

**VILLAGE OF PEMBERTON
-COMMITTEE OF THE WHOLE MEETING AGENDA-**

Agenda for the **Committee of the Whole** of Council of the Village of Pemberton to be held Tuesday, November 5, 2019 at 4:00 p.m. in Council Chambers, 7400 Prospect Street. This is Meeting No. 198.

“This meeting is being recorded on audio tape for minute-taking purposes as authorized by the Village of Pemberton Audio recording of Meetings Policy dated September 14, 2010.”

Item of Business	Page No.
1. CALL TO ORDER	
In honour of the Lil'wat7ul, the Village of Pemberton acknowledges that we are meeting within the unceded territory of the Lil'wat Nation.	
2. APPROVAL OF AGENDA	1
Recommendation: THAT the Agenda be approved as presented.	
3. ADOPTION OF MINUTES	
a) Committee of the Whole Meeting No. 197, Tuesday, October 22nd, 2019	2
Recommendation: THAT the minutes of the Committee of the Whole Meeting No. 197, held Tuesday, October 22 nd , 2019, be adopted as circulated.	
4. DELEGATIONS	
There are no delegations scheduled for this meeting.	
5. HILLSIDE DEVELOPMENT GUIDELINES	6
6. ADJOURNMENT	

**VILLAGE OF PEMBERTON
-COMMITTEE OF THE WHOLE MEETING MINUTES-**

Minutes for the **Committee of the Whole** of Council of the Village of Pemberton held Tuesday, October 22, 2019 at 1:00 p.m. in Council Chamber, 7400 Prospect Street. This is Meeting No. 197.

ATTENDING: Mayor Mike Richman
Councilor Ryan Zant
Councilor Ted Craddock
Councilor Leah Noble
Councilor Amica Antonelli

STAFF: Nikki Gilmore, Chief Administrative Officer
Sheena Fraser, Manager of Corporate & Legislative Services
Lisa Pedrini, Manager of Development Services
Cameron Chalmers, Planning Consultant
Matt Rempel, GIS/Planning Tech
Joanna Rees, Planner
Elysia Harvey, Legislative Assistant

PUBLIC: 0

1. CALL TO ORDER

At 1:00 p.m. Mayor Richman called the October 22, 2019 Committee of Whole meeting to order.

In honour of the Lil'wat7ul, the Village of Pemberton acknowledges that we are meeting within the unceded territory of the Lil'wat Nation.

2. APPROVAL OF AGENDA

Moved/Seconded
THAT the agenda be approved as circulated.
CARRIED

3. ADOPTION OF MINUTES

a) Committee of the Whole Meeting No. 196, Tuesday, October 8, 2019

Moved/Seconded
THAT the minutes of Committee of the Whole Meeting No. 196, held Tuesday, October 8, 2019, be adopted as circulated.
CARRIED

4. DELGATIONS

There were no delegations.

5. AFFORDABLE HOUSING ACTION PLAN WORKSHOP

Cameron Chalmers, Contract Planner, reviewed the framework of the Affordable Housing Action Plan and opened the table for the Committee's discussion and feedback.

Discussion took place respecting the type of affordable housing Pemberton may want and what the Committee wished to see as a focus of the plan. The following were some comments provided:

- Review of the current lands available for development (i.e.: Lion's Property)
- Looking to understand what is the most effective, efficient form of affordable housing that could be put in place quickly
- Desire for walkability to essential services
- Focus on the \$40 K demographic
- Establishment of resident restrictions in order to prioritize the affordable housing for Pemberton residents
- Ensuring affordability
- Understanding what the role of local government is with respect to providing affordable housing (whose responsibility is it?)
- Impacts to existing taxpayers to facilitate the development of an affordable housing project
- Establishment of dedicated rental units in new developments
- Ensure opportunity to support financially challenged or low-income residents

Discussion took place related to development financing and the challenges developers face in small communities, how to capitalize on opportunities and draw potential interested developers to the community.

The Committee reviewed the five key deliverables of the Plan and discussed the following:

Leveraging Partnerships

- Local churches (example – would the local churches consider including affordable housing if they are considering redevelopment)
- Habitat for Humanity's involvement in the Sea to Sky
- Vail Resorts – do they have a role/interest
- Pemberton business community
- Currently available housing/secondary suites
- Establishing incentives for residents to rent out suites

Advocacy, Education and Capacity Building

- Seeking public feedback
- Understanding the difference between housing wants vs. needs

- Learning what impacts housing changes might have on neighbourhoods and testing tolerance toward increased densification
- Incorporating outreach as part of the Official Community Plan (OCP) review to increase awareness and understanding of affordable housing needs and initiatives
- Ensuring the public has an understanding that development will follow a logical progression through the OCP, Zoning and Policy preparation.

Setting/Assessing Policy

- Review and assessment of current policies (Development Cost Charge Bylaw, Development Procedures Bylaw, etc.) and review those that might compete with affordable housing opportunities (i.e.: parking ratios, non-conforming suites, density and height restrictions)
- Official Community Plan review
- Balancing long-term objectives with short term solutions
- Inclusion of a diverse range of housing options including modular and mobile homes

Establishing Regulations (Regulatory Response)

- Zoning
- Available tools for regulating affordable housing
- Understanding a 'one size fits all' approach doesn't necessarily work as each community is different and has different needs
- Identification of tools available to local governments to address affordable housing needs
- Understanding if there are supports that can be put in place for landlords

Revenue Generation & Land Banking

- Land must meet viability and location criteria (i.e.: close to schools, amenities and shops)
- Liberation of Crown Land
- Land swaps
- List of potential sites
- BC Rent Bank
- Understanding costs associated with the administration of operating an affordable housing project, housing authority or land bank

Moved/Seconded

THAT the Committee of the Whole recommend to Council to approve the draft Age-Friendly Affordable Housing Action Plan;

AND THAT the Committee of the Whole recommends that Council direct Staff to prepare a detailed short-term affordable housing implementation program for consideration during the 2020 budget deliberations.

CARRIED

At 2:18 pm the meeting was recessed.

At 2:22 the meeting was reconvened.

6. AIRPORT HELICOPTER BASE OPERATIONS DISCUSSION

The Committee of the Whole considered ideas for the overall vision for the Pemberton Regional Airport, both in the short-term and long-term.

At 2:27 pm Councillor Zant declared a conflict of interest pursuant to section 100 (2) (a) of the *Community Charter* and excused himself from the meeting.

The following objectives were identified as priorities with respect to airport development:

- Increasing activity/development in a manner that benefits the Community, including helicopter traffic;
- Opportunities for increased revenue generation & employment;
- Supporting modest development on a case-by-case basis;
- Support for private users;
- Imposing time limits on the development of lease lots;
- Concerns about developing the airport to the benefit of Whistler;

Moved/Seconded

THAT the Committee of the Whole recommends to Council that Staff prepare a list of criteria for airport lease lot and development inquiries to include the following:

- Benefits to the community
- Impacts to the community
- Establishment of development timelines

And bring forward to a future Council meeting for consideration.

CARRIED

7. ADJOURNMENT

Moved/Seconded

THAT the Committee of Whole be adjourned at 2:45 p.m.

CARRIED

Mike Richman
Mayor

Sheena Fraser
Corporate Officer

Date: November 5, 2019

To: Nikki Gilmore, Chief Administrative Officer

From: Joanna Rees, Planner

Subject: Draft Hillside Development Design Guidelines

PURPOSE

The purpose of this report is to provide the Committee of the Whole with an opportunity to review and comment on Draft Hillside Development Design Guidelines.

BACKGROUND

In March 2019, Council identified the creation of Hillside Development Standards as a Strategic Priority for the Village. The goal of creating hillside development standards is to limit impacts on existing site conditions and to encourage development practices sensitive to natural terrain and habitat conditions.

Staff acknowledges that hillside development:

- requires more innovative design and attention to storm runoff to conserve sensitive habitat;
- presents more noticeable changes to the landscape than flat-terrain development;
- often necessitates alternate road designs to reduce the amount of unsightly cut and fill;
- benefits from thoughtful site planning that naturally integrates development into the sloping landscape; and
- requires more Staff attention during processing due to requirements for such items as geotechnical reports, environmental information, tree retention and grading plans, visual analysis, etc.

Given these factors, it is important to come up with an approach to hillside development in Pemberton to maintain aesthetic qualities and environmental functionalities of our surrounding hillside landscape.

INTRODUCTION

The Draft Hillside Development Design Guidelines is intended to assist subdivision applicants, individual lot developers and Village Staff on aspects of hillside design that need special consideration as part of the subdivision and development review and approval process. It is anticipated that these guidelines will provide sufficient clarity, tools and a common understanding when submitting and reviewing development and building permit applications in hillside areas.

In order to create Hillside Development Design Guidelines, Planning Staff reviewed which facets of hillside design are already regulated under the Village's current policies, including the Official Community Plan and Subdivision and Development Control Bylaw No. 677, 2011. Staff also reviewed and compared policy tools used by other British Columbia municipalities with significant hillside areas including the City of Kelowna, City of Nanaimo and the District of Squamish with respect to regulating hillside development. A summary of findings is shown below.

EXISTING HILLSIDE DEVELOPMENT REGULATIONS

The following section outlines the Village of Pemberton's current policies and processes for hillside development. The applicable policies regulating hillside development and their role in the development process will be further outlined below.

Official Community Plan

In the Village of Pemberton Official Community Plan, priorities related to the design of hillside areas are stated in various sections.

Under Community Planning Directions, Policies, Strategies and Actions, *Section 5.10 - The Natural Environment is Preserved and Protected* there is mention of several priorities especially relevant to hillside development:

5.10. 1 Natural Environment Policies:

- *Integrate development in to the natural environment in a way that capitalizes on ecological functions and avoids or manages risks associated with natural hazards;*
- *Preserve, protect and enhance areas defined as environmentally sensitive unless mitigating measures can be taken to minimize the negative impacts;*
- *Establish, maintain, and enhance greenway corridors and natural habitat connectivity for wildlife movement;*
- *Recognize the balance between public safety and environmental protection, particularly in consideration of hazard mitigation such as flood protection and wildfire;*
- *Balance environmental protection with the need for sensitive mitigation of potential wildland fire hazards;*
- *Retain the quality of the dark sky and public view corridors.*

In addition, under *Section 6 – Land Use*, there are specific directions contained within the Special Planning Area descriptions referring to the Hillside (which applies to Sunstone and the Ridge), and the Benchlands.

Section 6.2 Special Planning Area (Hillside)

- *Any development proposed shall consider the directions contained within the Hillside Lands, Pemberton Planning Status Report (July 26, 2011) as it provides additional information related to the character of the lands and site constraints, development potential, community amenities, connectivity, servicing and phasing.*
- Section 3.1 f) of the Hillside Planning Study speaks towards Visual Impacts stating that:

*At rezoning, specific development proposals shall provide **photographs and/or view analysis** details recognizing potential visual impacts to the site of not only the buildings but also the potential disruption from constructed roads and servicing corridors.*

Section 6.3 Special Planning Area (Benchlands)

- *The information and policy directions contained within the Benchlands Neighbourhood Concept Plan shall be directly referenced in any future amendments, rezonings, or development permits that concern the Benchlands Special Planning Area.*
- *Section 6.5 Hillside Management of the Benchlands Neighbourhood Concept Plan speaks to the use of Hillside Street Standards and Public Realm Design Guidelines to ensure safe, livable and attractive streets that contribute to the urban fabric. The use of covenants are encouraged as wildfire hazard management tool and to preserve the integrity of hillside conservation areas on public and private lands.*

Zoning Bylaw

The zoning for Benchlands (Phase 1), the Plateau and Beechwood area, all residential subdivisions located on moderately sloping terrain, is Residential 1 (R-1). R-1 has historically been the main zone used by the Village to denote single family dwelling areas whether it was located in flat or hillside areas.

More recently, the Village's has employed residential amenity zones, for example RSA-1 that applies to Sunstone and RSA-2 that applies to the Ridge, to apply to its newest hillside residential subdivisions. Although these zones differ from the typical R-1 single family residential zone, it is due to their being an amenity (density bonusing) zone, rather than containing site specific hillside zoning provisions.

The zoning for future developments in the Hillside Special Planning Area and the Benchlands Special Planning Area will be determined through future site specific rezoning applications, and the Village may want to consider hillside specific zoning bylaw provisions.

Development Permit Areas (DPA)

Hillside lands are identified in the following Development Permit Areas (DPAs) and a DPA application is required to demonstrate compliance with the *Development Permit Guidelines* referred to in Section 7.0 of the Official Community Plan.

DPA No. 1 – Environmental Protection

- *All hillside lands are designated as DPA No. 1, additional DP application materials include:*
 - *Submit an **Environmental Assessment** prepared by a qualified environmental professional identifying the possible impacts and proposed mitigation of the proposed development.*
 - *Development shall include **construction management plans** indicating how non disturbance areas will be protected during construction such as preventing encroachment (fencing), erosion and sedimentation, storage and maintenance of vehicles and controlling invasive plant species.*

- *Require **monitoring reports** at the expense of the applicant/ developer by a qualified environmental professional during construction to ensure the conditions of the Development Permit have been fulfilled.*

DPA No. 2 – Land Constraints

- *Extreme Wildland Fire Areas*
 - *Some Hillside SPA and some Benchlands SPA lands are designated*
 - *A **pre-development fire risk assessment and fuels management strategy** by a wildfire management specialist that considers FireSmart recommendations and OCP directives.*
- *Slopes > 40%*
 - *Some Hillside SPA and some Benchlands SPA lands are designated*
 - ***Development prohibited** on slopes greater than 40% except for public infrastructure installations including private driveways*
- *Natural Hazards*
 - *Some Hillside SPA are designated*

DPA No. 5 – Intensive Residential

- *Some Hillside SPA and some Benchlands SPA lands are designated*

DPA No. 6 – Multi-family and/or Commercial Development

- *Some Hillside SPA lands are designated*
 - *Required to submit a **geotechnical report** prepared by a qualified professional engineer.*

Subdivision and Development Control Bylaw No. 677, 2011

Hillside Subdivision Applications must comply with the *Village of Pemberton Subdivision and Development Control Bylaw No. 677, 2011* (Subdivision and Development Control Bylaw) and allows the Village to legally enforce technical design standards. Section 6.16 of Schedule B of the Subdivision and Development Control Bylaw, 2011 speaks to Hillside Road Standards, attached as **Appendix A**. This section defines hillsides as areas of lands that in their natural state have a slope angle of 10% or greater for a minimum horizontal distance of 10 metres. It is required that hillside lands provide pedestrian and cyclist connectivity and provide opportunities for snow storage. Technical standards are outlined for the design of hillside roads, cul-de-sac streets and hillside emergency access.

POLICY TOOLS USED BY B.C. MUNICIPALITIES

Policy tools used by other municipalities in British Columbia to regulate hillside developments within their communities was summarized in a table attached as **Appendix B**. The primary policy tools used by fellow B.C. municipalities are described below and include: OCP goals and objectives, Hillside DPA, Hillside DPA Guidelines, site specific zoning, and Subdivision and Development Control Bylaws.

OCP Hillside Goals and Objectives

Goals and Objectives for development on Hillside areas can be included as a section within the OCP.

Hillside Development Permit Areas and DPA Guidelines

A Hillside Development Permit Area (DPA) is an additional approval required by some municipalities in the development process. It can be created under all or some of the following categories of the *Local Government Act*: Natural Environment, Hazardous Conditions, Intensive Residential Development and Multi-Family Residential Development. Municipalities have created Hillside DPAs under all or some of the categories listed.

The City of Kelowna Hillside Development Guidelines, Oct 2009 uses an adaptable approach where Hillside goals, objectives and guidelines emphasize innovation and flexibility to balance competing interests and be applicable to site specific topography. According to their approach, a Coordinating Hillside Development Professional is required by their Bylaw to administer Hillside Development applications to ensure the objectives of the Guidelines are met.

The City of Nanaimo was one of the first to develop their Steep Slope Development Permit Guidelines and are used as a reference and guide for many municipalities across B.C. (i.e. the City of Vernon, City of Chilliwack and Township of Spallumcheen). The guidelines emphasize clustering developments and maintaining natural open space. They are structured to address Site and Subdivision Design, Natural Environment, Works and Services and Building and Structures. They also include a list and description of required DP application materials.

These guidelines are both implemented as part of DPA and form part of the OCP. However, they are also used as a best practices resource throughout the development process for OCP and Zoning Amendments and Subdivision applications.

Zoning Bylaw

The Zoning By-Law can be used to regulate land use, building mass, siting and density. Some municipalities have pre-existing hillside specific zones. However, hillside zones can also be created on a site-specific basis through rezoning applications.

Subdivision and Development Bylaw

Technical design standards unique to hillside topography for roads, utilities, stormwater and retaining walls are implemented through Subdivision and Development type Bylaws.

PROPOSED PEMBERTON APPROACH

Draft Design Guidelines have been prepared by Staff based on slope and hillside guidelines created by other B.C. municipalities. In addition, Staff completed site visits to a variety of hillside developments located in the Sea to Sky corridor to aid in the presentation of the material and include local visual examples in this policy. The Draft Hillside Development Design Guidelines document is attached as **Appendix C** to this report.

The Guidelines are intended for use by developers, designers, builders and Staff to define the intent and purpose of hillside development in Pemberton and are not intended to be regulatory. The Guidelines aim to sensitively integrate the built form in a manner that protects the integrity of the Village's surrounding landscape, with an emphasis on functionally appropriate and aesthetically pleasing design.

Staff recommend using an approach that guides hillside development by comprehensively laying out best practices to model what is preferred in a hillside environment. This is a more subtle, educational and flexible tactic than employing standards. Unlike standards, the proposed guidelines have been structured to encourage innovation and flexibility, to promote the most appropriate design given the unique characteristics of each site. This will allow competing interests and objectives to be balanced and applied in a site specific context. Implementing guidelines through policy, rather than introducing new standards through bylaw revisions uses less staff-resources and finances to create (the guidelines were created in-house) and enforce.

The objectives of the guidelines are to be considered with development applications in hillside areas to the extent determined by Staff. The goals and objections provided in the guidelines would be primarily implemented through the rezoning and subdivision stage of the application. Technical standards regarding hillside specific design for items such as road design, retaining walls and public utilities are best suited to be implemented via the Subdivision and Development Control Bylaw, and can be considered as part of the 2020 review and update of that Bylaw.

At this point in time, the Guidelines are not tied to a Development Permit Area and therefore will not be legally enforceable. However, additional policies and bylaws can be implemented in the near future to work with the proposed guidelines including but not limited to:

- Including Hillside Development Goals and Objectives in the new OCP
 - During the review and update of the Village's OCP, additional priorities can be applied to all hillside development applications.
- Creating a Hillside Development Permit Area
 - A Hillside DPA could be used to consolidate all DPA policies that currently apply to hillsides and to clarify the application process and requirements.
 - The Hillside Development Design Guidelines could be created and adopted to form a part of the DPA policy and OCP.
 - Creation of a Hillside DPA would enable the Village to require additional application materials, such as a landscaping plan.
- Creating Site Specific Hillside Zoning
 - Zoning for future Hillside areas could be crafted on a site-specific basis following the Hillside Development Design Guidelines and based on the unique topography of the land in question.
- Reviewing and updating the Subdivision and Development Control Bylaw No. 677 , 2011
 - Hillside Road design standards can be updated and technical standards relating to retaining walls and site grading can be added.
 - Updates to technical standards would need to be completed by a professional engineer.

REVIEW COMMENTS

The Draft Hillside Design Guidelines have been circulated internally and reviewed by the Village's Department of Operations and Projects, Corporate Services and Contract Planner.

The Draft Hillside Design Guidelines were presented to the Advisory Land Use

Commission at their meeting held on October 28th 2019, Commission members spoke in support of the document in general terms and commented specifically on the following points:

- determination of the hierarchy of concepts in cases where individual guidelines conflict;
- consideration of geotechnical requirements to ensure safety and minimize natural hazards; and
- formalizing and reinforcing the Guidelines through the use of additional planning tools.

COMMUNICATIONS

Staff recommend that the Development Community be given an opportunity to review and provide comments on the Draft Hillside Development Design Guidelines following the Committee of the Whole's review.

LEGAL CONSIDERATIONS

The Guidelines are being presented as a Planning Policy and are not intended to be legally enforceable.

IMPACT ON BUDGET & STAFFING

The Guidelines were completed in-house and did not impact the day-to-day budget or staffing of the Development Services Department.

INTERDEPARTMENTAL IMPACT & APPROVAL

The Guidelines were sent to all Village departments for review and comments. This review did not impact the day to day budget or staffing of other departments and do not require approval from any other department.

IMPACT ON THE REGION OR NEIGHBOURING JURISDICTIONS

The Guidelines will only apply to lands within the Village boundary. If adopted, the guidelines may help to preserve Pemberton's public viewsapes visible from the surrounding Electoral Area C and Lil'wat Nation I.R. lands.

ALTERNATIVE OPTIONS

There are no alternative options for consideration.

POTENTIAL GOVERNANCE CONSIDERATIONS

This initiative is aligned with Strategic Priority Four: Social Responsibility in which the Village strives to create a strong and vibrant community.

RECOMMENDATION

THAT the Committee of the Whole review and provide Staff with direction on the Draft Hillside Development Design Guidelines, October 2019.

ATTACHMENTS:

- Appendix A: Subdivision and Development Control Bylaw No. 677, 2011 Schedule B – 6.16
- Appendix B: Policy Tools used by BC Municipalities
- Appendix C: Draft Hillside Development Design Guidelines, September 2019

Prepared by:	Joanna Rees, Planner
Manager Approval by:	Lisa Pedrini, Manager of Development Services
CAO Approval by:	Nikki Gilmore, Chief Administrative Officer

- vi) When selecting tree species near overhead power lines, the designer shall ensure that the canopy of the mature tree will maintain the minimum distances as required by Electrical Regulations.
- vii) Consideration should be given in locating trees within the boulevards to avoid obstructing traffic signs, driveways, and sight lines.
- viii) The view corridor of main windows or patios.

6.15 TRAFFIC CONTROL DEVICES

- 6.15.1 Traffic signs are to be designed in accordance with the current edition of the Transportation Association of Canada Manual of Uniform Traffic Control Devices for Canada.
- 6.15.2 Crosswalks to be designed in accordance with the current edition of the Province of British Columbia Ministry of Transportation and Infrastructure - Pedestrian Crossing Control Manual.
- 6.15.3 Traffic Paint Markings to be designed in accordance with the current edition of the Province of British Columbia Ministry of Transportation and Infrastructure – Pavement Markings Manuals.
- 6.15.4 Traffic calming measures shall be employed as appropriate and at the direction and approval of the Village Official to maximize road safety and are to be designed in accordance with the current edition of the Transportation Association of Canada “Canadian Guide to Neighbourhood Traffic Calming”.

6.16 HILLSIDE STANDARDS

6.16.1 General

- a) Hillside areas are lands that in their natural state have a slope angle of 10% or greater for a minimum horizontal distance of 10 metres.
- b) Shall provide pedestrian and cyclist connectivity.
- c) Shall provide opportunities for snow storage.

6.16.2 Roads

Subject to approval by the Village, maximum grades may be increased to 2% greater than those shown in Table 6.2.

6.16.3 Cul-de-Sac Streets and Hillside Emergency Accesses

- a) Cul-de-sac
 - i) ROW: min 15.0m radius;
 - ii) Radius to edge of paved surface: min 10.25m radius;
 - iii) Alternative types of street turnarounds will be considered for use based on site;
 - iv) Specific topographic conditions. In certain circumstances; reduced cul-de-sac radii or hammer head type turnarounds will be permitted;

- v) Cul-de-sac streets may exceed the maximum length as specified by the Village of Pemberton - mid-block turnarounds should be considered in this situation;
- vi) A secondary emergency access must be provided for all public cul-de-sac streets that are in excess of the maximum length as specified by the Village of Pemberton;
- vii) Cul-de-sac Roads are designed to be permanent, must be provided at the closed end with an area designed to permit safe and adequate space for the turning of motor vehicles;
- viii) At road intersections cul-de-sac must be constructed with an approach grade of not greater than 3% for a distance of not less than 15 m from the adjacent edge of asphalt of the major road;
- ix) The draining grade around the outside curb of a cul-de-sac must be not less than 0.5% and not greater than 5.0%. Longitudinal gradients of cul-de-sac bulbs shall not exceed 5.0%;
- x) When a cul-de-sac is at the bottom of a hill, the longitudinal gradient of the first 50m of roadway uphill from the cul-de-sac bulb shall not exceed 5.0%. The maximum longitudinal gradient for the rest of the hill shall not exceed 10%;
- xi) When a cul-de-sac is at the top of a hill, the longitudinal gradient for the roadway downhill from the cul-de-sac must not exceed 12.0%;
- xii) Gutter elevations on curb returns and cul-de-sacs must be shown on the drawings at the beginning, one-quarter points and end of curb returns and at 7.50 m intervals around cul-de-sacs;
- xiii) A turn-around or a second point of access is required on roads longer than 100 m. The maximum length of a permanent cul-de-sac shall be 200 m. Where it is part of a temporary and/or staged development, this maximum length may be 400 m. Cul-de-sac lengths greater than 200 m may be considered by the Village Official;
- xiv) Major flood routes must be provided on down slope cul-de-sacs;
- xv) Snow storage areas must be provided in close proximity;
- b) Hillside Emergency Access
Guidelines for emergency access roads at long cul-de-sacs include the following:
 - i) Maximum grade: 15%
 - ii) Minimum right-of-way and roadway width: 6.0m.
 - iii) Minimum paved width: 4.5m.
 - iv) Removable bollards to prevent access by non-emergency vehicles.
 - v) Pavement structure equivalent to local road.
 - vi) Shared use with pedestrian walkway or bikeway.
- c) Cross-section Elements
Refer to MMCD A Design Guideline Manual – Hillside Road Cross-Section Elements.
- d) Alignments
Refer to MMCD A Design Guideline Manual – Hillside Road Alignment Standards.

Policy Tools Used by BC Municipalities

Jurisdiction	Policy Tools	Brief Summary Notes
City of Kelowna	<p>OCP- DPA</p> <p>Intensive Residential Hillside Development Permit Area</p> <p>Hillside Development Guidelines, Oct 2009</p>	<p>Applies to all development in hillside areas with slopes > 20% to be reviewed for form & character to ensure preservation of significant natural features, consideration of visual impacts, & good urban design.</p> <p>OCP provides DPA guidelines that may be applied when setting the DP conditions.</p> <p>Guidelines are to be considered with DP applications in hillside areas to the extent determined at the pre-application meeting.</p> <p>Hillside goals, objectives and guidelines emphasize innovation and flexibility to balance competing interests and be applicable to site specific topography.</p>
	<p>Development Application Procedures Bylaw No. 10540</p> <p>Coordinating Hillside Development Professional</p>	<p>All applications involving greater than three (3) lots within the Intensive Residential – Hillside Development Permit Area, proof of contract is required between the land owner and a Coordinating Hillside Development Professional.</p> <p>Defined as a registered professional planner, landscape architect, or engineer engaged to administer the application process and to ensure that the requirements established by the City in accordance with the Hillside Guidelines – including lot grading, drainage, and retaining are addressed.</p>
	<p>Zoning Bylaw</p>	<p>Each residential zone has a corresponding hillside area zone.</p> <p>The hillside residential zones provide additional flexibility in terms of front yard setbacks and more stringent height requirements for building articulation.</p>
City of Grand Forks	<p>OCP – DPA</p> <p>Hillside Development Permit Area</p>	<p>Applies to all lands with a natural slope in excess of 30 percent and land within 15m of the top of steep slopes with grades in excess of 30 percent.</p> <p>These lands are identified as either Heavy Industry or Hillside & Resource District in the OCP. Hillside and Resource District areas are not to be urbanized until municipal services are made available and infilling and densification of other areas has occurred.</p> <p>DP applications are subject to a Geotechnical Report, Storm Water Management Plan, and screening and landscaping in industrial areas.</p>
	<p>Bylaw – Subdivision, Development & Servicing Bylaw No. 1970</p>	<p>Schedule D: Hillside Development Design Criteria</p> <p>Includes general design criteria and technical standards regarding roads, storm drainage, utility corridors, driveway access and site restoration</p> <p>Detailed Geotechnical, slope stability, Hazard assessments and hydrogeological reports are required as part of a pre-design report to be submitted prior to approval of a subdivision or development.</p>

Policy Tools Used by BC Municipalities

City of Coquitlam	<p>Guidelines</p> <p>Guide to Best Site Development Practices, April 2005 (formerly Hillside development Standards & Guidelines)</p>	<p>A consolidation of existing policies and objectives that are defined in the City's Strategic Plan, Official Community Plan and Northeast Coquitlam Area Plan and additional city bylaws</p> <p>Outlines goals, guidelines and standards that must be met or considered as they relate to subdivision and rezoning applications based on the following five issues: Site Topography and Planning, Significant Natural Features, Geological Features, Site Grading and Retaining Walls, & Drainage and Sediment Control.</p> <p>A summary of application requirements is provided acting as a checklist for design professionals.</p>
Township of Spallumcheen	<p>OCP – DPA</p> <p>Hillside Development Permit Area</p> <p>Hillside Guidelines, April 2011</p>	<p>Applies to parcels larger than 2 hectares, with more than 50% of the property having grades of 12% or steeper.</p> <p>Hillside Design Guidelines and Goals are physically integrated into the OCP.</p> <p>The guidelines address Site and Subdivision Design, Natural Environment, Works and Services and Building and structures and indicate required application materials for a development permit.</p> <p>(Verbatim City of Vernon, heavily based on City of Nanaimo).</p>
	<p>Subdivision and Servicing Bylaw No.1404</p>	<p>Provides technical road design requirements to reduce the impact of new roads in hillside areas.</p>
City of Nanaimo	<p>OCP – DPA</p> <p>Steep Slope Development Permit Area</p> <p>Steep Slope Development Permit Guidelines</p>	<p>Development permits are required to follow these guidelines and they form part of the Official Community Plan</p> <p>These guidelines will also assist in rezoning, subdivision design, and development variance application preparation and reviews.</p> <p>The guidelines address Site and Subdivision Design, Natural Environment, Works and Services and Building and structures and indicate required application materials for a development permit.</p> <p>These guidelines are one of the first created in B.C. and have been used either as reference or verbatim by the majority of municipalities in B.C. when drafting Hillside Development policies.</p>
District of Squamish	<p>Subdivision and Development Control, By-</p>	<p>Provides technical standards for steep slope roads, site grading and retaining walls.</p>

Policy Tools Used by BC Municipalities

	Law No. 2649, 2018	
City of Vernon	OCP -DPA Development Permit Area #3 (Hillside Residential and Agricultural District) Hillside Guidelines 2008	Aims to protect hillsides for both agricultural use, environmentally sensitive areas and enhance neighbourhood livability and identity. The guidelines address Site and Subdivision Design, Natural Environment, Works and Services and Building and structures and indicate required application materials for a development permit.(verbatim Township of Spallumcheen, heavily based on City of Nanaimo)

Draft Hillside Development Design Guidelines



Photo Credit: David Ward

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Introduction

Pemberton's hillside neighbourhoods are characterized by prominent rocky knolls and dramatic valley views afforded from stepped terraces. While hillside development may offer opportunities for residential development with stunning, panoramic views and unrivalled access to nature, it also presents unique design challenges for the creation of safe, aesthetically pleasing and environmentally sensitive neighbourhoods. Hillside developments are significantly more complex than those occurring on the valley floor. The following Hillside Development Design Guidelines aim to sensitively integrate the built form in a manner that protects the integrity of the surrounding landscape.

Vision

Hillside developments will be environmentally sensitive, functionally appropriate, aesthetically pleasing, and economically feasible.

Goals

Development applications within hillside areas should work to achieve the vision for hillside development by focusing on achieving the following goals:

- **Complement the scenic hillside character of Pemberton;**
- **Screen visual impact and minimize unsightly cut and fill;**
- **Integrate unique natural features such as landforms, rock outcroppings, viable existing stands of trees and vegetation, ravines, water features, hilltops and ridgelines into new neighbourhoods;**
- **Avoid development on unstable or hazardous sites and prevent potential rockfall hazards;**
- **Protect environmentally sensitive ecosystems and habitats**
- **Preserve and enhance access to trails and outdoor recreation;**
- **Protect wildlife habitat, wildlife corridors and other environmental values; and**
- **Manage storm run-off and limit erosion hydrology.**

Applicability

Within the Village of Pemberton, hillside areas are defined as all lands with slopes of 10% or greater for a minimum horizontal distance of 10 metres. The following Hillside Development Design Guidelines shall be considered with development applications in hillside areas to the extent determined at the pre-application meeting – not all guidelines apply in every instance. The Guidelines are intended for use by developers, designers, builders and Staff to define the intent and purpose of hillside development in Pemberton and are not intended to be

regulatory. Hillside Development Design Guidelines have been structured to encourage innovation and flexibility; designers are encouraged to prepare the most appropriate design given the characteristics of the site.

Development Approval Application Requirements

The Hillside Development Design Guidelines compliment but do not replace existing Village policies. This document will work with information required by other Village bylaws including but not limited to: The Village's **Official Community Plan** (including Development Permit Guidelines), **Zoning By-law No. 832 (2018)** as amended and, **Subdivision and Development Control By-law No. 677 (2011)** as amended. It is the applicants' responsibility to ensure they have met and obtained all necessary requirements and permits related to their associated subdivision and development applications.

Wildfire Mitigation

Wildfires are an inherent natural hazard of hillside development in Pemberton. In 2017, the Village updated the Community Wildfire Protection Plan which recommends several measures to reduce the community's interface fire risk. Wildland Fire Interface Hazard Areas are designated in 'Map L' of the Official Community Plan. Hillside Developments should find a balance to incorporate the following design objectives and achieve wild fire protection measures.

Objectives and Design Guidelines

How To Read This Document

The following Hillside Development Design Guidelines are divided into three major sections:

- Site and Subdivision Design,
- Natural Environment, and
- Works and Services.

Objectives identified in each section shall be considered as goals for the designer to work towards. Each Objective requires careful consideration and must be addressed with each submission. Design Guidelines offer suggestions how to achieve those Objectives. It is recognized that not all Objectives cannot be equally or simultaneously attained.

Site and Subdivision Design

Subdivision and site design on steep slopes are expected to respond to the unique characteristics of each site, avoiding significant disruption of the natural terrain as much as possible and reducing visual impacts.

Visual Objectives

The impact of development on views should be mitigated to ensure:

- Pemberton's scenic beauty and hillside character are not compromised, and trees are retained, where possible;
- Structures and building faces do not dominate the landscape;
- Structures are screened through effective use of landscape materials;
- Significant natural features and landforms, including ridgelines, are retained or enhanced;
- Street and building lighting is not overpowering to protect nighttime views; and
- View corridors from within the development are maintained.



Examples of how siting can maximize view corridors.

Visual Design Guidelines

- Buildings should be sensitive to the visual impacts associated with development along ridgelines and edges of cliffs. Sensitivity can be achieved through extensive screening with mature landscape materials, providing greater rear yard setbacks, stepping back second and third stories, limiting building heights, and eliminating fences.
- Unavoidable interruptions along ridgelines should be re-vegetated with natural landscaping.
- Scenic natural features should be incorporated into the subdivision design as natural open space.
- Warm coloured street lighting and limited ambient light is encouraged
- Buildings, retaining walls and fences should be set back from the edge of a natural feature, such as a cliff, rock knoll or outcrop.
- Linear roads, utility cuts, retaining walls and uniform building rooflines should be avoided, or mitigated with mature landscaping.
- Building and retaining design, color and finish can complement natural features and terrain.
- Consider using local, site-specific natural building and retaining materials, where practical.
- Landscaping is capable of hiding views of imposing building facades, reflective glass, retaining walls, roadways and utility corridors, while protecting views from the site.
- Timely landscape restoration can mitigate impacts; consider using mature vegetation.
- View potential can be optimized through strategic placement of roads, parks and vacant land, staggered lot configuration, sensitive lot grading, transparent fencing, etc.

Village of Pemberton - Hillside Development Design Guideline

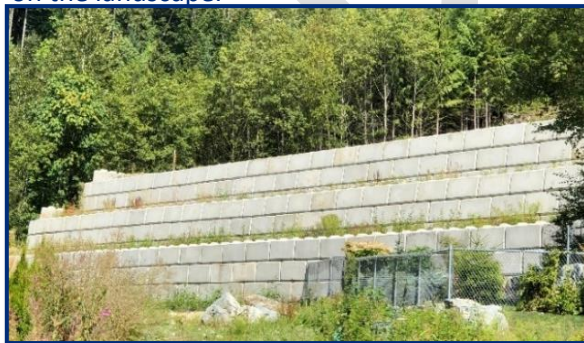
- View corridors can be created by designing lower rooflines, stepped rooflines and staggered lots.
- Stagger buildings to provide views between units that would otherwise limit the field of view.
- Building ground floor elevations and heights should consider up-slope views.
- Views from the street should not be blocked with solid fences.
- Steeper roof pitches can increase view potential between structures and align with natural slopes



Blasted rock wall leaves stark and negative mark on the landscape.



Natural Feature within lot is left in tact.



Unattractive visually dominant retaining wall.



Retaining wall is made with natural building materials and visual impact minimized with natural landscaping.



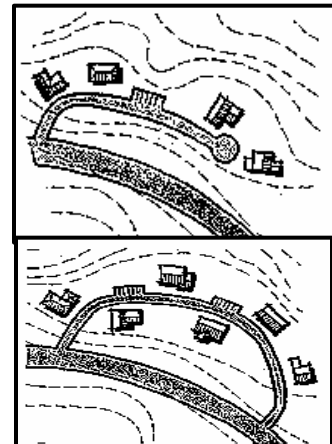
House orientation offers views from the street.

Housing Diversity and Design Objectives

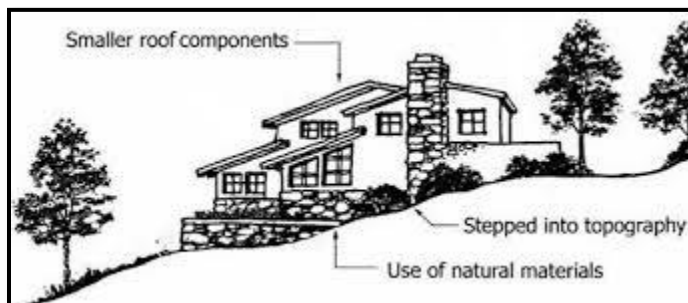
- Visual dominance of development on the hillside is reduced.
- Cluster housing is used to retain significant natural areas or avoid/mitigate development impacts.
- Colours blend into the natural landscape for all structures, including retaining walls and fences; reflective roof materials are discouraged.
- A variety of housing types are considered.
- Flexibility for the size and layout of single family lots is encouraged.
- Density is influenced by visual impacts, slope, natural features and vegetation.
- Building design increases the conservation of energy and reduces greenhouse gas emissions in accordance with **Building Bylaw No. 867, 2019**, as amended and The BC Energy Step Code.

Housing Diversity and Design Guidelines

- Multiple-unit housing becomes an acceptable housing type on hillsides.
- Cluster development is encouraged for the purpose of maintaining natural open space and protecting steep slopes and ridgelines, otherwise larger lot sizes should be considered.
- Consider reduced setbacks to minimize the extent of grading.
- Orient buildings to run parallel to the natural slope.
- Articulate buildings to reduce mass, vary rooflines.
- Terrace back yards to reduce grading/retaining.
- Dispose excess excavated material offsite or re-use on adjacent sites where possible.
- Buildings, retaining walls and fences should be appropriately set back from the edge of a natural feature, such as a cliff, rock knoll or outcrop.
- Building ground floor elevations and heights should be sensitive to up-slope views.
- Consider multiple lots with shared access/driveways.



Examples of shared driveways.



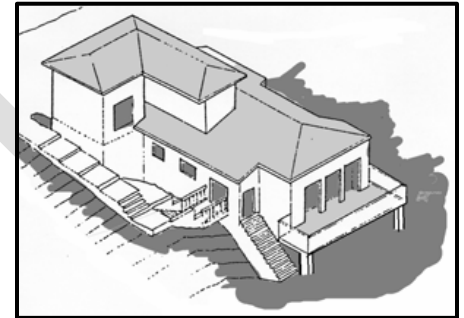
Example of house stepped into topography with smaller roof components.

Buildings and Structures Massing and Setbacks Objectives

- Allow greater flexibility in locating a building on a steep slope lot.
- Avoid over height buildings and minimize the visual impact of new buildings on steep slopes.
- Respond to the natural slope of the hillside by using a stepped foundation and setting the building into the hillside to help integrate it with the natural landform.

Buildings Structures Massing and Setbacks Design Guidelines

- Where demonstrated that it will reduce excessive cut/fill, help to avoid hazardous slopes or sensitive areas, and enhance the neighbourhood, a front yard setback can be reduced.
- Overall height should be reduced for flat-roof buildings due to the wider size of the upper floor relative to that of peaked roofs.
- On downhill elevations, avoid the use of single plane walls that exceed one storey. Rather, step upper storeys back from the level below.
- Avoid large, unbroken expanses of wall and long building masses. Rather, design buildings with smaller or less massive building components which reflect the sloped character of the site.
- Show proposed setbacks, driveways and building pads on grading and subdivision development plans.



Building with smaller building components with upper storeys stepped back from the level below.



Flat roof and low-profile house designs integrated into the natural topography minimize visual impacts and optimize views.

Streetscape Objectives

- Pedestrians and cyclists feel safe using roadways.
- Low-impact design standards are utilized to manage stormwater.
- Road aesthetics are valued as a significant contributor to the character and quality of neighbourhood.
- Developments are accessible to emergency vehicles.

Streetscape Design Guidelines

- Consider 3-D computer modeling to create an attractive streetscape design, one which favours pedestrian and neighbourhood activities and creates amenity space. capable of accommodating all users, including children.
- Consider adopting a 20-30 km/h design speed for selected local streets, where appropriate.
- Use open drainage systems, where appropriate, and xeriscape boulevard landscaping and pervious parking bays.
- Reduce impervious surfaces to the greatest extent possible, incorporate bio-swales where appropriate, consider alternate surface treatments.
- Consider mature street trees and heavily landscaped boulevards on all roads, including local streets.
- Reduce right of way requirements and conflicts with outside utility providers by sharing utility corridors while maintaining adequate ditch lines.
- Roads are designed with reference to the National Fire Protection Association Standards and International Fire Code regulations.



Streets are pedestrian oriented.



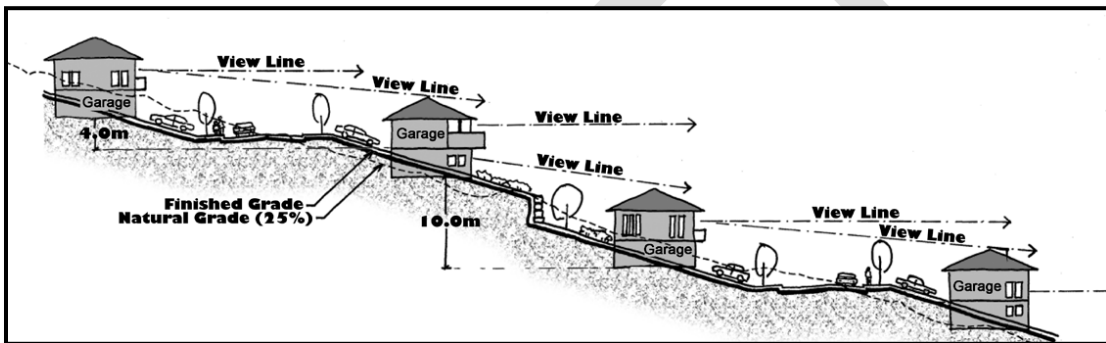
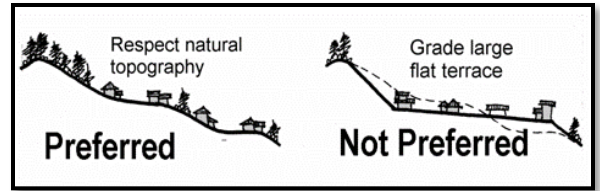
Street parking is integrated into narrow road.

Grading and Retaining Objectives

- Site grading and retaining walls respect existing terrain; that is, large cuts/fills are not used to create 'build-able lots' or flat yards. Driveway grades follow the natural terrain, large single level building platforms are avoided, final lot grades mimic the natural slope and slopes are promptly re-vegetated.
- Lot grading/disturbance should occur at the stage of development where it best accommodates existing terrain and vegetation around the perimeter of the building envelope.

Village of Pemberton - Hillside Development Design Guideline

- Road, driveway, retaining wall and fence layout and design conforms to the natural terrain, where possible.
- Significant natural scenic features, such as gullies, rock outcrops and knolls are at a minimum retained and preferably enhanced.
- Manufactured grades mimic natural slopes.
- Site and lot grading do not compromise visual objectives.
- Retaining structures integrate well with the onsite architectural character and natural environment.
- Visual dominance as a result of development is reduced by sensitive grading.



Increasing grade differential on opposite sides of the street improves view potential and mitigates grading impacts.



Low profile houses follow the natural ridgeline, mature trees are retained.



Small well-landscaped retaining walls used to maintain the natural topography and reduce grading.

Grading and Retaining Design Guidelines

- Consider grade difference on opposite sides of the street; opposing slab elevations should be set at a higher grade than the natural slope.
- Manufactured slopes can be placed behind buildings.
- Avoid retaining walls within the front yard.
- Retaining walls can be used to reduce slope disturbance, rather than modify natural terrain – lot sizes should increase as the natural slope increases.
- Use single loaded streets or split lanes and narrow roads to avoid removing scenic features, such as knolls, and reduce grading.
- Avoid side-casting fill excess material along road frontages and attempt to balance earthworks where impacts to hillside objectives are not compromised.
- Boulevards and driveways can be graded from the curb to match existing terrain.
- Consider terraced building foundations, where the bottom slab elevation matches existing terrain, multiple lots with shared access/driveways, detached garages, pan-handle lots, etc.
- Extreme grades may necessitate detached garages.
- Position driveways to minimize lot grading requirements and reduce the impact on adjoining properties.



Sloped driveway reduces grading.

Geotechnical and Hydro-geological Objectives

- Risks are appropriately identified and quantified prior to site disturbance.
- Changes to natural slopes are structurally sound and avoid or mitigate hydro-geologically sensitive areas.
- Mitigation strategies/recommendations are implemented during subdivision development and building construction.
- Where appropriate, geotechnical recommendations are filed at the Land Title Office.
- Mitigation strategies are prepared to reduce impacts to surface run-off for both minor and major storm events, while retaining natural features, vegetation, and trees, where possible.
- Impervious surfaces are minimized, and irrigation needs are addressed.

Geotechnical and Hydro-geological Design Guidelines

- Geotechnical/hydro-geological issues, including down-slope potential impacts, shall be considered prior to subdivision design in order to avoid development in unsuitable areas.

- Regular monitoring and test results should be provided for all construction, including that on private property.
- Quality assurance systems should be employed by professional consultants.
- Sign-off from the geotechnical engineer(s) should be provided at appropriate stages of construction, such as pre-clearing, pre-site grading, post-site grading, upon substantial completion, before foundation pour, and prior to occupancy.
- Covenants may be registered upon subdivision approval.
- Plans for all development on hillsides must indicate current drainage routing for minor and major storm events and indicate how development proposes to alter these patterns.

Natural Environment

This section of the guidelines addresses how to minimize the impact of development on the natural environment of the site and how to make residential development more compatible with the hillside environment.

Landscape Vegetation Objectives

- Development takes advantage of natural environmental features; natural vegetation and landforms are retained to extent practical – landscape is a key determinant of where development should and should not go.
- Identify and protect significant stands of trees and vegetative communities.
- Plant native vegetation that helps mitigate the impacts of development, enhances visual quality and address the needs of residents.
- Wildland fire risk is mitigated in a way sensitive to the ecosystem.

Landscape Vegetation Design Guidelines

- Use open space development, and varied lot size and configuration, to retain tree stands and other vegetation communities to preserve environmental value (e.g., habitat, biodiversity, heritage trees, etc.), maintain soil stability, provide a buffer between development cells, and define neighbourhood character.
- Make strategic use of existing vegetation to retain the site's natural character and to break up views of building facades, roadways (e.g., cut and fill slopes), and other site works.
- The alignments and profiles of roadways and utilities should avoid disruption of significant and unique stands of vegetation and critical environmentally sensitive areas. Provide sufficient clearance between roads, services and vegetation root zones to ensure viability of the vegetation.
- On forested slopes, retain trees and tree stands that represent a range of ages, to provide for natural succession and the long-term sustainability of the forest ecosystem.
- Phase land clearing to minimize the area exposed to soil loss and erosion at any one time. Phasing may be service related (e.g., clear initially only enough to install roads and main

service lines), or spatially related (i.e., clearing only one portion of the parcel at a time, completing development and revegetation to control erosion before starting the next portion).

- On individual large lots, limit clearing to what is required for services and the building footprint. Any additional clearing should be immediately revegetated.
- For areas of the site where vegetation must be removed but no construction will occur, leave soil intact (i.e., avoid compaction, excavation, filling, etc.) to allow for more successful replanting in these areas.
- Restore disturbed areas of the site that are not part of a roadway or formal yard landscaping, to a natural condition as soon as possible after disturbance.
- Employ restoration practices specifically tailored to address the type and degree of disturbance and the specific conditions of the site.
- Replace trees in a manner that helps to restore the natural character of the hillside site. Specifically, plant trees to screen undesirable views and to buffer incompatible uses. Arrange trees in natural groupings or clusters rather than in lines or formal arrangements.
- When choosing plant species, native plant species must be prioritized and The Village of Pemberton Landscape Plant List (January 2011) shall be consulted. Invasive species are not permitted. Where the use of native plant material is not desirable given site or view constraints, select plant material that is similar in appearance, growth habit, colour and texture to native plants, and that will not act as a “weed” in the natural environment (i.e., it will not out-compete native plants, provide habitat for undesirable wildlife, or act as a host for insect pests).
- Utilize plant material for site restoration and residential landscaping that is native to the region as much as possible.
- Plant shrubs and trees in masses and patterns characteristic of a natural setting and with the intent of encouraging biodiversity.
- Do not encroach on views of others. Consider the location, height and “bushy-ness” of tree species planted.
- Employ water-conserving principles and practices in the choice of plant material (“xeriscaping”), and in the irrigation design and watering of residential and public landscapes on hillside sites.
- Conduct wildfire hazard reduction through accepted practices, such as thinning and removal of fuel sources, which are also designed to improve forest health.
- Tree removal shall be in accordance with the [Site Alteration Bylaw No. 822, 2017](#), as amended. When preparing a land clearing and tree preservation plan, the following criteria can be applied to existing vegetation to determine whether it is to be retained or removed:

Tree Retention Criteria	Tree Removal Criteria
To retain special features and the character of the site	To accommodate site development /improvements
To retain slope stability	To ensure public safety
To prevent erosion	To reduce fire hazard
To keep special or rare trees, plants and plant communities	
To protect habitat values	
To selectively screen development or act as buffers	
To maintain vegetated open spaces	

Works and Services

This section of the guidelines addresses various means of designing and siting roads and utilities to lessen impacts on steep slopes while maintaining public and private safety, individual lot access, municipal and emergency access, and other operational needs. Reducing cost of development and minimizing maintenance costs are additional benefits.

Municipal Services and Utilities Objectives

- Provide municipal services and utilities on steep slope developments that have the least environmental and visual impact, meets service requirements, and minimizes redundancy, capital costs and ongoing maintenance costs.
- Install all services and utilities underground.
- Design roads and road rights-of-way to allow flexible offsets for utility trenches and other facilities such as transformers.
- Road design must consider winter safety stopping and sliding concerns and maintenance issues including snow clearing.
- Major infrastructure requirements such as new transmission lines, telephone switching facilities, primary gas mains or pumping stations should be identified and located early.

Municipal Services Design Guidelines

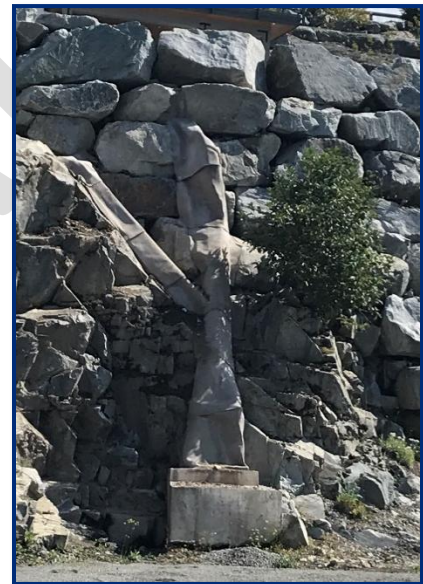
Development on steep slopes requires additional infrastructure for water systems, including booster pump stations, reservoirs, pressure reducing valves (PRV), individual pressure regulators and pipe anchors. Sanitary sewer systems require additional infrastructure such as lift stations and forcemains. If these systems are not comprehensively designed and phased, costly redundancy or insufficient capacities can result. Comprehensive design of water and sewer systems could be accomplished as part of, or in response to, neighbourhood concept plans. This approach eliminates ad hoc expansions, which can result in expensive future

upgrades as services are extended. Comprehensive planning ensures appropriately sized services and logical phasing and expansion of the systems in a cost-effective manner.

- Where practical, install more than one service in a common trench to reduce the number of trench excavations and therefore the impacts on the terrain. Where the design profile permits, increase the pipe separation to obtain more than one service in a trench. The works must be constructed in accordance with Village and Provincial standards regarding separation of water and sewer lines.
- Design water service valve and meter boxes with flexible offsets to property lines to maintain ease of access and maintenance. Locate boxes where future grading or landscaping of boulevards will not make access difficult.
- Design water system pressure zone boundaries with sufficient range to ensure fire fighting pressures on the highest side of parcels.
- Address snow maintenance and include snow dumping areas in road design layout.

Utilities Design Guidelines

- Where practical, install power, telephone and cablevision in a common trench in accordance with the **Subdivision and Development Control By-law No. 677 (2011)**, as amended. Installation of these services under sidewalks is encouraged where this can reduce the effective right-of-way required on a steep slope.
- Alternatively, if no sidewalks are installed on the upper side of a road right-of-way, utilities could be installed deeper than standard, allowing the slope to grade upward from the back of the curb within the road right-of-way. Utility service and transformer boxes, which need to be at road grade, would require suitable grading and retaining structures. However, the net effect can significantly decrease earthwork volumes and grading required to install a road into a steep slope.
- Locate access to utility boxes, fire hydrants and other services that require periodic inspection in areas where slopes do not exceed 15% and where they are clearly visible from the road.
- Consider providing hydrants and access behind lots that back onto forested areas where vegetation can be a potential hazard.



Visible utilities have a negative visual impact.

Acknowledgments

City of Kelowna Hillside Development Guidelines, October 2009

City of Kelowna Hillside Development Audit, UMA, 2006

City of Nanaimo, Slope Development Permit Area Guidelines, 2005

City of Vernon Hillside Guidelines, 2008

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