



PART D: DEVELOPMENT PERMIT AREA GUIDELINES

30. Hillsides

The following guidelines pertain to intensive residential, multifamily, commercial, and light industrial development in hillside areas shown on the map presented in Figure 20. These guidelines mainly focus on responsible land development that is context specific, and they are intended to complement a site adaptive planning approach.

30.1 Building Siting and Orientation

- a. Refer to policies in Section 10 of this bylaw.
- b. Cluster development units and/or provide high density forms of development that retain larger amounts of open space, protect the natural environment and reduce grading and overall site disturbance.
- c. Orient buildings to streets and other public spaces using entrances, windows, patios and balconies that are clearly visible from and, where appropriate overlook, public sidewalks and open spaces as much as topographic conditions will allow.
- d. Site residential buildings or residential uses within mixed-use buildings to overlook public streets, parks, and walkways and private communal spaces.

Buildings are oriented toward the street, with windows, patios and balconies overlooking the public sidewalk.

Townhomes are developed instead of single-detached units in order to protect open space and natural environment in rear yard.



30.2 Setbacks

- a. Proponents are encouraged to propose setbacks that are appropriate for the site conditions to serve as a basis for discussion.

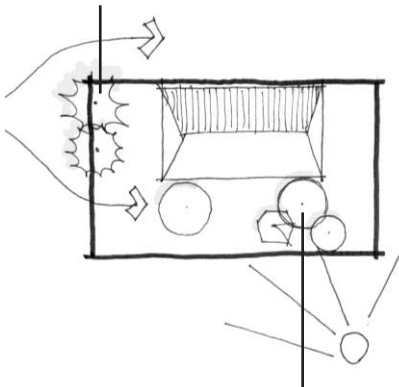
YARD/SETBACK GUIDELINES			
USE	FRONT	SIDE	REAR
Low Density Residential	4.0m to 7.5m of any front lot line	1.5m to 3.0m of any side lot line	10.0m from rear lot line
Multi-Family Residential & Mixed Use Residential	6.0m of any front lot line reduce for mixed-use	1.5m to 3.0m of any side lot line	7.5m from rear lot line
Commercial, including Office, & Institutional	2.0m of lot line	Within 6m of any interior side lot line if adjoins a residential use	Within 10m of any rear lot line

- b. As much as possible, provide uniform setbacks along a street but not at the expense of extensive cut and fill.
- c. Use building setbacks in a flexible manner to protect slopes and natural features from development encroachments.
- d. 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 to 3 m.

30.3 Micro-Climate and Shadowing

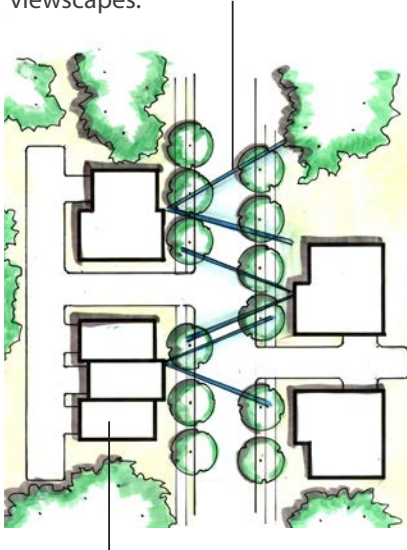
- a. Provide continuous pedestrian weather protection along the base of large building. Design awnings or canopies to protect main entrances.
- b. Coordinate pedestrian weather protection between developments on adjacent street frontages to ensure that the shelter is continuous and the designs are compatible in scale.
- c. Landscape base building roof areas to reduce wind speeds at grade.
- d. Where appropriate use horizontal canopies on the windward face of base buildings to minimize downward wind flow.

Coniferous trees to block wind



Deciduous trees on the south for summer shade and winter sun.

Buildings are staggered to provide views between units and new vegetation does not encroach on viewscapes.



Development is clustered and shares driveway to limit disturbance of natural areas.

30.4 Solar Access and Views

- a. Locate buildings to minimize interference with the views of nearby residences. For example, stagger buildings where appropriate to provide views between units that may otherwise limit the field of view.
- b. Plan revegetation that will not encroach on viewscapes, while prioritizing the preservation or revegetation of slopes over views.
- c. Locate key public open spaces (e.g., park, street end, etc) to capitalize on scenic views from the site.
- d. Site buildings to receive daylight from at least two sides of a building, or from one side and a roof. Maximize the number of dwellings with a choice of aspect, either front and back, or on two sides for corner units.
- e. Orient single aspect dwellings (dwelling units with exterior access on one side) towards a good view, good sun, or ideally both.
- f. Single aspect dwellings are more suitable as wide frontages with shallow floor plans to allow adequate penetration of daylight.
- g. Corner and dual aspect units (units with exterior access on two sides) are strongly encouraged to facilitate daylight access and natural ventilation.
- h. Maximize the number of corner and dual aspect units in the design to facilitate daylight access and natural ventilation.
- i. Development will compliment and enhance strategic city views.

30.5 Grading

- a. Avoid grading or alteration of key topographic features (e.g., knolls, ridgelines, bedrock outcrops, cliffs, ravines, etc).
- b. Avoid a manufactured appearance for graded slopes. Avoid sharp cuts and long or wide slopes with a uniform grade. Establish contours and gradients that resemble the naturally occurring terrain. Round out slope transitions and blend transitions between lots or adjacent to undisturbed areas.
- c. Minimize grading large flat terraces on hillside sites by developing smaller terraces (e.g., for building pads, lawn areas, patios, stepped retaining walls, etc).

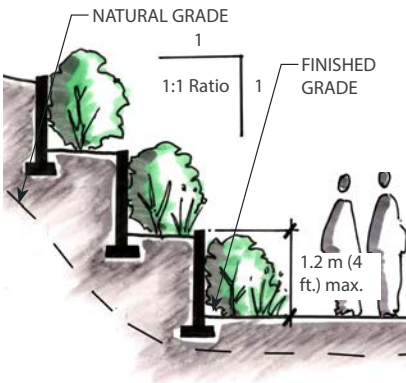
30.6 Cut and Fill Guidelines

- a. Where the volume of cut exceeds the volume of fill material for a proposed development, avoid disposing excess fill on site in the form of unnecessary filling, berming or side-casting. Where necessary, dispose of excess material at appropriate off-site locations.
- b. Revegetate exposed slopes as quickly as possible to prevent erosion and slope stability problems.

30.7 Earthwork Guidelines

- a. Avoid potentially hazardous or unstable areas of the area and site.
- b. Do not clear more trees and vegetation than is needed to install services for any given phase of the development.
- c. Avoid side-casting of material along undeveloped road frontages.
- d. Avoid the excavations and the placement of fill that result in terrain forms that are not characteristic of the natural topography.

30.8 Retaining Wall Guidelines



- a. Follow the City of Colwood Retaining Wall Regulations.
- b. Use retaining walls where they can reduce disturbing the slope to provide useable construction sites.
- c. Retaining walls will respect the natural character of the site and not be dominating, without texture and terraced and planted.
- d. Where high retaining walls are required, employ a system of smaller terraced retaining walls. Ensure the height and depth of the wall steps is consistent with the natural terrain or with the slope above and below the walls. For terraced retaining wall systems, landscape the intermediate terraces.
- e. If the retaining wall is related to the structural integrity of the building, it will be necessary to address the retaining wall through the building permit process.

30.9 Natural Character Preservation Guidelines

- a. When in the vicinity of ridgelines, site intensive residential development so as to retain trees and other vegetation on ridgelines.
- b. Where there are gaps or interruptions in the ridgeline caused by site development, plant trees and vegetation in front of and behind the disturbance to restore a naturally appearing ridgeline.
- c. Where interruptions of a ridge occur, ensure they occur in several smaller components rather than one continuous interruption.
- d. Site building envelopes below the ridgeline as much as possible.
- e. Site development in a way so as not to alter, disturb or remove significant scenic features of a parcel such as a rock outcrop, cliff, overhang, knoll, ravine, gully, water body, water course or wetland. Where neighbouring buildings have responded positively and consistently to similar topographic conditions on their site, consider similar treatments.

30.10 Open Space Development and Retention

- a. Take cues from key Environmentally Sensitive Areas (ESAs), corridors (wildlife, streams, creeks, etc.) and natural site features for developing an area or site plan that connects and retains as much open space as possible. Incorporate significant features such as rock outcrops, streams, cliffs, and stands of trees into the open space/trail system as much as possible.
- b. Provide a natural corridor through and/or around the property, or connect to open space in the community.
- c. Consider the amount and distribution of open space to be retained, the availability of undeveloped buffers to neighbouring properties, and the nature of surrounding development when deciding the appropriate mix of building form.
- d. For large parcels, a minimum of 40% of the gross site area shall be provided as permanent open space where the undeveloped portion of the parcel shall be designated and secured as permanent open space and shall not be further subdivided.
- e. Retain open space and corridors between development cells or lots to provide continuous habitat linkages within the site as well as with neighbouring sites.
- f. Use trails or linear systems to link parts of the hillside community which are not otherwise linked by roads due to

topographic constraints. Develop an open space, streetscape and trail system that provides pedestrian access within the hillside area and to/from key destinations in other parts of the community (e.g., schools, commercial or town centres, parks, other trails, etc).

- g. Avoid extensive slope grading to accommodate parks. Establish “pocket” parks for respite where natural terrain permits, or very minor grading is needed, which could serve as a local amenity as well as protect more of the slope.

30.11 Safety, Security and Accessibility

- a. Refer to General Intensive Multifamily, Commercial and Light Industrial Guidelines for Safety and Security.

30.12 Residential / Mixed Use Guidelines

- a. Provide for the safety and privacy for each residential unit.
- b. Ensure each at-grade residential unit entry is:
 - i. Visible to residents;
 - ii. Made private by staggering or recessing them;
 - iii. Connected to public sidewalks with a walking path
 - iv. Units adjacent to public roads should have their doors visible and accessible from that road;
 - v. Exterior private use areas should be screened with low fence or shrubs growing up to 1.2m, or with trees limbed up to 2m to provide for privacy as well as eyes on the street;
 - vi. Setback from arterial roads should be 12m, to allow for screening and berming
 - vii. Designs for multi-family residential developments are expected to incorporate the basic principles of crime prevention through environmental design (CPTED); and pedestrian circulation.

At grade unit entries are connected to public sidewalks with a walking path.

Units adjacent to public roads have doors that are visible from the street.

Exterior private areas are screened with a low shrub.





An outdoor living space is created on the roof of a building which is integrated into the topography.

30.13 Energy Efficiency

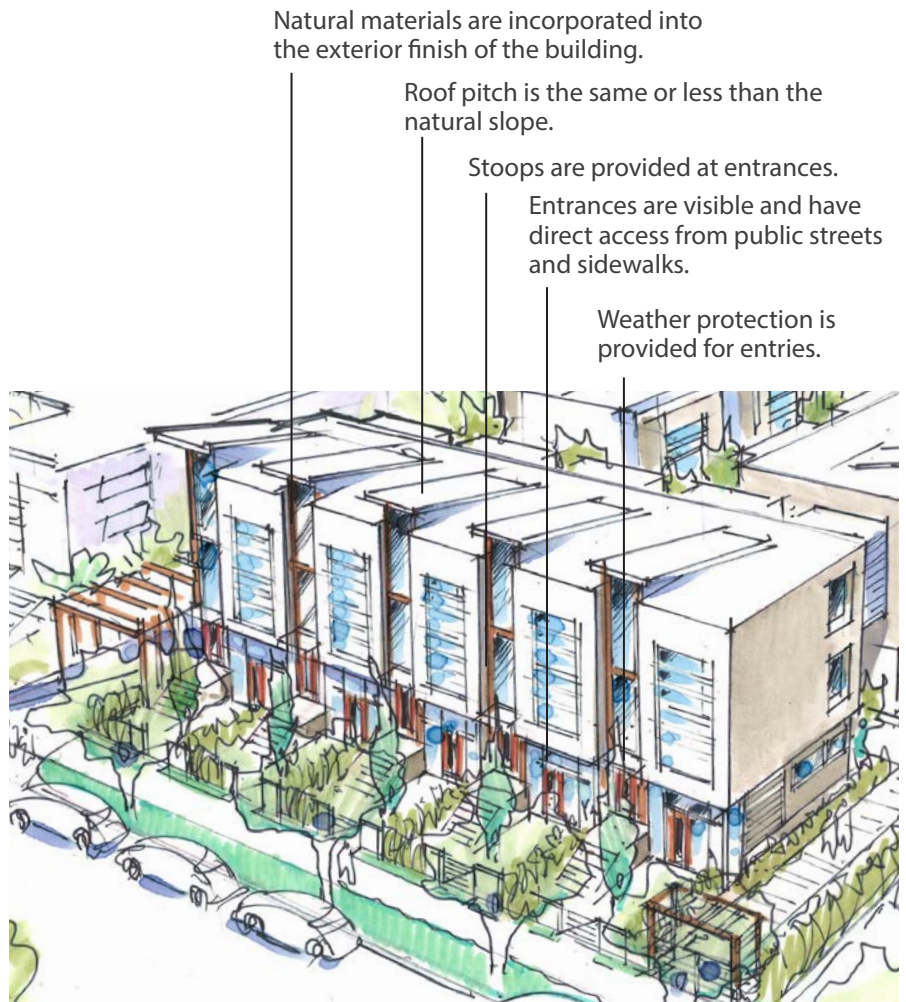
- a. Refer to General Multi-Family, Commercial and Light Industrial Development Permit Guidelines.

30.14 Exterior Finish and Architecture Features

- a. Design roof pitches to reflect the slope of the natural terrain as much as possible. Align roof pitches so that the angle of the roof is approximately the same or less than the natural slope.
- b. Place supplementary roof structures (vents, HVAC equipment, satellite dishes, etc.) so that they are not visible from other buildings and public open spaces.
- c. Provide outdoor living space that is compatible with both the building and the hillside setting.
- d. Use decks and building terraces on the roof areas of lower levels of the building when possible.
- e. Limit the size of decks that are cantilevered, overhanging or supported by poles or columns.
- f. Create stepped decks or several smaller decks as opposed to one large one.
- g. Incorporate local natural materials for exterior finishes as much as possible as a façade treatment and as an element in freestanding signage. The exterior finish of buildings, excluding roof treatments are encouraged to be brick, finished concrete, architecturally faced block, stucco, or wood. In general, new buildings should incorporate substantial and natural building materials into their façade to avoid a 'thin veneer' look and feel.
- h. Respond positively to the desirable architectural characteristics of surrounding buildings to ensure compatibility within the neighbourhood using some or all of the following strategies:
 - i. Similar building articulation, scale and proportions;
 - ii. Similar or complimentary architectural style;
 - iii. Similar or complimentary roof forms and roof lines;
 - iv. Similar building details and fenestration patterns including patterning and placement of doors and windows; and,
 - v. Similar or complementary materials and colour.
- i. Enclose unsightly roof elements, including mechanical equipment with roof parapets or other forms of solid screening.

30.15 Entrances

- a. Ensure entrances to buildings are visible and have direct access from public streets and sidewalks to enhance building address and create street vitality.
- b. Provide weather protection for individual ground floor entries to provide comfort for pedestrians and strengthen building identity.
- c. Provide entrances with stoops for townhouses, row-houses and house-plexs.



30.16 Circulation and Access

- a. Where practical, use woonerf streetscape design principles to design new neighbourhood streets. “Woonerf” is a Dutch word that translates into English as “street for living”. Woonerfs are designed in such a way that the needs of automobile drivers are rectified with the needs of the users of the street as a whole; such users include pedestrians, bicyclists and playing children. Woonerfs therefore sustain lower traffic velocities through the utilization of integrated traffic calming devices and intensive landscaping.
- b. Lay out roads and lots in a pattern that offers a variety of sizes and configurations that complement the topography and features of the site.
- c. Cluster developments and minimize roads. A central shared parking area and pedestrian paths connecting to individual units is encouraged.
- d. Avoid wide roads that do not adapt well to steep slopes.
- e. Align roads to conform to the natural topography. Gentle horizontal and vertical curves are preferable to straight line grid patterns that require significant earthmoving, or create exceptionally steep grades.
- f. Local roads (serving houses that front on them) should be kept to a minimum scale and reflect the local resident/pedestrian use.
- g. Split roads with 1-way access, may be utilized where:
 - i. Emergency access can be satisfied;
 - ii. Special features or significant natural habitat can be protected;
 - iii. The amount of slope disturbance or the amount of cut and fill compared to a standard two- way road is reduced;
 - iv. The pre-development cross-slope on the road right-of-way exceeds 15%;
 - v. Using a conventional road on very steep sections makes parcel access difficult;
 - vi. Through traffic can continue to a conventional road connection, or a turn around can be provided;
 - vii. Intersection clearance is maintained before the split is allowed to occur;
 - viii. Signage is provided to warn motorists of changes in the road configuration and to identify the direction of the flow of traffic; and
 - ix. Pedestrian safety and emergency access is maintained.
- h. Avoid cul-de-sacs, unless a through connection would compromise natural site features.



This cluster development provides pathways between dwellings with a central shared parking area. Image: U.S. Department of Housing and Urban Development.

- i. Where cul-de-sacs are contemplated, incorporate pedestrian connections linking the cul-de-sac to other streets and open spaces.
- j. Alternative road-ends (reduced cul-de-sac radii or hammerhead configurations) may be utilized on a site-specific basis where:
 - i. There is lack of sufficient land for a cul-de-sac or very steep slopes would require excessive cutting and filling;
 - ii. The road serves fewer than 16 lots and/or is less than 100 metres in length; and
 - iii. The road end accommodates the turning of service and emergency vehicles.
- k. Consider the needs of access by emergency vehicles in locating and designing driveways.



A split 1-way access road is used to help reduce the need for cut and fill on the hillside.

30.17 Common Driveways Guidelines

- a. Provide common driveways when significant site grading can be reduced.
- b. The grade of a common driveway should not exceed 14%.
- c. In general, limit in-and-out common driveways to servicing six lots.
- d. The civic addresses of the residences located on a common driveway must be displayed on a sign that is visible from the street.
- e. Provide an appropriate location and space at the street for common garbage and recycling pick-up, and postal delivery. The space must be sufficient to allow a service vehicle to pull over off the street. These provisions must be included in the reciprocal access and maintenance agreement.

30.18 Garages Guidelines

- a. Detached garages or parking areas that reduce impacts on the slope and provide easier, safer vehicle access are strongly encouraged.
- b. For attached garage structures, step back garages from the house. Set additional stories above garages back from the front of the garage to help reduce the apparent mass.

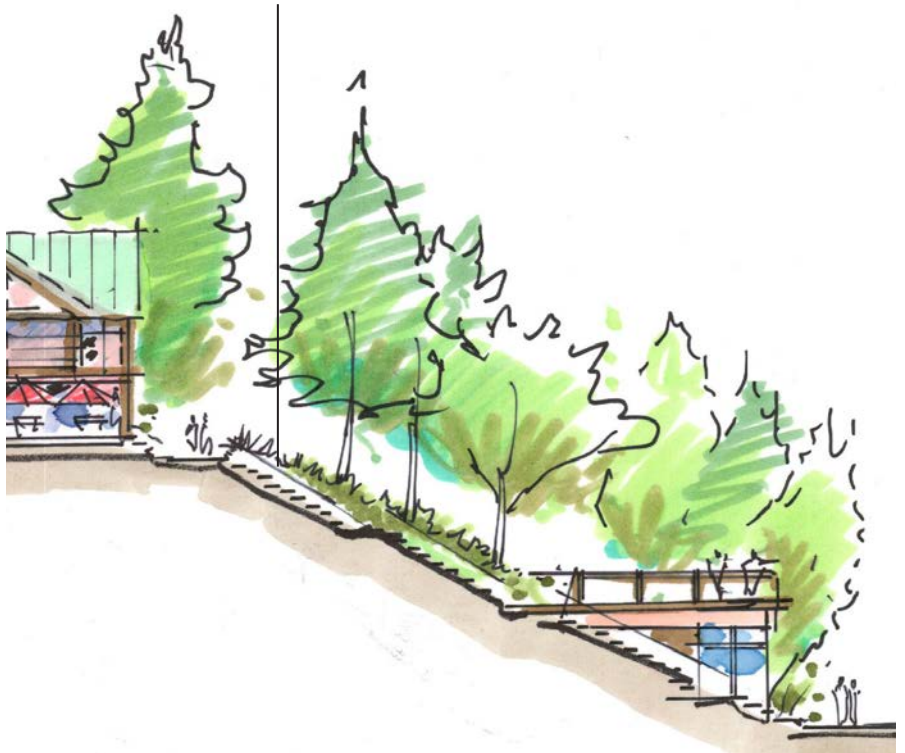
A central shared parking area, common driveway and cluster developments are preferred.



30.19 Pedestrian Environment

- a. Sidewalks on both sides of roads on steep slopes may be reduced to one side where the predevelopment cross-slope on the road right-of-way exceeds 20%.
- b. The requirement for sidewalks on local roads may be reduced or eliminated on particularly difficult topography where development generates low traffic volume.
- c. Curvilinear or meandering sidewalks and pathways may be used where they eliminate long sustained grades. Varying offsets between the road and the sidewalk may also be considered where it will save a significant feature or reduce grading requirements.
- d. Permit pedestrian connections such as steep stairs to connect open spaces or streets where topographic conditions do not allow for paved sidewalks.

Provide pedestrian connections with stairs to connect open spaces and streets where topographic conditions do not allow for paved sidewalks.



30.20 Landscaping

- a. All Development Permit applications must provide a professional landscape plan prepared by a registered BCSLA landscape architect.
- b. Soften buildings using plants, shrubs, trees, courtyards, fountains and where necessary, hard landscaping treatments such as terraced retaining walls.
- c. Emphasize entries with special planting in conjunction with decorative paving and/or lighting.
- d. Fences are not desirable and will be approved only for limited storage areas. Avoid chainlink and/or perimeter fencing.
- e. 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.
- f. Employ restoration practices specifically tailored to address the type and degree of disturbance and the specific conditions of the site.
- g. Replace trees in a manner that helps to restore the natural character of the hillside.
- h. Plant trees to screen undesirable views and buffer incompatible uses.
- i. Utilize plant material for site restoration and residential landscaping that is native to the region.
- j. Plant shrubs and trees in masses and patterns characteristic of a natural setting and with the intent of encouraging biodiversity.
- k. Avoid encroaching on views of others. Take into account the location, height and growth pattern of species planted.
- l. For restoration or creation of habitat areas (e.g., riparian areas, ravines, greenways, etc) use plant species that have value as food or cover for wildlife.
- m. For dry or south facing slopes, replant with drought and fire-resistant species.
- n. 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.
- o. Limit over-spray and run-off due to watering if irrigation systems are used. Provide automatic shut-off valves for irrigation systems to reduce the risk of accidental erosion in the event that a head or pipe breaks.
- p. Integrate stormwater management.

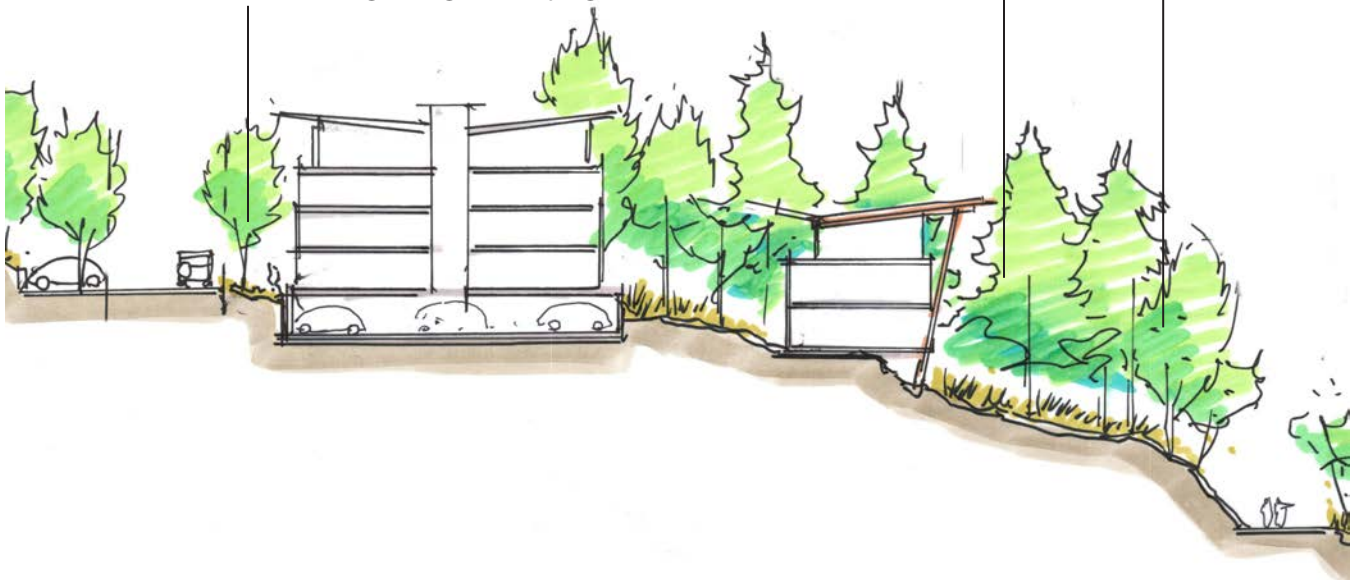
30.21 Private Open Space and Amenity Areas

- a. Ensure a minimum area of private outdoor space per unit which is not less than 3 m in width and not less than 10 m² in area. Notwithstanding this guideline, not less than 5 percent of a lot, in a ground-oriented development, shall be developed as useable open space.
- b. Provide space for private and/or community gardens. For multi-family residential buildings, provide rooftop common gardens and planters on balconies.
- c. Provide roof top open spaces particularly for buildings where the site coverage is over 50%.
- d. Upper story terraces are encouraged to open onto roof top gardens where possible to increase access to semi-private outdoor amenity space.
- e. Minimize disruption of the privacy and outdoor activities of residents in adjacent buildings by, for example, minimizing the number of windows and decks overlooking neighbouring private open spaces and placing primary (view) windows towards front and rear yards rather than interior side yards.

Trees and shrubs are planted in a pattern that is characteristic of a natural setting, and species are selected to encourage biodiversity.

Dry south facing slopes are planted with drought tolerant and fire-resistant species.

Soften buildings using landscaping.



30.22 Signage

- a. See General Multi-Family, Commercial and Light Industrial Development Permit Guidelines.

30.23 Lighting

- a. See General Multi-Family, Commercial and Light Industrial Development Permit Guidelines.

30.24 Utilities

- a. Install all services and utilities underground.
- b. 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 City and Provincial standards regarding separation of water and sewer lines.
- c. 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.
- d. Design water system pressure zone boundaries with sufficient range to ensure fire fighting pressures in the highest side of parcels.
- e. Design roads and road rights-of-way to allow flexible offsets for utility trenches and other facilities such as transformers. This will allow more flexibility to grade rights-of-way to match existing ground within the road rights-of-way, which will reduce physical impacts and provide easier servicing in steep slope neighbourhoods.
- f. Where practical, install power, telephone and cablevision in a common trench in accordance with the City's standards. Installation of these services under sidewalks is encouraged where this can reduce the effective right-of-way required on a steep slope.
- g. 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.

- h. 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.
- i. Consider providing hydrants and access behind lots that back onto forested areas where vegetation can be a potential hazard.

30.25 Stormwater Management

- a. Implement stormwater measures consistent with the City of Colwood's Terms of Reference for Stormwater Management Plans.
- b. See General Multi-Family, Commercial, and Light Industrial Development Permit Guidelines.
- c. Depending on the size of the development and complexity of the site conditions, a Drainage Management Plan may be required for the entire site and downstream drainage areas. For hillsides, special attention must be paid to:
 - i. Hydrological conditions prior to and after development;
 - ii. Protection of natural flow paths, volumes and storage resources;
 - iii. Impacts on trees, vegetation and other environmental features due to changes in drainage patterns;
 - iv. Water quality prior to, during and after development;
 - v. Sediment and erosion control; and
 - vi. On and off-site drainage impacts (e.g., drainage from an upper lot to a lower lot).