



Development Permit Application

Referral Form – RDCK File DP2316D

Date: January 4, 2024

You are requested to comment on the attached DEVELOPMENT PERMIT for potential effect on your agency's interests. We would appreciate your response WITHIN 30 DAYS (PRIOR TO FEBRUARY 4, 2024). If no response is received within that time, it will be assumed that your agency's interests are unaffected.

LEGAL DESCRIPTION & GENERAL LOCATION:

5324 Amundsen Road, Electoral Area 'D'

LOT 2 DISTRICT LOT 7386 KOOTENAY DISTRICT PLAN 11474 (PID: 012-757-870)

PRESENT USE AND PURPOSE OF PERMIT REQUESTED:

The subject property is currently vacant except for a small camper trailer under a roofed structure. The Qualified Environmental Professional has indicated that the camper trailer is serviced by a septic system and a temporary hose which is seasonally placed and draws water from Kootenay Lake. The camper trailer is outside of the 30 metre Watercourse Development Permit Area (WDPA).

The development that has occurred within the 30 metre WDPA is an unauthorized metal staircase that was constructed to provide access to the shoreline.

AREA OF PROPERTY AFFECTED	ALR STATUS	ZONING	OCP
0.31 hectares (0.77 acres)	N/A	N/A	Country Residential (RC) in Area 'D' CLUB Bylaw No. 2435

APPLICANT: Ivan Gorgiev

OTHER INFORMATION: ADVISORY PLANNING COMMISSION PLEASE NOTE:

If your Advisory Planning Commission plans to hold a meeting to discuss this Development Permit application, please note that the applicants must be provided with an opportunity to attend such meeting, in accordance with Section 461, subsection (8) of the *Local Government Act*, which reads as follows:

"If the commission is considering an amendment to a plan or bylaw, or the issue of a permit, the applicant for the amendment or permit is entitled to attend meetings of the commission and be heard."

Please fill out the Response Summary on the back of this form. If your agency's interests are 'Unaffected' no further information is necessary. In all other cases, we would appreciate receiving additional information to substantiate your position and, if necessary, outline any conditions related to your position. Please note any legislation or official government policy which would affect our consideration of this permit.

ZACHARI GIACOMAZZO, PLANNER
REGIONAL DISTRICT OF CENTRAL KOOTENAY

- ☒ MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
- ☒ HABITAT BRANCH (Environment)
- ☒ FRONTCOUNTER BC (MFLNRORD)
- ☐ AGRICULTURAL LAND COMMISSION
- ☐ REGIONAL AGROLOGIST
- ☐ ENERGY & MINES
- ☐ MUNICIPAL AFFAIRS & HOUSING
- ☒ INTERIOR HEALTH, HBE TEAM

REGIONAL DISTRICT OF CENTRAL KOOTENAY

DIRECTORS FOR:

- ☐ A ☐ B ☐ C ☒ D ☐ E ☐ F ☐ G ☐ H ☐ I ☐ J
☐ K

ALTERNATIVE DIRECTORS FOR:

- ☐ A ☐ B ☐ C ☒ D ☐ E ☐ F ☐ G ☐ H ☐ I ☐ J
☐ K
☒ APHC AREA 'D'
☐ RDCK FIRE SERVICES
☐ RDCK EMERGENCY SERVICES

Nelson Office: Box 590, 202 Lakeside Drive, Nelson, BC. V1L 5R4

Phone: 250.352.6665 | Toll Free: 1.800.268.7325 (BC) | Email: info@rdck.ca | Fax: 250.352.9300

<input type="checkbox"/> KOOTENAY LAKES PARTNERSHIP (FORESHORE DEVELOPMENT PERMITS) <input type="checkbox"/> SCHOOL DISTRICT NO. <input type="checkbox"/> WATER SYSTEM OR IRRIGATION DISTRICT <input checked="" type="checkbox"/> UTILITIES (FORTIS, NELSON HYDRO) FIRST NATIONS <input checked="" type="checkbox"/> KTUNAXA NATION COUNCIL YAQAN NU?KIY (LOWER KOOTENAY) ?AKINK'UM?ASNUQ?I?IT (TOBACCO PLAINS) ?AKISQNUK (COLUMBIA LAKE) ?AQ'AM (ST. MARY'S)	<input checked="" type="checkbox"/> RDCK BUILDING SERVICES <input type="checkbox"/> RDCK UTILITY SERVICES <input type="checkbox"/> RDCK RESOURCE RECOVERY <input type="checkbox"/> RDCK REGIONAL PARKS INSERT COMMENTS ON REVERSE . . .
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The personal information on this form is being collected pursuant to *Regional District of Central Kootenay Planning Procedures and Fees Bylaw No. 2457, 2015* for the purpose of determining whether the application will affect the interests of other agencies or adjacent property owners. The collection, use and disclosure of personal information are subject to the provisions of FIPPA. Any submissions made are considered a public record for the purposes of this application. Only personal contact information will be removed. If you have any questions about the collection of your personal information, contact the Regional District Privacy Officer at 250.352.6665 (toll free 1.800.268.7325), info@rdck.bc.ca, or RDCK Privacy Officer, Box 590, 202 Lakeside Drive, Nelson, BC V1L 5R4.

RESPONSE SUMMARY
FILE: DP2316D APPLICANT: IVAN GORGIEV



Name:

Date:

Agency:

Title:

RETURN TO: ZACHARI GIACOMAZZO, PLANNER
DEVELOPMENT AND COMMUNITY SUSTAINABILITY SERVICES
REGIONAL DISTRICT OF CENTRAL KOOTENAY
BOX 590, 202 LAKESIDE DRIVE
NELSON, BC V1L 5R4
Ph. 250-352-8190
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RDCK Map



REGIONAL DISTRICT OF CENTRAL KOOTENAY
Box 590, 202 Lakeside Drive,
Nelson, BC V1L 5R4
Phone: 1-800-268-7325 www.rdck.bc.ca
maps@rdck.bc.ca

Legend

- Flood Construction Levels - 1990
- RDCK Streets
- Cadastre
- Address Points

Map Scale:

1:2,257

Date: November 30, 2023



The mapping information shown are approximate representations and should only be used for reference purposes. The Regional District of Central Kootenay is not responsible for any errors or omissions on this map.

RDCK Map



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Legend

- Resource Area
- RDCK Streets
- Cadastre
- Address Points
- Country Residential

Official Community Plan

Map Scale:

1:2,257

Date: November 30, 2023



The mapping information shown are approximate representations and should only be used for reference purposes. The Regional District of Central Kootenay is not responsible for any errors or omissions on this map.



Legend

- Electoral Areas
- RDCK Streets
- Cadastre - Legal Parcels
- Address Points

Site Plan

5324 Amundsen Rd
Mirror Lake
BC

Map Scale:
1:1,000



Date:
November 7, 2023

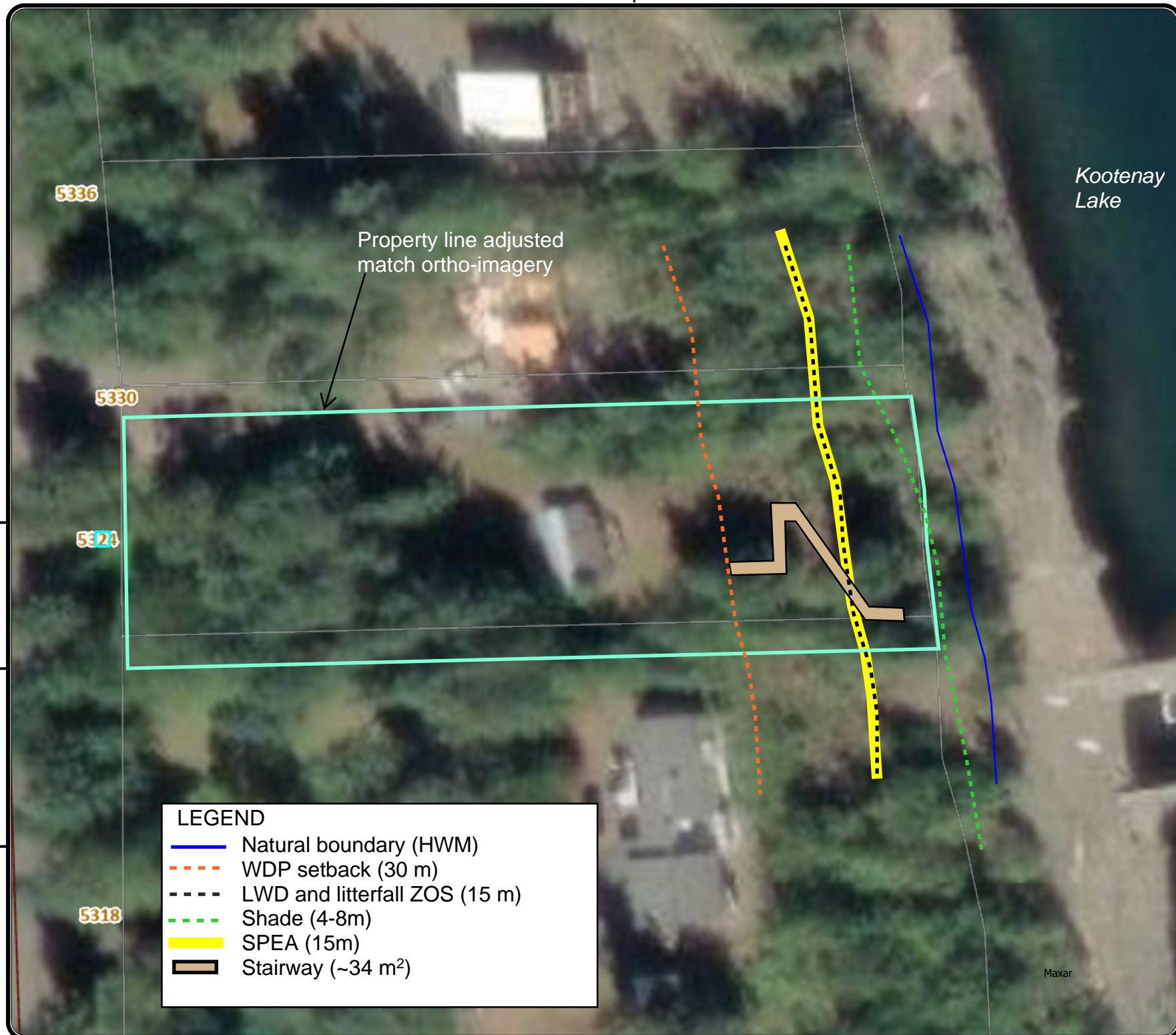
REGIONAL DISTRICT
OF CENTRAL KOOTENAY
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LEGEND

- Natural boundary (HWM)
- WDP setback (30 m)
- LWD and litterfall ZOS (15 m)
- Shade (4-8m)
- SPEA (15m)
- Stairway (~34 m²)



19.0 DEVELOPMENT PERMIT AREAS

Background

The OCP may designate Development Permit Areas under the authority of local government legislation. Unless otherwise specified, a development permit must be approved by the Regional Board prior to any development or subdivision of land within a designated Development Permit Area.

Development Permit Areas allow for implementation of special guidelines for the protection of the natural environment, protection from hazardous conditions, for revitalization of designated areas, or to guide the form and character of development within the Kootenay Lake and the Lardeau Valley Plan area. Development Permit Areas can also be used to meet targets for carbon emission reductions and energy and water conservation.

Where land is subject to more than one Development Permit Area designation, a single development permit is required. The application will be subject to the requirements of all applicable Development Permit Areas, and any development permit issued will be in accordance with the guidelines of all such Areas.

Development Permit Area #1: Watercourse Development Permit (WDP) Area

Category

The WDP area is designated under Section 488 (1) (a) of the *Local Government Act* for the protection of the natural environment, its ecosystems and biological diversity.

Area

The WDP area is comprised of:

1. Riparian assessment areas (Figure 1) for fish and wildlife habitat and drinking water, which include all watercourses and adjacent land:
 - a. within 30 m of the high water mark of a watercourse;
 - b. within 30 m of the top of the ravine bank in the case of a ravine less than 60 m wide; and
 - c. within 10 m of the top of the ravine bank in the case of a wider ravine that link aquatic to terrestrial ecosystems and includes both existing and potential riparian vegetation and existing and potential upland vegetation that exerts an influence on the watercourse; and as identified in Schedule 'A.1'.

HIGH WATER MARK means the visible high water mark of a watercourse 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 watercourse 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;

TOP OF RAVINE BANK means the first significant break in a ravine slope where the break occurs such that the grade beyond the break is greater than 3:1 for a minimum distance of 15 m measured perpendicularly from the break, and the break does not include a bench within the ravine that could be developed;

WATERCOURSE means any natural or man made depression with well-defined banks and a bed 0.6 metres (2.0 feet) or more below the surrounding land serving to give direction to a current of water at least six months of the year and/or having a drainage area of two square kilometres (0.8 square miles) or more upstream of the point of consideration.

Justification

The primary objective of this Development Permit Area designation is to regulate development activities in watercourses and their riparian areas so as to protect aquatic habitat; and to conserve, enhance and, where necessary, restore watercourses and their riparian areas.

The impact of development on watercourses can be minimized by carefully examining the proposed development and taking appropriate measures in relation to the environmentally sensitive riparian area.

Determining whether development falls within the WDP Area

To confirm whether a proposed development is within land identified as a riparian assessment area in the WDP area for which a development permit application is required, the following applies:

2. Any area located within 30 m of the high water mark of a watercourse; within 30 m of the top of the ravine bank in the case of a ravine less than 60 m wide; and within 10 m of the top of the ravine bank in the case of a wider ravine that link aquatic to terrestrial ecosystems and includes both existing and potential riparian vegetation and existing and potential upland vegetation that exerts an influence on the watercourse;
3. Unless the proposed development or alteration of land is clearly outside the riparian assessment area the location of the development shall be determined accurately by survey in relation to the WDP Area to determine whether a development permit application is required.

Guidelines

4. A development permit is required, except where specified under the Exemptions Section, for development or land alteration on land identified as a riparian assessment area within the WDP Area. Where not exempt, development requiring a development permit includes any of the following associated with or resulting from residential, commercial or industrial activities or ancillary activities to the extent that they are subject to local government powers under local government legislation:
 - a. removal, alteration, disruption or destruction of vegetation;
 - b. disturbance of soils;

- c. construction or erection of buildings and structures;
- d. creation of non-structural impervious or semi-impervious surfaces;
- e. flood protection works (with the exception of those constructed during emergency events);
- f. construction of roads, trails, docks, wharves and bridges;
- g. provision and maintenance of sewer and water services;
- h. development of drainage systems;
- i. development of utility corridors; and
- j. subdivision as defined under Section 455 of the *Local Government Act*.

Development shall be in accordance with the following guidelines:

- 5. All development proposals subject to this permit will be assessed by a Qualified Environmental Practitioner (QEP) in accordance with the Riparian Areas Regulation established by the Provincial and/or Federal governments as used elsewhere in the Province.
- 6. A WDP shall not be issued prior to the RDCK ensuring that a QEP has submitted a report certifying that they are qualified to carry out the assessment, that the assessment methods have been followed, and provides in their professional opinion that a lesser setback will not negatively affect the functioning of a watercourse or riparian area and that the criteria listed in the Riparian Areas Regulation has been fulfilled.
- 7. The Riparian Areas Regulation implemented through the WDP does not supersede other Federal, Provincial and or local government requirements, including that of other development permit areas, building permits, flood covenants, Federal or Provincial authorization. Land subject to more than one development permit area designation must ensure consistency with the guidelines of each development permit area, to provide comprehensive stewardship of both fish and wildlife habitat.

Exemptions

The WDP area does not apply to the following:

- 8. existing construction, alteration, addition, repair, demolition and maintenance of farm buildings and agricultural activities including clearing of land for agricultural purposes;
- 9. existing institutional development containing no residential, commercial or industrial aspect;
- 10. construction, renovation, or repair of a permanent structure if the structure remains on its existing foundation. Only if the existing foundation is moved or extended in to a riparian assessment area would a WDP be required; and

11. an area where the applicant can demonstrate that the conditions of the WDP Area have already been satisfied or a development permit for the same area has already been issued in the past and the conditions in the development permit have all been met, or the conditions addressed in the previous development permit will not be affected.

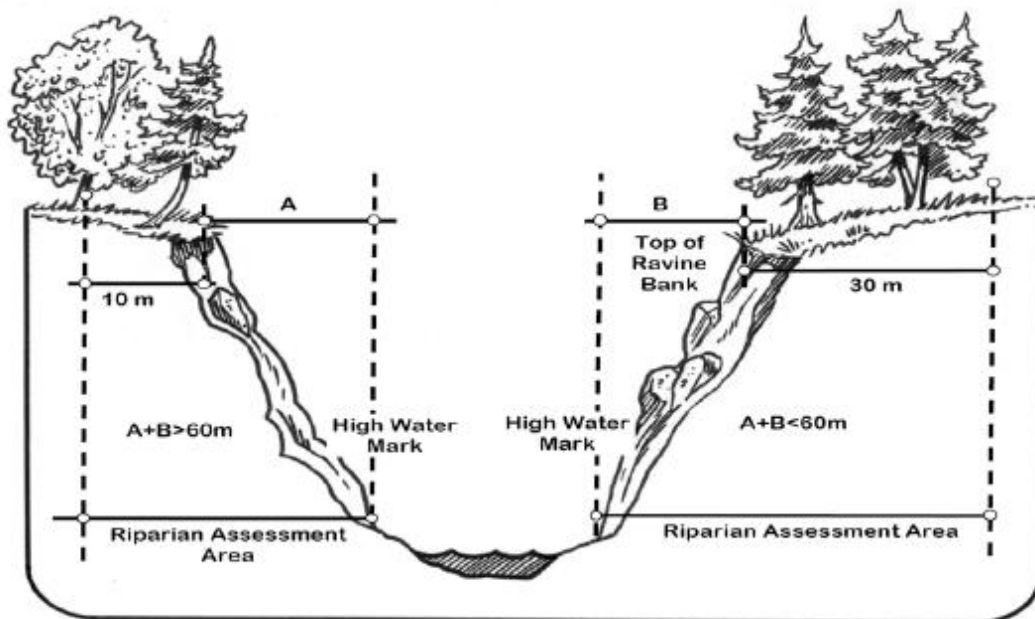


FIGURE 1: RIPARIAN ASSESSMENT AREA: means the area within 30 m of the high water mark of a watercourse; within 30 m of the top of the ravine bank in the case of a ravine less than 60 m wide; and within 10 m of the top of the ravine bank in the case of a wider ravine that link aquatic to terrestrial ecosystems and includes both existing and potential riparian vegetation and existing and potential upland vegetation that exerts an influence on the watercourse.

Source: British Columbia Ministry of Environment, *Riparian Areas Regulation Implementation Guidebook*, March 2005

Development Permit Area #2: Industrial Development Permit (IDP) Area

Category

The IDP area is designated under Section 488 (1) (a) and (f) of the *Local Government Act* for the establishment of objectives for the protection of the natural environment and form and character of industrial uses within the Plan area.

Area

1. The IDP area is comprised of all privately owned or leased lands designated as Industrial (M) on Schedule 'A.1'.

Justification

The primary objective of this development permit area designation is to ensure that industrial developments within the Plan area are compatible and considerate of the natural environment and the surrounding residential and rural character of the Plan area.

Guidelines

2. Development shall be in accordance with the following guidelines and considerations:

- a. impact on farm land;
- b. capability of the natural environment to support the proposed development;
- c. compatibility with adjacent land uses and designations, and the character of the area;
- d. susceptibility to natural hazards, including but not limited to flooding, slope instability, or wildfire risk;
- e. the size of the property in relation to the proposed industrial activity;
- f. the Province is requested to ensure industrial activities involving emission of toxic or irritant material meet the highest standards regarding the protection of groundwater catchment areas, surface water and riparian areas and air-borne industrial pollutants;
- g. wherever possible, new industrial activity shall be located in close proximity and with direct access to major roads;
- h. prior to commencement of industrial activity, a landscape buffer shall be required on industrial properties adjacent to non-industrial designated properties;
- i. all industrial activity; including parking and storage must be screened and wide buffers shall be left along roads and property lines; and
- j. Hours of operation, lighting and extent of screening will be determined on a community specific basis.

Exemptions

The IDP area does not apply to the following:

3. existing construction, alteration, repair, demolition and maintenance of industrial buildings.



5324 Amundsen Road, Mirror Lake BC Riparian Assessment



Prepared for:

Regional District of Central Kootenay

202 Lakeside Drive

Nelson, BC, V1L 5R4

Nov 9, 2023

Prepared by:
Masse Environmental Consultants
812 Vernon Street
Nelson, BC, V1L 4G4

Project Number 2023-1094

Disclosure Statement

This report has been prepared by Fiona Lau BTech., ASCT, and reviewed by Ico de Zwart, PhD Chem, RPBio.

I, Fiona Lau, hereby certify that:

- a) I am a qualified environmental professional (QEP), 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 Protection Regulation.

This report has been prepared by a QEP who has not acted for, or as an agent(s) of the RDCK and was at the expense of the property owner.

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Appendix 3. Archaeological Chance Find Procedures

1 INTRODUCTION

Masse Environmental Consultants Ltd. was retained by Ivan Gorgiev (Owner) to conduct a riparian assessment to accompany an application for a Watercourse Development Permit (WDP) on his waterfront property at 5324 Amundsen Road, Mirror Lake, BC (PID 012-757-870; Lot 2 Plan NEP 11474 District Lot 7386 Kootenay Land). The WDP is being triggered as the Owner is seeking authorization of a newly constructed access stairway within the 30 m WDP area of Kootenay Lake.

A site visit was completed on September 14, 2023, by Fiona Lau, B.Tech., ASCT., to conduct a riparian assessment of the property. The riparian assessment evaluates the existing conditions of the riparian area (up to 30 m from the natural boundary of Kootenay Lake), identifies habitat values, assesses potential environmental impacts, and recommends measures to mitigate or compensate for the alteration of the riparian area to maintain environmental values. 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 Protection Regulation
- Kootenay Lake Shoreline Management Guidelines
- British Columbia Water Sustainability Act
- Federal Migratory Birds Convention Act
- General BMPs and Standard Project Considerations (Ministry of Environment)
- Develop with Care. Environmental Guidelines for Urban and Rural Land Development in British Columbia
- On the Living Edge: Your Handbook for Waterfront Living

2 PROJECT OVERVIEW

2.1 Site Description

2.1.1 Location

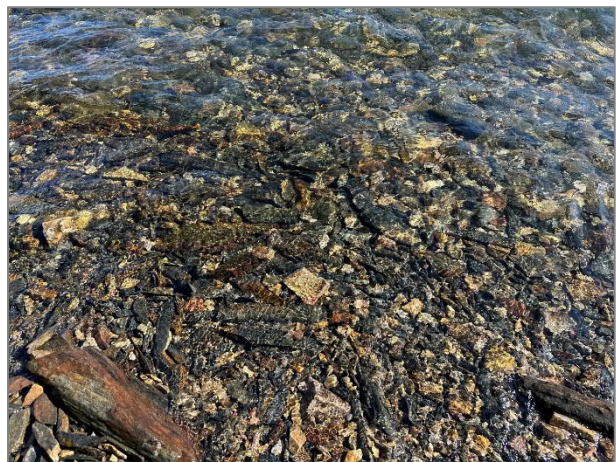
The subject property is located approximately 6.2 km south of Kaslo, BC (see Appendix 1 for Location Map). The property has an eastern aspect, is ~0.77 acres in size and has ~33 m of frontage on Kootenay Lake. The property is bordered by private properties to the north and south, MoTI Right of Way (RoW) to the west, and Kootenay Lake to the east. From the natural boundary of Kootenay Lake moving west, the property is sloped at ~25% for the first 10-15m, then steepens up to ~80% slope for ~15 m, where it then flattens out again. The parcel boundary lines shown on the Site Plan (Appendix 2) have been adjusted to correspond with the ortho-imagery.

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. Snowpacks 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).

2.1.2 Watercourses

One watercourse was identified on the subject property: Kootenay Lake. Kootenay Lake borders the subject property along the eastern boundary; it is a long, narrow and deep lake with a surface area of approximately 400 km². Kootenay Lake's main inflows include the Lower Duncan River to the north and the Kootenay River to the south and drains through the West Arm into the Kootenay River. Lake levels can vary up to 4 m throughout the year, affecting the extent of the exposed shoreline. The foreshore of the property consists of a sloped beach (~20-25% gradient), with the substrate mainly consisting of gravel, cobble with some boulders and exposed bedrock (Photo 1 and Photo 2).

The visible natural boundary of Kootenay Lake was observed to be approximately ~8 m east of the eastern property line (RDCK mapping 2023) and is shown on the Site Plan (Appendix 2). The natural boundary is commonly referred to as the "high water mark" around a lake or wetland. Based on the definition of high water mark¹, the natural boundary shown on the Site Plan will be used to delineate the 30 m RDCK WDP area and streamside protection and enhancement area (SPEA) setbacks in accordance with the Riparian Area Protection Regulation (RAPR).



¹ High water mark means the visible high water mark of a watercourse 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 watercourse 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 (RDCK 2013).

Photo 1. Shoreline looking north along front of property.

Photo 2. Shallow water habitat along shoreline.

2.1.3 Riparian Vegetation

The riparian area along Kootenay Lake is generally intact and supports a mix of both mature and young trees, shrubs and herbaceous species (Photo 3 thru Photo 6). Tree species consist of Interior Douglas-fir (*Pseudotsuga menziesii*), paper birch (*Betula papyrifera*), Western redcedar (*Thuja plicata*), and regenerating black cottonwood (*Betula occidentalis*). The shrub community includes Douglas maple (*Acer glabrum*), falsebox (*Pachistima myrsinites*), kinnikinnick (*Arctostaphylos uva-ursi*), mountain alder (*Alnus incana*), mountain ash (*Sorbus sitchensis*), ocean spray (*Holodiscus discolor*), Oregon grape (*Mahonia aquifolium*), red-osier dogwood (*Cornus sericea*), rose sp (*rosa* sp), snowberry (*Symphoricarpos albus*), soopalallie (*Shepherdia canadensis*) and thimbleberry (*Rubus parviflorus*). Herbaceous species include common wormwood (*Artemisia absinthium*) and grass spp. (*Poa* spp.).

Non-native species observed within the riparian area included American elm (*Ulmus amerciana*), American vetch (*Vicia amerciana*), wall lettuce (*Mycelis muralis*) and great mullein (*Verbascum thapsus*). These plants were sporadic with minimal establishment within the riparian area.



Photo 3. Mixed young and mature forest in riparian area



Photo 4. Conifer trees along shoreline.



Photo 5. Rocky riparian area, shallow topsoil with minimal shrub layer.



Photo 6. Mature Western redcedar tree within assessment area next to staircase.

2.1.4 Wildlife Habitat

Riparian ecosystems offer important habitat features for wildlife, affording them essential resources like water, shelter, and food. These areas frequently serve as migration corridors connecting aquatic, riparian, and upland environments, playing a pivotal role in the life cycles of numerous species. Wildlife values observed on site include:

- Mature conifer and deciduous trees provide suitable perch and nesting habitat for a variety of bird species.
- Trees and shrubs along the shoreline provide litterfall and insect drop for fish and nesting habitat for songbirds.
- Large woody debris (LWD) and coarse woody debris (CWD) provide cover habitat for wildlife.
- Warm rocky habitat providing suitable cover and basking habitat for reptiles such as garter snakes (*Thamnophis* spp.) and Northern alligator lizard (*Elgaria coerulea*).
- Riparian vegetation providing a food source and habitat for a variety of large and small mammal species. Confirmed species on and near the property include: American elk (*Cervus canadensis*), black bear (*Ursus amercianus*), white-tailed deer (*Odocoileus virginianus*) and red squirrel (*Tamiasciurus hudsonicus*) (p. comm Ivan Gorgiev, BC 2023 , INaturalist 2023).

2.1.5 Aquatic Habitat

Fish habitat along this section of foreshore consists of shallow water habitat (Photo 1 and Photo 2). Shallow foreshore areas are used for rearing by smaller fishes and broadcast spawning by non-sport fish species (i.e peamouth chub (*Mylocheilus caurinus*) and northern pikeminnow (*Ptychocheilus oregonensis*)). Several species of regional interest reside in Kootenay Lake including Kokanee (*O. nerka*), Rainbow Trout, Bull Trout (*Salvelinus confluentus*; BC-Blue-Listed; SARA Special Concern), White Sturgeon

(*Acipenser transmontanus* pop.1; BC Red-Listed, SARA Endangered), Westslope Cutthroat Trout (*O. clarki lewisi*; BC Blue-Listed; SARA Special Concern), and Burbot (*Lota lota* pop.1; BC-Red-Listed).

Mussel beds have been identified along the shoreline of Kootenay Lake in multiple locations both on the West Arm and main body of the lake. No evidence of mussels was seen on the shoreline (ie. live mussels and/or mussel shells). A mussel survey was not conducted to determine presence or absence, as no works are proposed below the HWM.

2.1.6 Species at Risk

The BC Conservation Data Center (CDC) occurrence data and critical habitat for Federally listed species were queried within iMap BC, using a 10 km buffer around the center point of the subject property. In addition, the Wildlife Species Inventory observation points within Habitat Wizard BC and iNaturalist were also queried for nearby observations within a 5 km buffer around the property.

Three species at risk have been identified within the buffer with only one species having the potential to occur on the site: Wild licorice (*Glycyrrhiza lepidota*)- BC Blue listed. The three species at risk recorded within the 10 km buffer include:

- 1) The Upper Kootenay River white sturgeon (*Acipenser transmontanus*) population- Red listed. Critical Habitat for white sturgeon on Kootenay Lake is located at the Crawford Creek delta on the east shore of Kootenay Lake ~ 33 km away and at the Duncan delta at the north end of Kootenay Lake ~ 28 m away (Environment Canada 2014).
- 2) Painted turtle (*Chrysemys picta*)- Blue listed. The nearest observation of painted turtle was in Mirror Lake, approximately 2.5 km away. The subject property does not provide suitable turtle habitat.
- 3) Wild licorice (*Glycyrrhiza lepidota*)- Blue listed. The nearest observation of wild licorice was at Mirror Lake, approximately 2.5 km away.

It is important to note that many bats species are blue-listed in BC (e.g.: little brown myotis (*Myotis lucifugus*), Western small-footed myotis (*Myotis ciliolabrum*), and the Yuma myotis (*Myotis yumanensis*)) and have potential to occur on the subject property. The little brown myotis is also listed as 'endangered' under the Species At Risk Act. Bat roosting habitat includes tall, live or dead trees with crevices, peeling bark, or cavities.

2.1.7 Invasive Species

Central Kootenay Invasive Species Society (CKISS) manages invasive species using a prioritized approach. The management strategy for a specific species is based on a number of factors including the phase of invasion and the potential impacts of the species (CKISS 2023). Priority species lists can be found at <https://ckiss.ca/species/invasive-plant-priority-lists/>.

Based on the CKISS 2023 Priority List, no species were identified as Priority Level 1, 2 or 3 species within the assessment area.

2.2 Existing Development

The property is mostly undeveloped within the 30 m riparian assessment area except for the new stairway that was constructed from the home down to the waterfront. Refer to Section 2.3 for more details. The riparian area appears to have had some clearing of trees done ~20 years ago, based on cut tree observations (ie stumps and fallen trees) and the natural regeneration occurring within the assessment area.

The camper trailer with a small structure attached (outside of the 30 m assessment area) is serviced by a temporary hose which is seasonally placed and draws water from Kootenay Lake and a septic field which is located west of the home (camper trailer) outside of the 30 m setback.

2.3 Development (Seeking authorization)

The Owner is seeking approval for the authorization of the constructed elevated stairway down to the waterfront. The elevated stairway is ~34 m long by 1 m wide (Photo 7 thru Photo 9) and has a total footprint of ~34 m² within the 30 m WDP area. The stairway is located over a steep embankment down to the foreshore and is sited mostly along an existing foot path alignment. It is constructed with metal grate and handrail, steel posts and concrete footings.

Refer to the Site Plan (Appendix 2) for stairway location.



Photo 7. View of access trail down to foreshore at south end of property (July 26, 2023).



Photo 8. View of constructed metal grate stairway and deck (July 26, 2023).



Photo 9. Disturbed soil under stairway

2.4 Archeological and Heritage Resources

The subject property was flagged as low archaeological risk; however, further assessment of archaeological risk is beyond the scope of this report. For further information please consult the Kootenay Lake Shoreline Guidance Document (KLP 2020).

Kootenay Lake is part of the traditional territory of the Ktunaxa, Sinixt and Syilx (Okanagan) First Nations and archaeological evidence is documented at multiple sites along the shoreline and mountain sides of Kootenay Lake. Archaeological Chance Find Procedures are provided in Appendix 3 for guidance on which protocols to follow in the event of a chance archaeological find to ensure that archaeological sites are documented and protected as required for compliance with the BC Heritage Conservation Act.

3 REGULATORY OVERVIEW

3.1 Riparian Area Protection Regulation (RAPR) Review

The 30 m WDP setback from the natural boundary of Kootenay Lake was compared with the Riparian Area Protection Regulation (RAPR) criteria by conducting a detailed assessment of the subject property in order to calculate the Streamside Protection and Enhancement Area (SPEA) setback. Results for the Zones of Sensitivity (ZOS) and SPEA are presented in Table 2 and Appendix 2. As per the RAPR, the SPEA from the natural boundary of Kootenay Lake is 15 m.

Table 1. Results of detailed RAPR assessment for Kootenay Lake.

Feature Type	SPVT ¹	Zones of Sensitivity			SPEA ³
		LWD ²	Litter fall	Shade	
Kootenay Lake	TR	15 m	15 m	4-8 m	15 m

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

² LWD- large woody debris

³ SPEA- streamside protection and enhancement area

3.2 Kootenay Lake Shoreline Management Guidelines

The Kootenay Lake Foreshore Integrated Management Planning (FIMP; Schleppe and McPherson 2022), the Foreshore Inventory Mapping (FIM; KLP 2023) and the Kootenay Lake Shoreline Guidance Document (KLP 2020) were used to help determine site-specific risks for riparian and aquatic habitat, Ktunaxa Nation cultural values, and archaeological resources along the shoreline (Table 2). The property is within FIM segment 71. The aquatic habitat index rating is listed moderate here because of the high value juvenile rearing habitat. Based on the Activity Risk Matrix (Table 3a Shoreline Guidance Document KLP 2022), the activity performed within the riparian area is not a listed activity; therefore, at this time has 'no risk rating' associated with it.

Table 2. Aquatic and archaeological risk results (FIMP 2022)

Aquatic Habitat Index Rating (AHI)	Aquatic Sensitivity	Archaeological Risk	Enhanced Engagement Required (Work below HWM)
Moderate	Sensitive	Low	No

4 IMPACT ASSESSMENT

The impact assessment considered the existing site conditions and construction of the stairway. Effects of the stairway development within the SPEA include loss of potential tall shrub and tree habitat within the stairway footprint (~34 m²) and minor soil disturbance during the construction causing a potential pathway for erosion and non-native plant establishment to occur.

The stairway is elevated approximately 0.5-1 meter above the ground and utilizes steel grating as the decking material, which allows light and rainfall to penetrate through for the benefit of vegetation growth. This design also provides passage underneath for small animals. Larger mammal migration is not expected to be greatly impacted as migration to and from the foreshore can be navigated along either side of the stairway, along the beach and vegetated area below the stairway and the flat area above the stairway.

The property owner chose an appropriate alignment for the stairway along the existing foot path to minimize the impact on riparian vegetation. Effects to fish and fish habitat are expected to be negligible due to the small footprint of the development.

Considering the relatively small overall footprint of the project, any adverse effects on the SPEA are expected to be negligible.

5 MEASURES TO PROTECT THE INTEGRITY OF THE SPEA

This section provides measures to protect the integrity of the SPEA as described in the RAPR, as well as recommended best management practices.

5.1 Danger Trees

No danger trees were identified within the SPEA; however, a danger tree assessor was not retained.

5.2 Windthrow

No windthrow risk indicators were observed. Further assessment of windthrow risk is beyond the scope of this report, and any such assessment should be led by a Registered Professional Forester (RPF).

5.3 Slope Stability

No slope stability hazard indicators were observed during the site visit. Further assessment of geotechnical hazard is beyond the scope of this report, and any such assessment should be led by a P.Geo, or P.Eng.

5.4 Protection of Trees and Vegetation in the SPEA

It is recommended that no further vegetation removal within the SPEA is conducted.

5.5 Encroachment

Additional development on the site should occur outside of the SPEA (see Appendix 2). If future development within the 30 m WDP is proposed, a new WDP application will be required prior to any construction.

5.6 Sediment and Erosion Control

To help prevent erosion of exposed soils under the stairway, disturbed soils shall be reseeded with a native riparian seed mix blend (Refer to Section 6).

5.7 Stormwater Management

There are no stormwater management concerns.

5.8 Floodplain Concerns

There are no floodplain concerns observed on the subject property.

5.9 Fish and Wildlife Protection

There are no further measures required to protect fish or wildlife. The stairway is located on a steep embankment, is elevated off the ground and allows wildlife to traverse the area.

5.10 Invasive Plant Management

To help prevent the establishment of invasive species, disturbed and exposed soil under and around the stairway shall be re-seeded with a native riparian seed mix. Invasive weeds should be removed by hand if they become established. Invasive weed disposal will involve double bagging the plants and disposing at a landfill facility.

6 MITIGATION PLAN

The Shoreline Management Guidelines for Kootenay Lake outlines general principles for shoreline development in order to achieve a “No Net Loss” of habitats present. The principle is achieved by applying the following priority sequence of mitigation options: 1. Avoidance of environmental impacts; 2. Minimization of unavoidable impacts; 3. On-site restoration; and 4. Offset residual impacts that cannot be minimized through compensation (KLP 2018).

The proposed development within the SPEA has demonstrated the principle of “Minimization”. The SPEA on the property remains mostly undisturbed with exception to the ground disturbance below and directly

around the stairway. Disturbed soils shall be reseeded with the following recommended native riparian seed blend (Table 3) both under and around the stairway. In addition, if invasive weeds are observed they shall be managed accordingly (Section 5.10). Additional monitoring and/ or post inspection are not proposed.

Table 3. Native riparian seed blend.

Native Riparian Blend 1	% weight	% by species
slender wheatgrass	25.0%	18%
streambank wheatgrass	25.0%	18%
fringed brome grass	24.7%	9%
northern wheatgrass	20.0%	14%
sheep fescue	3.0 %	10%
tufted hairgrass	1.0 %	11%
fowl bluegrass	1.0 %	9%
yarrow	0.3 %	3%

7 CONCLUSION

There are minimal biological impacts associated with the authorization of the stairway located within the SPEA. Provided that measures to protect the SPEA are followed, any negative impacts from the proposed authorization of the stairway are anticipated to be minimal.

Sincerely,



Fiona Lau, BTech., ASCT
fiona@masseenvironmental.com

Reviewed by:



Ico de Zwart, PChem, RPBio
 Masse Environmental Consultants

8 REFERENCES

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APPENDIX 1. SITE LOCATION MAP

RDCK Map



Earthstar Geographics



REGIONAL DISTRICT OF CENTRAL KOOTENAY
Box 590, 202 Lakeside Drive,
Nelson, BC V1L 5R4
Phone: 1-800-268-7325 www.rdck.bc.ca
maps@rdck.bc.ca

Legend

Location Map

**5324 Amundsen Road
Mirror Lake, BC**

Map Scale:

1:144,413

Date: November 7, 2023



The mapping information shown are approximate representations and should only be used for reference purposes. The Regional District of Central Kootenay is not responsible for any errors or omissions on this map.

APPENDIX 2. SITE PLAN AND SPEA SETBACKS



Legend

- Electoral Areas
- RDCK Streets
- Cadastre - Legal Parcels
- Address Points

Site Plan

5324 Amundsen Rd
Mirror Lake
BC

Map Scale:
1:1,000



Date:
November 7, 2023

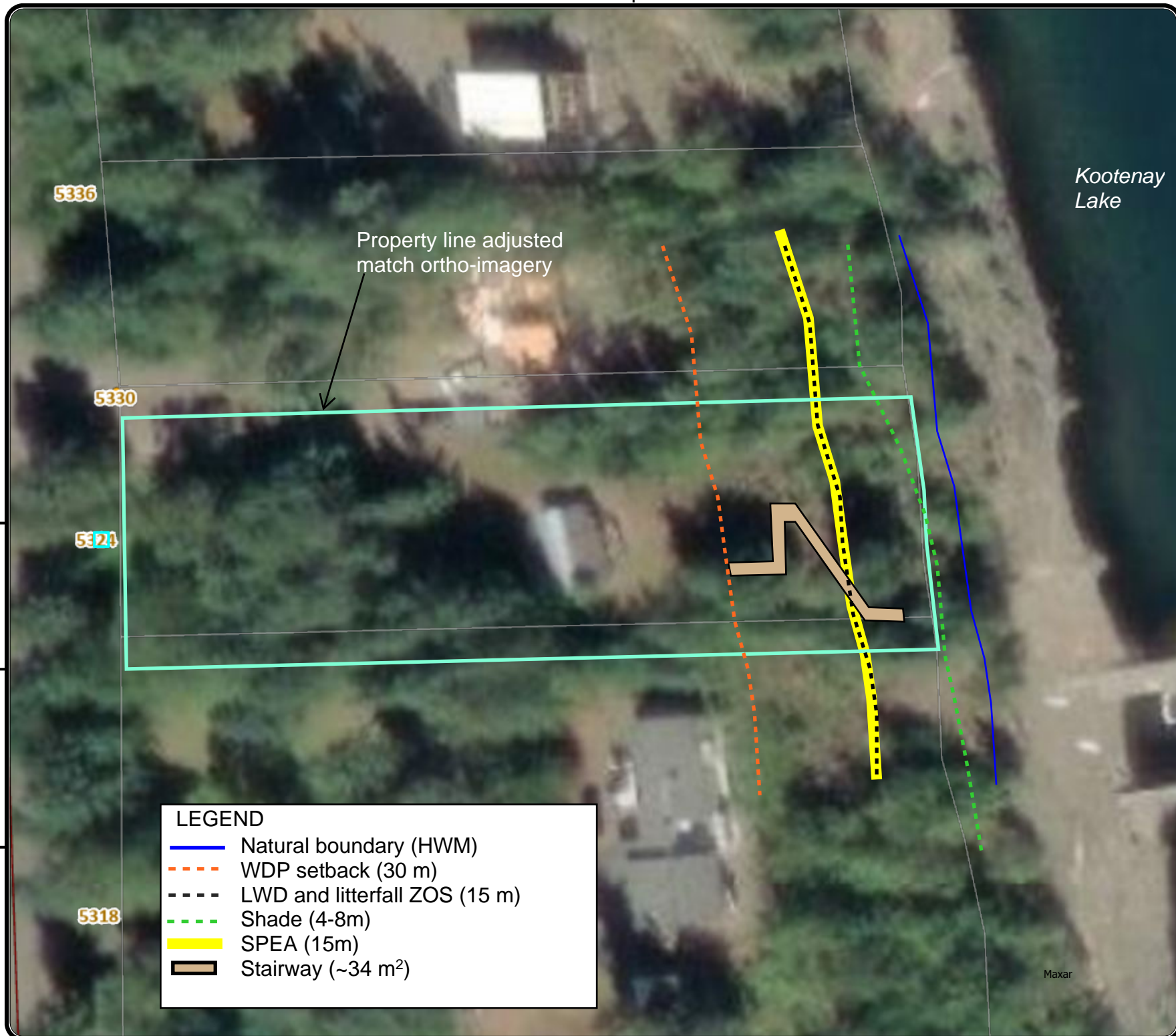
REGIONAL DISTRICT
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LEGEND

- Natural boundary (HWM)
- WDP setback (30 m)
- LWD and litterfall ZOS (15 m)
- Shade (4-8m)
- SPEA (15m)
- Stairway (~34 m²)



APPENDIX 3. ARCHAEOLOGICAL CHANCE FIND PROCEDURES

Chance Find Procedures for Archaeological Material

This document provides information on how a developer and/or their contractor(s) can manage for potential archaeological material discoveries while undertaking construction and/or maintenance activities. This document can provide assistance to in-field contractors in the identification of archaeological remains and the procedures to follow if a discovery is made. The discovery of human remains initiates a different course of action and is outlined separately.

Under the provincial *Heritage Conservation Act (HCA)*, archaeological sites that pre-date 1846 are automatically protected whether on public or private land. Protected sites may not be damaged, altered or moved in any way without a Section 12 or 14 Permit as issued through the *HCA*. It is illegal to collect or remove any heritage object from an archaeological site unless authorized to do so under permit.

1. Activities occurring outside of known Archaeological Sites:

When archaeological material is encountered outside of known archaeological site areas work in the vicinity must stop immediately no matter what type of material or feature has been identified. Alteration to an archaeological site can only occur under a Section 12 (Site Alteration Permit) or Section 14 (Heritage Inspection Permit) *Heritage Conservation Act* permit. Such permit applications should be prepared by a professional archaeologist.

If archaeological material is discovered during the course of construction activities:

1.1 Stop Work: Halt all work in the area of the discovery and safely secure the area. Contact the project manager or site foreman.

1.2 Contact an Archaeologist: An archaeologist should be contacted as soon as possible. For a list of qualified archaeologists in the area, the proponent is directed to the BC Association of Professional Consulting Archaeologists website: www.bcapa.ca. The proponent may also wish to contact the Ktunaxa Nation Council's Archaeology Technician Nathalie Allard for direction (1-250-426-9549; nallard@ktunaxa.org).

1.3 Archaeologist provides guidance: The archaeologist will direct the proponent on the next courses of action, which will include notifying the Archaeology

Branch and First Nations with interest in the area.

2. Activities Occurring within Known Archaeological Site Boundaries:

Land altering activity within a previously recorded archaeological site must be conducted under a Section 12 HCA Site Alteration Permit (SAP), in some cases with an onsite archaeological monitor. It is common for additional archaeological material and features to be encountered during activities occurring within previously recorded archaeological sites. Minor finds (lithic flakes, diffuse charcoal or fire altered rock) may not require work to stop, however significant finds require a level of assessment by a professional archaeologist, and it is up to the onsite project manager to determine the level of significance based on criteria presented below.

2.1 Significant Cultural Finds that Require a Professional Archaeologist (described in detail in Section 4)

- Intact archaeological features, which can include but are not limited to hearths, cultural depressions (e.g. cache pits, house depressions) and rock alignments or forms (e.g. tipi rings, cairns, blinds)
- Significant archaeological materials, which include but are not limited to, the presence of formed lithic tools (e.g. projectile point, microblade core, scraper), a dense concentration of lithic waste flakes, or artistic items
- Human Remains (described in detail in Section 3)

2.2 Archaeological Site Management Options

- 2.2.1 **Site Avoidance:** If the boundaries of a site have been delineated, redesign the proposed development to avoid impacting the site. Avoidance is normally the fastest and most cost effective option for managing archaeological sites. Site avoidance could also be achieved through minimizing ground disturbance by looking for alternative constructive methods.
- 2.2.2 **Mitigation:** If it is not feasible to avoid the site through project redesign, it is necessary to conduct systematic data collection and analysis within the site prior to its loss. This could include surface collection and/or excavation. This work can be time-consuming and therefore expensive to conduct.
- 2.2.3 **Protection:** It may be possible to protect all or portions of the site which will be impacted through installation of barriers during the development period and possibly for a longer period of time. Methods for barrier construction could include fencing around site boundaries or applying

geotextile to the ground surface and capping it with fill. The exact method used would be site-specific.

3. Chance Find Procedures for Identified Human Remains

Procedures in the event of the discovery of human remains during construction are covered in depth by an Archaeology Branch Policy Statement, found on their website at www.for.gov.bc.ca/archaeology, and are summarized below.

- 3.1 Stop all construction activities immediately in the area of found or suspected human remains and contact the RCMP and/or Office of the Coroner.
- 3.2 The coroner must determine whether the remains are of contemporary forensic concern or archaeological/aboriginal.
- 3.3 If the remains are found to be of aboriginal ancestry then the next step involves the relevant First Nations collaboratively determining the appropriate treatment of those remains.

The key to respectfully dealing with ancient aboriginal remains is to involve the appropriate First Nations as early as possible in the process. However this must be done in a manner that does not interfere with the coroner's office ability to conduct their business in the manner that they see fit.

4. Site Identification Guide

The following are characteristics typical to site types found within the Ktunaxa Traditional Territory.

4.1 Artifact Scatters

Lithic (stone) scatters from the production and maintenance of stone tools are the most common type of archaeological site found in the region. Other materials that may be represented in artifact scatters are Fire Broken Rock (FBR), bone, antler and tooth.

Lithics: What to look for

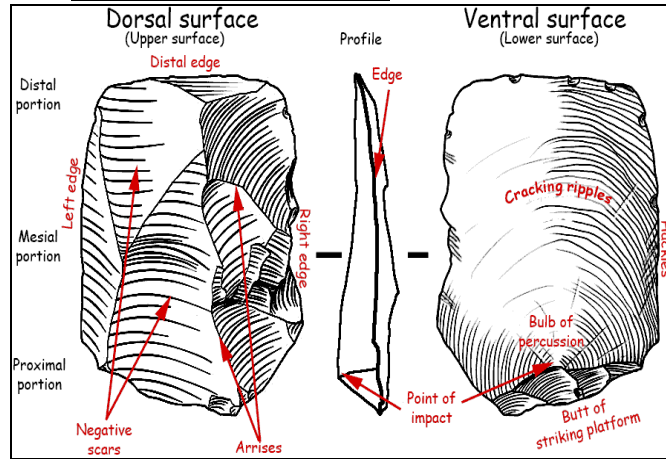


Image 1: Basic flake morphology



Image 2: Examples of lithic flakes

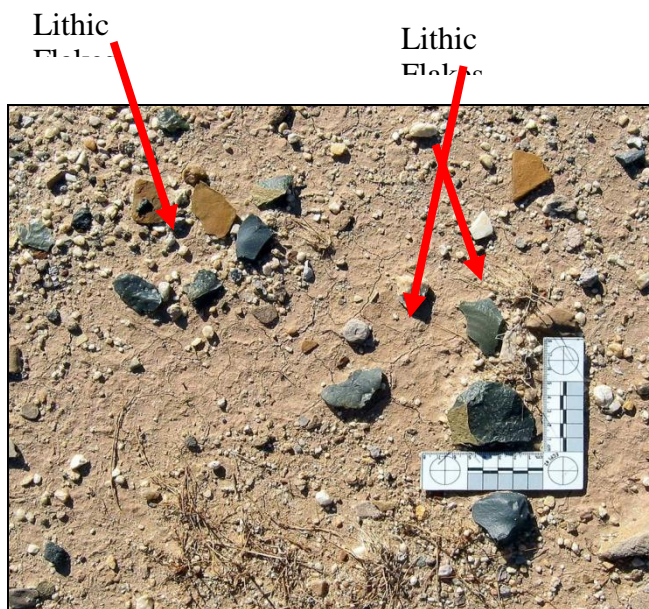


Image 3: Example of lithic scatter found on ground surface



Image 4: Example of formed lithic artifacts

Zakisqnuuk

Zaqam

Lower Kootenay

Tobacco Plains

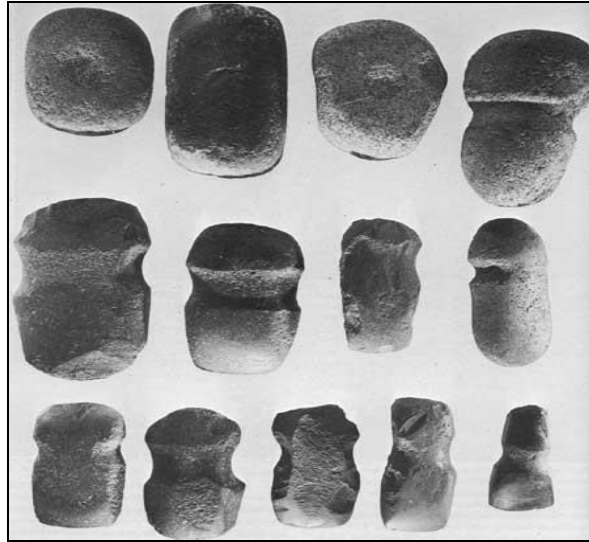


Image 5: Ground stone artifacts

Bone, Tooth and Antler Artifacts: What to Look For

- Obvious shaping
- Incising
- Unnatural holes



Zakisq'nuk

Paqam

Lower Kootenay

Tobacco Plains

Image 6: Bone and Antler artifacts

4.2 Fire Broken Rock and Hearths

Fire-broken rock (FBR) results from the use of fire during cooking, heating and processing activities. FBR is often associated with other features including hearths and cultural depressions, but can also be thinly scattered in concentrations away from the features with which they were first associated.

When looking for FBR, note concentrations of roughly fractured rock from rapid heating and cooling, rock showing signs of burning or oxidation and/or reddening or blackening of surrounding matrix.

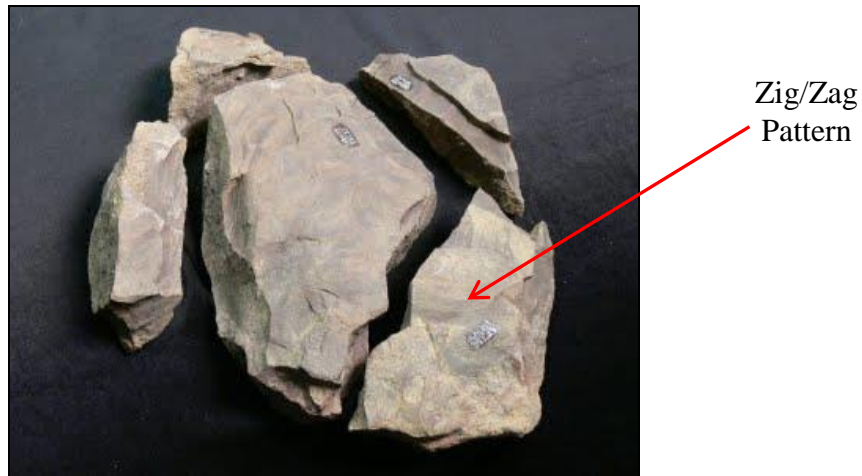


Image 7: Example of FBR; note the zig/zag pattern of breakage common to FBR. A hearth feature is evidence of a fire pit or other fireplace feature of any period. Hearths were used for cooking, heating, and processing of some stone, wood, faunal, and floral resources and may be either lined with a wide range of materials like stone or left unlined. Occasionally site formation processes (e.g., farming or excavation) deform or disperse hearth features, making them difficult to identify without careful study.

Hearths: What to look for

- FBR
- reddening or blackening of the associated soil/sediment
- charcoal
- layering of FBR and charcoal, and
- depressions in the earth associated with FBR, reddened or blackened matrix and charcoal.



Image 8: Example of a hearth uncovered along the wall of an excavation unit

4.3 Cultural Depressions

Any depression seen on the ground surface that appears to have been excavated by man can be a cultural depression and have archaeological significance. These “pits” were dug for a variety of reasons such as for food storage, cooking or as a base for a dwelling.

They can range in size from 1m across to 7-10m across, and are usually found associated with other artifacts such as FBR and lithic scatters.

To identify a cultural depression, look for:

- Subtle to deep scours on the ground surface that are circular to rectilinear in shape
- A raised rim along the edge of a depression
- Depressions associated with artifacts and FBR
- Depressions associated with fire reddening and blackening of the matrix



Image 9: Example of a large cultural depression in a natural setting

4.6 Rock Alignments

There are several types of rock alignments that occur within the culture area, which include tipi rings, medicine wheels, cairns and blinds. When attempting to identify rock alignments, look for a group of rocks that look purposefully placed as in a circle, pile or line; isolated groups of rock that do not seem to belong to that landscape; and/or rocks which form a pattern.



Image 10: Example of a Cairn or piling of rocks



Image 11: Example of a tipi ring in a natural setting

Takisqnuuk

Taq'am

Lower Kootenay

Tobacco Plains

