid elevations	Rapid establishment. Relatively short lived. Attractive blue-green foliage. Common to moist open forests and clearings.
<i>Elymus lanceolatus</i> , Northern Wheatgrass/ Streambank Wheatgrass	Rhizomatous	30 - 80 cm	Excellent	Interior	Also known as Thickspike. Drought tolerant but most common in moist grasslands. Long lived. Especially suited for stabilizing highly erosive silty to sandy soils. Tolerates periodic flooding.
<i>Elymus trachycaulus</i> , Slender Wheatgrass	Bunchgrass	60 - 120 cm	Very Good	Southern Interior occasional in northern regions	Moderate drought tolerance. Rapid establishment with dense fibrous roots. Short lived in driest regions.
<i>Festuca idahoensis roemerii</i> , Roemer's Fescue	Bunchgrass	30-90 cm	Good	Coastal	Moderately dry to moist clearings and meadows. Requires good soil drainage.
<i>Festuca idahoensis</i> , Idaho Fescue	Bunchgrass	30 - 90 cm	Good	South Interior low to subalpine	Adapted to dry habitats primarily rocky slopes and clearings. Interior grasslands.
<i>Festuca occidentalis</i> , Western Fescue	Bunchgrass	25-70 cm	Good	Coastal and Interior low to mid elevations	Dry to moist open forests and clearings
<i>Festuca saximontana</i> , Rocky Mountain Fescue	Bunchgrass	25- 50 cm	Good	Interior mid to high elevation	Dry grasslands and open forests. Absent from moist sites.

BC Native Grasses

NAME	GROWTH FORM	HEIGHT OF GROWTH	EROSION CONTROL	B.C. PROVENANCE	ECOLOGY AND NOTES
<i>Festuca scabrella</i> , Rough Fescue	Bunchgrass	60 - 100 cm	Good	South Interior low to mid elevations.	Dry to moist open forests and grasslands
<i>Hordeum brachyantherum</i> , Meadow Barley	Bunchgrass	40 - 100 cm	Good	Coastal grass most common in Maritime environments.	Tidal marshes and freshwater wetland. Rapid development makes this a valuable grass for soil stabilization.
<i>Koeleria cristata</i> , Prairie Junegrass	Bunchgrass	20 - 50 cm	Good	Interior low to high elevations	Prefers well drained grasslands and open forests. One of the most common grassland species.
<i>Pascopyrum smithii</i> , Western Wheatgrass	Rhizomatous	60 - 90 cm	Very Good	Interior	Also known as Bluejoint. Drought tolerant and long lived. Prefers well drained bottom lands and can withstand flooding. Tolerant of saline or alkaline sites.
<i>Poa alpina</i> , Alpine Bluegrass	Bunchgrass	5 - 30 cm	Good	Interior higher elevations	Open subalpine meadows and rocky slopes
<i>Poa palustris</i> , Fowl Bluegrass	Bunchgrass	40 - 120 cm	Very Good	Coastal and Interior low to mid elevations	This species is described as both native and introduced from Eurasia. Very common in wetlands, sloughs, moist forests and shores.
<i>Poa secunda</i> , Sandberg Bluegrass	Bunchgrass	15-120 cm	Poor	Southern Interior low to mid elevations	Common in low elevation grasslands, dry slopes and clay flats. Intolerant of high water tables or poor drainage.
<i>Pseudoroegneria spicata</i> , Bluebunch Wheatgrass	Bunchgrass	60 - 100 cm	Good	Interior low to mid elevations	Drought tolerant. Widely adapted interior grass. Common to grasslands and dry open forests.

BC Native Grasses

NAME	GROWTH FORM	HEIGHT OF GROWTH	EROSION CONTROL	B.C. PROVENANCE	ECOLOGY AND NOTES
FORBS					
<i>Epilobium angustifolium</i> , Fireweed	1 to 3 m	N/A		Coastal and Interior, low to high elevation	Open areas and clearings.
<i>Lupinus arcticus</i> , Arctic Lupine	20 - 60 cm	N/A		Coastal and Interior, mid to high elevation	Meadows and open forest.
<i>Lupinus polyphyllus</i> , Large Leaved Lupine	1.5 m	N/A		Coastal and Interior, low to mid elevation	Moist meadows, streambanks and open forest.
<i>Balsamorhiza sagittata</i> , Arrowleaf Balsamroot	20 - 80 cm	N/A		Southern Interior, Low to sub alpine	Dry grasslands and open forest. Mid to high elevation.
<i>Linum lewisii</i> , Lewis Flax	10 - 60 cm	N/A		Interior, low elevation to sub alpine	Meadows and open forest.
<i>Gaillardia aristata</i> , Brown-eyed Susan	20 - 70 cm	N/A		Southern Interior, low to mid elevation	Dry grasslands.
<i>Grindelia stricta</i> , Gumweed	15 - 80 cm	N/A		South Coast, sea level	Beaches and roadsides.