



REGIONAL DISTRICT OF CENTRAL KOOTENAY
DEVELOPMENT PERMIT
D1902D-05680.200-GILL-DP000086 (D1902D)

Date: April 2, 2019

Issued pursuant to Section 490 and 491 of the *Local Government Act*

1. This Development Permit is issued to Gary Gill and Colleen Yurko as the registered owners (hereinafter called the "Permittee") and shall only apply to those lands within the Regional District of Central Kootenay, in the Province of British Columbia legally described as LOT 1, DISTRICT LOT 6810 AND 9039, KOOTENAY DISTRICT, PLAN NEP90758 (PID 028-211-189) as shown on the attached Schedules 1 and 2, forming part of this Permit, referred to hereafter as the "said lands".
2. This Development Permit is issued subject to compliance with all of the bylaws of the Regional District of Central Kootenay applicable thereto, except as specifically varied or supplemented by this Permit.
3. This Development Permit shall not have the effect of varying the use or density of land as specified in the applicable Zoning Bylaw of the Regional District of Central Kootenay, nor a Floodplain Specification under Section 524 of the Local Government Act.
4. The said lands have been designated 'Rural Residential' and are located within the Watercourse Development Permit Area pursuant to the Electoral Area 'D' Official Community Plan Bylaw No. 2435, 2016 as amended.
5. The Permittee has applied to the Regional District of Central Kootenay to build a single family dwelling, accessory building and associated servicing and to use land and buildings situated on the said lands for this purpose. Pursuant to this Development Permit and subject to the terms and conditions herein contained, as well as all other applicable Regional District Bylaws, the Regional District of Central Kootenay hereby authorizes the use of the said lands for this purpose.
6. The Permittee is required to obtain approval in writing from the Regional District of Central Kootenay prior to the construction any new buildings, external additions to existing buildings or for any deviation from the development authorized under Section 5 of this Development Permit. Furthermore, the Permittee is hereby advised of the following requirements:
 - 6.1 Development is authorized in accordance with the terms described in the report titled. "Lot 1 Johnson's Landing Road Riparian Assessment" prepared by Masse Environmental Consultants Ltd., dated December 20, 2018, attached to this permit as Schedule 2, including:
 - i. A SPEA of 15 m shall be retained, and no vegetation removal or construction is permitted in this area with the exemption of minor clearing during the installation of the water line;
 - ii. The SPEA boundary shall be flagged prior to work commencing;
 - iii. Clearing of vegetation and soil disturbance outside the SPEA shall be kept to the minimum possible area required for access, staging, construction works, and safety considerations;
 - iv. Removal of vegetation outside SPEA shall occur between August 1 – March 31;

- v. Regenerating riparian vegetation shall be preserved;
- vi. Installation of the water line and any associated in stream works shall occur at the lowest water period in late winter/early spring;
- vii. The water pipe diameter shall be the smallest possible and fish screens shall be placed at the intake;
- viii. The water line shall be installed along a path that minimizes the amount of vegetation removal and disturbance;
- ix. Further beach cleaning and removal of emergent vegetation shall not be permitted;
- x. The septic field must be located outside of the 30 m WDPA;
- xi. Stockpiles of soil shall be located outside of the 30 m WDPA and covered with tarps to prevent erosion and establishment of invasive weeds if they are left for greater than 2 months;
- xii. Disturbed soils shall be revegetated as soon as possible after construction;
- xiii. Soil disturbance on the steep slope above the building site shall be minimized and replanted with the native species and densities listed in Table 6 of Schedule 2;
- xiv. Concrete waste shall be collected and disposed of at an approved disposal site;
- xv. Washing of equipment used during concrete work shall occur at a designated location outside of the WDPA where wash water will not drain directly into the lake;
- xvi. Heavy equipment shall be clean and in good working condition free of leaks or excess lubricants prior to instream operation;
- xvii. Each piece of heavy equipment shall be equipped with its own spill response kit;
- xviii. All equipment shall be thoroughly washed and inspected before entering the project site; and,
- xix. Existing invasive plants currently within the WDPA shall be removed.

6.2 A building permit shall be required prior to any construction involving land in this location at which time the Permittee shall be required to address sewage disposal issues to the satisfaction of the Interior Health Authority and Regional District of Central Kootenay Senior Building Official.

7. As a condition of the issuance of this Permit, the Regional District shall hold an irrevocable Letter of Credit submitted by the Permittee in the amount of \$500 to ensure the conditions set forth in Section 6 are completed and in accordance with the following provisions:

- 7.1. The security shall be returned once the permitted works are completed and the QEP has provided in writing that no damage to the environment has occurred.
- 7.2. A condition of the posting of the Letter of Credit is that should the Permittee fail to carry out the works and services as herein above stated, according to terms and conditions of this permit within the time provided, the Regional District may use the

Letter of Credit to complete these works or services by servants, agents or contractors, and any surplus shall be paid over to the Permittee. If the amount of funds is insufficient to cover the actual cost of completing the works, then the Permittee shall pay such deficiency to the Regional District immediately upon receipt of the Regional District's bill for same.

8. The said lands shall be developed strictly in accordance with the terms and conditions of this Development Permit and the requirements of all applicable Regional District Bylaws as well as any plans and specifications which may, from time to time, be attached to this Permit shall form a part thereof.
9. In accordance with the Local Government Act, if the development authorized by this Development Permit is not commenced within two years of the date of this Permit, this Permit shall lapse.
10. In accordance with the Local Government Act, 'Notice' shall be filed in the Land Title Office that the said lands are subject to this Development Permit.
11. The terms of this Development Permit including subsequent amendments, are binding on all persons who acquire an interest in the said lands associated with this Permit.
12. It is understood and agreed that the Regional District has made no representations, covenants, warranties, guarantees, promises, or agreement (verbal or otherwise) with the Permittee other than those in this Development Permit. It is solely the responsibility of the Permittee to ensure that the requirements of all other applicable government agencies are satisfied.
13. This Development Permit does not constitute a building permit.
14. This Development Permit shall come into force and effect 14 days after the date of issuance unless a Waiver of Appeal is received from the Permittee at which time the Development Permit shall be deemed to be issued upon receipt of the Waiver of Appeal. OR If a Notice of Appeal is received the Development Permit shall be suspended until such time as the Board of the Regional District of Central Kootenay has decided the Appeal.



Sangita Sudan, General Manager of Development Services

April 16, 2019

Date of Approval (date of review and approval)

May 7, 2019

Date of Issuance (pending receipt of securities) *OK*

Schedule 1: Location Map

Schedule 2: Lot 1 Johnson's Landing Road Riparian Assessment, dated December 8, 2018 by Masse Environmental Consultants Ltd.

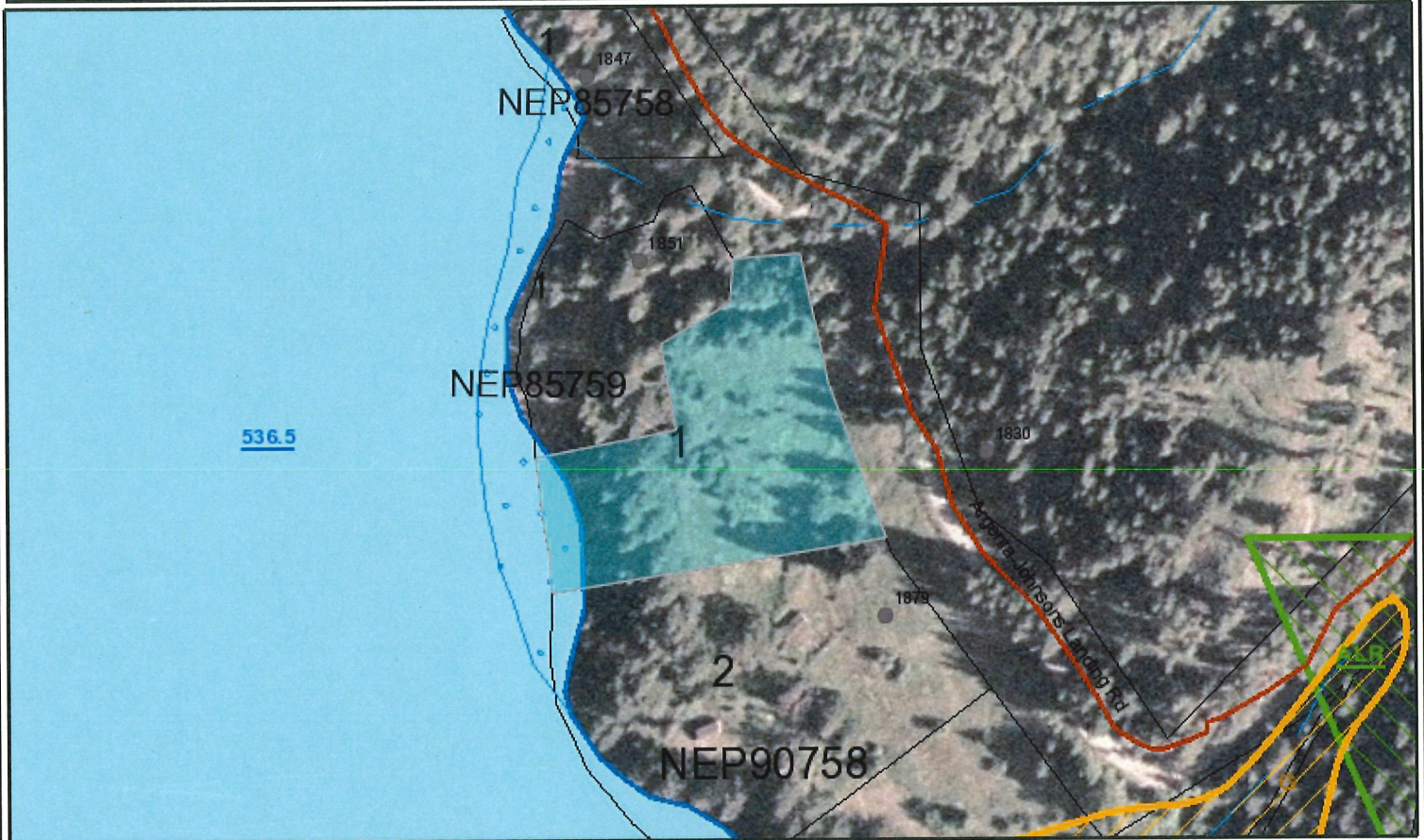
Schedule 3: Site Plan

Schedule 1: Subject Property



Property Information Report

Folio Number:	786.05680.200	EA: D
Site Address:	JOHNSONS LANDING RD	
PID:	028-211-189	Parcel area: 2.64 ACRES
Legal Description:	LOT 1 PLAN NEP90758 DISTRICT LOT 6810 KOOTENAY LAND DISTRICT & 9039.	



Land-use Information

Zoning Designation:	UNZONED		

General Services Information

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Schedule 2: Lot 1 Johnson's Landing Road Riparian Assessment, dated December 8, 2018 by Masse Environmental Consultants Ltd.



LOT 1 JOHNSON'S LANDING ROAD

Riparian Assessment



Prepared for:
Regional District of Central Kootenay
202 Lakeside Drive,
Nelson BC, V1L 5R4

Prepared by:
Masse Environmental Consultants Ltd.
812 Vernon St.
Nelson, BC, V1L 4G4

March 27, 2019

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ABBREVIATIONS

AHI: Aquatic Habitat Index
DBH: Diameter at Breast-Height
FIM: Foreshore Inventory Mapping
GSC: Geodetic Survey of Canada
HWM: High Water Mark
LWD: Large Woody Debris
FLNRORD: Forests, Lands and Natural Resource Operations and Rural Development
QEP: Qualified Environmental Professional
RAR: Riparian Area Regulation
RDCK: Regional District of Central Kootenay
SPEA: Streamside Protection and Enhancement Area
WDP: Watercourse Development Permit
ZOS: Zones of Sensitivity

1 INTRODUCTION

Masse Environmental Consultants Ltd. was retained by Gary Gill to conduct a riparian assessment at Lot 1 Johnson's Landing Road (PID: 028-211-189; Lot 1 District Lots 6810 and 9039, Kootenay District, Plan NEP90758). Mr. Gill is planning to build a small home, boathouse, and access road on this property. Construction of the proposed buildings will involve work within the 30 m Watercourse Development Permit (WDP) Area as defined in the Electoral Area 'D' Comprehensive Land Use Bylaw No. 2435, 2016. A site visit was conducted on November 16, 2018 by Iraleigh Anderson A.Ag. to conduct a riparian assessment on the property.

This assessment evaluates the existing conditions of the property and riparian areas, identifies important habitat values, assesses the environmental impacts related to the proposed development, and recommends measures to protect environmentally sensitive areas during development. It is based on the following regulatory framework and best management practices documents:

- Electoral Area 'D' Comprehensive Land Use Bylaw No. 2435, 2016
- British Columbia Riparian Areas Regulation
- Kootenay Lake Shoreline Management Guidelines
- Provincial Water Sustainability Act
- General BMPs and Standard Project Considerations (Ministry of Environment)
- On the Living Edge: Your Handbook for Waterfront Living
- Develop with Care. Environmental Guidelines for Urban and Rural Land Development in British Columbia
- British Columbia Firesmart Homeowners Manual

This report has been prepared by Iraleigh Anderson A.Ag., and reviewed by Sylvie Masse, MSc, RPBio.

I, Sylvie Masse, hereby certify that:

- a) I am a qualified environmental professional, as defined in the Riparian Areas Regulation made under the Fish Protection Act;
- b) I am qualified to carry out this part of the assessment of the development proposal made by the developer;
- c) I have carried out my assessment of the development proposal, and my assessment is set out in this Assessment Report; and
- d) In carrying out my assessment of the development proposal, I have followed the assessment methods set out in the Schedule to the Riparian Areas Regulation.

This report is prepared for the Regional District of Central Kootenay (RDCK) as a pre-condition of the issuance of a Building Permit. The submitted report shall be included in a Development Permit under section 920 of the Local Government Act and filed on title of the subject property.

The report has been prepared for and at the expense of the owner of the subject property. The Qualified Environmental Professionals (QEP) who prepared this report have not acted for, or as an agent(s) of the RDCK.

2 PROJECT OVERVIEW

2.1 Location

The subject property is located at Lot 1 Johnson's Landing Road ~8 km south of Argenta, BC (Appendix 1). The property covers an area of 1.07 ha, with ~57 m of Kootenay Lake frontage. The property is situated within a rural subdivision, bordered by private properties to the north and south, Kootenay Lake to the west, and Johnson's Landing Road to the east (Appendix 2).

The project area is within the Interior Cedar Hemlock dry warm variant 1 (ICHdw1) biogeoclimatic subzone (MacKillop and Ehman 2016). This moist climatic region is characterized by very hot, moist summers; and very mild winters with light snowfall. Soils generally dry out in late summer for varying extents of time ranging from insignificant to extensive. Snow packs are very shallow to shallow and of short duration and combined with the mild climate result in no significant soil freezing (MacKillop and Ehman 2016).

2.2 Existing Site Conditions

The subject property covers an area of 1.07 ha which generally slopes along a west aspect between Johnson's Landing Road and the foreshore of Kootenay Lake. Slope breaks dissect the property into distinct areas which are summarized below.

The upper part of the property is an old orchard (Photo 1). Several mature fruit trees occur in this area and the ground cover is a mix of pasture grasses with occasional patches of shrubs. The existing covenant for a septic system falls within the orchard. This area falls completely outside of the 30 m WDP and includes an easement that allows access from Johnson's Landing Road to the properties to the south.

The next area is defined by a steep slope of ~80% which is covered by mature Douglas fir (*Pseudotsuga menziesii*) with an understory of mature Douglas maple (*Acer glabrum*; Photo 2). The maple on this slope are generally curved perpendicular to the contour, which indicates slope movement (Photo 3). The proposed access road to the building site will run across this slope (Appendix 3). This slope mostly falls outside of the 30 m WDP.

The toe of the steep slope roughly coincides with the 30 m WDP boundary. Below this slope break the land continues to slope west at ~14%. This area is dominated by young Douglas fir forest, and continues from the steep slope break to the high water mark. The proposed development of the home and boathouse, as well as the potential new site for a septic field fall within this zone (Photo 4 and Photo 5). Dozens of ground level stumps of small diameter Douglas fir were observed in the lower part of this area.

During the site visit Stan Weir, the owner of the property to the north, confirmed that he had removed these trees several years ago (Photo 6).

The area below the high water mark is a gravel beach with accumulated large woody debris. Areas below the HWM are considered fish habitat and are described in section 4.1.



Photo 1. Old orchard area.



Photo 2. Steep slope below orchard.



Photo 3. Curving Douglas maple on slope.



Photo 4. Proposed building site.



Photo 5. Young forest below building site.

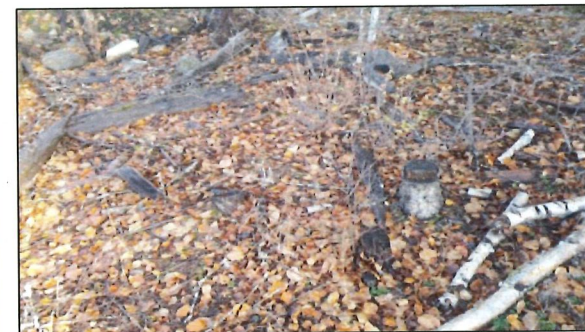


Photo 6. Douglas fir stumps on edge between young forest and beach.

2.3 Proposed Development

Proposed development on the subject property includes:

- Construction of a 91.4 m² home

- New road to access home
- Construction of a 28.2 m² boathouse
- Installation of a septic system
- Installation of a domestic water system drawing from Kootenay Lake
- Connection of electricity from Johnson's Landing Road to the new home

The main proposed building is a single story home and patio, covering a total area of 91.4 m² (Appendix 3). The proposed building site is on a ~14% slope and is mostly cleared of trees. A new road is proposed to access the home site from Johnson's Landing Road to the east. A 28.2 m² boathouse is proposed north of the cabin (Appendix 3).

2.4 Services and Site Drainage

A waterline to draw domestic water is proposed between Kootenay Lake and the home. Water treatment will occur inside the proposed home. Alternatively, Mr. Gill also owns water rights from Gardner Creek to the north, which could be used as a future source of drinking water. Electrical service will be connected to the home from the service lines on Johnson's Landing Road. This will involve the installation of a new pole on the property. Sewage disposal for the proposed home will be serviced by a septic field. The property includes a covenant with Interior Health for a septic field located in the southeast corner of the property (Appendix 3 – Covenant Plan NEP90759). However, this location for the septic field would require pumping sewage uphill from the home, so Mr. Gill has proposed a new septic field location to the west of the existing covenant, and closer to the footprint and elevation of the proposed home. The new proposed location of the septic field is outside of the 30 m setback required in the *Environmental Management Act – Municipal Wastewater Regulation* (Appendix 3). A percolation test of the new proposed septic site is scheduled for the spring of 2019.

3 REGULATORY REVIEW

3.1 Streamside Protection and Enhancement Area (SPEA)

The western margin of the property is defined by the natural boundary of Kootenay Lake (See appendix 2 for 2009 survey plan). The present natural boundary as shown on the survey was defined as the Kootenay Lake High Water Mark (HWM; see definition below) for the purposes of the field survey. For the purposes of this report, the riparian setbacks, including the Streamside Protection and Enhancement Area (SPEA) and the WDP will be measured from the surveyed natural boundary.

The BC Riparian Regulation (BC 2015) defines the High Water Mark as follows:

“High Water Mark” means the visible high water mark of a stream where the presence and action of the water are so common and usual, and so long continued in all ordinary years, as to mark on the soil of the bed of the stream a character distinct from that of its banks, in vegetation, as well as in the nature of the soil itself, and includes the active floodplain”

"Stream" includes any of the following that provides fish habitat:

- (a) a watercourse, whether it usually contains water or not;
- (b) a pond, lake, river, creek or brook;
- (c) a ditch, spring or wetland that is connected by surface flow to something referred to in paragraph (a) or (b);

To determine whether the WDP setback of 30 meters from the HWM of Kootenay Lake aligns with the criteria in the Riparian Area Regulation (RAR), a detailed assessment of the site was conducted to calculate the SPEA for Kootenay Lake on the property. As per the RAR, the Large Woody Debris (LWD), and Litter Zones of Sensitivity (ZOS) were plotted 15 m inland from the HWM. The shade ZOS was determined by plotting a traced facsimile of the HWM 30 m due south of its mapped position. Due to the generally south by southwest orientation of the foreshore the resulting shade ZOS line falls below the HWM and is not ecologically applicable to this property. However, for the purposes of mapping, the shade ZOS is plotted along the surveyed natural boundary (Appendix 3). The SPEA is determined based on the ZOS with the greatest width. The SPEA throughout the site was determined to be 15 m from the HWM based on the 15 m LWD and litter ZOS. Results for the ZOS and SPEA are presented in Table 1, and on the site plan and SPEA setback map (Appendix 3).

Table 1. Results of detailed RAR assessment.

Feature Type	SPVT ¹	Zones of Sensitivity			SPEA ³
		LWD	Litter fall	Shade	
Lake	TR	15 m	15 m	0 m	15 m

¹SPVT: site potential vegetation type (TR-tree)

3.2 Kootenay Lake Shoreline Management Guidelines

The Kootenay Lake Foreshore Inventory Mapping (FIM) and the Kootenay Lake Shoreline Management Guidelines documents (EEC 2016, Ktunaxa Nation Council et al. 2017) were used to help determine site specific risk for riparian and fish habitat, Ktunaxa Nation cultural values and archaeological resources along the shoreline. Table 2 provides the environmental and archaeological risk results identified in the FIM segment along the foreshore of the property.

Table 2. Environmental and archaeological risk results.

Aquatic Habitat Index Rating (AHI)	Aquatic Sensitivity	Archaeological Risk	Enhanced Engagement Required
High	Yes	Red	Yes

The subject property is located within an Enhanced Engagement area and may require further consultation with the Ktunaxa Nation. The engagement requirements will be determined through a consultation process with the Ministry of Forests, Lands and Natural Resource Operations and Rural Development (FLNRORD) and the Ktunaxa Nation.

Additional spatial attributes captured in the FIM include:

- Emergent vegetation is mapped along the foreshore below the subject property (see section 4.1).
- High value fish habitat for juvenile rearing along the foreshore below the subject property (see section 4.1).
- Presence of a Great Blue Heron (*Ardea herodias herodias*) rookery within the immediate area (see section 4.3.2).

(FIM; Cormano and Schleppe 2013)

4 RESOURCES

4.1 Fish and Fish Habitat

Typically, Kootenay Lake experiences two seasonal water level increases annually. The first increase is observed in April during low elevation snowmelt followed by a more substantial secondary rise in water levels due to high elevation snowmelt in June. Lake levels can vary by up to 4 m throughout the year affecting the extent of exposed shoreline.

Kootenay Lake supports a variety of fish species (Table 2), including several species of regional interest, such as Gerrard rainbow trout (*Oncorhynchus mykiss*), bull trout (*Salvelinus confluentus*), kokanee (*O. nerka*), white sturgeon (*Acipenser transmontanus*), Westslope cutthroat trout (*O. clarki lewisi*), and burbot (*Lota lota*).

The foreshore below the HWM consists of a rocky beach with a slope of ~7% (Photo 7 and Photo 8). The primary substrate on the beach is gravel with patches of angular cobbles and a few scattered boulders. Past beach cleaning activity is indicated by a pile of boulders on the foreshore beyond the southwest corner of the subject property (Photo 9). The highest areas of the foreshore are scattered with a mix of large woody debris ranging from twigs and branches to full trees >60 cm in diameter (Photo 10). The shoreline below the HWM includes ~5% cover by emergent grasses and forbs including Columbia river mugwort (*Artemisia lindleyana*) and brown eyed Susan (*Gaillardia aristata*). Emergent vegetation provides important food for juvenile salmonids (e.g. kokanee and trout species; EEC 2016 and further references therein). The FIM mapping rates the shoreline in front of this property as high value juvenile fish rearing habitat (EEC 2016).

Though the FIM segment in front of the subject property is not identified as a potential or confirmed Kokanee spawning area (EEC 2016), the gravel beach in front of the property may be suitable for Kokanee spawning. Kokanee are a keystone species in Kootenay Lake, and any spawning areas are crucial habitat features for this species. Any shoreline spawning should be reported to the ["Report a Spawner" Program](#) at 250-354-6333. Likewise, though the area in front of the subject property is not identified as an important migratory area for juvenile fish in the FIM (EEC 2016), there may be a period in the early spring when juvenile Kokanee outmigrating from Duncan River become abundant in shallow waters along the foreshore in front of the property.

Table 3. Fish species present in Kootenay Lake.

Common Name	Scientific Name	Comments
Burbot	<i>Lota lota</i>	Kootenay Lake population is red listed
Bull Trout	<i>Salvelinus confluentus</i>	Blue-listed species
Brook Trout	<i>Salvelinus fontinalis</i>	Introduced species
Kokanee	<i>Oncorhynchus nerka</i>	
Largemouth Bass	<i>Micropterus salmoides</i>	Introduced species
Largescale Sucker	<i>Catostomus macrocheilus</i>	
Longnose Dace	<i>Rhinichthys cataractae</i>	
Longnose Sucker	<i>Catostomus catostomus</i>	
Lake Whitefish	<i>Coregonus clupeaformis</i>	
Mountain Whitefish	<i>Prosopium williamsoni</i>	
Northern Pikeminnow	<i>Ptychocheilus oregonensis</i>	
Peamouth Chub	<i>Mylocheilus caurinus</i>	
Pumpkinseed	<i>Lepomis gibbosus</i>	Introduced species
Prickly Sculpin	<i>Cottus asper</i>	
Pygmy Whitefish	<i>Prosopium coulteri</i>	
Rainbow Trout	<i>Oncorhynchus mykiss</i>	
Redside Shiner	<i>Richardsonius balteatus</i>	
Slimy Sculpin	<i>Cottus cognatus</i>	
Torrent Sculpin	<i>Cottus rhotheus</i>	
Westslope Cutthroat Trout	<i>Oncorhynchus clarki lewisi</i>	Blue-listed species
White Sturgeon	<i>Acipenser transmontanus</i>	Kootenay Lake population is red-listed
Yellow Perch	<i>Perca flavescens</i>	Introduced species

(Habitat Wizard 2018)

4.2 Riparian Vegetation

The riparian area on the property has a western aspect with slopes ranging from 7-14%. The vegetation community below the HWM is a sparse mix of grasses and forbs with ~5% cover. The richest area of plant species diversity occurred along the HWM interface between beach and the young forest above. Within this area several species of shrubs and forbs were observed growing with a relatively even species distribution (i.e. no single species dominated; Table 4). Two exotic weeds: knapweed (*Centaurea* sp.), and Queen Anne's lace (*Daucus carota*) were observed in low abundances throughout this zone. The young forest above the beach is comprised of Douglas fir with an average DBH estimated at ~5 cm and height between 20-25 m. The young forest area is missing a tall shrub layer, and the understory is dominated by Oregon grape (*Mahonia aquifolium*) on soil generally covered by pipecleaner moss (*Rhytidiopsis robusta*). Late autumn conditions precluded a complete assessment of all herbaceous species.



Photo 7. Beach substrate.



Photo 8. Upper beach, young forest, and mature Douglas fir above.



Photo 9. Pile of boulders southwest of property boundary.



Photo 10. Large woody debris accumulation at top of beach.

Table 4. Plant species list.

Common Name	Scientific Name	Common Name	Scientific Name
Trees		Herbaceous cont'd	
Douglas-fir	<i>Pseudotsuga menziesii</i>	knapweed species	<i>Centaurea sp.</i>
black cottonwood	<i>Populus trichocarpa</i>	brown-eyed Susan	<i>Gaillardia aristata</i>
paper birch	<i>Betula papyrifera</i>	Columbia River mugwort	<i>Artemisia lindleyana</i>
Shrubs		pearly everlasting	<i>Anaphalis margaritacea</i>
tall Oregon-grape	<i>Larix occidentalis</i>	red clover	<i>Trifolium pratense</i>
Douglas maple	<i>Mahonia aquifolium</i>	common burdock	<i>Arctium minus</i>
red raspberry	<i>Acer glabrum</i>	white sweet-clover	<i>Melilotus alba</i>
Herbaceous		tufted vetch	<i>Vicia cracca</i>
scouring-rush	<i>Equisetum hyemale</i>	yarrow	<i>Achillea millefolium</i>
grass species	<i>Poaceae sp.</i>	Mosses	
wild carrot	<i>Daucus carota</i>	pipecleaner moss	<i>Rhytidiopsis robusta</i>

4.3 Wildlife

4.3.1 Reptiles and Amphibians

This west facing property was generally lacking any significant rocky features, or any other indication of reptile habitat. While the forested areas of the property provide limited foraging habitat for amphibians, there was no amphibian breeding habitat observed within the subject property.

4.3.2 Birds

Common Ravens (*Corvus corax*) were the only bird observed during the site survey, however, the subject property is likely visited by dozens of other species of birds throughout the year, and may be used by multiple songbird species during the spring breeding bird season from April to July.

Most of the site is dominated by young regenerating forest. Though young forest is very common and of relatively limited habitat value, it may be used by songbirds each year during the breeding season.

A Great Blue Heron rookery (i.e. breeding colony) has been recorded within the same FIM mapping segment as the subject property. Great Blue Herons are on the provincial blue list, meaning that this species is of special concern due to potential threats from human activity. Herons use shallow water areas to hunt for fish, amphibians, and other small prey. Herons may use large Douglas firs on the property for perching, and the shallow low gradient beach for hunting.

No raptor nests were observed on the subject property, though the mature Douglas-firs along the steep slope at the middle of the property provide perching, and potential nesting habitat.

Several burdock (*Arctium minus*) were observed growing in the old orchard area. Burdock is an exotic invasive species. The hooked fruit on burdock can fatally entangle songbirds and bats. Burdock plants should be hand-pulled, bagged and disposed of shortly after flowering to mitigate impacts to wildlife, and to prevent further establishment on site.

4.3.3 Mammals

Ungulate sign including tracks and scat were observed throughout the subject property. The old orchard and pasture area on the upper part of the property provide the sort of open pastoral habitat that often attracts ungulate species such as mule and whitetail deer (*Odocoileus spp.*) to suburban and rural areas.

The remnant fruit trees in the orchard are also likely to attract bears. This unnatural food source may draw bears away from typical foraging areas and into contact with human communities. Persecution by humans is a significant cause of mortality for both grizzly bears (*Ursus arctos horribilis*) and black bears (*Ursus americanus*). Limiting human attractants is a key component of strategies to protect these iconic animals. For more information see [Wildsafe BC](#).

The foreshore surrounding and within the subject property is of a relatively low gradient compared to much of the shoreline immediately to the north where steep slopes and cliffs run along Kootenay Lake. As such, the local area around the subject property may be utilized by large mammals accessing the Kootenay Lake foreshore from upland areas to the north.

4.4 Species at Risk

A 10 km buffer around the subject property was used to query BC Conservation Data Center records using the [CDC iMap](#) tool. Three species at risk data sets were queried for data points occurring within a 10 km buffer of the subject property:

1. Species and Ecosystems at Risk – Publicly Available Occurrences: This data set contains the geographic locations of known species at risk occurrences which are available to the public.
2. Species and Ecosystems at Risk – Masked Secured: This data set contains obscured geographic locations occurrences of human sensitive species at risk.
3. Species and Ecosystems at Risk – Extirpated and Historical Occurrences: This data set contains the locations of occurrences of species at risk which have become extirpated, or have not been confirmed in recent times.

Based on this query, only one at risk species occurrence is known within the 10 km buffer around the project area. The Species and Ecosystems at Risk – Publicly Available Occurrences data set contained an occurrence record for white sturgeon (*Acipenser transmontanus*) within Kootenay Lake. White sturgeon is a wide ranging fish species which occurs throughout Kootenay Lake and belongs to the Kootenay River population which is listed as Endangered under SARA. An area of white sturgeon critical habitat is defined north of the project area at the Duncan delta (Environment Canada 2014a). Residential development is not considered a threat to the recovery of the Kootenay River population of white sturgeon (Environment Canada 2014a); however, stewardship of riparian areas, including the retention of native vegetation within the SPEA, contributes to the protection of white sturgeon.

SARA critical habitat for the Southern Mountain population of mountain caribou (*Rangifer tarandus*) is mapped ~3 km east of the subject property at the headwaters of Salisbury Creek, and ~10 km north in the Meadow Creek area. Mountain caribou occupy large ranges of habitat from the montane to the alpine. They require old growth forest for foraging, and large corridors of undisturbed forest to avoid predators and move between seasonal foraging sites. Both areas of critical habitat belong to the Duncan subpopulation the central group of southern mountain caribou (Environment Canada 2014b). The impact of residential and commercial development is considered "low" for the central group of southern mountain caribou (Environment Canada 2014b). Given the low gradient along the subject property, it is possible that mountain caribou may use this area for seasonal access to the Kootenay Lake foreshore.

The lack of documented species at risk identified in the data queries does not preclude the presence of a species at risk from an area. Given the time of year, and the scope of this assessment it is impossible to rule out the presence of terrestrial or aquatic rare or at risk species on this site.

4.5 Archaeological Resources

Kootenay Lake is part of the traditional territory claim of the Sinixt, Okanagan and Ktunaxa First Nations and is known to have documented archaeological sites along the foreshore. A full review of

archaeological resources on this property is outside the scope of this report. However two pieces of archaeological information are readily available:

- During the site survey Stan Weir, the owner of the lot to the north of the subject property, indicated that he has found artefacts on the foreshore near the subject property.
- Within the [Kootenay Lake FIM](#) the shoreline in front of the property falls within the archeological "Red" classification. Based on the archeological risk matrix within the Shoreline Management Guidelines, several activities proposed for the subject property are rated as "high" or "very high" risk (Table 5; Ktunaxa Nation Council et al. 2017).

Table 5. Proposed development activities with archeological risk ratings.

Activity	Risk Rating
Installation of water line from Kootenay Lake to home	very high
Development permit application	high
Septic application	very high
Native vegetation removal/modification	high

Archaeological Chance Find Procedures (Appendix 4) are provided for guidance to the owner and contractor in the event of a chance archaeological find during development to ensure that archaeological sites are documented and protected as required.

5 ENVIRONMENTAL CONSIDERATIONS

5.1 Development Activities and Impacts within the SPEA/WDP

Proposed development activities within the SPEA are summarized in Section 2.3. No clearing of vegetation or construction is proposed within the SPEA. Proposed development within the WDP includes construction of an access road, home, and boathouse. While the construction of the home and boathouse will only involve the removal of young trees and shrubs, the construction of the road will involve the removal of at least two mature Douglas firs. Though these two trees occur outside of the WDP boundary, they provide cover within the riparian area. Installation of a water line to the house will involve excavation of a small ditch from Kootenay Lake to the proposed home.

5.2 Riparian and Wildlife Impacts

Removal of young trees and shrubs within the WDP area is a minor loss of terrestrial habitat which is to be expected within the scope of a typical rural residential development of this scale. Direct impacts to nesting birds can be mitigated by ensuring that this removal of vegetation occurs within the least risk work period for nesting birds (August 1- March 31).

The removal of mature Douglas fir outside of the WDP boundary reduces cover and perching opportunities within the riparian area and may decrease the local suitability of Great Blue Heron habitat (M. Machmer – Personal Communication). Though outside of the scope of the regulatory framework applied in this report, mature Douglas fir on the steep bank just above the WDP boundary provide considerable wildlife habitat value and should be preserved if possible.

5.3 Aquatic Impacts

The installation of water intake lines in Kootenay Lake has the potential to affect staging and spawning fish along the foreshore. Disruption of gravels on shore could lead to a decrease in the suitability for spawning kokanee. Excavation of the lines could cause sediment release into the lake.

6 MEASURES TO PROTECT THE INTEGRITY OF SPEA

An assessment was conducted to evaluate potential threats to the integrity of the SPEA, including windthrow, slope stability, hazard trees, and flooding. Environmental best practices recommended to protect the integrity of the SPEA include: appropriate scheduling of environmentally sensitive activities, protection of vegetation within the SPEA, sediment and erosion control, stormwater management, construction waste management, spill prevention, and invasive plant management.

No part of the proposed building footprint extends within the 15 m SPEA, and no further land clearing or disturbance within the SPEA will be required during construction. Proposed development activities on the building site should not pose a threat to the ecological integrity of the SPEA, provided environmental best management practices outlined in this section are followed during construction.

6.1 Environmental Hazard Assessment

6.1.1 Hazard Trees

A single dead cottonwood snag was observed within the WDP area. This tree was >30cm DBH and ~25 m tall. The trunk of the tree has irregular bends, and the tree is sloping westward towards the proposed building site. This tree does not occur within the 15 m SPEA, though if it fell it could strike trees within the SPEA. Mr. Gill has indicated that this tree will need to be removed to ensure human safety during construction of the home.

Mature Douglas firs occur along the steep bank east of the proposed building site within the subject property and on properties to the north and south. No hazard indicators were observed in these trees; however, a hazard tree assessment was not conducted by a Registered Professional Forester (RPF) at this time.

6.1.2 Windthrow

There is little windthrow risk to the SPEA because no significant clearing of timber is proposed. It is unlikely that the proposed construction activities on site will increase the windthrow risk to trees in or near the SPEA. A full assessment of windthrow risk by a Registered Professional Forester (RPF) was not completed as part of this survey, and there is no apparent evidence that such an assessment is required. However, it is possible that removal of mature Douglas fir during construction of the proposed road could affect the overall integrity of nearby firs. This possibility is discussed further in the next section.

6.1.3 Slope Stability

Indicators of slope instability including curved trees (Photo 3), and low amounts of vegetative soil cover were observed on the steep slope above the proposed building site. The proposed construction of a road on this slope could impact the integrity of the SPEA by causing erosion or slope failure. A geotechnical assessment by a P.Geo. or a P.Eng. is recommended prior to construction of the proposed road.

6.1.4 Floodplain Concerns

No development is proposed within the 15 m floodplain setback from the surveyed natural boundary as defined in the RDCK *Floodplain Management Bylaw No. 2080, 2009*, and the elevation of the floor of both buildings must be above the floodplain construction level of 536.5 GSC as defined in the bylaw.

6.2 Environmental Best Management Practices

6.2.1 Scheduling of Environmentally Sensitive Activities

Under the provincial *Wildlife Act* it is unlawful to disturb nesting birds, their nests, and eggs. In order to avoid potential impacts to breeding songbirds, any clearing of vegetation within the subject property should occur within the least risk work period for nesting birds (August 1- March 31).

To minimize potential impacts to fish in Kootenay Lake during the installation of the water line, instream works shall be conducted during the lowest water period in late winter/early spring.

6.2.2 Protection of Trees and Vegetation in the SPEA

The following measures should be implemented to protect vegetation within the SPEA:

- Clearing of vegetation should be kept to the minimum possible area required for access, staging, construction works, and safety considerations.
- The SPEA boundary should be flagged prior to work, and no vegetation should be removed or modified within the SPEA with the exception of minor clearing during installation of the water line.
- Regenerating riparian vegetation must be preserved to ensure the redevelopment of a functioning riparian ecosystem within the SPEA.

6.2.3 Encroachment

Though the owners wish to access the beach, there are no plans for any further clearing of vegetation within the SPEA. Any other activities that may cause impacts to the riparian vegetation should be avoided. Likewise, in order to maintain existing fish habitat values, further beach cleaning and removal of emergent vegetation should not occur below the HWM.

6.2.4 Fire Protection

Rural residential development of forested areas increases landowner exposure to the potentially catastrophic effects of wildfire. Proper protection of rural properties involves landscape design that minimizes fuel sources within the immediate vicinity of homes (for more information see the [FireSmart Homeowner's Manual](#) MFLNRO N.D.).

A prescription for fire protection around the proposed home would almost certainly include the removal of Douglas firs from within the WDP and the SPEA. The Electoral Area 'D' Comprehensive Land Use Bylaw No. 2435, 2016 requires a development permit for the "removal, alteration, disruption or destruction of vegetation" within the WDP. As such, any future fire proofing of the property involving the removal of vegetation within the WDP would require a new development permit application.

6.2.5 Protection of Fish

Proposed instream works include the installation of a new water intake system in Kootenay Lake. To minimize impacts to fish, minimize water pipe diameter, ensure that fish screens are placed at the intake and conduct instream works during the lower water period in late winter/early spring. Emergent plants along the foreshore can be protected to benefit fish by installing the water line along a path that minimizes the amount of vegetation removal and disturbance.

6.2.6 Erosion and Sediment Control

Excavation during construction of the buildings and the new road, involve the risk of erosion and sediment releases into Kootenay Lake. The following mitigation measures should be implemented to reduce the risk of sediment input to Kootenay Lake:

- Amount of soil disturbance should be kept to a minimum.
- Stockpiles of soil should be located at least 30 m from Kootenay Lake and covered with tarps to prevent erosion and establishment of invasive weeds if they are left for greater than two months.
- Disturbed soils should be revegetated as soon as possible after construction.
- Soil disturbance on the steep slope above the building site should be minimized. Areas on this slope which are disturbed during construction of the road should be replanted as soon as possible. The native tree and shrubs species listed in Table 6 should establish well on this site, and prevent long term erosion issues on this slope.
- Pending the final design for the road, an erosion and sediment control plan for road construction written by a QEP may be required.

Table 6. Suggested species for revegetation of disturbed soils around proposed road.

Species	Suggested spacing (m)
paper birch – <i>Betula papyrifera</i>	1
Douglas fir – <i>Pseudotsuga menziesii</i>	1.5
Oregon grape – <i>Mahonia aquifolium</i>	0.5
Douglas maple – <i>Acer glabrum</i>	1

6.2.7 Stormwater Management

During construction, stormwater runoff, if present, should be controlled and redirected away from exposed soils. In the event of heavy rainfall, additional mitigation measures may be required. New development should incorporate sustainable stormwater management systems. For example: rain barrels, rainwater gardens and permeable surfaces. Stormwater is not to be directly discharged into the lake.

6.2.8 Construction Waste Management

All construction waste generated on site must be taken off site and re-used, recycled or disposed of accordingly. Construction personnel should be instructed to ensure the site is kept clean and to prevent litter from escaping the site. Concrete will likely be used in the construction of the house foundation. Fresh concrete and concrete laden water is caustic and toxic to aquatic organisms. The following precautions should be taken when handling concrete to ensure the protection of Kootenay Lake:

- Concrete waste should be collected and disposed of at an approved disposal site.
- Washing of equipment used during concrete work should occur at a designated location at least 30 m away from Kootenay Lake where wash water will not drain directly into the lake.

6.2.9 Management of Equipment and Fuel/Lubricant Materials

The most likely source of any contaminant is from equipment or vehicles used or stored on-site, either during fueling or from unanticipated leaks or the failure of a hydraulic hose. In order to minimize the likelihood and impact of a spill within the riparian area, ensure that:

- Heavy equipment will be clean and in good working condition free of leaks or excess lubricants prior to instream operation.
- Each piece of heavy equipment will be equipped with its own spill response kit.
- All staff will be familiar with the use of spill kits and their contents. The contents of the kits will be replaced immediately after use.

6.2.10 Invasive Plant Management

Construction activities can potentially increase dispersal of invasive plant species which can out-compete native riparian vegetation, causing damage to habitat and ecosystem function. Invasive species observed onsite include knapweed, Queen Anne's lace, and burdock. The following mitigation measures are recommended in order to reduce the establishment and proliferation of invasive plant species on site:

- All equipment should be thoroughly washed and inspected before entering the project site to prevent the import of new invasive plant seeds and root fragments.

- Amount of vegetation clearing and soil disturbance should be minimized.
- All exposed soils should be re-seeded as soon as possible following completion of the project.
- Removal of invasive plants currently on site is recommended if feasible.

7 ENVIRONMENTAL MONITORING

Environmental monitoring of development activities by a Qualified Environmental Professional may be required at the discretion of the RDCK. This could include marking the boundary of the SPEA in the field and ensuring that mitigation measures to protect the SPEA are implemented.

8 CONCLUSION

The proposed footprint for a new home and boathouse at Lot 1 Johnson's Landing Road is within the 30 m WDP area. A detailed assessment of the site was conducted, and a SPEA setback of 15 m was determined. The proposed footprint of the new home and boathouse does not encroach within the 15 m SPEA, and the impacts of the proposed construction are not expected to affect the function and structure of the SPEA provided the measures to protect the SPEA outlined in this report are followed. Geotechnical assessment of slope stability is recommended prior to construction of the road.

9 CLOSURE

I, Sylvie Masse, certify that I am qualified to carry out this assessment; and that the assessment methods under the Regulation have been followed; and that, in my professional opinion:

- if the development is implemented as proposed, or
- if the streamside protection and enhancement areas identified in the report are protected from the development, and
- if the developer implements the measures identified in the report to protect the integrity of those areas from the effects of the development,

then there will be no harmful alteration, disruption or destruction of natural features, functions and conditions that support fish life processes in the riparian assessment area.

Prepared by:



Iraleigh Anderson, A.Ag.

Reviewed by:



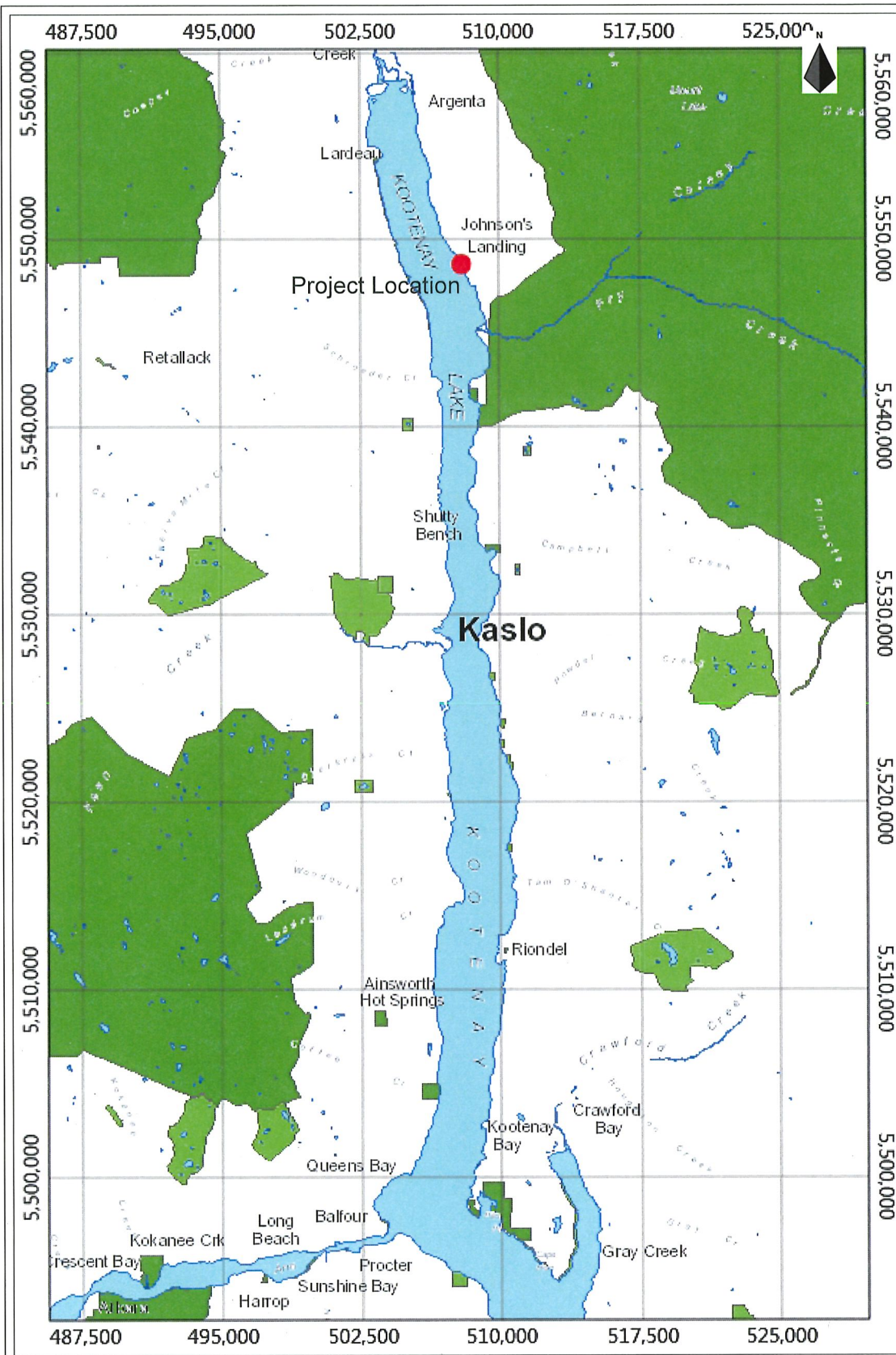
Sylvie Masse, M.Sc., R.P.Bio.

College of Applied Biology: R.P.Bio. #834

10 REFERENCES

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- [MFLNRO] Ministry of Forests Lands and Natural Resource Operations. N.D. Firesmart Homeowner's Manual.
- [RDCK] Regional District of Central Kootenays. 2016. Electoral Area 'D' Comprehensive Land Use Bylaw No. 2435, 2016.

APPENDIX 1
LOCATION MAP



Project Location

Legend

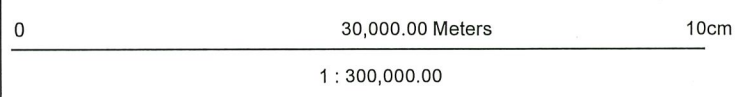
- Lakes (Mid Scale)
- ParksAndTenures**
- Park
- Recreation Site or Rese
- Wildlife Management Ar

Notes

Lot 1 Johnson's Landing Road
(PID: 028-221-189)

Date Plotted: 11/22/2018

202 Lakeside Drive
Nelson, BC
1-800-268-7325
<http://www.rdck.ca>



This product is for informational purposes and may not have been prepared for, or be suitable for legal, engineering, or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of the information.

APPENDIX 2

SUBDIVISION PLAN OF LOT A, DISTRICT LOTS 6810 AND 9039, KOOTENAY DISTRICT, PLAN NEP82740

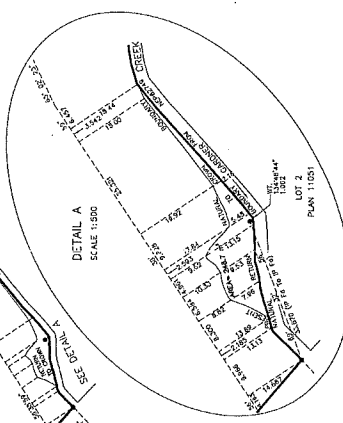
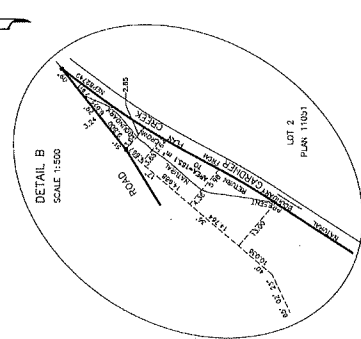
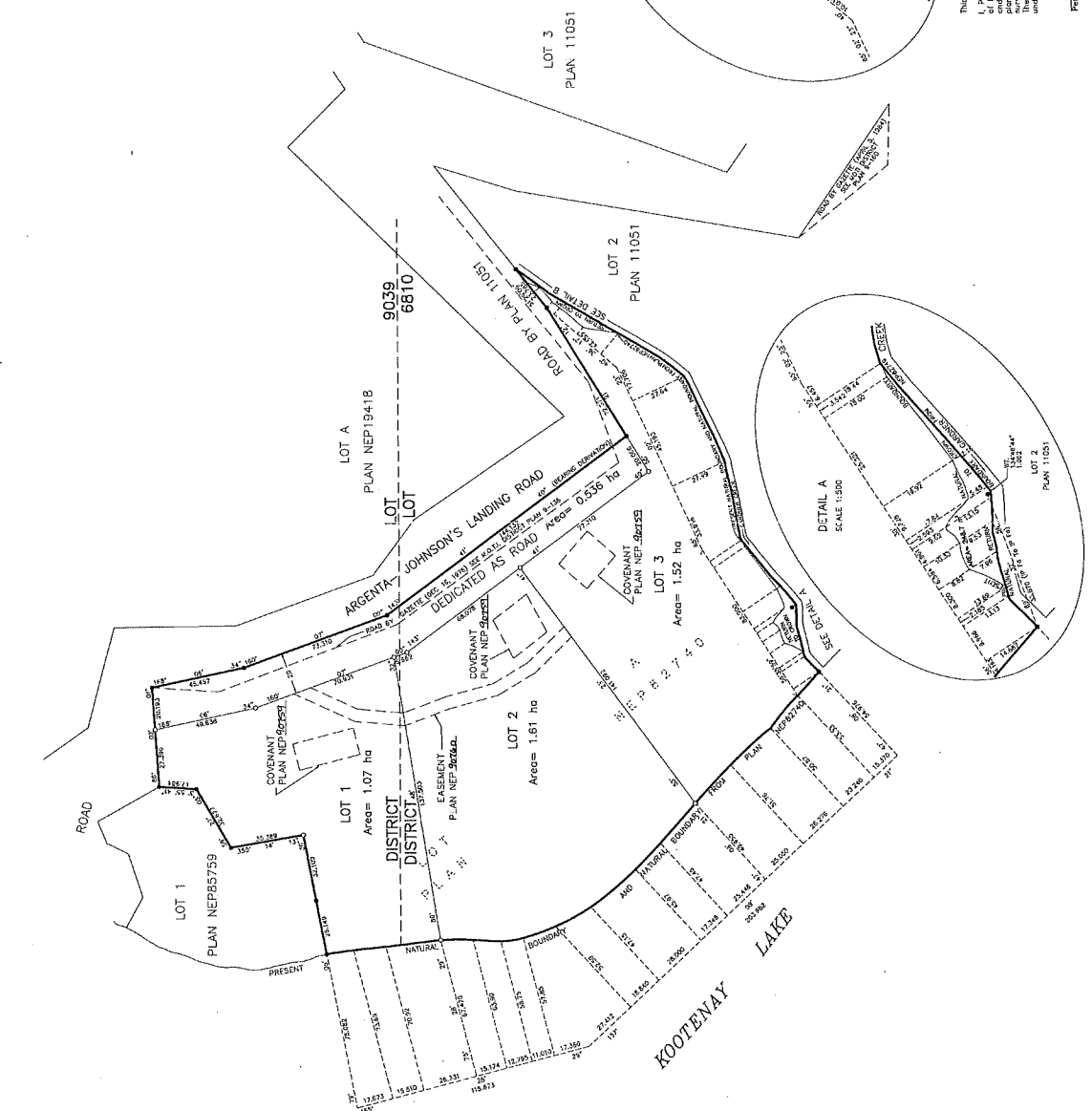
SUBDIVISION PLAN OF LOT A, DISTRICT LOTS 6810 AND 9039, KOOTENAY DISTRICT, PLAN NEP82740.

BCGS 82K.016

PLAN NEP 90758
 Registered in the Land Title Office at Kamloops, B.C.
 this 11th day of MAY 2010
Abrahe Dirckx
 REG. SURVEYOR
 L.S. 2384044

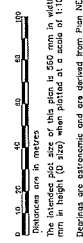
Approved under the Land Title Act
 this 3 day of MAY 2010
 Approving Officer for the Ministry of
 Transportation and Infrastructure
 A011 P.L. No. 02-010-0000

This plan need not comply with Section
 75(0.6) of the Land Title Act.
 Dated this 3 day of MAY 2010
 Approving Officer for the Ministry of
 Transportation and Infrastructure



This plan lies within the Regional District of Central Kootenay, B.C. and is subject to the provisions of the Regional District of Central Kootenay Act and the provisions of the Land Title Act. The plan was completed on the 29th day of October, 2009 under the supervision of the undersigned and the applicant had the plan reviewed by the undersigned on the 29th day of October, 2009.

P. EXP. BULLS.
 ORIGINAL



LEGEND
 • DENOTES STANDARD IRON POST FOUND
 WT DENOTES WITNESS

ATTACHED AS TO DERIVATION OF ROAD
 AND AS TO DERIVATION OF EASEMENT TO
 SECTION 16(0.3) OF THE LAND TITLE ACT
 BEING THE COVENANT, PLAN NEP 82740, AND
 COVENANT, PLAN NEP 82740, AND AS TO
 DERIVATION OF EASEMENT TO SECTION 16(0.3)
 OF THE LAND TITLE ACT.

BY MY AUTHORIZED SIGNATURE:
 Registered Owner
 JOHN KOOTENAY
 Witness to Signature
 JAMES SARGENT
 Printed Name in Full
 Address
 M. Kootenay, B.C.
 M.T. B.C.
 Occupation

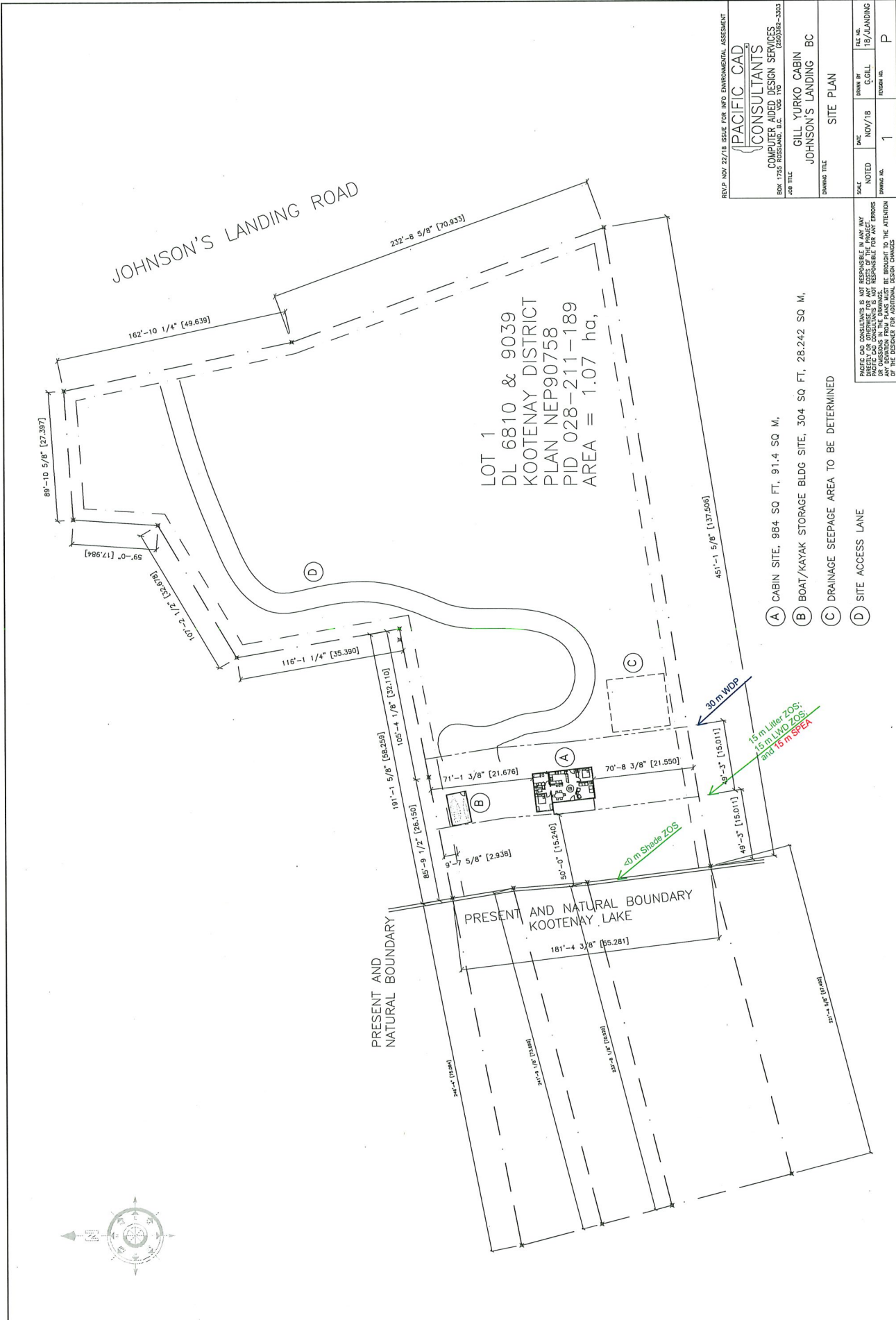
REGISTERED OWNER
 JOHN KOOTENAY
 Witness to Signature
 JAMES SARGENT
 Printed Name in Full
 Address
 M. Kootenay, B.C.
 M.T. B.C.
 Occupation

REGISTERED CHARTERED SURVEYOR
 PETER BULLS
 Occupation

WARD ENGINEERING AND LAND SURVEYING LTD.
 1014 Kootenay Street
 Kamloops, B.C. V2C 1G5
 Tel: (250) 353-1155 Fax: (250) 353-1156
 Web: www.ward-engineering.com

APPENDIX 3

SITE PLAN AND STREAMSIDE ENHANCEMENT AND PROTECTION AREA SETBACK MAP



REL/ NOV 22/18. ISSUE FOR INFO ENVIRONMENTAL ASSESSMENT

PACIFIC CAD		FILE NO.
CONSULTANTS		18/LANDING
COMPUTER AIDED DESIGN SERVICES		
BOX 1795 ROSSELAND, B.C. V0G 1V0		
JOB TITLE		
GILL YURKO CABIN		
JOHNSON'S LANDING BC		
DRAWING TITLE		
SITE PLAN		
SCALE	DATE	DRAWN BY
NOTED	NOV/18	C.GILL
DRAWING NO.	1	FORUM NO.
		P

PACIFIC CAD CONSULTANTS IS NOT RESPONSIBLE IN ANY WAY FOR ERRORS OR OMISSIONS IN THE DRAWINGS OR FOR ANY DAMAGE TO PROPERTY OR PERSONS IN THE DRAWING. ANY CHANGES TO THE DRAWINGS OR OMISSIONS IN THE DRAWINGS MUST BE BROUGHT TO THE ATTENTION OF THE DESIGNER FOR ADDITIONAL DESIGN CHANGES.

APPENDIX 4
ARCHAEOLOGICAL CHANCE FIND PROCEDURES



ARCHAEOLOGICAL CHANCE FIND PROCEDURE

Summary

The purpose of this document is to address the possibility of archaeological deposits becoming exposed during ground altering activities within the project area and to provide protocols to follow in the case of a chance archaeological find to ensure that archaeological sites are documented and protected as required.

Archaeological sites are protected by The *Heritage Conservation Act* (HCA), whether on Provincial Crown or private land. They are non-renewable, very susceptible to disturbance and are finite in number. Archaeological sites are an important resource that is protected for their historical, cultural, scientific and educational value to the general public, local communities and First Nations. Impacts to archaeological sites must be avoided or managed by development proponents. The objectives of this 'Archaeological Chance Find Procedure' are to promote preservation of archaeological data while minimizing disruption of construction scheduling. It is recommended that due to the moderate to high archaeological potential of some areas within the project area, all on site personnel and contractors be informed of the Archaeological Chance Find Procedure and have access to a copy while on site.

Potential Impacts to Archaeological Sites

Developments that involve excavation, movement, or disturbance of soils have the potential to impact archaeological materials, if present. Activities such as road construction, land clearing, and excavation are all examples of activities that may adversely affect archaeological deposits.

Relevant Legislation

The *Heritage Conservation Act* (HCA) automatically protects all archaeological sites, whether on Provincial Crown or private land, that predate AD 1846. Burial sites and rock art sites are protected regardless of age.

A permit is required for any subsurface investigation of an archaeological site or investigation with the intent to locate a site. The provincial government agency responsible for administering the HCA, issuing permits, and maintaining a database of recorded archaeological sites is the Archaeology Branch (Ministry of Tourism, Sport and the Arts). Disturbance and/or removal of artifacts from an archaeological site may result in penalties.

Remedies and Penalties

The *Heritage Conservation Act* provides for heritage inspection or investigation orders, temporary protection orders, civil remedies and penalties to limit contraventions. These powers provide:

- the Province with the ability to inspect a site or halt work to prevent site alteration, and the Courts with the ability to issue an injunction to restrain contravention of the Act, or where there has been a breach of the Act, impose penalties of not more than:
- a fine of \$50,000 and 2 years imprisonment for an individual
- a fine of not more than \$1,000,000 for a corporation
- a fine of \$50,000 or 2 years imprisonment for an employee, officer, director or agent of the corporation.

Archaeological Chance Find Procedure

If you believe that you may have encountered any archaeological materials, stop work in the area and follow the procedure below:

- All construction activity in the vicinity of the remains is to cease immediately.
- The find location will be recorded, and all remains will be left in place.
- The project archaeologist and Archaeology Branch will be contacted.
- Potential significance of the remains will be assessed and mitigative options will be identified.
- If the significance of the remains is judged to be sufficient to warrant further action and they cannot be avoided, then the project archaeologist in consultation with the Archaeology Branch and representatives of local First Nation communities will determine the appropriate course of action.
- In the case of human remains, if the remains are assessed to be archaeological, then the Archaeology Branch and local First Nations will be consulted to determine how to handle them. Options could include avoidance or respectful removal and reburial. The RCMP and/or coroner will also be notified of find.
- If human remains are encountered and they are not archaeological, then the RCMP will be contacted immediately.

Archaeology Branch Contacts

Ray Kenny, Manager Phone: 250-952-4306

Al Mackie, Heritage Resource Specialist Phone: 250-952-4063

Preparation of an Archaeological Chance Find Procedure (CFP) Mining & Minerals Division – South Central Region

Background:

The *Heritage Conservation Act* (HCA) protects designated archaeological sites as well as any archaeological sites originating prior to 1846. The HCA carries significant penalties and is enforced by the RCMP. From the perspective of consultation with First Nations, archaeological sites are important indicators of Aboriginal rights and title and the identification and protection of these sites are part of the Crown's due diligence.

Section 10(1) of the *Mines Act* requires mining proponents to prepare a plan for the protection of cultural heritage resources.

Preparation and Implementation of an Archaeological Chance Find Procedure:

An Archaeological Chance Find Procedure (CFP) is a tool for the protection of unidentified cultural heritage resources. The primary purpose of a CFP is to raise awareness of all personnel working on site regarding the potential for discovery of cultural heritage resources and establish a protocol for the protection of these resources.

Proper implementation of a CFP on mineral properties has led to discovery of cultural heritage resources that were not identified in archaeological overview and/or impact assessments. As such, it is considered to be a valuable tool when properly implemented.

A sample CFP is attached. Mining proponents can modify this document for use on their mineral property or develop their own unique procedure.

For the CFP to be effective, the mine manager must ensure that all personnel on the mine/exploration site understand the CFP and the importance of following it if cultural heritage resources are encountered. Additionally, training on cultural heritage resources that might potentially be found on site should be provided. The following Yukon Government publication is a useful guide that could be utilized as part of cultural heritage training:

Mineral Exploration Best Management Practices for Heritage Resources

http://www.tc.gov.yk.ca/pdf/Mineral_Exploration_BMP_for_Heritage_Resources.pdf

- **A copy of the CFP must be provided to the regional permitting inspector, preferably as part of the Notice of Work and Reclamation application package.**

Archaeological Chance Find Procedure - Sample Document

*{Insert Mineral property Name
and Permittee or on-site Operator name}*

There are more than 32,000 archaeological sites currently recorded in British Columbia with many more being added to the provincial inventory every year. For this reason, it is very likely that you will encounter an archaeological site during your lifetime either knowingly or unknowingly. This protocol has been established to increase awareness of this important resource and to assist in planning future developments.

The remnants of British Columbia's earliest cultures are represented in today's landscape by a wide variety of site types, most of which are related to art, habitations, resource gathering and production, tool making, and traditional ceremonial or ritual activities. Some sites that may be immediately visible to a non-archaeologist include:

- Rock art, including pictographs and petroglyphs.
- Tree art and Culturally Modified Trees (CMT'S) such as bark stripping and planks.
- Surface features such as depressions created by former habitations, earthen fortifications, rock cairns, fish traps, clam gardens, burned rock and middens.
- Artifacts that have become visible on the land surface owing to erosion or recent land altering activity. These may be produced in a variety of materials such as stone, bone, antler, wood, or shell.
- Buried cultural remains that may be sighted in a cut-bank, excavation, eroded shoreline, or other exposed deposit.

If you discover what you suspect may be a possible archaeological site:

- Stop all work in the area to avoid damaging the site.
- **Do not disturb any archaeological remains that you may encounter.**
- Report your discovery to your supervisor or if they are unavailable, the *{Permittee or on-site Operator name }* who will provide further instructions *{contact #}*.
- If you are unable to contact the *{Permittee or on-site Operator name}* representative, please contact the Archaeology Branch by telephone at (250) 953-3334

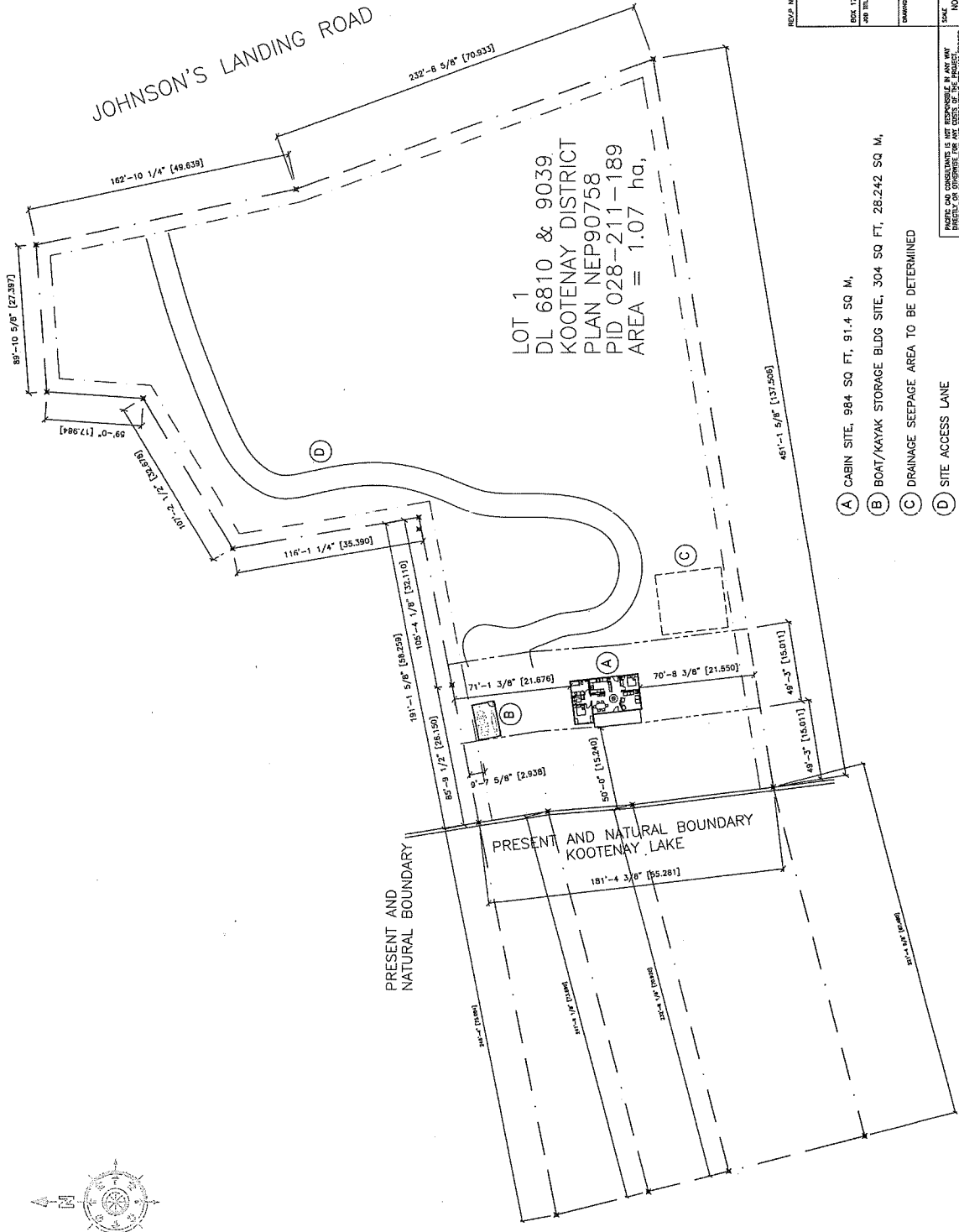
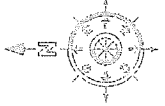
If you discover what you suspect may be a possible human remains:

- Stop all work in the area to avoid damaging the site.
- **Do not disturb any possible human remains that you may encounter.**
- Report your discovery to your supervisor or if they are unavailable, the *{Permittee or on-site Operator name }* who will provide further instructions.
- If you are unable to contact the *{Permittee or on-site Operator name}* representative, and the suspected human remains appear to be current, contact the RCMP at *{local RCMP phone #}*.
- If you are unable to contact the *{Permittee or on-site Operator name}* representative, please contact the Archaeology Branch by telephone at (250) 953-3334

The following steps will generally be followed

- The Coroner's Office and local policing authority are notified and the Coroner's Office determines whether the matter is of contemporary forensic concern.
- If the remains are not of forensic concern, the branch will attempt to facilitate disposition of the remains.
- If a cultural affiliation for the remains can be determined, the branch will contact an organization representing that cultural group. If the remains are of aboriginal ancestry, the branch will attempt to contact the relevant First Nation(s).
- Generally, if remains are still buried and are under no immediate threat of further disturbance, they will not be excavated or removed. If the remains have been partially or completely removed, the branch will facilitate disposition.
- The branch may arrange for a qualified anthropologist or archaeologist to provide an assessment of the remains.

Schedule 3: Site Plan



- (A) CABIN SITE, 984 SQ FT, 91.4 SQ M,
- (B) BOAT/KAYAK STORAGE BLDG SITE, 304 SQ FT, 28.242 SQ M,
- (C) DRAINAGE SEEPAGE AREA TO BE DETERMINED
- (D) SITE ACCESS LANE

REV/4 NOV 22/18 ISSUE FOR INFO ENVIRONMENTAL ASSESSMENT

PACIFIC CAD
CONSULTANTS
COMPUTER AIDED DESIGN SERVICES
804, 1725 BISSLAND, S.C. VAN. 170
400 TEL

GILL, YURKO CABIN
JOHNSON'S LANDING, BC

SITE PLAN

DATE: NOV/18

SCALE: NOTED

PROJECT NO: 1

ISSUE NO: P

NOTICE: CAD CONSULTANTS IS NOT RESPONSIBLE FOR ANY ERRORS OR OMISSIONS IN THIS PLAN. THE USER SHALL BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS THAT MAY BE BROUGHT TO THE ATTENTION OF THE CONSULTANT FOR NECESSARY CORRECTIVE ACTIONS.

