

4.0 DEVELOPMENT PERMIT AREA 4 – HAZARD LANDS (DPA-4)

4.1 DPA-4 OBJECTIVES & APPLICATION

The objectives of this Development Permit Area are to:

- (A) Prevent personal injury and property loss;
- (B) Protect structures from damage;
- (C) Provide stable and accessible building sites; and
- (D) Mitigate hazards while not compromising environmental issues.

The guidelines contained within DPA-4 will be applied to all lands with steep slopes over 20%, lands vulnerable to interface wildfire, lands on floodplains, and coastal lands.

4.2 DPA-4 EXEMPTIONS

See Table 1 (Page 6). Also, an exemption from Development Permit requirements under DPA-4 may be granted if one or more of the following criteria apply:

GENERAL:

- (A) Emergency procedures necessary to prevent, control or reduce flooding, erosion or other immediate threats to life and property, including:
 - i. Emergency flood or erosion protection works;
 - ii. Clearing of an obstruction from a bridge, culvert or drainage flow;
 - iii. Planting of native vegetation for bank stabilization;
 - iv. Repairs to bridges and safety fences.

Note: Any emergency action for flood protection and clearing of obstructions by anyone other than the Municipality of North Cowichan or a provincial ministry must be reported to the Municipality and applicable provincial ministry immediately to secure exemptions under this provision.

- (B) The proposed development has been assessed by a qualified professional who has identified that the land is subject to hazardous conditions, provided a set of recommendations to address the hazard, concluded in a report that the land can be developed safely if the recommendations are followed, and this report, together with a “save harmless” covenant in favour of the Municipality of North Cowichan, is registered on title.
- (C) The following activities are being undertaken: fence-building, growing, rearing, producing or harvesting of agricultural products in accordance with the *Farm Practices Protection (Right to Farm) Act*, or forest management activities on lands subject to the *Forest Act* or *Private Managed Forest Land Act*.
- (D) Hazardous trees that present an immediate danger to the safety of people or are likely to damage public and private property need to be cut down in accordance with recommendations contained in a report prepared by an arborist or other qualified professional.
- (E) Construction, repair and maintenance of works is being done by the Municipality or its authorized agents and contractors.
- (F) A trail across or through the DPA is being constructed.
- (G) A fence is being constructed.

FIRE HAZARD:

- (A) An accessory building is being constructed, such as a gazebo or tool or garden shed having a total floor area not exceeding 10 m².
- (B) An addition that is 50 m² or less is being constructed on an existing building, unless more than 50% of the existing roof will be replaced as part of the construction.
- (C) Residential development is planned on a lot for which an Interface Wildfire Assessment was prepared and conditions have accordingly been met through the subdivision process.

FLOODPLAIN:

- (A) An addition to an existing building or structure used as a residence is being constructed that would increase the size of the building or structure by less than 25% of the existing floor area.
- (B) The portion of a building or structure that is being constructed is designed or intended for uninhabitable residential use, such as a carport or garage, storage area, utility area or workshop.

4.3 DPA-4 GENERAL GUIDELINES

Development Permits will only be issued in this Development Permit Area (DPA-4) subject to consideration of the following specific design practices. These guidelines should be carefully considered from conceptual design through to detailed design and refinement of a development proposal.

- (A) No alteration of land, disturbance of vegetation, movement of soils or other disturbance of land or water or subdivision of land within the DPA may be undertaken:
 - i. without a Development Permit issued under these guidelines; or
 - ii. contrary to the terms of a Development Permit issued under these guidelines.
- (B) Before any development or alteration of land, a geotechnical engineering report must be prepared by a qualified professional engineer with experience in geotechnical engineering and, preferably, with experience in hydraulic engineering. The geotechnical report should include:
 - i. a topographic and geomorphic description of the site and a statement as to which type of natural hazards may affect it;
 - ii. a review of previous geotechnical studies affecting the site and/or engineering work in the vicinity;
 - iii. a description of the extent of the nature, extent, frequency (probability) and potential effect of the hazard, including a description of the methodology used to define these parameters;
 - iv. proposed mitigation works (including construction and maintenance programs for such works) and/or actions designed to prevent hazardous occurrences;
 - v. proposals for vegetation protection, enhancement or retention;
 - vi. an assessment of the effect of the mitigative work in terms of its ability to reduce the potential impact of the hazard; and
 - vii. a statement confirming that the site is safe for the intended use and providing any other recommendations that the qualified professional engineer determines are appropriate to ensure the proposed development is protected from the natural hazard and will not result in a detrimental impact on the environment or adjoining properties.

4.3.1 STEEP SLOPE LANDS

Land activities must be carried out in consideration of the following factors. Development on lands with slopes greater than 30% is strongly discouraged. Development forms should be integrated with the natural environment by:

- (A) Limiting disturbance of vegetation and movement of subsoils to areas necessary for building sites, servicing and access;
- (B) Maintaining existing vegetation to control erosion and protect banks (any access improvements on the steep slope, such as footpaths or stairs, should be constructed so as not to disturb the natural slope drainage);
- (C) Using lot configurations and building designs that incorporate the topography, instead of creating large, flat lots;
- (D) Using building heights and roof forms that conform to topography and minimize visual impact;
- (E) Protecting special natural features such as rock outcroppings, significant trees, watercourses and ridgelines;

- (F) Incorporating controls on erosion during the construction phase, and measures to mitigate erosion on the finished development;
- (G) Balancing the desire for views with the need to maintain vegetation;
- (H) Designing building foundations to step down slopes to fit with the natural terrain profile;
- (I) Clustering residential development on the most level portions of the land to retain natural vegetation;
- (J) Establishing safe setbacks from the tops of ridgelines and bluff crests;
- (K) Designing and fitting roads and buildings to the natural terrain to maintain the integrity of natural landforms and drainage patterns;
- (L) Minimizing excavation and site grading to protect native vegetation and drainage patterns;
- (M) Aligning access roads and driveways to the natural topography to avoid straight alignments and to keep them narrow to reduce site disturbance;
- (N) Re-vegetating exposed disturbed areas to a natural condition immediately after site grading to prevent erosion;
- (O) Preferring the use of native plant materials for site restoration and residential landscaping;
- (P) Making provision for, and undertaking works, to ensure the disposal of surface run-off and stormwater currently flowing over the crest of the slope and which may stem from further development (such works are required to divert drainage away from areas subject to sloughing); and
- (Q) Prohibiting the use of non-engineered retaining walls over 1.2 m tall.

4.3.2 FIRE HAZARD LANDS

Land development activities must be carried out in consideration of the following:

- (A) All roofing materials and insulation requirements must meet class “B” fire rating requirements contained within the current B.C. Building Code.
- (B) Building design and construction must generally be consistent with the standards in the National Fire Protection Association (NFPA) Standard 1144 – *Standard for Protection of Life and Property from Wildfire*.
- (C) All eaves and attic vents must be screened using 3-mm non-combustible wire mesh at a minimum to prevent the entry and accumulation of combustible materials and wind-blown embers.
- (D) Any building or structure used to store wood must not be located within 10 m of the dwelling unit/principal building unless the building or structure is built in accordance with guideline a), b) and c) above.
- (E) All land clearing debris (wood and vegetation) resulting from development must be disposed of by chipping and removal or burning in accordance with the Fire Protection Bylaw. Chipping and removal is the preferred option.
- (F) Where building construction or management of vegetation (trees, shrubs and ground cover) is proposed to take place within environmentally sensitive areas, all work undertaken must be consistent with DPA 3 – Natural Environment guidelines and all other relevant bylaws and regulations.
- (G) Where a Registered Professional Forester, Registered Forest Technician or Registered Professional Engineer qualified by training or experience in fire protection engineering has undertaken an assessment of a proposed development and determined the fire hazard to be low (provided specific conditions are met), the requirements of these guidelines may be relaxed as long as the development is carried out in accordance with such conditions.
- (H) Subdivisions within the high to extreme fire hazard Development Permit areas must be designed in accordance with the *Fire Protection Guidelines for Subdivision Development in the Wildland Urban Interface at the Municipality of North Cowichan* (Strathcona Forestry Consulting).

4.3.3 FLOODPLAIN LANDS

Land development activities must be carried out in consideration of the following:

- (A) Any development activities within designated floodplains must be very carefully planned in consideration of the significant impacts created by flooding. Where residential development is currently allowed within the floodplain, structures should be flood proofed to standards specified by the BC Ministry of Environment and/or the Municipality of North Cowichan. Habitable space and building systems that could be damaged by flood waters should be elevated to meet Flood Control requirements.
- (B) The Municipality will discourage new filling within designated floodplains because of the cumulative impact that such works can have. Where filling cannot be avoided, i.e. where filling is required to create a development site, it will only be permitted when it is shown that the drainage of other lands will not be affected. Any application to use fill in a floodplain will require a sediment and erosion control plan. Permission to fill will be limited to the extent of creating a house site
- (C) On-site stormwater management systems are required throughout the district to reduce potential flood impacts and to improve rainwater infiltration. [See also DPA 3, Natural Environment]
- (D) Where a floodplain setback from a designated watercourse renders a property totally undevelopable, the setback may be reduced provided that:
 - i. the development is to be located only where there is no risk to life;
 - ii. a geotechnical report from a professional engineer certifies that the land may be used safely for the intended use and provides measures to safeguard buildings from flood or erosion damage;
 - iii. environmental factors such as building siting, placement of fill, soil disturbance, planting and maintenance of vegetation have been considered; and
 - iv. a Save Harmless Covenant is registered in favour of the Municipality.
- (E) For the Lower Cowichan River floodplain, flood hazard mitigation measures, including land use restrictions, will be undertaken in accordance with the Lower Cowichan/Koksilah River Integrated Flood Management Plan (Final Report, September 2009), and for the Cowichan Estuary will be undertaken in accordance with the Cowichan Estuary Environmental Management Plan (1992).
- (F) Where high-risk land use activities involving the use, handling, storage or manufacture of potential contaminants are proposed within the floodplain, groundwater protection best practices must be incorporated in the design and ongoing operations of the activities.
- (G) Development or subdivision of land should be designed to:
 - i. replicate the function of a naturally vegetated watershed;
 - ii. maintain the hydraulic regime of surface and groundwater and pre-development flow rates;
 - iii. not interfere with groundwater recharge; and
 - iv. not introduce or remove materials where doing so would cause erosion of or the filling in of natural watercourses or wetlands.