COWICHAN VALLEY REGIONAL DISTRICT

BYLAW NO. 4485

A Zoning Bylaw for the Electoral Areas

WHEREAS the Board of the Cowichan Valley Regional District has adopted an Official Community Plan for the Regional District's electoral areas;

AND WHEREAS the Official Community Plan designates development permit areas pursuant to s. 488 of the *Local Government Act*;

AND WHEREAS the *Local Government Act* requires the Board to specify, in the Official Community Plan or a zoning bylaw, guidelines respecting the manner by which the special conditions or objectives for a development permit area will be addressed, and enables the Official Community Plan or zoning bylaw to specify conditions under which a development permit under s. 489 of the *Local Government Act* would not be required;

NOW THEREFORE the Board of the Cowichan Valley Regional District, in open meeting assembled, enacts as follows:

1. **CITATION**

   This bylaw shall be cited for all purposes as the **"CVRD Bylaw No. 4485 – Zoning Bylaw for the Electoral Areas (Development Permit Exemptions and Guidelines), 2023"**.

2. **APPLICATION**

   This bylaw applies to all of the land in electoral areas A, B, C, D, E, F, G, H and I.

3. **DEVELOPMENT PERMIT EXEMPTIONS AND GUIDELINES**

   The development permit exemptions and guidelines set out in Schedule A to this bylaw apply in respect of any development permit area designated in Bylaw No. 4270 – Official Community Plan for the Electoral Areas, 2021 or any successor bylaw adopting an official community plan that is located in whole or in part of any electoral areas to which this bylaw applies.

4. FORCE AND EFFECT

Considered in conjunction with the Cowichan Valley Regional District Financial Plan and the Liquid Waste Management Plan under Section 477(3) of the *Local Government Act*, the 26th day of July, 2023.

Referred to the boards of education of School Districts No. 68 and 79 under section 476 of the *Local Government Act* the 26th day of July, 2023.

This bylaw shall take effect upon its adoption by the Regional Board.

READ A FIRST TIME this	26th	day of	July,	2023.
PUBLIC NOTICE GIVEN in ACCORDANCE WITH THE *LOCAL GOVERNMENT ACT* this	24th 31st	day of day of	August, August,	2023 and 2023
PUBLIC HEARING HELD this	5th	day of	September,	2023.
READ A SECOND TIME this	27th	day of	September,	2023
READ A THIRD TIME this	11th	day of	October,	2023.
RESCINDED this	8th	day of	November,	2023.
READ A THIRD TIME this	8th	day of	November,	2023.
ADOPTED this	8th	day of	November,	2023.

Chair

Corporate Officer

COWICHAN VALLEY REGIONAL DISTRICT

SCHEDULE A – BYLAW 4485
DEVELOPMENT PERMIT AREAS

Exemptions and Guidelines

List of Figures

List of Images

INTRODUCTION

B.C.'s *Local Government Act* provides local governments with a special tool – the development permit – for managing development on a site-specific basis where the characteristics and/or context of the development site call for more finely-tuned development standards than are contained in the applicable zoning bylaw.

If your property is situated within a development permit area (DPA), any alteration or improvement to the land (by subdivision, clearing or construction, for example), you may first need to apply to the Regional District for a development permit. The permit authorizes you to proceed and sets out any conditions for development to satisfy community standards for safety, environmental protection and appearance. Also note: a development permit is not a building permit; if you are planning construction, you will also need a building permit.

Image 1: Plans to alter land or build on it are expceted to satisfy community standards.

Depending on their specific purpose, some DPAs encompass the entire regional district, while others only a part of it. Still other development permit areas overlap. You can tell which DPAs pertain to your property by looking at the maps that accompany the individual DPA descriptions and guidelines.

Development permit guidelines further support compliance with a variety of regional district, provincial and federal government policies, laws, regulations and best management practices.

Development permit area content is divided into two documents. Official Community Plan for the Electoral Areas Bylaw No. 4270, Schedule C DPA – Designations and Justifications sets out the designations and justifications. This document contains the exemptions and guidelines.

Authority for DPA Designation

The legislative authority for designation of development permit areas resides in sections 488 to 491 of the *Local Government Act*, which describe the various purposes for which local governments may create development permit areas, the types of activity requiring a development permit, and the range of requirements local governments may impose on applicants for different kinds of development permits.

In designating a development permit area, the official community plan must

- describe the special conditions or objectives that justify the designation; and
- specify guidelines respecting the manner in which the special conditions or objectives will be addressed.

Activities Affected and Applicability of Multiple DPAs

Once a local government has designated a development permit area, an owner of land in the area is prohibited (under section 489) from taking certain actions without either a development permit or an exemption under section 488(4). These prohibitions include

a. subdividing land;
b. starting construction of, addition to or alteration of a building or other structure;
c. altering land in any development permit area designated under section 488(1)(a) or (b) (protection of the natural environment, protection of development from hazardous conditions); or
d. altering land, a building or other structure in a development permit area designated under section 488(1)(d), (h), (i) or (j) (revitalization, energy conservation, water conservation, greenhouse gas reduction).

GG1. Where land lies within more than one development permit area, all the applicable permit requirements must be met for the part of the land lying within the applicable DPA.

Permit Exemptions

Section 488(4) of the *Local Government Act* provides that an official community plan may specify conditions under which a development permit would not be required in a designated development permit area. Accordingly, each development permit area contains a list of exemptions. Some apply to specific activities; others apply to local areas within the development permit area.

Information Requirements

Under section 485(1) of the *Local Government Act*, a local government may specify circumstances under which certain information is required prior to approval of a development permit application and may designate areas in which such information is required.

The level of assessment required depends on the type of development permit area, the size of a proposed development, and its potential impact on the community and the environment. The greater the potential risk, the more rigorous the information requirement.

CVRD's Bylaw No. 3540 (A Bylaw to Establish Development Approval Information Requirements and Procedures) sets out the type of information an applicant for a development permit may be required to provide as well as what type of appropriate professional may be required by the approving officer to prepare the report. Where applicable, a development permit area in this OCP may provide further guidance on specific application requirements.

How to Understand the Development Permit Exemptions and Guidelines

Each DPA is formatted for ease of use, according to the following outline:

- ***Permit Exemptions*** considers the prohibitions in s. 489 of the *Local Government Act* and sets out exemptions where development permits are not required. Note that all of the following require a development permit under the statute, unless exempted:
  - subdivision in all development permit areas;
  - building construction, addition or alteration in all development permit areas;
  - land alteration in natural environment and hazard land development permit areas, which includes alteration or removal of vegetation, disturbance of soils including grubbing, scraping and deposit or removal of top soil; and
  - land alteration in commercial revitalization, energy or water conservation and GHG reduction development permit areas, which includes alteration or removal of vegetation, disturbance of soils including grubbing, scraping and deposit or removal of soil.

- ***Permit Guidelines*** are organized according to the type of development that is being managed: subdivision, building or land alteration. If there are no relevant guidelines, exemptions may be provided. For example, Form and Character DPAs might not require a development permit at the subdivision stage because the form and character objectives don't encompass how subdivisions are laid out. However, energy conservation DPAs may require a development permit for subdivision because subdivision layout can optimize the use of solar energy.

For each development permit area, there may be specific conditions that section 490 of the *Local Government Act* mandates, and guidelines that enable the imposition of such conditions may be included. Some of these might include guidelines respecting the requirement for securities under section 504 of the *Local Government Act*. This section may also include guidelines for the variance of zoning bylaw provisions, such as building height and siting, which would allow the applicant to use the development permit to affect variance, rather than requiring the applicant to also apply for a development variance permit.

- ***Application Requirements*** do not apply to all DPAs; however, some DPAs include this section to help assist applicants in gathering relevant information for their application. If this section is not included in the DPA, other resources are available, such as the application checklist and meeting with staff for a pre-application consultation. Only applications for subdivisions or uses that comply fully with the land use bylaw may be eligible for a development permit.

Within this document, individual development permit area pages will feature colour-coded headers that correspond with the colours used to shade individual DPAs on their associated maps.

List of Development Permit Areas and Guideline Key

The CVRD Official Community Plan for the Electoral Areas (OCP) designates and maps 13 development permit areas in the regional district, each with its own set of guidelines. Individual guidelines are identified by the acronyms of the areas they belong to, followed by their numerical order. Guidelines pertaining to Application Requirements are followed by the letters

AR, for instance RP-AR1. General form and character guidelines in Part 4 (prefaced by the acronym FCG) apply to all DPAs in Part 4.

Abbreviations

ALC	Agricultural Land Commission
ALR	Agricultural Land Reserve
ASTM	American Society for Testing and Materials
CEEI	Community Energy Emissions Inventory
CWPP	Community Wildfire Protection Plan
DPA	development permit area
QEP	qualified environmental professional
SEI	Sensitive Ecosystem Inventory
SPEA	streamside protection and enhancement area (riparian areas protection regulation)

DPA Wayfinding Colour Keys

- DPA #1 Riparian Protection
- DPA #2 Environmentally Sensitive Areas Protection
- DPA #3 Marine Shore Protection
- DPA #4 Aquifer Protection
- DPA #5 Wildfire Protection
- DPA #6 Flood Protection
- DPA #7 Slope Stability
- DPA #8 Protection of Farming
- DPA #9 Intensive Residential Form and Character
- DPA #10 Multi-Family Form and Character
- DPA #11 Commercial Mixed-Use Form and Character
- DPA #12 Industrial Form and Character
- DPA #13 Energy Water Conservation Reduction GHG Emission

Definitions

These definitions apply to the development permit areas only.

Aquifer means an underground water body present in the interstices of the materials in the ground overlain by either permeable gravel or an impervious material, such as clay. The water level of the aquifer rises and falls in response to water removal and infiltration and flows to other aquifers**.**

Board means the board of directors of the Cowichan Valley Regional District.

Buffer area means an area of land that separates and protects two land uses. Examples include treed areas between commercial parcels and residences, and vegetated areas between riparian areas and nearby development.

Development means any activity referred to in section 489 of the *Local Government Act* and includes alteration or development of land for residential, commercial, industrial, institutional, service or utility uses or activities, to the extent that these uses or activities are subject to local government powers under the *Local Government Act* and without limitation includes the alteration or removal of vegetation and the deposit or removal of soil materials.

Activities that require a development permit:
489 If an official community plan designates areas under section 488 (1), the following prohibitions apply unless an exemption under section 488 (4) applies or the owner first obtains a development permit under this division:

(a) land within the area must not be subdivided;
(b) construction of, addition to or alteration of a building or other structure must not be started;
(c) land within an area designated under section 488 (1) (a) or (b) *[natural environment, hazardous conditions]* must not be altered;
(d) land within an area designated under section 488 (1) (d), (h), (i) or (j) *[revitalization, energy conservation, water conservation, greenhouse gas reduction]*, or a building or other structure on that land, must not be altered.

Emergency works means emergency actions taken to prevent flooding, erosion or other immediate threats to life and property. Such emergency works may include clearing of an obstruction from a watercourse or culvert or repairs to a bridge, culvert or drainage flow and the removal of tree(s) that present an immediate danger to public property or existing structures.

Environmentally sensitive area is an area that contains sensitive or rare ecosystems, or other environmentally sensitive values. Often used as a synonym for Sensitive Ecosystems (see below).

Environmentally significant area means a natural area with special features, habitat and ecological value, such as bald eagle nesting sites and Garry oak ecosystems.

Fish means all life stages of salmonids, game fish and regionally significant fish.

Fish-bearing watercourse means a watercourse in which fish are present or potentially present if introduced barriers or obstructions are either removed or made passable for fish.

Floodplain means a relatively flat, low-lying area adjacent to a watercourse, with a potential to flood when water levels are high.

Foreshore means the strip of land that lies between the maximum high and low tide lines and that is alternately wet and dry, according to the flow of the tide.

Green roof means a roof partially or completely covered with vegetation planted in a growing medium over a waterproof membrane.

Green Shores means a voluntary, incentive-based rating program focused on positive steps to reduce the impact of development on shoreline ecosystems, as outlined by the Stewardship Centre for British Columbia.

Groundwater means water found underground in the cracks and spaces in soil, sand and rock. It is stored in and moves through geologic formations of soil, sand and rocks called aquifers.

Highway includes a public street, path, walkway, trail, lane, bridge, road, thoroughfare and any other public way (from *Land Title Act*, [RSBC 1996] Chapter 250, Part 1 – Definitions, Interpretations and Application, s. 1).

A road or highway is a public street, path, walkway, trail, lane, bridge, road, thoroughfare and any other public way as per the *Land Titles Act*. Constructed and gazetted roads may not be formally dedicated with LTSA, may not be located in the centreline of a formally dedicated road right of way, and may not be located within a formally dedicated road right of way, therefore road centrelines cannot be assumed to represent the centreline of a road right of way.

Impervious surfaces mean hard surfaces that do not permit water to flow through to the ground beneath.

Invasive plant species means plants that are not native to the area, or are outside of their natural distribution, and are identified on the “priority invasive plant list” established by the Coastal Invasive Species Committee and Invasive Species Council of BC.

Natural features, functions and conditions include but are not limited to the following:

a. large organic debris that falls into the stream or streamside area, including logs, snags and root wads;
b. areas for channel migration, including active floodplains;
c. side channels, intermittent streams, seasonally wetted contiguous areas and floodplains;
d. the multi-canopied forest and ground cover adjacent to streams that
    i. moderates water temperatures;
    ii. provides a source of food, nutrients and organic matter to streams;
    iii. establishes root matrices that stabilize soils and stream banks, thereby minimizing erosion; and
    iv. buffers streams from sedimentation and pollution in surface runoff;
e. a natural source of stream bed substrates; and
f. permeable surfaces that permit infiltration to moderate water volume, timing and velocity and maintain sustained water flows in streams, especially during low flow periods.

Riparian Areas Protection Regulation, s. 1

No net loss is a working principle by which the Cowichan Valley Regional District strives to balance unavoidable habitat losses with habitat replacement on a project-by-project basis so that further reductions to natural resources (e.g. fisheries) due to habitat loss or damage may be prevented.

Non-fish-bearing watercourse means a watercourse that (a) is not inhabited by fish and (b) provides water, food and nutrients to a downstream fish-bearing stream or other water body.

Non-permanent watercourse means a watercourse that typically contains surface waters or flows for periods less than six months in duration.

Permanent watercourse means a watercourse that typically contains continuous surface waters or flows for a period more than six months in duration.

Qualified environmental professional (QEP) means an applied scientist or technologist, acting alone or together with another qualified environmental professional, if

a. the individual is registered and in good standing in British Columbia with an appropriate professional organization constituted under an Act, acting under that association's code of ethics and subject to disciplinary action by that association; and
b. the individual's area of expertise is recognized in the assessment methods as one that is acceptable for the purpose of providing all or part of an assessment report in respect of that development proposal, and the individual is acting within that individual's area.

Regional District means the Cowichan Valley Regional District governing body; **regional district** refers to the CVRD's geographical area.

Riparian area means an area adjacent to a watercourse that links aquatic to terrestrial ecosystems and includes both the riparian area vegetation and the adjacent upland vegetation that exerts an influence on the watercourse, the width of which includes the area up to 30 m from each edge of a bank of a watercourse.

Riparian assessment area means:

a. for a steam, the 30 m strip on both sides of the stream, measured from the high-water mark;
b. for a ravine less than 60 m wide, a strip on both sides of the stream measured from the high-water mark to a point that is 30 m beyond the top of the ravine bank; and
c. for a ravine 60 m wide or greater, a strip on both sides of the stream measured from the high-water mark to a point that is 10 m beyond the top of the ravine bank.

Road Right of Way refers to the depiction of a formally dedicated road in Parcel Map BC (PMBC) by the Land Title Survey Authority (LTSA), where "formally dedicated" refers to the vesting of title for the purposes of road. In instances where a road has been legally established, but steps have not been taken to reflect the establishment in land title records, the road is not considered "formally dedicated". As per the LTSA, roads are formally dedicated via their depiction as highway, road, or lane on a subdivision or reference plan, submitted under s. 107 of the *Land Title Act*; or roads are formally dedicated under s. 115 of the *Land Title Act* via the

submission of a Form 12 (Certificate as to Highway in Statutory Right of Way Plan) and related Statutory Right of Way plan.

Sensitive ecosystem means an ecosystem in the landscape that is at-risk or ecologically fragile.

Sensitive Ecosystem Inventory (SEI): the standardized method by which sensitive ecosystems are mapped and described. The scale of mapping can be variable, ranging from 1:1 000 to 1:20 000. SEI mapping coverage in the CVRD is only available in some areas.

Shoreline means the normal high-water mark of tidal waters, a coastal or inland wetland, a standing body of water or flowing water.

Stormwater means the water that drains off or into the land following rainstorm or snowfall.

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) of the Riparian Areas Protection Regulation.

Streamside Protection and Enhancement Area is the portion of the riparian assessment area for the stream that

a. includes the land, adjacent to the stream boundary, that
    i. links aquatic to terrestrial ecosystems;
    ii. is capable of supporting streamside vegetation; and
    iii. in the case of a simple assessment, extends far enough upland from the stream that development outside the streamside protection and enhancement area will not result in any harmful alteration, disruption or destruction of natural features, functions and conditions in the area referred to in paragraph (a) that support the life processes of protected fish.

Without limiting subsection (1) (a) (ii), an area of human disturbance must be considered capable of supporting streamside vegetation if the area would be capable of supporting streamside vegetation were the area in a natural condition.

Sustainability means development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Sustainability involves integrating social, economic and environmental considerations.

Watercourse means a creek, pond, lake, river, stream or brook, whether usually containing water or not, and any spring or wetland that is integral to a watercourse.

Wetland means land that is inundated or saturated by surface or ground water at a frequency and duration that are sufficient to support and under normal conditions do support vegetation typically adapted for life in saturated soil conditions, including swamps, marshes, bogs, fens, estuaries and similar areas that are not part of the active floodplain of a watercourse.

Wetland ecosystem means an ecosystem described as such in the Sensitive Ecosystems Inventory.

Wildlife corridor means an area of habitat connecting wildlife populations separated by human activities or structures (such as roads, development or logging), providing animals with an opportunity to move freely between two or more habitat patches or habitat types in an otherwise fragmented landscape.

1 PROTECTION OF THE NATURAL ENVIRONMENT

Development Permit Area 1: Riparian Protection

Permit Exemptions

There are several exemptions to the permit guidelines. A development permit is not required for the following activities:

a. gardening and yard maintenance activities within an existing landscaped area, such as mowing lawns, pruning trees and shrubs, planting vegetation and minor soil disturbance that does not alter the general contours of the land;
b. the construction of a fence if only non-native trees are removed and the disturbance of native vegetation is restricted to 0.5 m either side of the fence;
c. the construction of a trail if all the following apply:
    i. the trail is 1 meter wide or less;
    ii. no native trees are removed;
    iii. the surface of the trail is pervious (for example soil, gravel or wood chips);
    iv. the trail is designed to prevent soil erosion where slopes occur; and
d. normal farm practices within the Agricultural Land Reserve conducted in alignment with the *Farm Practices Protection Act*, and in accordance with the Code of Practice of Agricultural Management;
e. ecological restoration and enhancement projects undertaken or authorized by public authorities;
f. construction, maintenance or operation of
    i. municipal works and services undertaken or authorized by Cowichan Valley Regional District;
    ii. park works and services undertaken or authorized by Cowichan Valley Regional District; and
    iii. federal and provincial works; and
g. emergency actions required to prevent, control or reduce an immediate threat to human life, the natural environment or public or private property including
    i. forest fire, flood and erosion protection works;
    ii. protection, repair or replacement of public utilities;
    iii. clearing of an obstruction from a bridge, culvert or stream;
    iv. bridge repairs;
    v. removal or modification of trees certified by an arborist to be hazardous; and
    vi. protection, repair or replacement of private or public septic system.
h. lot line adjustments where subdivision does not result in the ability to construct a new dwelling unit.

Application Requirements

RP-AR1 Under the Riparian Areas Protection Regulation, a local government must not approve a development proposal within a riparian assessment area unless a QEP has conducted an assessment that provides a professional opinion that there will be no adverse effect on the natural features, functions and conditions that support fish life processes in the riparian assessment area if (a) the development is implemented as proposed or (b) imposes a condition of the approval that the development proceed as proposed in the assessment report and comply with any measures recommended in the assessment report.

RP-AR2 The assessment report must specify the width of the SPEA and the measures necessary to protect its integrity, and it must adhere to the assessment methods set out in the schedule to the Riparian Areas Regulation. Recommendations from the assessment report may become conditions of the development permit.

RP-AR3 To proceed with consideration of the development application, the Regional District will require a copy of the assessment report provided by the Minister of the Environment and Climate Change Strategy unless the federal Minister of Fisheries and Oceans or a regulation under the Canada *Fisheries Act* has authorized the harm to conditions in the riparian assessment area that would result from the implementation of the development proposal.

RP-AR4 The Regional District may approve the development application only if the QEP reports that the development as proposed will not harm natural features, functions and conditions that support fish life processes in the riparian assessment area, or that there will be no such harm if the streamside protection and enhancement areas identified are protected and the measures identified in the assessment report are implemented.

RP-AR5 If adequate, suitable areas of land for the intended use exist on a portion of the parcel that lies outside the riparian assessment area, the applicant should direct development to those areas in order to minimize adverse impacts. In all other cases, the applicant will be required to demonstrate with the support of a qualified environmental professional, to the satisfaction of the CVRD board, that developing in the riparian assessment area is necessary or advisable due to circumstances such as topography, hazards or lack of alternative developable land and that every effort has been made to minimize adverse impacts.

The Riparian Areas Regulation requires a Qualified Environmental Professional (QEP) to provide an opinion in an Assessment Report that development will not result in a harmful alteration of riparian fish habitat. Through this report the QEP helps to plan any new development so that it will avoid impacting fish habitat. The Assessment Report, submitted electronically to provincial and federal governments, facilitates monitoring and compliance.

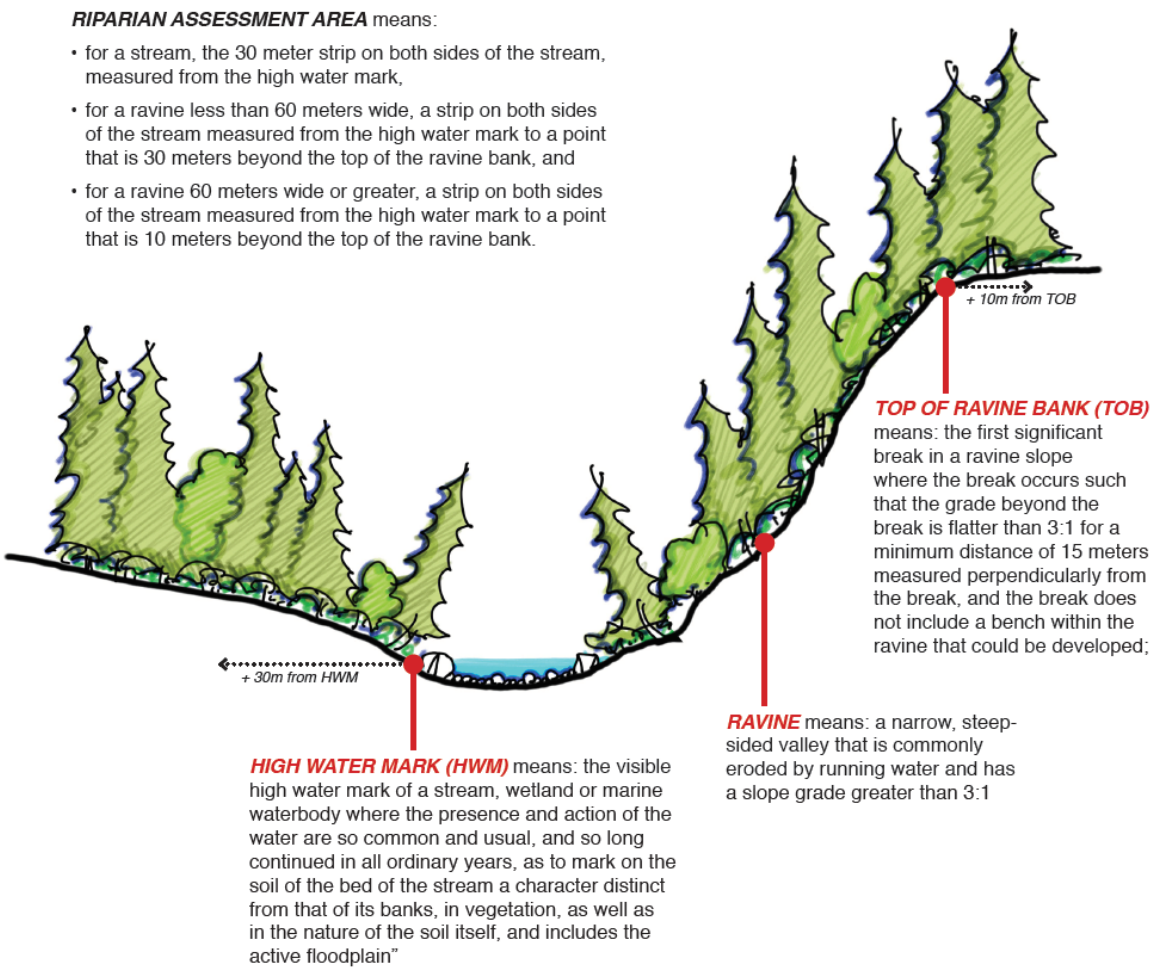

Figure 1: Riparian assessment area key terms.

Permit Guidelines

Protection of the Streamside Protection and Enhancement Area

RP1. No development should occur within a streamside protection and enhancement area except for

a. works authorized by the Minister of Fisheries and Oceans or a regulation under the *Fisheries Act* (Canada);
b. works and activities that comply with the laws and regulations of the *Water Sustainability Act*, such as bank repairs, stormwater outfalls, road crossings, footbridges and pipeline crossings; and
c. a local government has received an approved, non-expired assessment report from a QEP in which the report indicates how permitted use/density can be authorized on the parcel while causing minimum damage to the SPEA and, in

some circumstances, how the SPEA encroachment can be compensated for by enhancement of contiguous land outside the SPEA.

RP2. Notwithstanding RP1, where a minor intrusion into a SPEA determined in accordance with that guideline is required and the SPEA is greater than 15 m setback, the SPEA boundary may be adjusted to accommodate the intrusion where all the following apply:

a. the SPEA intrusion is situated within a previously landscaped area;
b. adjustment of the SPEA boundary does not result in any portion of the boundary being less than 10 m from the high-water mark;
c. terrain stability is not compromised;
d. land is added to the SPEA equal in area to that removed, so that there is no reduction in the overall SPEA area within the property;
e. new areas added to the SPEA to replace those removed are contiguous with the original SPEA and located as close to the stream as possible;
f. there is, in the opinion of the QEP who performed the riparian area assessment, no reduction in the overall quality of the fish and wildlife habitat provided by the SPEA;
g. a B.C. land surveyor survey plan is provided that identifies the high-water mark of the stream, top of the ravine bank if applicable and adjusted SPEA boundary in relation to the parcel boundaries and existing and proposed development; and
h. identify the SPEA in the development permit as an area that must remain free of development as a condition of development.

RP3. Address terrain stability as identified in a geotechnical assessment by a qualified engineer or geologist that may have an impact on the SPEA.

Retention of Native Vegetation and Control of Invasive Species

RP4. Retain lands within the riparian assessment area (including wetland, seasonal watercourse, lake or pond) in their natural state, preserving native vegetation and trees.

RP5. During construction, protect the root zones of trees located within the SPEA and those identified for retention outside the SPEA as identified by an arborist.

RP6. Remove and/or control invasive plant species on the priority plant list established by the Coastal Invasive Species Committee and Invasive Species Council of BC (https://www.coastalisc.com/priority-invasive-plants/).

Image 2: The priority plant list outlines species to be prevented, eradicated, contained, or controlled.

Enhancement and Restorations

RP7. Restore previously disturbed riparian areas to a natural condition based on a local reference ecosystem identified by the qualified environmental professional.

RP8. Enhance and, where feasible, restore watercourses in already developed areas to improve watercourse quality from uplands to inlets.

Subdivision

RP9. At the time of subdivision, allocate an area at least 30 m in width from the high-water mark of the watercourse or top of ravine bank to be designated in the development permit to remain free of buildings, structures and alterations of land; designate the riparian assessment area in the development permit as an area that must remain free of development; and lay out subdivision parcels accordingly.

RP10. Design subdivisions so that all parcels allow for a suitable building envelope and driveway that is set back from the riparian assessment area at least 7.5 m.

RP11. Design subdivisions to avoid crossings of riparian areas and to maximize the distance between roads and riparian areas.

RP12. Where a crossing of a riparian area is unavoidable, locate and design crossings to minimize the environmental impact.

RP13. Design subdivisions to avoid disruption of wildlife corridors in riparian areas.

Building and Structures

RP14. Develop and implement a soil erosion and sediment control plan as part of site design and construction to prevent the discharge of sediment-laden water into a stream.

RP15. Install temporary fencing and signage to prevent encroachment into the streamside protection and enhancement area during land preparation and construction.

RP16. Minimize alteration of the contours of the land outside the areas approved for buildings, structures and site accesses by minimizing the deposit of fill and the removal of soil.

RP17. Locate buildings, structures and driveways to maximize separation from riparian areas.

Best Management Practices for Protection of Riparian Areas

Environmental Best Management Practices for Urban and Rural Land Development: Aquatic and Riparian Ecosystems Government of British Columbia, 2004

Standards and Best Practices for Instream Works Government of British Columbia, 2004. Note: Fisheries and Oceans reviews and updates every two years to account for changes.

Land Development Guidelines for the Protection of Aquatic Habitat Fisheries and Oceans Canada, 1993

Stormwater Planning: A Guidebook for British Columbia
Government of British Columbia et al. 2002

Code of Practice for Agricultural Environmental Management B.C. Reg. 8/2019

BC Riparian Area Management Guidebook
Government of British Columbia, 2004

Development Permit Area 2: Environmentally Sensitive Areas Protection

Permit Exemptions

A development permit is not required for the following purposes:

a. Addition to a single detached dwelling of up to 10 m^2 in gross floor area.
b. Construction of an accessory building or structure with a gross floor area of up to 10 m^2 provided it has no permanent foundation and that it does not require the removal of trees.
c. Construction of a retaining wall up to 10 m in length and up to 1 m in height.
d. Construction of a non-structural impervious surface such as a driveway, walkway, patio or terrace not exceeding 10 m^2.
e. The construction of buildings or structures or land alteration if the CVRD receives confirmation from a qualified environmental professional stating that through field verification or review of orthophotography at a scale less than 1:5000 that an environmentally sensitive area is not located in the area of land subject to development. A review based on orthophotography must use 2015 or later orthophotos and provide a comparison to the 2014 orthophotography utilized in the Madrone Environmental Services 2018 report. This exemption does not apply to subdivision, except lot line adjustments described in exemption f.
f. Lot line adjustments where the subdivision does not result in the ability to construct a new dwelling unit.
g. Ecological restoration and enhancement projects undertaken or authorized by public authorities.
h. Gardening and yard maintenance activities within an existing landscaped area, such as mowing lawns, pruning trees and shrubs, planting vegetation and minor soil disturbance that does not alter the general contours of the land.
i. Construction, maintenance or operation of:
    i. municipal works and services undertaken or authorized by Cowichan Valley Regional District;
    ii. park works and services undertaken or authorized by Cowichan Valley Regional District; and
    iii. federal and provincial works.
j. Emergency actions required to prevent, control or reduce an immediate threat to human life, the natural environment or public or private property including:
    i. forest fire, flood and erosion protection works;
    ii. protection, repair or replacement of public utilities;
    iii. clearing of an obstruction from a bridge, culvert or stream;
    iv. bridge repairs;
    v. removal or modification of trees certified by an arborist to be hazardous; and
    vi. protection, repair or replacement of private or public septic system.

Application Requirements

ESA-AR1 Submit development approval information that has been prepared by qualified environmental professionals (QEPs) and includes at a minimum:

a. a topographic survey with an appropriate contour interval;
b. an inventory of natural biophysical features;
c. identification of populations, habitats or natural features (e.g. wetlands, snags, coarse woody debris, etc.) supporting species at risk;
d. identification of the boundaries of environmentally sensitive areas;
e. description of site development plans and operations, including location and area calculations for proposed parcels, roads/driveways, building sites, impervious surface areas and natural and landscaped areas; and
f. assessment of the potential environmental effects of proposed development on sensitive and important ecosystems and watercourses.

Protecting Species at Risk

The federal *Species at Risk Act* (SARA) defines a species at risk as an extirpated, endangered or threatened species or a species of special concern.

The B.C. government's Conservation Data Centre (CDC) assesses the level that B.C. species or ecological communities are at risk of being lost. Based on that, the CDC assigns a provincial conservation status rank that can be used to set conservation priorities.

All species in B.C. are ranked red, blue or yellow:
Red—any species or ecosystem that is at risk of being lost (extirpated, endangered or threatened)
Blue—any species or ecosystem that is of special concern (vulnerable to extirpation or extinction)
Yellow— Any species or ecosystem that is at the least risk of being lost. All red-listed and blue-listed species are considered species at risk under SARA.

A 2015 update to the CVRD's *State of the Environment Report* included a full list of species at risk in the Cowichan Valley Regional District.

ESA-AR2 Submit an environmental site plan, prepared by QEPs, that

a. reflects Best Management Practices in environmental site planning;
b. includes details of specific provisions that will be implemented to preserve and protect the natural environment, ecosystems and biological diversity of sensitive ecosystems within the DPA;
c. specifies terms and conditions regulating any activities that may adversely affect or disturb species, vegetation, soils, watercourses, natural features or ecological processes of sensitive ecosystems within the DPA, where such disturbance is unavoidable;
d. details specific provisions that will be implemented to restore and enhance the natural environment, ecosystems and biological diversity of sensitive ecosystems within the DPA;
e. defines measures for professional environmental supervision, inspection and monitoring of development activities and related environmental effects on sensitive ecosystems occurring during and after development, including the environmental consequences of any contravention of a condition of the development permit and proposed measures for mitigation of these consequences;
f. conforms to all municipal bylaws, federal and provincial legislation, and regulations; and

g. in Honeymoon Bay (electoral area F), references the Honeymoon Bay Property Environmental Overview Assessment prepared by ENKON Environmental Ltd. (2013).

Permit Guidelines

Measures for Protecting Natural Attributes of Sensitive Areas

ESA1 Maintain a minimum 15 m natural buffer adjacent to sensitive ecosystem areas that
a. recognizes natural processes and changing natural boundaries;
b. avoids disturbance of native vegetation, and removes and/or control invasive plant species on the priority plant list as identified by the Coastal Invasive Species Committee and Invasive Species Council of BC. (https://www.coastalisc.com/priority-invasive-plants/);
c. avoid disturbance to large trees, snags, stumps and logs;
d. deter grazing by livestock in sensitive ecosystem areas;
deter predation and disturbance of wildlife by pets and domestic animals in sensitive and other important ecosystem areas; and
e. maintain wildlife corridors between the ecosystem and nearby wildlife habitat patches.

ESA2 Include in the environmental site plan measures to maintain connectivity and linkages with adjacent sensitive ecosystems and other habitat areas through the use of corridors and greenways to minimize fragmentation. These connectivity features should be as undisturbed/natural as possible (i.e., include a variety of structural attributes or layers such as trees, shrubs, stumps, logs, etc.)

Best Management Practices for Protection of Sensitive Ecosystems

Best Management Practices for Environmental Protection
Environmental Best Management Practices for Urban and Rural Land Development: Special Wildlife & Species at Risk
Government of British Columbia

Natural Resource Best Management Practices
Government of British Columbia

Working around Watercourses
Standards and Best Practices for Instream Works
Government of British Columbia

Invasive and Native Plants
Coastal ISC Priority Invasive Plant List
Coastal Invasive Species Committee

Gardening with Native Plants
Habitat Acquisition Trust

ESA3 Where the development site contains or is adjacent to a natural watercourse
a. prevent access to the watercourse by construction activities, except as approved by government agencies having jurisdiction;
b. preserve and restore the watercourse to natural condition, including the planting and retaining of vegetation and trees to preserve and protect fish habitat and riparian areas, control drainage and erosion and protect banks; and

c. ensure the environmental site plan complies with provisions of the B.C. *Water Sustainability Act*, Canada *Fisheries Act* and B.C. Riparian Areas Protection Regulation.

ESA4 Design and implement a sediment and erosion control plan to protect sensitive ecosystems from silt smothering of low-growing plants where land disturbance is planned or likely.

ESA5 Where utilities, servicing and infrastructure are required near sensitive ecosystems

a. locate these works within sensitive ecosystem areas and associated buffers only where the installation is necessary, such as essential public roads, utilities, public works and pathways, and where there is no other physical alternative, by the determination of the local government;
b. manage construction to avoid adverse effects on sensitive ecosystem functions and conditions;
c. locate and design installations through the environmental site plan so that sensitive ecosystems can be maintained when adjacent lands are developed; and
d. restore and enhance any disturbed sensitive ecosystems to maintain previously existing natural conditions and functions of the sensitive ecosystem.

ESA6 Use only native plant species where development occurs within or adjacent to a sensitive ecosystem, and do not use invasive plant species as identified by the Coastal Invasive Species Committee and Invasive Species Council of BC (https://www.coastalisc.com/priority-invasive-plants/).

ESA7 Create and implement a plan to control the introduction or spread of invasive plant species. This plan may include removal of invasive species by hand clearing, pruning, mowing, excavation or other appropriate method. Disturbed sites are to be planted with appropriate native species.

ESA8 Avoid development activities in areas that would disturb wildlife during nesting and breeding seasons. Ensure that wildlife agencies and experts are consulted as necessary to determine the best times and practices for development.

ESA9 Minimize activities that disturb wildlife, compact or expose soils, or damage native vegetation, such as intensive recreation and livestock grazing. Where such activities are unavoidable, use designs that avoid public and livestock access to sensitive and important ecosystems (e.g., via roads and trails).

ESA10 Minimize the presence of trails and other crossings within environmentally sensitive areas or sensitive ecosystems. Where they are required, they should be designed to

a. be as narrow as possible;
b. not impact natural hydrological processes (i.e., water flows and drainage pathways)

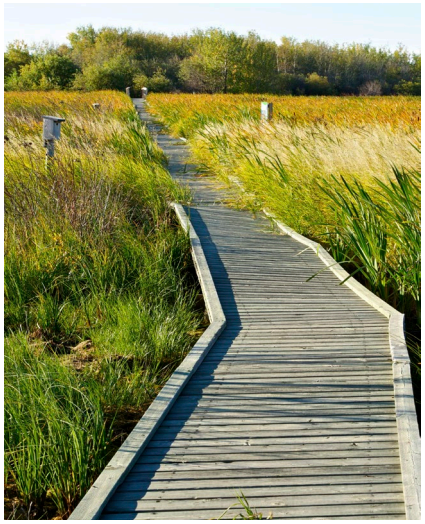

Image 3: Boardwalks are elevated to minimize disruption of wetlands.

c. provide the least intrusive and disruptive route to viewing areas;
d. avoid areas with high erosion potential;
e. ensure adequate drainage;
f. avoid sensitive or rare vegetation; and
g. prevent intrusion into wet areas including seepage sites and wetlands.

Development Permit Area 3: Marine Uplands and Foreshore Protection

Permit Exemptions

A development permit is not required in the stated electoral areas for the following purposes:

Electoral Area:	Exemption:
A, C, D	Activities located in areas more than 15 horizontal metres upland from the high-water mark.
G	Activities located in areas more than 30 horizontal metres upland from the high-water mark.
A, C, D, G	lot line adjustments where subdivision does not result in the ability to construct a new dwelling unit.
	Minor alterations to areas that have previously been disturbed for at least five years, provided that only hand tools and natural materials, such as wood or stone, are used in the construction.
	Construction of a non-structural impervious surface, such as a driveway, walkway, patio or terrace, not exceeding 10 m^2.
	Construction, maintenance or operation of: i. municipal works and services undertaken or authorized by Cowichan Valley Regional District; ii. park works and services undertaken or authorized by Cowichan Valley Regional District; and iii. federal and provincial works.
	Emergency actions required to prevent, control or reduce an immediate threat to human life, the natural environment or public or private property including: i. forest fire, flood and erosion protection works; ii. protection, repair or replacement of public utilities; iii. clearing of an obstruction from a bridge, culvert or stream; iv. bridge repairs; v. removal or modification of trees certified by an arborist to be hazardous; and vi. protection, repair or replacement of private or public septic system.

Best Management Practices for Marine Shores Protection
Green Shores for Coastal Development: Credits and Ratings Guide for Waterfront Properties
Part 2: Prerequisites, pp. 8-24.

Permit Guidelines

Protection of Shoreline Ecosystems

MUFP1. Submit a report prepared by a QEP to eliminate or mitigate impacts of the proposed development on the subject property, other parcels with marine shorelines in the general area, and the general marine ecology.

MUFP2. Retain lands inland from and abutting the shoreline in their natural condition, preserving native vegetation and trees. Where a building, structure or alteration of land is proposed in these areas, demonstrate the circumstances that make this necessary.

MUFP3. Restore vegetation to marine riparian areas affected by construction or alteration of land using native species in accordance with a vegetation restoration plan prepared by a landscape architect or qualified environmental professional.

MUFP4. Implement measures to manage erosion and sedimentation during site preparation and construction.

Seawalls and Shorelines

Construction of concrete seawalls, once standard practice, has given way in recent years to a preference for natural barriers designed not to interfere with natural shoreline processes.

Hard structures that interrupt natural sediment movement can cause the loss of sand and gravel beaches and the habitat they provide for marine fauna and flora. Removal of natural vegetation, for example in order to expand a lawn up to the shoreline, may also mean the loss of the valuable functions it provides, such as providing wildlife habitat, filtering pollution washed off the land and absorbing the destructive energy of storm waves. Impacts on offshore marine ecosystems such as eelgrass beds can harm a wide range of marine life up the food chain from forage fish to salmon to orcas.

Interruption of natural shoreline processes by hard structures in one part of a beach may also have detrimental impacts on adjacent and nearby properties by altering erosion and drift patterns along the length of a shoreline.

MUFP5. Locate roads as far as possible from the edge of a slope or from the marine shoreline.

Limiting Shoreline Erosion

MUFP6. Avoid shoreline hardening and erosion control measures such as retaining walls.

MUFP7. Where erosion control measures are required to protect existing buildings, give preference to natural measures such as a Green Shores approach rather than shoreline/slope hardening.

MUFP8. Where retaining walls or other structures are required to protect buildings or prevent erosion, ensure they are limited to areas above the high tide mark and to areas of slope failure, rather than along the entire shoreline frontage, and are less than 2 metres in height in any one section.

MUFP9. Avoid backfilling behind a retaining wall unless clearly demonstrated by an engineer to be necessary to prevent further erosion or sloughing of the bank that would potentially endanger existing buildings.

Maintaining Public Waterfront Access

MUFP10. Ensure public access to the marine waterfront is not prevented or impeded by shoreline alterations.

MUFP11. Complete installation and construction during periods of least risk (summer: July 1–October 1; winter: December 1–February 15).

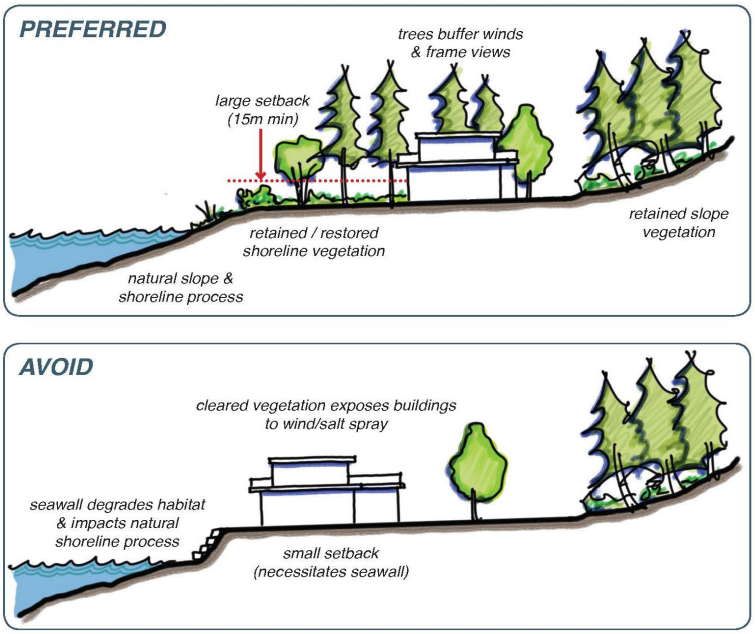

Figure 2: Foreshore overstructures

Cowichan Bay Village Foreshore Overstructures

MUFP12. Minimize the extent of overwater structures and the number of pilings.

MUFP13. Orient piers and docks north to south.

MUFP14. Situate wharves to avoid extension over marshes or other productive foreshore areas; avoid extending wharves over the water beyond the low-water mark, except as necessary to access floats or for public viewing.

MUFP15. Locate overwater structures, including floating homes, at a sufficient depth of water to prevent the structure from grounding, ensuring a minimum 2 m vertical clearance between the level of the lowest tide and ocean floor substrate.

MUFP16. Focus lighting on the dock surface and use shades to minimize illumination of the water and surrounding environment at night.

Image 4: Full cut-off luminaires limit light pollution to reduce impact on marine life.

MUFP17. Incorporate measures to increase light penetration to the marine environment during the day. Measures to increase light penetration may include

a. locating overwater structures so they will not cast shade on native aquatic vegetation or light-sensitive habitat;
b. locating overwater structures a minimum of 8 m from native aquatic vegetation;

c. using grating, glass inserts or reflective panels, with at least 60% functional openings, for elevated docks and gangways sited over nearshore areas; and
d. providing artificial lighting beneath overwater structures during daylight hours.

MUFP18. Avoid sheathing-in (skirting) overwater structures.

MUFP19. Design and locate structures to avoid the need for new bulkheads or shoreline armour.

MUFP20. Avoid use of wood treated with toxic compounds in decking, pilings or other in-water components.

MUFP21. Encapsulate foam material so that it cannot break up and be released into water.

Development Permit Area 4: Aquifer Protection

Permit Exemptions

A development permit area is not required for the following purposes:

a. construction of, addition to or alteration of a single detached dwelling including accessory structures;
b. maintenance of existing lawns and gardens;
c. removal of invasive plants and planting of native plants;
d. repair and maintenance of existing structures;
e. lot line adjustments where subdivision does not result in the ability to construct a dwelling unit;
f. normal farm practices in the ALR, conducted in alignment with the Code of Practice of Agricultural Environmental Management and in accordance with the *Farm Practices Protection Act*;
g. ecological restoration and enhancement projects undertaken or authorized by public authorities;
h. forest management activities as described in Schedule A to the Private Managed Forest Land Regulations that are occurring on private managed forest land;
i. construction, maintenance or operation of:
    i. municipal works and services undertaken or authorized by Cowichan Valley Regional District;
    ii. park works and services undertaken or authorized by Cowichan Valley Regional District; and
    iii. federal and provincial works.
j. emergency actions required to prevent, control or reduce an immediate threat to human life, the natural environment or public or private property including:
    i. forest fire, flood and erosion protection works;
    ii. protection, repair or replacement of public utilities;
    iii. clearing of an obstruction from a bridge, culvert or stream;
    iv. bridge repairs;
    v. removal or modification of trees certified by an arborist to be hazardous; and
    vi. protection, repair or replacement of private or public septic system.

Application Requirements

AP-AR1 Prior to construction or excavation, along with a development permit application submit a report, prepared by a qualified environmental professional, that analyzes the impacts of proposed development on aquifers in the development permit area.

Permit Guidelines

General

AP1. Plan and undertake development activities in a manner that complies with B.C. and federal government guidelines for best management practices, including

a. Develop with Care: Environmental Guidelines for Urban and Rural Land Development in British Columbia Government of British Columbia, 2014; and
b. Natural Resource Best Management Practices Government of British Columbia.

AP2. Follow B.C. and federal government best management practices for the protection of water quality and quantity in surface and groundwater hydrologic systems, including

a. Integrated Rainwater and Groundwater Management Water Sustainability Action Plan for British Columbia, 2012;
b. Land Development Guidelines for the Protection of Aquatic Habitat. Fisheries and Oceans Canada, 1993; and
c. Stormwater Planning. Government of British Columbia, 2002.

Protection of Aquifers from Contamination and Depletion

AP3. Do not construct any septic tank, storage tank, drainage, irrigation or water system in any area identified as having unstable soils or water laden lands subject to degradation. The development permit may allow individual and low-density septic disposal systems only if there is adequate investigation and monitoring to assess the effects of the proposal on the groundwater regime and the steps taken to mitigate degradation.

AP4. Ensure sewage treatment and disposal methods meet the requirements of the most recent Liquid Waste Management Plans.

Classifications of Aquifers

Groundwater levels are not declining everywhere across the province, but rather in localized areas where there is intensive groundwater withdrawal and urban development. The provincial map-based aquifer classification system categorizes aquifers based on their current level of development (use) and vulnerability to contamination, and ranks them to indicate their relative importance.

The classification system shows that some communities in B.C. are highly dependent on groundwater and particularly vulnerable to problems with water supply and groundwater contamination. These areas include the Lower Mainland, Okanagan, east coast of Vancouver Island and the Gulf Islands.

In addition to declining quantity, groundwater quality is also at risk in many urbanizing areas where contaminants from land uses may eventually enter aquifers in unacceptable quantities, causing public health threats and compromising long-term sustainability.

Groundwater Bylaws Toolkit. Okanagan Basin Water Board, 2009

AP5. Locate, design, construct and maintain buildings, structures and uses involving the transportation, storage or use of materials, chemicals, compounds or substances that could contaminate an aquifer or groundwater, including materials or substances used during land alteration and construction activities, to minimize the possibility of contamination.

Image 5: Landscape designs with native plant species reduce water demand for irrigation.

Table 1: Aquifers in the Cowichan Valley Regional District (Source: Ground Water Aquifers, Ministry of Environment and Climate Change Strategy, 2019)

Aquifer Name / Number	Location Description	Electoral Area
Lower Cassidy	Cassidy	H
Cassidy	Cassidy	H
162	Cedar, Yellow Point, N. Oyster (Ladysmith)	H
168	Ladysmith	H
169	Saltair, South Ladysmith	G
170	Panorama Ridge, Chemainus	G
178	Skutz Falls, Lake Cowichan, Paldi	F
179	Sahtlam	E, F
180	Sahtlam	E, F
181	West Duncan	E
182	Paldi – Sahtlam	E, F
183	West Duncan	E
185	Deerholm, South Duncan	E
Lower Cowichan River A	Duncan	D, E
Lower Cowichan River B	Duncan	D
Lower Cowichan River C	Duncan	D
189	Honeymoon Bay & Mesachie Lake	F
190	Youbou	I
191	North Lake Cowichan	I
192	North Lake Cowichan	F, I
196	Deerholm / Duncan	B, E
197	Cowichan Bay / Cobble Hill	A, B, C, D, E
198	Cowichan Station / Duncan	B, D, E
199	Cowichan Station	B, C, E
200	Cobble Hill / Duncan	B, E
201	Cobble Hill	B
202	Shawnigan Lake / Cobble Hill	B, C
203	Shawnigan Lake / Cobble Hill	B
204	Cobble Hill / Mill Bay	A, B, C
205	Cobble Hill / Shawnigan Lake	A, B
206	Mill Bay	A
207	Mill Bay / Shawnigan Lake	A, B
208	Spectacle Lake / Malahat	A, B
945	Northeastern shore of Cowichan Lake	F, I
946	Northeastern shore of Cowichan Lake	I
947	East shore of Mesachie Lake	F
948	West shore of Marble Bay, Cowichan Lake	I
949	East shore of Mesachie Lake	F
962	Ladysmith, BC	H
964	Cassidy – Nanaimo Airport	H

2 PROTECTION OF DEVELOPMENT FROM HAZARDOUS CONDITIONS

Application Requirements

Unless an activity is exempt (see exemptions sections below for wildfire, flood and landslide), section 489 of the *Local Government Act* requires a development permit for protection from hazardous conditions to be approved by local government before:

- subdivision of land;
- construction of, addition to or alteration of a building or other structure; and/or
- alteration of land, including but not limited to clearing, grading, blasting, preparation for or construction of services, and roads and trails.

Existing Development

Existing development criteria take into consideration historic development on a property where the natural hazard may not have been known at the time of development. These criteria apply to structural alterations and additions to existing buildings and structures comprising, under the authorization of any single permit or multiple permits issued for the same building or structure within a 10-year period, less than a 25 percent increase to the existing gross floor area, as long as the addition is not on the part of the land that is most exposed to the natural hazard.

New Development

New development is defined to include:

- rezoning;
- subdivision as defined in section 455 of the *Local Government Act*;
- removal, alteration, disruption or destruction of vegetation;
- disturbance of soils;
- construction or erection of buildings and structures;
- creation of non-structural impervious or semi-impervious surfaces;
- flood protection works;
- construction of roads, trails, retaining walls greater than 1.2 m in height, public docks, public wharves and bridges;
- provision and maintenance of sewer and water services;
- development of drainage systems; and
- development of utility corridors; and structural alterations and additions to existing buildings and structures that do not qualify as existing development.

The acceptability thresholds document describes the types of development applications that relate to natural hazard criteria. It can be found here:

https://www.cvrd.bc.ca/DocumentCenter/View/97301/CVRD_HazardAcceptabilityThresholds

Best Management Practices for Protection from Hazardous Conditions

In addition to following the guidelines associated with each development permit area for protection from hazardous conditions, holders of development permits should adhere closely to best management practices published by the British Columbia and federal governments as well as those developed by organizations with relevant expertise. Some of the most pertinent best management practices are listed below:

Hazards 101: Homeowner Tips for Understanding and Managing Natural Hazards in the CVRD

A useful first step for understanding the risks associated with different types of natural hazards in the Cowichan Valley Regional District as well as tips on how to anticipate and prepare for that risk would be a review of the guide for homeowners published by the CVRD on its website.

For fire in particular, the *Homeowner's FireSmart Manual*, B.C. edition, provides a wealth of advice about how to protect property and persons from the risk of uncontrolled wildfire.

Wildfire
The Home Owner's FireSmart Manual
Government of British Columbia

Flood
Environmental Protection in Flood Hazard Management
Fraser Basin Council, 2010

Stormwater Planning
Government of British Columbia, 2002

Landslide
A Guide for Management of Landslide-prone Terrain in the Pacific Northwest
BC Ministry of Forests, 1994

General
Natural Resource Best Management Practices
Government of British Columbia

Note the assurance process for development permit holders:

Hazard Assurance Statement Form:
https://www.cvrd.bc.ca/DocumentCenter/View/96534/Hazard-Assurance-Statement-Form

Hazard Assurance Guidelines:
https://www.cvrd.bc.ca/DocumentCenter/View/96536/Hazard-Assurance-Guidelines

The Busyplace Creek Stormwater Management Plan and the Natural Hazard Risk reports for flood, sea level rise and slope failure include additional recommendations for development in hazard areas.

There are three development permit areas for Protection of Development from Hazardous Conditions:

DPA 5 – Wildfire Hazard
DPA 6 – Floodplain Hazard
DPA 7 – Slope Stability

Development Permit Area 5: Wildfire Hazard

Permit Exemptions

A development permit is not required for the following activities:

a. construction of, addition to or alteration of a single detached dwelling including accessory buildings and structures, provided that the home, yard/non-combustible zone and yard/zone 1 all have a low or moderate hazard score as described in the FireSmart score card;
b. gardening and yard maintenance;
c. construction of a fence if only non-native trees are removed and the disturbance of native vegetation is restricted to 0.5 m on either side of the fence;
d. construction of a trail if all the following apply:
    i. the trail is 1 metre wide of less
    ii. no native trees are removed
    iii. the surface of the trial is pervious (for example soil, gravel or wood chips); and
    iv. the trail is designed to prevent soil erosion where slopes occur.
e. agricultural activity;
f. lot line adjustments where subdivision does not result in the ability to construct a new dwelling unit.
g. construction, maintenance or operation of:
    i. municipal works and services undertaken or authorized by Cowichan Valley Regional District;
    ii. park works and services undertaken or authorized by Cowichan Valley Regional District; and
    iii. federal and provincial works.
h. emergency actions required to prevent, control or reduce an immediate threat to human life, the natural environment or public or private property including:
    i. forest fire, flood and erosion protection works;
    ii. protection, repair or replacement of public utilities;
    iii. clearing of an obstruction from a bridge, culvert or stream;
    iv. bridge repairs;
    v. removal or modification of trees certified by an arborist to be hazardous; and
    vi. protection, repair or replacement of private or public septic system.

Application Requirements

WH-AR1 If required by the Regional District, provide a risk assessment report prepared by a QEP with experience or training in conducting wildland fire risk assessments. Alternative measures to those listed in these guidelines may be accepted based on advice from a qualified professional.

WH-AR2 In the case of industrial subdivisions, provide a risk assessment report prepared by a qualified professional with experience or training in conducting wildland fire risk assessments. The report will assess the wildland fire risk and include recommendations to mitigate risk.

Permit Guidelines

Best Management Practices

WH1. During construction, implement FireSmart measures, including thinning of fuels in the surrounding area and providing firefighting equipment on site.

WH2. Ensure building design and construction is generally consistent with the highest current wildfire protection standards published by the National Fire Protection Association or similar organization.

Subdivision

WH3. In subdivision orientation and layout, provide adequate access for evacuation, emergency responders and fire protection for all parcels created through a subdivision process. A secondary access is required.

WH4. Incorporate fuel breaks (designed as roadways and/or buffer strips of cleared vegetation) between forested lands and subdivided parcels.

Site Design and Landscaping

WH5. Avoid locating buildings on the mid to upper portion of a property or at the crest of a hill, as these areas are typically at greatest risk in the event of wildfire.

WH6. Locate accessory buildings and structures a minimum of 15 m from the principal building(s) unless they are built to the same standard of fire resistance as the principal building(s).

WH7. Locate burn barrels and woodpiles a minimum of 15 m from the principal building(s).

WH8. Establish and maintain a non-combustible landscape within at least 1.5 m of the principal building(s). A larger non-combustible landscape of 10 m is encouraged.

WH9. Manage vegetation and combustible materials in accordance with FireSmart practices within at least 30 m of principal building(s). Recommended practices include

a. spacing coniferous trees so that the canopies are at least 3 m apart; and
b. removing shrubs and small trees and pruning branches within 2 m of the ground.

WH10. Remove dead and dying trees prior to subdivision and annually after construction.

Building Design and Material

WH11. Use non-combustible materials or materials with a high resistance to fire for roof coverings. Class A UL/ASTM (American Society for Testing and Materials) fire-rated materials (e.g. metal, clay tile or class A rated asphalt shingle) are recommended.

WH12. Use tempered or multi-paned glass for doors and windows.

WH13. Use non-combustible or ignition-resistant materials such as stucco, metal siding, bricks, logs or heavy timber, or poured concrete for exterior wall finishes and decks. At a minimum, provide 15 cm of non-combustible surface between the ground and siding.

WH14. Sheath-in (skirt) the underside of balconies, decks, porches, manufactured homes and open foundations with fire-resistant materials.

Image 6: Building and design materials options.

WH15. Cap or screen chimney vents with spark arrestors 12-gauge (or better) metal mesh with openings of less than 13 mm.

WH16. Use closed eaves or screen eaves with 3 mm or smaller wire mesh.

WH17. Screen vents with wire mesh 3 mm or smaller or use ASTM ember-resistant rated vents.

Wildfire Risk in the CVRD

"Despite people's familiarity with the term 'wildland-urban interface,' CVRD's planners and Public Safety Division and provincial and local firefighting agencies in the Cowichan Valley continue to be challenged by the general perception from the public and visitors alike that interface fires are associated with B.C.'s interior, not Vancouver Island's rainforests. All 18 fire departments in the expansive CVRD are volunteer-based. With nearly 90% of the lands in the region (excluding North Cowichan, which has a separate CWPP) rated with a high or extreme interface wildfire threat, concentrated efforts need to be continued by the CVRD, in combination with other levels of government and stakeholders, to ensure protection for life, property and ecological processes in the wildland urban interface."

CVRD Community Wildfire Protection Plan, 2012 Update

Development Permit Area 6: Floodplain Hazard

Permit Exemptions

A development permit is not required for the following activities:

a. Lot line adjustments where subdivision does not result in the ability to construct a new dwelling unit.
b. Construction, maintenance or operation of:
    i. municipal works and services undertaken or authorized by Cowichan Valley Regional District;
    ii. park works and services undertaken or authorized by Cowichan Valley Regional District; and
    iii. federal and provincial works.
c. Emergency actions required to prevent, control or reduce an immediate threat to human life, the natural environment or public or private property including:
    i. forest fire, flood and erosion protection works;
    ii. protection, repair or replacement of public utilities;
    iii. clearing of an obstruction from a bridge, culvert or stream;
    iv. bridge repairs;
    v. removal or modification of trees certified by an arborist to be hazardous; and
    vi. protection, repair or replacement of private or public septic system.

Application Requirements

FH-AR1 Provide a risk assessment report prepared by a qualified professional with experience or training in conducting flood risk assessments. Alternative measures to those listed in these guidelines may be accepted based on advice from a qualified professional.

Development Design and Location

FH1. Ensure development
a. is constructed in a location and manner that will maximize the safety of residents and property;
b. is located in the least hazardous part of the site;
c. is minimized in floodplain areas or where development may impede a natural floodway;
d. complies with flood construction requirements identified by a qualified professional in a preliminary assessment or detailed assessment report;
e. does not increase the risk or hazard to, or vulnerability of, other properties or structures;
f. does not include habitable space below the flood construction level specified by the qualified professional except in accordance with recommendations made by a qualified professional and in compliance with these guidelines;
g. in connection with renovations to any existing permanent structure, where reasonable, reduces flood hazard to the existing permanent structure by raising the habitable space to flood construction levels; and
h. does not include the installation of any mechanical equipment or electrical wiring below the flood construction level except in accordance with recommendations.

FH2. Implement structural and/or non-structural flood protection measures to mitigate the impacts of flooding within areas already developed.

FH3. Maintain potential debris flow and debris flood hazard areas and potential flood hazard areas free of development, or, if that is not possible, then
a. undertake mitigation to reduce risk to an acceptable level (risk for both the subject property and any adjacent or nearby lands should be addressed); and
b. adhere to any conditions (for example, conditions relating to the permitted uses, density or scale of building) imposed as necessary to reduce potential hazard to acceptable levels, as determined by a qualified professional in a preliminary assessment or detailed assessment report.

FH4. Ensure proposed flood construction levels are clearly defined by a qualified professional, preferably supported by Geodetic Survey of Canada data.

FH5. Preserve natural riparian and floodplain regimes, siting development to allow normal creek processes (erosion and channel migration) and anticipated flooding to occur. Where appropriate, this should include actions such as grading of the site to deflect flood water and to allow for floodways or pooling of flood water.

FH6. Retain sites in their natural state, protecting riparian areas, preserving native vegetation and trees, and minimizing disturbance to vegetation to help preserve the natural hydrology of the site and reduce the environmental impact associated with new development.

Image 7: Homes are set back from the riverside; native vegetation is preserved along its banks.

Additional Permit Guidelines for Specific Areas

Youbou Lands

FH7. Submit with a development permit application in the Youbou Lands development permit area the following information:

a. topographic mapping for the entire Youbou Lands site with a 1 m contour interval;
b. cross-sections of Cottonwood Creek, prepared by a B.C. Land Surveyor, taken at 100 m to 150 m intervals between the apex of the alluvial fan and Cowichan Lake shoreline;
c. the location of the 167.33 m contour interval on the ground, representing the calculated 1-in-200-year flood construction level; and
d. a report by a qualified engineer with experience in natural hazard assessment, management and mitigation, which will identify areas that will remain free of development, areas that may be used for development provided that specified engineering measures are employed, and areas that may be developed without constraint. These areas will be set out on a map in the report, with a different colour used to indicate each of these three categories. The CVRD will follow the recommendations of the qualified engineer in all subsequent phases of development. Where protective structures are proposed, the proponent will recommend an administrative process to maintain the structures through time, and the CVRD will have to approve of this arrangement in the course of processing the application, in order for the development permit to be issued.

Development Permit Area 7: Slope Stability

Permit Exemptions

A development permit is not required for the following activities:

a. non-structural repairs or renovations (including roof repairs or replacement) to a permanent structure provided that such repairs or renovations do not increase the gross floor area of the permanent structure;
b. replacement or repair of an existing deck, provided that the location and dimensions do not change;
c. construction of an accessory building of less than 25 m^2 located outside any potential slope hazard area and at least 10 m away from the crest of any steep slope, and provided that no removal of trees or placement of fill will be required;
d. in Area G, buildings and structures located more than 30 m from the high-water mark of the ocean;
e. removal of hazardous trees;
f. routine maintenance of existing landscaping and lawn areas, or planting of vegetation, except for the planting of trees within 10 m of the top of a steep slope; and,
g. lot line adjustments where subdivision does not result in the ability to construct a new dwelling unit.

Application Requirements

SS-AR1 Submit a report prepared by an engineer or geoscientist that indicates whether, if recommendations are followed, the site may be used safely for the intended development over the projected life of the development. The applicant must submit a development permit application, which at a minimum includes:

a. a written description of the proposed project;
b. reports or information as listed in the relevant development permit guidelines; and
c. information in the form of one or more maps, as follows:
    i. location/extent of proposed work;
    ii. location of ocean high tide mark;
    iii. location of other watercourses;
    iv. topographical contours;
    v. location of slopes exceeding 25 percent grade;
    vi. location of lands subject to periodic flooding;
    vii. percentage of existing and proposed impervious surfaces;
    viii. existing tree cover and proposed areas to be cleared;
    ix. areas of known sensitive or rare native plant communities;
    x. existing and proposed buildings;
    xi. existing and proposed property parcel lines;
    xii. existing and proposed roads, vehicular access points, driveways and parking areas;
    xiii. existing and proposed trails;
    xiv. existing and proposed stormwater management works, including retention areas and drainage pipes or ditches;
    xv. existing and proposed erosion mitigation and bank alterations;
    xvi. existing and proposed septic tanks, treatment systems and fields; and

xvii. existing and proposed water lines and well sites.

SS-AR2 Identify any lands that are subject to rock fall, sloughing or soil creep, or to damage from rock fall, sloughing or soil creep originating on or off the property. No permanent structures will be located on these lands unless the hazard can be adequately mitigated. Where applicable, the applicant must provide a report certified by a professional engineer with experience in geotechnical engineering which includes

a. a hydrogeological report containing an assessment of the suitability and stability of the soil for the proposed project, including information on soil depths, textures and composition;
b. a report on the safety of the proposed use and structures on-site and off-site, indicating that the land may be used safely for the use intended; and/or
c. a stormwater management plan, which includes an assessment of the potential impact of the development on the groundwater resource.

SS-AR3 Where applicable, the applicant must provide an environmental impact assessment, certified by a QEP, assessing any impacts of the project on watercourses and lands in the area.

Permit Guidelines

SS1. Construct works to protect development from the hazards as recommended in the assessment report.

SS2. Roads and driveways should be located as far as possible from the edge of a bluff or from the ocean shoreline.

Adapting Design to Natural Contours

SS3. Design all development to minimize alteration to steep slopes and to reflect the site rather than altering the site to reflect the development.

SS4. On sloping sites: design sites and buildings to step down with the natural grade of the site to minimize cuts and fills, retaining walls, artificial embankment of grade or extensive regrading; avoid large unbroken building masses that are unsuitable for sloped conditions.

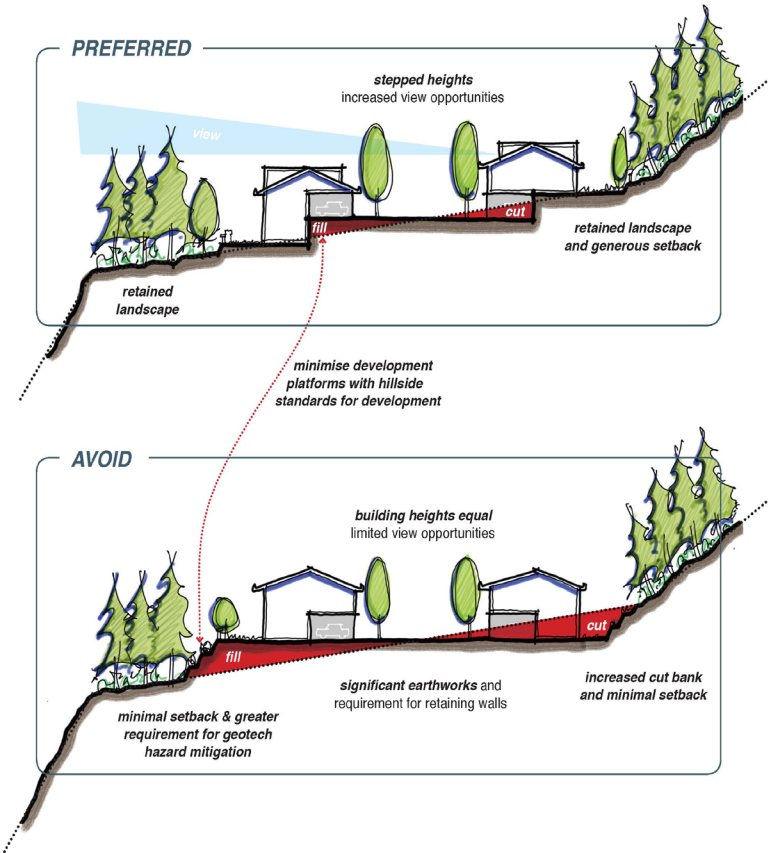

Figure 3: Developments should accommodate grade transitions within building design.

SS5. Avoid or minimize terracing and design landscaping to follow the natural contours of the land.

Development Near Steep Slopes

SS6. Keep potential slope hazard areas free of development, or, if that is not possible, then
a. undertake mitigation measures to reduce risk to an acceptable level (risk for both the subject property and any adjacent or nearby lands should be addressed); and
b. adhere to conditions (for example, conditions relating to the permitted uses, density or scale of building) imposed as necessary to reduce potential hazard to acceptable levels, as determined by a QEP in a preliminary or detailed assessment report.

SS7. Avoid construction of structures, pathways/trails, driveways, utilities, drainage facilities, septic fields, swimming pools, hot tubs, ponds, landscaping or other uses at or near the top or base of steep slopes. A minimum 10 m buffer area from the top or base of any steep slope should be maintained free of development except as otherwise recommended by a qualified professional. On very steep slopes, this buffer area should be increased.

Base of Slope Development

SS8. Do not undercut the base of slopes for building, landscaping or other purposes except in accordance with the recommendations of a qualified professional and a permit issued under this section.

SS9. For homes at the base of slopes, construct bedrooms on the downslope side of the home.

SS10. Design development to avoid the need for retaining walls, particularly to minimize cutting of the uphill slope. Large single plane retaining walls should be avoided. Where retaining walls are necessary, smaller sections of retaining wall should be used. Any retaining structures in steeply sloped areas must be designed by a qualified professional.

Vegetation, Fill, Landscaping

SS11. Site preparation should minimize the need for vegetation clearing. In order to control erosion and to protect the environment, the development permit may specify the amount and location of tree and vegetative cover to be planted or retained.

SS12. Maintain and/or reinstate vegetation on the slopes and within any buffer zone above the slopes in order to filter and absorb water and minimize erosion.

SS13. Do not place fill, including yard clippings, excavated material, sand or soil, within 10 m of the top of slopes or along pre-existing drainage channels.

SS14. Reinforce and revegetate disturbed slopes, especially where gullied or where bare soil is exposed. Planting should be done in accordance with the recommendations of a landscape architect or registered professional forester.

SS15. Select native species, including trees, shrubs and other plants, for any new planting, and plant and/or retain tree cover in the amount/location specified by the development permit. *Gardening with Native Plants*, a publication of Habitat Acquisition Trust, includes a comprehensive list of native plant species.

3 PROTECTION OF FARMING

Development Permit Area 8: Protection of Farming

Permit Exemptions

A development permit is not required for the following activities:

a. alteration of land;
b. construction of an accessory building or structure with a gross floor area of up to 10 m^2;
c. lot line adjustments where subdivision does not result in the ability to construct a new dwelling unit;
d. the subject land is separated from the Agricultural Land Reserve by a highway right of way that is at least 20 metres wide;
e. construction, maintenance or operation of:
    i. municipal works and services undertaken or authorized by Cowichan Valley Regional District;
    ii. park works and services undertaken or authorized by Cowichan Valley Regional District; and
    iii. federal and provincial works.
f. emergency actions required to prevent, control or reduce an immediate threat to human life, the natural environment or public or private property including:
    i. forest fire, flood and erosion protection works;
    ii. protection, repair or replacement of public utilities;
    iii. clearing of an obstruction from a bridge, culvert or stream;
    iv. bridge repairs;
    v. removal or modification of trees certified by an arborist to be hazardous; and
    vi. protection, repair or replacement of private or public septic system.

Application Requirements

PF-AR1 Ensure development and formal approval of a buffer maintenance plan by a registered landscape architect, registered professional biologist or registered professional agrologist with experience developing landscape maintenance plans.

PF-AR2 Unless an activity is exempted, section 489 of the *Local Government Act* requires a development permit subject to protection of farming guidelines to be approved by local government before

a. subdivision of land; and
b. commencement of construction of, addition to or alteration of a building or other structure.

Permit Guidelines

Landscape Buffers

PF1. Install continuous landscape and fencing buffers between non-agricultural uses and lands designated for agricultural use and/or in the ALR in accordance with the 1993 Agricultural Land Commission Landscape Buffer Specifications and the B.C. Ministry of Agriculture Guide to Edge Planning, including but not limited to the following:

a. locate the landscape buffer on the non-agricultural lands;
b. strive to achieve the vegetated buffer widths outlined in the BC Ministry of Agriculture's Guide to Edge Planning;
c. design the landscape buffer to protect agriculture from negative impacts of drainage, pathways or driveways and to filter noise, dust, airborne particles and chemical spray drift from adjacent ALR land; and
d. install the landscape buffer after alteration of land or construction of buildings and structures.
e. Ensure the vegetated buffer is a "no build zone" free of buildings, paths, pools, tennis courts, or other similar structures.

PF2. Ensure plant layout, spacing and support are in accordance with the Landscape Buffer Specifications and the Guide to Edge Planning.

PF3. No commercial or industrial buildings should be located within 15 m of the boundary of the ALR.

Vegetation

PF4. Retain existing native vegetation, including all healthy and mature trees, to create the landscape buffer.

PF5. Do not plant invasive plant species included on the Coastal Invasive Species Committee Priority Invasive Plant List, and remove those already growing in the landscape buffer.

PF6. Plant species that will not grow tall enough to shade farm crops and are not likely to harbour insects or diseases harmful to nearby farm crops.

Subdivision

PF7. Design subdivisions on lands adjacent to lands designated for agricultural use to minimize potential conflicts between agricultural and non-agricultural uses by

h. laying out residential subdivisions to allow for at least 30 m separating habitable buildings from the lands designated for agricultural use;
i. generally avoiding locating road endings in close proximity to land designated for agricultural use unless the roads have been designated as part of a major road network;
j. prohibiting new single-family residential lots larger than 0.10 ha along the boundary of the ALR;
k. prohibiting half roads and half cul-de-sacs along the boundary of the ALR; and
l. designing the road pattern in such a way to direct urban traffic away from routes used by farmers to move equipment.

PF8. On parcels adjacent to land designated for agricultural use, locate buildings and structures as far away from the land designated for agricultural use as is reasonably

possible in subdivisions that have not been laid out as described in the previous guideline.

PF9. Road patterns in subdivisions must be designed in such a way to direct urban traffic away from routes used by farmers to move equipment.

4 FORM AND CHARACTER

Permit Exemptions

Pursuant to section 488(4) of the *Local Government Act*, a development permit is not required for the following:

a. construction of, addition to or alteration of single detached dwellings on parcels larger than 450 m^2;
b. addition to a single detached dwelling of up to 10 m^2 in gross floor area;
c. construction of an accessory building or structure with a gross floor area of up to 10 m^2;
d. maintenance and/or repair of improvements including similar (e.g. “like for like”) replacement of roofing, siding, windows and/or doors, including reconstruction of buildings destroyed by natural disaster and/or fire;
e. internal renovations that do not affect the external appearance of a building or increase the floor area;
f. external renovations that do not require a building permit and do not affect the form and character of the building or site;
g. industrial or commercial uses where additions or renovations are not visible from the public realm;
h. alterations undertaken solely for the purpose of ensuring an existing building meets building code and safety requirements (e.g., fire exits, ramps, etc.);
i. works authorized by a temporary use permit;
and,
j. alteration of land.

Application Requirements

FCG-AR1 Prior to site design, conduct an analysis to identify significant on-site and off-site opportunities and constraints, including built and natural elements (e.g., structures, slopes and drainage, significant landscape features, etc.)

FCG-AR2 Provide a site grading and sediment and erosion control plan that includes the following information:

a. Pre-development and post-development topography at maximum 1 m intervals with cadastral mapping. This topography should extend a minimum 30 m outside the subject property(s);
b. All elevations along property lines where changes in slope will occur;
c. The slope of the parcels, noting the minimum grade on the parcels and parcel dimensions;
d. The proposed building envelope based on the anticipated type of house construction as per the zoning regulations;
e. Proposed grades at the corners of the building envelope of each proposed parcel;
f. Estimated amount of fill to be brought in or removed from the property or estimated amount of material to be relocated within the property;
g. Existing grades on all adjacent parcels to the proposed subdivision;
h. Retaining walls that will be needed including extent of walls and elevations of top and bottom walls;

i. The protection measures that will be in place during construction to protect existing trees and shrubs proposed to be retained. The protection measures are to extend to the furthest extent of the drip line and the finished grade of the parcel shall not vary from the natural grade around the drip line more than 20 centimetres vertically, unless an arborist report indicates to the satisfaction of the CVRD that a greater variance will not harm the trees and shrubs;
j. Any other items that in the opinion of the design engineer are critical to the parcel grading of the development; and
k. Sediment and erosion control measures that will be implemented during site preparation and build-out. These measures should include retaining all eroded soils, protecting natural features, controlling surface runoff, preventing the release of deleterious substances, stabilizing disturbed slopes and restoring disturbed areas upon completion of development.

FCG-AR3 Include a comprehensive site plan with each application that

a. includes the following information:
    i. location and dimensions of proposed buildings and setbacks to existing parcel lines, rights-of-ways, easements and covenants;
    ii. location of existing and proposed driveways, lanes, pathways, retaining walls and/or other covered entryways;
    iii. location and dimensions of all vehicle parking;
    iv. location of all water features, including streams, wetlands, ponds, ditches on or adjacent to property;
    v. location of all existing and proposed water lines, sewer lines and stormwater features;
    vi. stormwater management infrastructure and impermeable surfaces;
    vii. above ground services, equipment and exterior lighting details;
    viii. elevation drawings that include the following information:
        a) coloured front, rear and side elevation drawings;
        b) height measurements for all buildings;
        c) exterior finish and material details; and
        d) parcel cross section;
b. considers context for building and landscape design; and
c. demonstrates how development is sensitive to neighbourhood character (built and natural) and surrounding uses. The comprehensive site plan should include
    i. contour (elevational) information that illustrates site terrain and the presence of any steep slope conditions;
    ii. shadow impact studies—illustrating equinox shading at 10 a.m., 12 noon and 2 p.m.—for buildings within designated Settlement Nodes;
    iii. a grading and drainage plan that illustrates how rainwater is managed on site;
    iv. location and design (in plan, section and elevation) of proposed fencing; and,
    v. a written summary of proposed measures to
        a) reduce GHG emissions; and
        b) increase water and energy conservation as prepared by a registered professional.

Permit Guidelines

Designing in Context

FCG1. Design infill development to complement the scale and character of adjacent development.

FCG2. Grading at the perimeter of a subdivision should generally resolve to existing grades on adjacent properties without the use of significant cut and fill and retaining walls unless it can be shown that this is consistent with the planned future grading of the adjacent property;

Preserving Views

Views of attractive topographical features are a factor in the original location of communities and contribute significantly to the sense of place and well-being of residents.

FCG3. To preserve local character-defining views

a. ensure building placement and orientation protect significant water (e.g. Cowichan bayshore, Shawnigan lakeshore), mountain (e.g. Mt. Tzouhalem) and island views from streets, parks and other public areas; and,
b. reflect rather than obscure significant natural topographic features by, for example, designing buildings to step up hillsides using terraces that connect with the walkway or street.

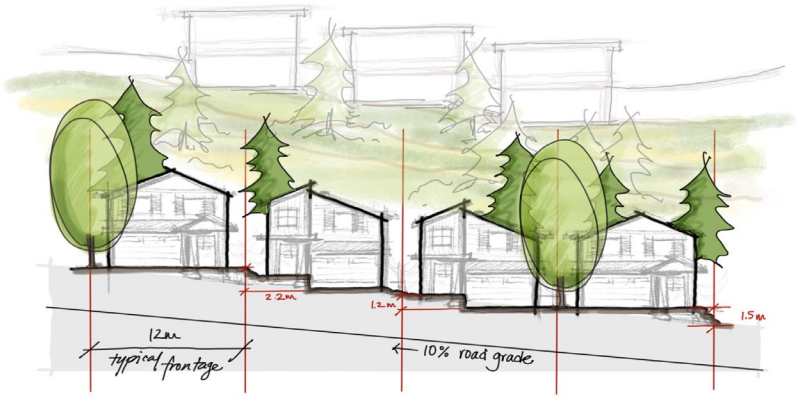

Figure 4: View preservation guidelines.

FCG4. To protect water views, very tall buildings will be generally discouraged on the waterfront, with the preference being for lower buildings near the water, rising in height gradually as the distance from the water increases.

FCG5. Where new construction could potentially block views from an existing development, orient and scale buildings to minimize impacts and/or retain views.

FCG6. Use building massing and landscape design to enhance and frame views.

Framing Space

The relationship between private and public spaces is an important design consideration in planning a community that encourages a sense of well-being and safety. Achieving such an objective requires development to consider how buildings frame public space(s) as a means to activate and enhance the public realm. The following guidelines aim to promote positive

interactions between buildings and open spaces, with particular attention to transitions between private and public spaces.

FCG7. Site buildings to support strong street definition by minimizing front yard setbacks while sensitively transitioning to neighbouring building setbacks.

FCG8. Consider Crime Prevention Through Environmental Design (CPTED) principles in all designs, and balance the reduction of crime and nuisance opportunities with other objectives to maximize the enjoyment of the built environment. Measures to promote safety include providing appropriate lighting and clear sightlines for pedestrians.

FCG9. Design private and semi-private open spaces to optimize solar access.

FCG10. Locate and orient buildings to the public street (e.g. "front") to create and enhance active frontages.

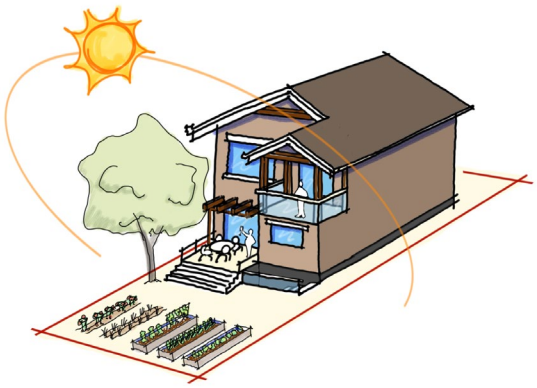

Figure 5: Optimize solar access

FCG11. Design secondary buildings—and the outdoor spaces between buildings—for specific uses (e.g. passive recreation, outdoor seating and/or food production) to optimize comfortable and functional amenity spaces.

FCG12. Locate and orient buildings to maintain privacy and avoid direct visual access (e.g. overlook) into adjacent properties.

Quality and Connectivity of Pedestrian Spaces

FCG13. An environment that feels welcoming, comfortable and safe to pedestrians is a central quality of any neighbourhood. The following guidelines are intended to facilitate safe pedestrian access, to reduce conflict between pedestrians and vehicles, and to prioritize pedestrian movement, safety and comfort through the integrated planning of public pathways, sidewalks, bicycle paths, parking areas, roads, publicly accessible plazas and parkland.

FCG14. The road network design will promote connectivity for pedestrians, cyclists and vehicles. Dead end, cul-de-sac streets will not be supported unless deemed necessary due to topographical features.

FCG15. Where applicable, design sites and locate development to complement the creation and connection of continuous and publicly accessible walkways that celebrate the character of local communities (e.g. waterfronts and shorelines, ridgelines, riparian corridors, etc.).

FCG16. Provide barrier-free pedestrian walkways to and from primary destinations, including building entrances and public sidewalks, parking areas, storage areas, garbage enclosures and amenity areas.

FCG17. Design shared open spaces to be publicly accessible and enhance pedestrian connectivity to adjacent properties, public areas and parks.

FCG18. Connect pedestrian walkways and/or trails with existing public sidewalks, pedestrian routes and crosswalks where opportunities arise.

FCG19. Configure development within larger parcels to accommodate pedestrian connections among/between and beyond individual building sites.

FCG20. Where feasible, maintain consistency of materials for pedestrian pathways and indicate pedestrian priority with paving treatments and/or materials.

FCG21. Integrate quality pedestrian facilities (e.g. well-designed walkways, benches, planters and bike racks) within public realm designs.

FCG22. Design walkways/pathways to be accessible to persons with accessibility challenges (such as mobility, sensory or cognitive disabilities), bicycles, scooters and strollers, with even, non-slip surfaces and grades less than 5%.

Cars and Parking

The following guidelines are intended to reduce potential conflicts between pedestrians and automobiles—particularly considering the design of vehicle access and parking—and to further support pedestrian movement, safety and comfort.

FCG23. Where underground parking is impractical or otherwise not feasible, encourage the location of surface parking at the rear and/or side of buildings to further promote quality pedestrian realm design along active frontages.

FCG24. Locate loading and servicing areas at the side and/or rear of buildings to avoid pedestrian conflict along active frontages.

FCG25. Provide off-street parking and servicing access from the rear lane, where one exists, to free the street for uninterrupted pedestrian circulation and boulevard landscaping.

FCG26. Separate pedestrian walkways from parking areas with raised and/or landscaped features and, where walkways and parking areas share space, use design features (e.g. different colours, materials and/or textures) to clearly indicate that pedestrians have priority.

FCG27. Design parking structures, parking access areas and associated components (doorways, ramps, screening treatments, etc.) as an extension/expression of adjacent building architecture.

General Permit Guidelines | Building Architecture, Materials and Colours

FCG28. Retain and enhance local character through the thoughtful use of vernacular architectural styles and elements, including but not limited to

a. roof forms (e.g. pitched roofs that shed rain, gables, cornices and varied roof lines and heights);
b. indoor/outdoor relationships (e.g. porches, porticos, verandas and patios; and
c. structural elements (e.g. post and beam).

FCG29. Detail architectural expression with materials and colours that reflect local context, are durable and weather well over time, including but not limited to the following:

a. local and natural materials such as cedar shingle, wood or plank finishes, stone finishes, stone-clad foundations or materials that replicate the appearance of natural materials; and,
b. traditional application and/or building techniques (wherever possible), including board and battens, clapboard, shingles, shakes, stonework and/or wood finishes (e.g. door/window trim work, eaves and soffit, railings and balusters and/or triangular gable crowning an entrance supported by columns).

Figure 6: Buildings should be parked and serviced from the rear lane.

FCG30. Employ a combination of two or more building materials and avoid the use of vinyl.

FCG31. Choose colour schemes inspired by the diverse natural palette of the Cowichan Valley landscapes (e.g. forests and agricultural valleys, lakeshores and oceanfronts) and select complementary accent colours and wood trim to emphasize architectural features. In the special case of coastal villages, rich, vibrant colours are preferred over pastels and neon colours, which are generally inconsistent with west coast seaside vernacular.

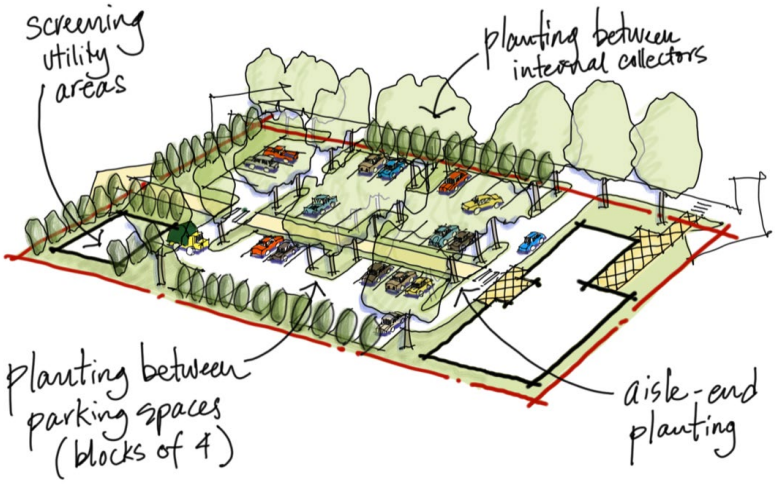

Figure 7: Support pedestrian movement, safety and comfort in parking areas.

FCG32. Locate and size windows in proportion with the building scale. Large or continuous areas of curtainwall glazing create monotonous façades are contrary to rural character and are discouraged.

FCG33. Design and locate windows to prevent bird mortality from window strikes.

Orientation and Massing

Massing (the three-dimensional form) and articulation (how the parts fit together) of architecture are tools that can reduce the apparent size of large buildings and help ensure the sensitive transition to adjacent buildings and open spaces. It can also provide visual interest for pedestrians. New development should consider the scale of its neighbours and avoid abrupt transitions in height and massing between adjacent buildings.

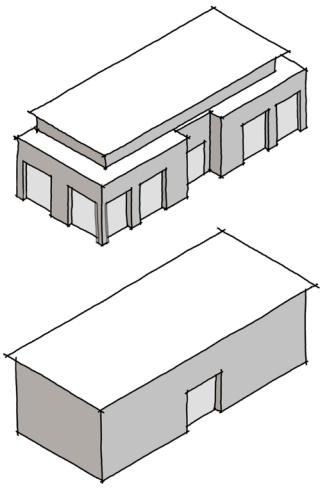

Figure 8 Massing is articulated in multiple volumes

FCG34. Ensure massing of larger buildings is composed of multiple volumes to reduce visual impact on pedestrian areas. Ensure articulation of building mass includes horizontal (minor) setbacks and stepbacks (along upper storeys) to provide visual interest. Balconies and/or cantilevered upper floors can help to break up massing while promoting passive surveillance of public spaces (e.g. "eyes on the street") and/or weather protection.

FCG35. Buildings over three storeys high should be articulated and oriented in a manner that maximizes solar access to public spaces. Shadowing of major pedestrian areas and parks should be avoided where possible.

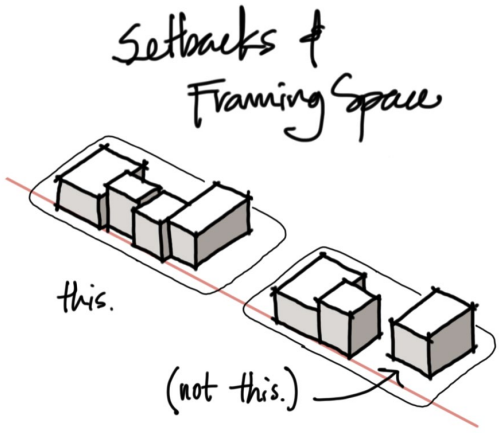

Figure 9: Frontages should be constructed to minimum setbacks and break up massing to distinguish smaller units.

Relationship of Buildings to the Street

Create active and safe shared spaces through orientation of primary building entrances, windows, porches/balconies to the public realm, sidewalks and other shared open spaces.

FCG36. Orient buildings to activate public spaces (e.g., streets) with a strong preference for ground-oriented multifamily forms (e.g. individual "front doors" for each unit) and active uses at street level. Encourage building frontages constructed to minimum setbacks to support more active pedestrian edges.

FCG37. Design entrances to be visible and clearly identifiable from the fronting public street; utilize structural elements (e.g. canopies and entry porticos) to create inviting and sheltered "front doors."

FCG38. Where appropriate, use stepped massing to transition and improve the relationship between developments of differing scale. Adjacent building heights should not be greater than one-and-a-half storeys higher than existing adjacent development, with additional storeys terraced back with a minimum stepback of 3 m.

FCG39. Design street-facing residential units to utilize a layering of elements—including but not limited to street-facing entries, stairs, stoops, porches, patios and landscape elements—to create transitions between the public (e.g., street, sidewalk), semi-public (e.g., walkway, ramp, stair), semi-private (e.g., stoop, balcony) and private areas to allow for casual views of parks, open spaces and parking areas. In semi-urban areas, design entry to ground-level residential units to be no more than 1.8 m above the grade of adjacent public sidewalks and walkways. In areas with public sidewalks, design the outdoor space of a residential unit to be raised no more than 1.2 m above adjacent public sidewalks, with a "front stair" pedestrian connection.

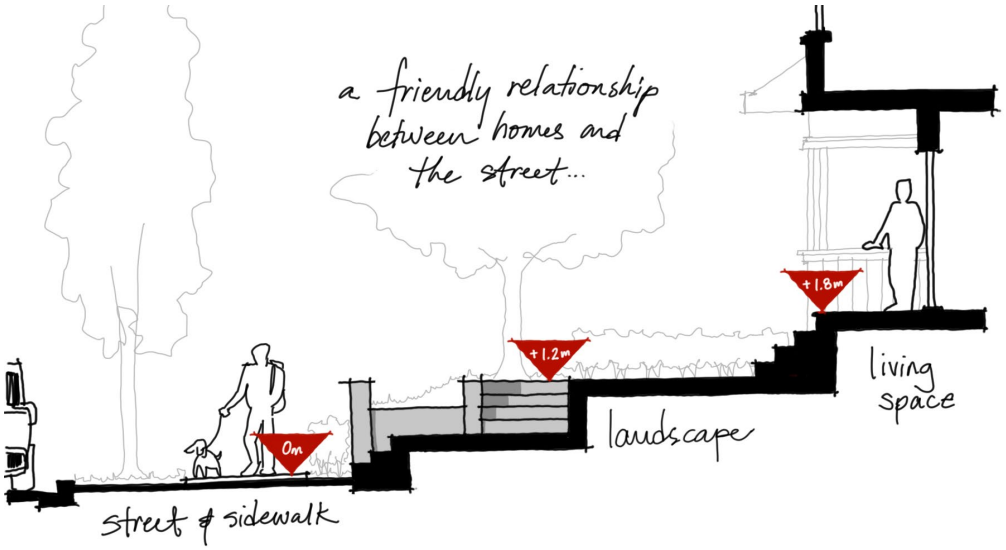

Figure 10: Relationship of residential entries to public sidewalks and walkways in elevation.

FCG40. Avoid extensive blank walls (over 5 m in length and including retaining walls) along the street. Where required as a function of an internal program (e.g., for privacy, merchandising, etc.), blank walls should provide visually interesting surface treatments (e.g., varied materials/textures, murals, green walls or vines).

FCG41. Minimize the use of retaining walls. Where necessary, retaining walls that exceed 1.2m in height should be terraced and planted to reduce visual impact.

FCG42. Design the portions of buildings that are visible from public roads in a manner similar to and of a similar quality as the main façade with welcoming features such as picture windows, entrances, architectural features and landscape. Where no reasonable alternative to a concrete firewall exists in certain areas, patterned, toned concrete with architectural treatment, embossed designs or similar finishes in other materials will be the minimum requirement.

FCG43. Rooftop mechanical equipment should be screened from public view by parapets or other architectural roof design features. Box in chimneys and avoid exposed flues.

General Permit Guidelines | Landscape Architecture

Protect and Enhance the Urban Forest

Forests provide economic, social and environmental benefits. In addition to consideration of defining landscape character, enhancement of the urban forest will support the sustainable health and well-being for Cowichan Valley communities.

FCG44. Tree retention:

a. Where possible, retain existing mature and native trees and protect their root systems in all new development.
b. Conduct pre- and post-development tree surveys.

FCG45. Tree planting:

a. Where space permits, plant landscaped areas, boulevards and setback areas adjacent to streets with trees with appropriate soil volumes to ensure longevity.
b. Irrigate all areas with planted trees.
c. Include in all development fronting a public street a landscaped area fronting the public road.
d. Space street trees no further than 10 m apart, and ensure they are at least 2.5 m tall at the time of planting.
e. Plant additional trees, particularly if existing trees cannot be preserved, to maintain and expand the urban forest canopy.
f. Plant trees along street frontages to create a mature treed boulevard streetscape.

Taking Care of Our Urban Forests

The trees that grow in our communities, whether planted along boulevards or in parks or remnants of natural forest, play an important role both ecologically and in enhancing the quality of life of the community's residents.

Broadly defined, the urban forest includes a community's trees and shrubs and the soil in which they grow. The benefits it provides, in addition to scenic beauty, are wide-ranging and include shade and privacy, a buffer against noise, habitat for a variety of bird and other wildlife species, reduction in energy consumption by shading and cooling homes, and carbon sequestration through absorption of carbon dioxide. Care of the urban forest is a central component of community planning.

FCG46. Create landscapes that provide for and/or enhance habitat value for birds, pollinators and other species using plants that provide food and nutrients and/or incorporating structural/grading improvements (e.g., animal hibernacula, pools).

Functional Use of Landscapes – Screening and Buffering

Designs should be prepared by a professional with experience in the planning, design and implementation of high-quality landscape designs.

FCG47. Utilize landscape design to buffer developments in a manner that ensures screening of potentially unsightly uses:

a. where appropriate (and in consideration of FireSmart principles and native ecosystems), use screen walls and/or landscape buffers (e.g., berms, shrub beds, hedges and/or trees) to manage transitions and/or conflict between incompatible uses (e.g., industrial / commercial and residential uses, materials storage, and/or parking).
b. design buffers to complement neighbourhood character and landscape setting (refer to “Materials Selection – Hardscapes and Softscapes” below).
c. landscape buffers should be used to reduce the visual impact of service areas and surface parking, including
    i. planting between internal collectors (not used for direct access to parking stalls) and aisles that provide direct access to parking stalls;
    ii. planting at the end of aisles;
    iii. planting between each block of four parking spaces; and
    iv. planting around utility kiosks, containers and/or dumpsters.

FCG48. 5Minimize noise spillover to adjacent parcels through a combination of site design (e.g., building siting), screen walls and/or landscape buffers.

Image 8: Landscape berms (illustrated in white) serve as excellent visual and noise buffers.

FCG49. For development visible from the Trans-Canada Highway or major network roads
a. screen and landscape entrances, building peripheries, parking and pedestrian areas and open space areas; and
b. consider use of a landscaped berm between 0.75 m and 1.5 m high as a visual and noise barrier along the Trans-Canada Highway.

FCG50. Along the Trans-Canada Highway
a. provide a landscaped buffer at least 3 m in width;
b. where possible, retain existing forest vegetation as the buffer; and

c. provide limited gaps in the buffer to allow for visual recognition of the uses of land, subject to consideration of the quality of the proposed building design and landscaping.

FCG51. Screen loading areas with adequate landscaping and/or physically separate loading areas from parking and pedestrian areas. Screen utility boxes, vents and outdoor storage facilities from adjacent public areas.

FCG52. Landscape all public areas, including entrances, building peripheries, parking and pedestrian areas, and open space areas.

FCG53. Soften the appearance of large buildings through the layered planting of trees and shrubs within garden beds and/or planters.

FCG54. Define clear transitions between public areas (e.g., street, sidewalk), semi-public (e.g., walkways, ramp, stairs), semi-private (e.g., stoop, balcony) and private (e.g., entry) to enhance both the privacy of residences and the pedestrian experience through the use of

a. landscape terracing (e.g., grading, retaining);
b. structures (e.g., fences, pergolas, trellises);
c. low fencing and hedging to delineate private and public spaces; and
d. changes in surfacing materials.

FCG55. Mitigate potential conflicts between residential and non-residential uses through appropriate design features such as physical separation of uses, noise and visual barriers, landscaping and fencing, and mechanical systems to mitigate air quality impacts.

FCG56. Where industrial lands adjoin residential uses or designations, create a treed buffer at least 8 m in width between the industrial use and adjoining residential parcels, preferably located within the industrial lands. Ensure the buffer is densely vegetated to reduce noise and visual impacts. For industrial uses with potential for significant noise, smell or visual impacts, a minimum width of 20 m is recommended for the landscape buffer.

FCG57. Use landscaped berms, no more than 1.5 m in height, as a visual and noise barrier separating industrial uses and public roads.

Materials Selection – Softscapes & Hardscapes

The material and quality of landscapes in public and private spaces play important roles in defining the character of a community. Material selection (plants and construction materials) and high-quality landscape design will enhance landscape performance, visual character and aesthetic quality while reinforcing a positive, green image of the Cowichan Valley.

FCG58. Landscape designs and materials selection should complement surrounding natural context (e.g. plantings that enhance habitat value), enhance the pedestrian experience (e.g. durable surfaces, seasonal interest, shading, etc.) and strengthen a sense of local identity (e.g. use of native plantings and hardscape materials).

FCG59. Landscape designs should aim to create a seamless transition between the built environment and the natural environment by using local and/or locally adapted materials.

FCG60. Where feasible, landscape designs should extend/expand buffering (e.g. protection) of ecologically sensitive areas.

Image 9: Landscape designs should avoid formal landscape patterns and give preference to native species.

FCG61. Softscapes:

a. Design plant materials (size) and planting densities to meet and exceed the Canadian Landscape Standards.
b. Consider opportunities for seasonal interest (e.g., colourful foliage and/or flowering at various times of the year).
c. Design for structural diversity in plant palette composition, including combinations of groundcovers, shrubs of various heights and trees. For instance, plant a mixture of native deciduous and evergreen species of varying ages and heights to replicate natural "layered" plant communities and encourage biodiversity. Plant smaller shrubs, perennials and groundcovers beneath taller trees and shrubs.
d. In landscape design, consider aesthetic qualities, plant suitability and soil volumes to ensure "right plant, right place" and to maximize growth to maturity of plants and trees.
e. When selecting plants for landscaping, give preference to species native to the region and eradicate invasive species. The Habitat Acquisition Trust publication Gardening with Native Plants contains a comprehensive list of native plant species. Invasive species in the Cowichan region are listed in the priority plant list produced by the Coastal Invasive Species Committee.
f. Minimize bark mulch and gravel in favour of planted areas and topsoil.
g. Avoid the use of synthetic turf and use a high-quality topsoil mix of a type and amount consistent with the Canadian Landscape Association Standard.

h. Where appropriate, mimic natural forms when planting new vegetation, avoiding geometric plantings and other formal landscape patterns.

FCG62. Hardscapes:

a. Select materials to reflect an extension of overall functional design and emphasize local, natural, climate-appropriate materials.
b. Ensure landscape construction prioritizes robust, durable and easily maintained materials.
c. Design retaining walls with natural-looking textures and natural colours.
d. Choose colours that complement the Cowichan Valley's natural setting and associated palette.

General Permit Guidelines | Special Considerations

Public Art

The Cowichan Valley is home to a thriving artistic community, and public art provides an opportunity to celebrate public space and create a sense of place.

FCG63. Explore opportunities for the inclusion of public art in public and semi-public open spaces, especially plazas.

FCG64. Carefully and collaboratively choose historical references within public art, in consultation with local societies and/or experts, as appropriate.

Lighting

Lighting is essential to wayfinding and safety at night. Equally important is the scale, intensity, quality, location and direction of lighting so as to avoid negative impacts associated with glare and other forms of light pollution.

FCG65. Avoid excessive illumination of the night sky or glare or light trespass onto adjacent properties and roads:

a. Avoid lighting that illuminates streams, wetlands, lakes and other natural areas; and
b. Light fixtures should utilize "cut-off" (zero intensity at or above an angle of 90°) luminaires that direct light downwards to minimize glare. Exceptions may be made for signage and/or architectural lighting (e.g., enhancing special features or aesthetic qualities).

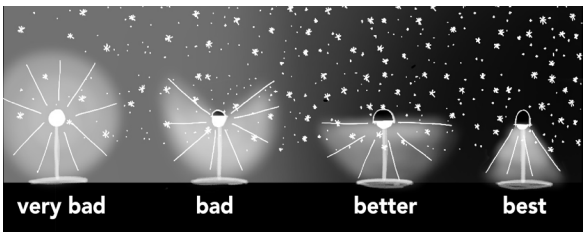

Figure11: Ideal lighting reflectanced and direction.

FCG66. Provide sufficient lighting for all building entrances, walkways, driveways, parking areas and loading areas to ensure clear orientation, personal safety and site security, including allowing for overlook from adjacent buildings. Design the scale and intensity of lighting to its setting and application:

a. lighting design should prioritize pedestrian-scaled lighting while ensuring vehicular access and parking is sufficiently lit for safe manoeuvering;
b. warmer light sources (<4000k) are strongly encouraged; and

c. design outdoor lighting to enhance the overall architectural, heritage and design character of development.

Waste Management

Management of garbage and recycling must be integrated in overall building and landscape designs to mitigate negative impacts to form and character.

FCG67. Locate garbage/recycling areas and other similar structures out of public view in areas that mitigate noise impact and do not conflict with pedestrian traffic.

FCG68. Locate garbage and recycling bins in screened enclosures that are coordinated with the overall design while providing clear access to refuse/recycling areas.

Fences

Notwithstanding the fencing regulations in the zoning bylaw, fencing design should provide a level of privacy to the development but not present an unfriendly solid wall to the public street.

FCG69. Ensure fencing facing an active public area allows for visual access / passive surveillance. Fence heights should not exceed 1.2 m in height and should be transparent and/or semi-transparent.

FCG70. Supplement fencing along the street edge with low-profile landscape plantings.

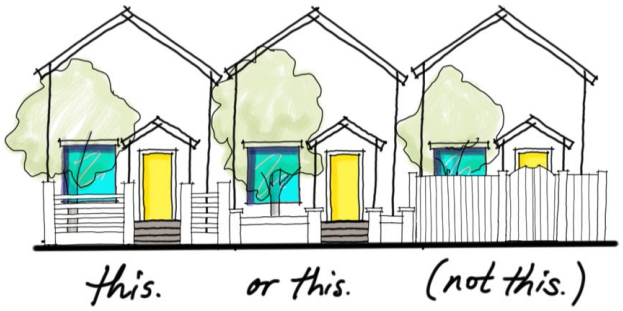

Figure 12: Ensure fencing maintains visual access from and passive surveillance to active public areas.

FCG71. Construct fences of wood, stone, brick, ornamental metal work or suitable alternative materials of similar appearance as a complement to overall building and landscape designs and materials.

Signage

FCG72. Avoid unnecessary signage. Use the minimum size and number of signs needed to inform and direct pedestrian and vehicular traffic. Ensure signs clearly identify uses and shops but are scaled to pedestrians rather than automobile traffic moving at speed limits.

FCG73. In commercial areas, consolidate multiple signs, when required, into a multi-tenant sign located at the main entrance. Third-party signs advertising goods or services not available on the subject lands are not permitted.

FCG74. Ensure signage complements overall building and landscape designs and is in keeping with their general scale, architectural detail, material and character. Conceal mounting hardware and wiring that is not integral to the character of the sign design.

FCG75. Where necessary, free standing signs should be:

a. limited to no more than one free-standing sign per parcel;
b. low-profile and 5 m or less in height, except where a site is lower than the adjacent road surface, in which case variations should be kept to a minimum; and,
c. mounted on a heavy stone or exposed aggregate base and/or framed with heavy timber (rather than post-mounting them) and designed with associated decorative landscaping.

Image 10: Free-standing signs should carry a low profile, framed with heavy timber.

FCG76. Keep sign lighting to a minimum and directed only at the sign, to prevent excessive illumination, glare and light trespass. Where signs must be illuminated, use external lighting sources or low-intensity internal sources.

FCG77. The following types of signs should be avoided:

a. moving signs or signs with moving images or text;
b. signs with temporary and changeable lettering (unless clearly required due to the nature of the business activity); and,
c. backlit, neon, fluorescent or flashing signs or signs incorporating scrolling LED lighting or strip lighting.

Figure 13: Backlit signs should be avoided in favour or raised or recessed letters that may be externally lit.

FCG78. Individually mounted, raised or recessed letters, symbols, border and framing are preferred.

Heritage

FCG79. Use interpretative signage and plaques to commemorate heritage sites, buildings and features.

FCG80. Design new buildings and structures to be compatible in form, character, exterior design and finish with existing historic buildings (e.g. the Masthead Restaurant and Cowichan Bay Shipyard) as defined by scale, massing, roof forms, materials and colours.

FCG81. Retain or reuse heritage features and elements when redeveloping buildings with significant heritage features.

Permit Guidelines

IR1. Due to the close proximity of individual dwellings to one another, pay careful attention to the siting of buildings and arrangement of windows to protect inhabitants' privacy while maintaining individual access to sunlight, air and open space. Landscape buffers may be integrated but should not act as a spatial barrier between the two dwellings.

IR2. Arrange dwelling units on the site to facilitate social interaction, build a sense of community and create defensible space by

a. ensuring building entrances face each other and/or open space common to all units within a cluster;
b. providing for visual surveillance of open space common to all units within a cluster; and
c. providing patios, porches or verandas adjacent to common areas.

IR3. Ensure all dwelling units have direct access to a larger pedestrian network including parks, trails and roadside pathways.

IR4. Design garages and/or accessory units to be secondary to the primary form of the home and recessed behind the front façade of the principal dwelling.

IR5. Cluster driveways, parking and service areas together and screen them from view rather than segregating them among individual dwelling units.

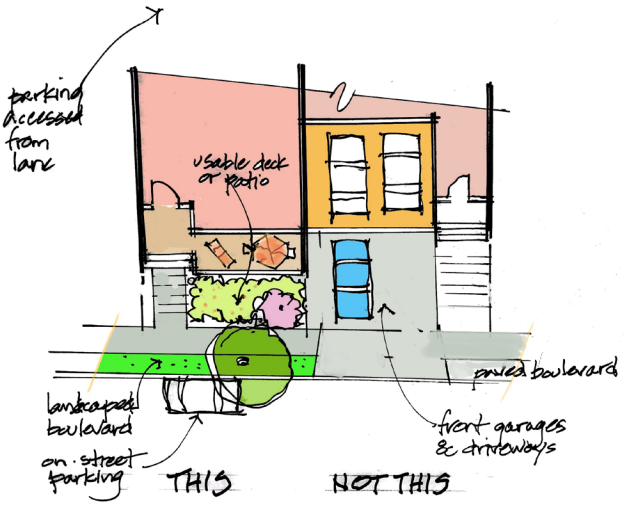

Figure 14: Garages are ideally located in the back of the house to front active uses on the street.

Permit Guidelines

Image 11: Multi-family residential includes higher-density housing, ie; multiplexes, row-houses, townhouses, and low- and high-rise apartments.

MR1. Where multi-family residential development includes more than one building, design each building to have a distinct building form that complements the other buildings using common architectural and landscaping elements and complementary colours and materials. The use of multiple material types is encouraged to provide visual variety and interest.

MR2. Where a proposed building would be taller than adjacent development, a podium feature similar in height to an abutting building (or buildings) should be considered to provide transition in scale. Where a building exceeds four storeys in height, all storeys above the podium should be setback 3 m to create a comfortable street environment.

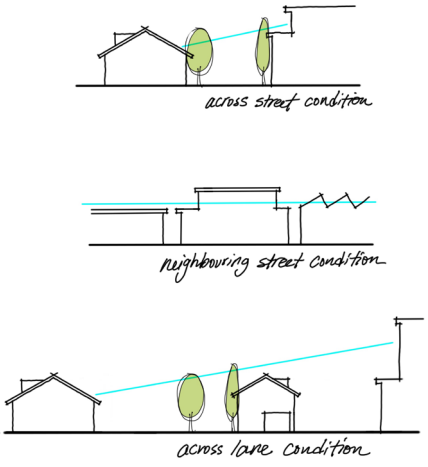

Figure 15: If a proposed building would be taller than adjacent development, upper floors should step back to provide transition in scale.

MR3. Ground-floor residential units should have private pedestrian access to the street at grade, thereby enhancing a street's function, liveliness and appeal.

MR4. Notwithstanding heritage considerations for the preservation of townsite housing forms, and where buildings are repeated along a street, avoid overly repetitive forms and/or "mirroring" of semi-detached units. Consider varying rooflines (e.g. gables, hips and dormers) and architectural elements such as balconies, arbours and trellises to provide visual interest.

MR5. Ground floors of buildings within areas designated Village Core will have ceilings of at least 3.6 m in height to facilitate conversion to commercial uses in the future.

MR6. Design multi-family developments to accommodate sustainable modes of transportation through

a. provision of end-of-trip facilities, such as bike parking and/or safe storage of alternative transportation/mobility equipment (bikes, mobility scooters, etc.);
b. provision of electric vehicle charging stations; and
c. internal circulation and/or upgrades to adjacent rights-of-way to accommodate alternative transportation (e.g., multi-use pathways, separated bike lanes, etc.).

Area-specific Permit Guidelines

The guidelines below apply only to the areas listed. The multi-family residential guidelines above apply to each of those areas as well.

Area B: Shawnigan Village Design Guidelines

MR7. Design sites and locate buildings and structures to complement the development of a continuous public walkway along the lake shoreline and provide pedestrian access walkways to connect upland areas with a lakeside walkway.

Area D: Cowichan Bay Marine Village Design Guidelines

MR8. Design buildings to incorporate weather protection (e.g. protective overhangs) above windows, walls and pedestrian walkways, preferably extending over roughly half of the sidewalk.

MR9. Connect indoor and outdoor environments using balconies and overlooks on the waterside of Cowichan Bay Village.

MR10. Use boardwalks, landscaping, seating and other streetscape elements to separate public from private areas.

MR11. Mitigate potential conflicts between residential and non-residential uses through appropriate design features such as physical separation of uses, noise and visual barriers, landscaping and fencing, and mechanical systems to mitigate air quality impacts.

MR12. Maximize public views of all areas of the waterfront. Avoid blocking water views where physical access to the water is restricted and/or prohibited (e.g. around industrial uses).

MR13. Consider views from both the water and the street of Cowichan Bay Village when designing buildings, boat shelters and floating structures.

MR14. Where fences are necessary for the safety or security of marine industrial uses, use visually permeable and/or transparent fencing or screening to avoid blocking views.

Permit Guidelines

Image 12: Commercial buildings are used for commercial purposes only; mixed-use buildings accommodate retail on the ground floor with office and/or residential above.

CM1. Design shop fronts to have prominent entrances, narrow frontages and largely transparent store fronts so that internal uses are visible from the street. These shops may extend onto a terrace or public area.

CM2. Buildings should incorporate architectural features and variation to avoid the appearance of long, blank façades and to reduce apparent building mass.

CM3. Where commercial uses are located on the ground floor of a building, provide a maximum amount of glazing on the ground level of the street-facing façade to create visual interest.

CM4. To assist with public wayfinding, business entrances should be well defined through signage and architectural design features.

CM5. Where residential uses are located in a mixed-use building (e.g. commercial and/or industrial uses combined with residential uses within the same building), locate residential uses on the upper floors of the building.

CM6. Where developments include a mix of residential and commercial uses, differentiate the entrances architecturally, with separate, ground-level residential entrances being less prominent.

CM7. Provide continuous weather protection with building overhangs, covered walkways and canopies.

CM8. Cluster parking areas in groups of no more than 20 spaces, with landscaping. Use pervious materials.

CM9. Publicly accessible office, recreational, and/or customer service areas should incorporate quality materials such as natural wood, stone, and glass.

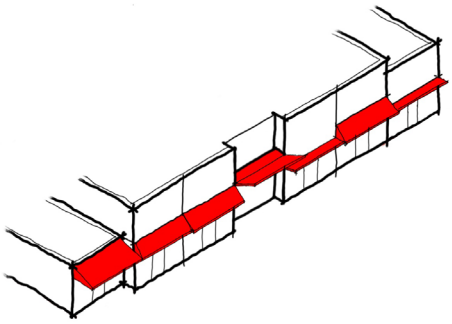

Figure 16: Awnings of individual storefronts provide continuous weather protection.

CM10. Where permitted, drive-thru facilities should be located at the side or rear of the building, except where such siting will conflict with adjacent residential uses, in which case alternate orientations may be considered.

Area-specific Commercial and Mixed-use Permit Guidelines

The guidelines below apply only to the areas listed. The commercial and mixed-use guidelines above apply to each of those areas as well.

Area A: Mill Bay Village Design Guidelines

CM11. Within Mill Bay Village, where possible, provide pedestrian access walkways to connect upland areas with an oceanfront walkway.

CM12. Along Barry Road in Mill Bay Village, design buildings to contribute to a pedestrian-oriented village-like character with ground floor commercial storefronts, building entries oriented towards Barry Road and the façades of tall buildings stepped back from the street with each storey.

CM13. Along Barry Road in Mill Bay Village, incorporate under-building/underground parking for commercial and mixed-use buildings.

Area B: Shawnigan Village Design Guidelines

CM14. Design sites and locate buildings and structures to complement the development of a continuous public walkway along the lake shoreline and provide pedestrian access walkways to connect upland areas with a lakeside walkway.

Area D: Cowichan Bay Marine Village Design Guidelines

CM15. Design buildings with protective overhangs above windows, walls and pedestrian walkways, preferably extending over roughly half of the sidewalk.

CM16. Connect indoor and outdoor environments using balconies and overlooks on the waterside of Cowichan Bay Village.

CM17. Use boardwalks, landscaping, seating and other streetscape elements to separate public from private areas.

CM18. Maximize public views of all areas of the waterfront, especially for areas where public access is not safely possible (i.e., around industrial uses).

CM19. Consider views from both the water and the street of Cowichan Bay Village when designing buildings, boat shelters and floating structures.

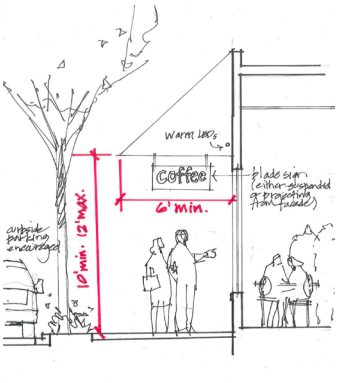

Figure 17: Overhangs should extend over roughly half of sidewalks.

Area I: Youbou Lands Design Guidelines

CM20. Owing to the history of the core of the Youbou Lands site as a major industrial sawmilling operation, the form and character of proposed commercial buildings may reflect this industrial heritage in their design. While the intent is not to replicate the form of previous buildings, appropriate design cues and materials from that era may be proposed.

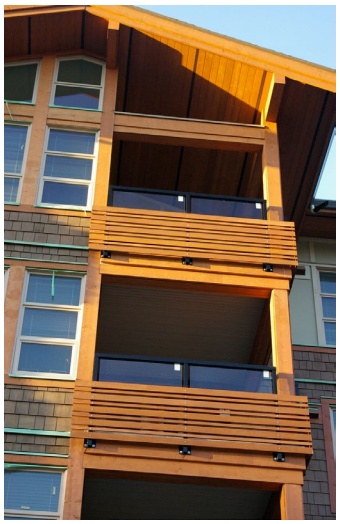

Image 13: Balconies provide private outdoor space that may overlook active public spaces and views beyond.

Development Permit Area 12: Industrial Development

Permit Guidelines

ID1. Large expanses of highly reflective treatments and glazing (e.g. mirror glass) should be avoided on exterior walls to prevent heat and glare impacts on adjacent properties and roads.

ID2. Where feasible, avoid outdoor storage. Where it is unavoidable and permitted in the implementing zoning bylaw, screen it from the view of adjacent non-industrial parcels.

ID3. Encourage the use underground instead of overhead wiring.

ID4. Incorporate existing mature trees into the landscape design.

ID5. Design vehicle access points, circulation patterns and parking layouts in such a way as to reduce impacts upon roads and adjacent parcels and to allow delivery trucks to manoeuvre without having to block or back onto an adjacent road or a pedestrian route.

Area-specific Industrial Permit Guidelines

The guidelines below apply only to the areas listed. The industrial guidelines above apply to each of those areas as well.

Area D: Cowichan Bay Marine Village Design Guidelines

ID6. Design buildings with protective overhangs above windows, walls and pedestrian walkways, preferably extending over roughly half of the sidewalk.

ID7. Connect indoor and outdoor environments using balconies and overlooks on the waterside of Cowichan Bay Village.

ID8. Use boardwalks, landscaping, seating and other streetscape elements to separate public from private areas.

ID9. Maximize public views of all areas of the waterfront, especially for areas where public access is not safely possible (i.e., around industrial uses).

ID10. Consider views from both the water and the street of Cowichan Bay Village when designing buildings, boat shelters and floating structures.

ID11. Where fences are necessary for the safety or security of marine industrial uses, use transparent fencing or screening to avoid blocking views.

5 ENERGY AND WATER CONSERVATION; GREENHOUSE GAS EMISSIONS REDUCTION

Development Permit Area 13: Energy and Water Conservation; Greenhouse Gas Emissions Reduction

Application Requirements

Unless an activity is exempted, section 489 of the *Local Government Act* requires a development permit subject to protection of these guidelines to be approved by local government before:

- subdivision of land;
- commencement of construction of, addition to or alteration of a building or other structure; and
- alteration of land or a building or other structure on that land.

EW-AR1 Provide a rainwater management plan to include the following information:

a. analysis of the pre-development and post-development natural hydrological conditions including peak flows;
b. recommendations on low impact development features that should be applied at the subdivision and parcel scale;
c. specifics on the type, design and location of on-site drainage works required to meet the criteria; and
d. specifics on the type, design and location of off-site drainage works required if on-site works cannot sufficiently meet the criteria specified above.

Permit Guidelines

Energy Conservation and GHG Emission Reduction

EW1. Support sustainable energy and water management through site and landscape design.

EW2. Opportunities for passive heating and cooling and natural lighting should be considered early in the planning and design process to create buildings that have energy savings and emit less greenhouse gas (GHG) emissions.

EW3. Buildings should be designed to maximize natural light and ventilation for all residential units while considering microclimates which may impact the building.

EW4. Develop landscape designs that support passive temperature regulation, for instance

a. by planting deciduous trees on the southern and western facing sides of a building to maximize the warming effect of solar radiation in winter months and the cooling effect of shade in the summer;
b. accommodating windbreaks (perpendicular to the direction of winter prevailing winds) to reduce heat loss in winter, for instance by locating evergreen trees so they block winter winds without blocking solar access; and
c. reducing wind impacts through the consideration of landscape retention for buffering and windbreaks.

Best Management Practices for Energy and Water Conservation and Reduction in GHG Emissions

Developing Permit Areas for Climate Action: A Guide for Energy Conservation, Water Conservation and GHG Emissions Reduction (B.C. government, 2011) provides a multiplicity of links to best management practices for strategies for energy and water conservation and GHG reduction for each of the following areas:

- Landscaping: planting for passive gain and cooling; windbreak planting; creating alternative transportation routes; tree planting and paved areas planting.
- Siting buildings and other structures: site selection; site layout; solar orientation and wind exposure.
- Form and exterior design: built form and exterior design of buildings.
- Specific features: permeable and reflective surfaces and shared amenities.
- Machinery, equipment and external systems: exterior lighting; alternative transportation; on-site energy generation; district energy systems and waste management.
- Water conservation: landscaping; specific features and machinery, equipment and external systems.

Site Design, Building Siting and Orientation

Building orientation can help reduce energy use and greenhouse gas emissions. Positioning and orientation of buildings to take conditions such as sun, wind and natural topography into account can reduce GHG emissions resulting from mechanical heating and cooling.

EW5. On south-facing slopes, site buildings with the long axis running east to west, to provide maximum solar access and opportunities for planting vegetation to manage solar gain.

EW6. Orient buildings to maximize passive ventilation and cooling from prevailing breezes.

EW7. Integrate with the natural terrain and minimize cuts and fills, retaining walls, artificial embankment of grade or extensive regrading, to the greatest extent possible.

EW8. Consider local opportunities for alternative energy such as ground-source geothermal, solar heating and photovoltaic and wind power generation.

EW9. Where opportunities exist, combine vehicle access driveways (e.g. shared access among multiple parcels) to minimize the extent of impervious surfaces and removal of natural vegetation.

EW10. Enable opportunities for alternative transportation links such as pathways and trails.

Building Form, Materials and Colour

The physical form and exterior design of buildings and structures can influence the amount of energy saved and reduction of greenhouse gas emissions.

EW11. Provide south-facing windows to maximize winter solar gain and natural light.

EW12. Maximize natural ventilation by locating window openings on opposing or adjacent walls.

EW13. Use window overhangs and/or fixed operable shading devices to control solar gain by blocking high-angle summer sun and allowing entry of low-angle winter sun.

EW14. Where feasible, minimize the use of low albedo (heat-absorbing) surfacing materials to reduce heat island effect (i.e., use lighter-coloured, more reflective materials).

EW15. Reduce the heat island effect of a building's roof and heat transfer into the building by using green roofs (which also buffer rainwater flows), Energy Star-rated or high albedo roofing material or other appropriate roofing treatments and materials.

EW16. Minimize greenhouse gas emissions by selecting low-carbon, durable building materials. Building detail, material and colour should support energy-efficient buildings with low GHGs.

Machinery, Equipment and Systems External to Buildings

Energy consumption and greenhouse gas emissions can be reduced by incorporating innovative technologies for energy generation and distribution.

EW17. If practical, use onsite renewable energy generation to supply electricity, heating and cooling to buildings and other structures, water pumps, sewage pumps and/or electric vehicle charging stations. Possible sources include geothermal energy, wind turbines, tidal energy, air-source (heat pumps), biomass, bio-gas, wastewater effluent and solar energy (collectors and/or photovoltaic [PV] panels).

EW18. Install energy-efficient (i.e. solar powered, timer or sensor controlled) exterior lighting systems.

EW19. Install on-site electrical vehicle-charging stations, preferably using on-site energy generation.

Rainwater Management

Image 14: Design rainwater management measures, including collection systems such as rain barrels.

EW20. Minimize the use of impervious surfaces and/or incorporate rainwater management strategies where surface runoff is captured. Where feasible, use pervious surfaces for landscaping, driveways and parking areas.

EW21. Install rainwater management measures:

a. to prevent impacts of runoff from development into riparian areas, roadways and adjacent areas using onsite low-impact development techniques. Examples include landscaping measures, rain gardens, rainwater collection systems, naturalized ponds, "grass-crete" and bioswales;
b. to retain natural drainage features;
c. to maintain the site's discharge hydrography from a five-year peak flow event;
d. to maintain or improve water quality from the development site;
e. to mimic natural rates in the storage and release of larger rainfall events (30 to 60 mm);
f. to include alternative overflow escape routes; and
g. to restore hydrological cycle and drainage features previously impacted by development.

Image 15: Engineered wetlands help avoid waste of rainwater and to absorb contaminated runoff.

Image 16: Pervious, landscaped surfaces and light reflective surfaces minimize heat absorption.

EW22. Design rainwater management infrastructure, such as infiltration systems and constructed wetlands, with species that require minimal irrigation and/or enhance natural habitat.

EW23. Angle driveways across a slope's gradient to reduce runoff.

Image 17: A home is carefully built into the hillside preserving mature vegetation.

EW24. Design slopes of cut and fill banks to withstand erosion and allow for revegetation, with slopes not exceeding 1:2. At property edges, slopes should not exceed 1:3.

EW25. Implement measures to manage erosion and sedimentation during site preparation and construction; minimize soil disturbance and replant disturbed areas with native plants upon completion of activities.

EW26. Retain existing native vegetation and mature trees and implement measures such as protective fencing to protect those features during site preparation and construction.

EW27. When trees must be removed, leave stumps in place to stabilize soil until alternative vegetation is established.

EW28. Remove and/or manage invasive plants during site preparation and construction.

EW29. Preserve native vegetation using measures such as
a. planting only non-invasive plant species suited to the local climate and that require minimal irrigation;
b. using techniques such as xeriscaping; and
c. eradicating invasive plant species.

EW30. Provide all landscaping with a method of irrigation suitable to the continued maintenance of planted materials. Use or manage stormwater and building water discharge on site for irrigation, using measures such as
a. maximizing pervious surfaces;
b. incorporating bioswales, rain gardens and naturalized ponds; and
c. maximizing the use of topsoil or composted waste for finish grading increase infiltration and water holding capacity.

EW31. Install an automated irrigation system that conserves water by using the minimum amount needed for the species planted.

Best Management Practices for Rainwater Management

Government of British Columbia, 2014. Develop with Care: Environmental Guidelines for Urban and Rural Land Development in British Columbia. Section 3.7: Guidelines for Water Management.

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Water Sustainability Action Plan for British Columbia, 2012. Primer on Integrated Rainwater and Groundwater Management for Lands on Vancouver Island and Beyond.

Government of British Columbia. Stormwater Planning: A Guidebook for British Columbia