



Green Bay Landing Inc.

PAD 15A – 1375 GREEN BAY ROAD, WEST KELOWNA

Environmental Management Plan

Prepared for:
Dobson Engineering Ltd.



This report is prepared for the sole use of the Dobson Engineering Ltd. No representations of any kind are made by Northland Environmental Ltd. or its employees to any party with whom Northland Environmental Ltd. does not have a contract. Copyright 2020.

TABLE OF CONTENTS

1.0 INTRODUCTION.....	1
1.1 PROJECT BACKGROUND	1
1.2 PURPOSE OF THE ENVIRONMENTAL MANAGEMENT PLAN.....	1
2.0 ENVIRONMENTAL DESCRIPTION.....	3
2.1 WILDLIFE AND WILDLIFE HABITATS	3
2.2 FISH AND FISH HABITAT	4
3.0 REGULATORY FRAMEWORK AND BEST PRACTICES	4
3.1 LEGISLATION AND REGULATIONS	4
3.2 BEST MANAGEMENT PRACTICES	4
4.0 ENVIRONMENTAL IMPACTS	5
5.0 ENVIRONMENTAL MITIGATION	5
5.1 SENSITIVE SPECIES AND HABITATS.....	5
5.2 EROSION AND SEDIMENT CONTROL	5
5.3 FUEL STORAGE AND HANDLING	6
5.4 ENVIRONMENTAL MONITORING.....	6
6.0 CLOSURE.....	6
7.0 REFERENCES.....	7

FIGURES

Figure 1.1 Location Map - Pad 15A – 1375 Green Bay Road Location Map

1.0 INTRODUCTION

Dobson Engineering Ltd. engaged Northland Environmental Ltd. (Northland Environmental) to provide environmental assessment and monitoring services for the proposed placement of a mobile home on Pad 15A – 1375 Green Bay Road, West Kelowna. The Pad 15A property is situated along Green Bay Canal within a mobile home park (**Figure 1.1**). Northland Environmental (Graeme Hayward) completed a field review on November 6th, 2020, to gain a better understanding of the site conditions and to assess the potential environmental effects of the proposed placement of the mobile home.

1.1 Project Background

The Pad 15A – 1375 Green Bay Road property (subject property) is situated along Green Bay Canal approximately 330 m from Okanagan Lake. The subject property is disturbed and has low habitat value as a result of the development of the mobile home park and current land uses. The property is currently vacant and was previously occupied by a mobile home. The water level in the canal is controlled by the level of the lake. The wood retaining wall from the original construction of the canal remains in place.

Dobson Engineering (2020) undertook a floodplain hazard assessment to address the requirements set out by the City of West Kelowna Bylaw 0154 regarding the Green Bay Canal. The assessment addressed the 15 m floodplain setback and the flood construction level requirements for mobile home pad 15A. The assessment concluded that high water levels in the canal are a flood hazard during high water events on Okanagan Lake. In addition, the risk of erosion along the canal banks is low due to the existing bank protection works and the fact that there is effectively no flow in the canal. Recommendations from the flood hazard assessment include:

- Any mobile home placed on Pad 15A meet or exceed a flood construction level of 343.66 m (asl) for the underside of the structure frame; and,
- The floodplain setback from the top of the bank of the canal be relaxed to no less than 5 m from the 15 m setback stipulated in the City of West Kelowna Bylaw 0154.

The proposed placement of the mobile home on Pad 15A will be completed in the dry with a silt fence installed between the worksite and the canal. Disturbance to vegetation will be minimized and site restoration (if required) will be conducted under the direction of a Qualified Environmental Professional (QEP).

1.2 Purpose of the Environmental Management Plan

This Environmental Management Plan (EMP) has been prepared to minimize the potential for adverse environmental effects from the proposed placement of the mobile home on Pad 15A – 1375 Green Bay Road. The EMP incorporates best management practices and site-specific mitigation measures. A qualified Environmental Monitor will undertake monitoring and provide direction during the implementation of the mitigation measures and execution of the works.



Figure 1.1 – Pad 15A – 1375 Green Bay Road Location Map; 49.835247°, -119.574726° (Source: Google Earth, 2020)

2.0 ENVIRONMENTAL DESCRIPTION

The Pad 15A property is situated within a low elevation habitat inside the Okanagan Very Dry Hot (xh) subzone, of the Ponderosa Pine (PP) biogeoclimatic zone. The subject property is disturbed and has low habitat value as a result of the development of the mobile home park and current land uses. The property is vacant and was previously occupied by a mobile home. The canal along the west side of the subject property connects directly to Okanagan Lake. As such, the water level in the canal is controlled by the level of the lake. The wood retaining wall from the original construction of the canal remains in place.

2.1 Wildlife and Wildlife Habitats

The PPxh zone is characterized by a warm, dry climatic regime with a relatively long growing season in which moisture deficits are common in the Okanagan Valley. Historically, frequent stand-maintaining fires shaped the ecosystems of this zone. In upland areas, the vegetation is characterized by open ponderosa pine and Douglas-fir forests and a bunchgrass dominated understory. In low-lying riparian areas, climax vegetation generally consists of Interior Douglas-fir, water birch and Douglas maple with a well-developed shrub and herb layer. Aquatic and riparian areas within the PPxh zone provide habitat to various wildlife species including a number of sensitive species such as tiger salamander, Great Basin spadefoot toad, painted turtle, Western bluebird, Western grebe, yellow-breasted chat, great blue heron, harvest mouse, spotted bat, Western small-footed myotis, Western long-eared myotis and fringed myotis.

The habitat comprising the Pad 15A property has been significantly impacted by development. A rare occurrence search of the BC Ministry of Environment's Conservation Data Centre (CDC) revealed no sensitive species occurrence records or sensitive ecological community occurrence records overlapping the subject property. The closest sensitive species occurrence record (103967) is located approximately 200 m northeast of the subject property. This record is for painted turtle - Intermountain - Rocky Mountain population (BC Blue-listed; SARA Schedule 1 – Special Concern). The occurrence site is described as a beach within Green Bay.

One (1) masked-sensitive species occurrence record and three (3) critical habitat polygons under the Species at Risk Act (SARA) overlap the subject property; “final” critical habitat “grid squares” for the Western rattlesnake (BC Blue-listed; SARA Schedule 1 – Threatened), Great Basin gopher snake (BC Blue-listed; SARA Schedule 1 - Threatened) and desert night snake (BC Red-listed; SARA Schedule 1 - Endangered). However, not all of the area within these “grid square” boundaries is necessarily critical habitat. A review of the Final Recovery Strategy for the three snake species revealed that only the Western rattlesnake and Great Basin gopher snake are distributed within West Kelowna. Critical habitat for these snakes includes rock outcrops, talus slopes, shrub-steppe, grassland, riparian, and open ponderosa pine and Douglas fir forest habitats, which they require for various life functions (foraging, migration, mating, basking, shedding, hibernating). Appropriate environmental mitigation measures will be implemented to minimize the potential for adverse impacts to sensitive species and habitats.

2.2 Fish and Fish Habitat

The subject property adjoins the Green Bay Canal, which connects to Okanagan Lake approximately 330 m to the southeast. The canal is generally comprised of fine silt and sand and contains a high amount of emergent and submergent vegetation. The habitats associated with the canal provide a food source and rearing areas for fish and other aquatic species. The BC Ministry of Environment Habitat Wizard website describes Okanagan Lake as encompassing a total area of 351 km² with a mean depth of 75 m and maximum depth of 242 m. Okanagan Lake provides habitat to several fish species including burbot, mountain whitefish, brook trout, Northern pikeminnow, carp, peamouth chub, chiselmouth, prickly sculpin, cutthroat trout, pumpkinseed, dace (general), pygmy whitefish, kokanee, rainbow trout, lake trout, redbelly shiner, lake whitefish, slimy sculpin, largescale sucker, sucker (general), leopard dace, whitefish (general), longnose dace, yellow perch, and longnose sucker.

3.0 REGULATORY FRAMEWORK AND BEST PRACTICES

3.1 Legislation and Regulations

Environmental legislation and regulations applicable to this project include:

- BC Water Sustainability Act;
- BC Riparian Areas Protection Regulation (RAPR);
- BC Wildlife Act;
- Fisheries Act;
- Migratory Birds Convention Act; and,
- Species at Risk Act.

3.2 Best Management Practices

The BMPs recommended in this EMP are consistent with the following guidelines:

- A Field Guide to Fuel Handling Transportation & Storage (MWLAP, 2002);
- Best Management Practices for Bats in British Columbia (MWLAP, 2016);
- Develop with Care 2014: Environmental Guidelines for Urban and Rural Land Development in British Columbia (MOE, 2014);
- Erosion and Sediment Control Best Management Practices (ESCA BC, 2014);
- Guidelines for Amphibian and Reptile Conservation during Urban and Rural Land Development in British Columbia (Caskey et al., 2014);
- Guidelines Raptor Conservation during Urban and Rural Land Development in British Columbia (Caskey and Chutter, 2013); and,
- Measures to Avoid Causing Harm to Fish and Fish Habitat (DFO, 2013).

4.0 ENVIRONMENTAL IMPACTS

As part of the development of this EMP, the proposed placement of the mobile home on Pad 15A was assessed to help determine potential environmental effects and identify appropriate environmental mitigation measures. This assessment included a field review and desktop research. Based on the review of the proposed work and environmental constraints, potential environmental effects identified for the project include erosion and contamination of soils, disturbance to wildlife habitat, reduction in surface water quality, and disruption of fish habitat. With the implementation of the EMP and relevant best practices, significant adverse environmental effects can be avoided.

5.0 ENVIRONMENTAL MITIGATION

The following section includes work practices and mitigation measures that will be implemented to minimize the potential for adverse effects from the proposed placement of the mobile home on Pad 15A. Environmental monitoring will be undertaken to ensure that the prescribed environmental mitigation measures are adhered to for the duration of the work.

5.1 Sensitive Species and Habitats

Based on the existing level of disturbance, and the limits of the mobile home placement, impacts to critical habitat, and the productive capacity of fish habitat are unlikely with the implementation of the following mitigation measures:

- The works shall be conducted in a manner that minimizes the disturbance to soil and the surrounding riparian and terrestrial habitats;
- Active nest surveys are to be completed by a qualified professional prior to commencing any disturbance to vegetation during the regional nesting period between April 1st and August 15th (February 1st to August 15th if raptors or herons are present);
- All reasonable efforts shall be made to avoid any negative impacts to the aquatic and riparian ecosystems; and,
- The proposed works must not be composed of materials harmful to the aquatic environment.

5.2 Erosion and Sediment Control

- Install silt fence between the mobile home pad and the canal prior to commencing any work;
- Maintain a 5 m setback between the mobile home and the top of bank of the canal, as specified by Dobson Engineering (2020);
- Ensure that the mobile home placed on Pad 15A meets or exceeds the flood construction level of 343.66 m for the underside of the structure frame, as specified by Dobson Engineering (2020);
- Minimize disturbance to soils and vegetation outside the mobile home footprint;
- Inspect erosion and sediment control measures regularly and after every major rain; undertake necessary repairs immediately after damage has been discovered; and,

- Re-stabilize and re-vegetate disturbed areas outside of the construction footprint with native plant materials as soon as the weather permits following completion of the works, as directed by the Environmental Monitor.

5.3 Fuel Storage and Handling

- All equipment must be clean, leak free and in good operating condition prior to mobilization to the site; and,
- There shall be no fuelling or equipment servicing on site. Any unforeseen contaminated materials discovered on site shall be disposed of through an approved agent or facility.

5.4 Environmental Monitoring

Environmental monitoring program will be undertaken by a qualified professional to help ensure that the prescribed environmental mitigation measures are adhered to for the duration of the work. An experienced Qualified Environmental Monitor will inspect, evaluate, and report on the effectiveness of work practices and mitigation measures and recommend and oversee improvements as necessary. The Environmental Monitor will evaluate the compliance of the Contractor with specified work practices and procedures to avoid and/or minimize environmental impacts.

The Environmental Monitor will have the authority to stop work if there is potential for harm to the environment and/or the activity is not in compliance with the regulatory requirements, and/or the EMP. As required, the Environmental Monitor will provide advice to the Contractor concerning incident response, remediation procedures and methods to resolve non-conformances. The Contractor will be obligated to inform the Environmental Monitor of any incidents and near misses that occur while the Environmental Monitor is not on site. In the event of an emergency, the Environmental Monitor will be available at all hours and dates throughout the duration of the work. The Environmental Monitor is responsible for maintaining documentation and records of all relevant information.

6.0 CLOSURE

I trust that the proposed placement of the mobile home on Pad 15A will be undertaken in accordance with this EMP and all other relevant regulations and guidelines. Please contact the undersigned if you have any questions or require further information.

Sincerely,

NORTHLAND ENVIRONMENTAL LTD.

Graeme Hayward, MNRM, PAg, EP, CESA
Graeme@northlandenvironmental.ca



7.0 REFERENCES

BC Conservation Data Centre (2020). CDC Internet Mapping Service. Available:
<http://www.env.gov.bc.ca/cdc/>. Accessed November 05, 2020.

BC Ministry of Agriculture and Lands. 2018. Integrated Land and Resource Registry. Available:
<https://apps.gov.bc.ca/apps/ilrr/html/ILRRWelcome.html>. Accessed November 05, 2020.

BC Ministry of Forests, Lands and Natural Resource Operations. 2020. BC Habitat Wizard. Available:
<http://www.env.gov.bc.ca/habwiz/>. Accessed November 05, 2020.

iMap BC. 2020. Internet Mapping Service. Available: <https://maps.gov.bc.ca/ess/hm/imap4m/>. Accessed November 05, 2020.