Chapter 13:
Hazardous Condition DP Guidelines
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CATEGORY
Sec. 919.1(1)(b) of the Local Government Act for the protection of development from hazardous conditions.

PROPERTIES AFFECTED
Unless exempted (see Exemptions Section below) a development permit addressing hazardous condition guidelines (see Guidelines Section below) must be approved before:

- Subdivision of land;
- Alteration of land, including but not limited to clearing, grading, blasting, preparation for or construction of services, and roads and trails; and/or,
- Construction of, addition to, or alteration of a building or structure for those properties shown as Hazardous Condition DP areas on Map 5.6.

(Note that areas shown on Map 5.6 are approximate depictions of these DPAs; the exact boundaries of a DPA may need to be determined on a site-specific basis prior to development occurring in these locations.)

Unless exempted (see Exemptions Section below) a development permit addressing wildfire guidelines (see Guidelines Section below) must be approved before:

- Subdivision of land;

for those properties shown as Wildfire DP areas on Map 5.7.

(Note that areas shown on Map 5.7 are approximate depictions of these DPAs; the exact boundaries of a DPA may need to be determined on a site-specific basis prior to development occurring in these locations.)

JUSTIFICATION
Hazardous conditions (including but not limited to: flooding, mud flows, debris torrents, bank instability, erosion, groundwater seepage, land slip, rock falls, subsidence, avalanche or wildfire) may in some cases be abated by using appropriate precautionary measures as part of site and building design, construction, and long-term maintenance. Flood hazard is limited to Okanagan Lake and the Mill Creek floodplain, until detailed work identifying floodplain limits on other watercourses is completed.
OBJECTIVES

The objectives of requiring Hazardous Condition Development Permits are to:

- prevent personal injury and property loss;
- protect structures from damage; and
- provide stable and accessible building sites.

EXEMPTIONS

A Hazardous Condition Development Permit will not be required when:

a. the proposed development will not be impacted by the identified hazardous condition, the determination of which may need to be by a qualified professional, registered in British Columbia, who has submitted a report, accepted by the City of Kelowna, which concludes that the land is not subject to hazardous conditions; or

b. the proposed development has been assessed by a qualified professional who has provided a report which concludes that the land is subject to hazardous conditions and a restrictive covenant is in place which effectively mitigates the hazardous condition(s) and saves harmless the City of Kelowna; or

c. the only activity being proposed onsite relates to the removal of hazardous trees and a report prepared by a certified forestry professional registered in British Columbia and qualified as a Wildlife/Danger Tree Assessor has been submitted that concludes the tree(s) is (are) hazardous; or

d. the trigger for a Development Permit is a building permit and where the only hazard on the site is flooding and where the minimum floor elevation would be regulated by the Floodplain Bylaw; or

e. actions and activities are necessary in order to prevent immediate threats to life or property; or

f. the activity proposed on the site relates solely to normal farm practices in accordance with the Farm Practices Protection Act and the landowner follows other regulations listed in the Act; or

g. construction which is limited to the addition, replacement or alteration of doors, windows, building trim, or roofs, and which would have no impact on form and character of the building and would not impact the existing landscaping or access provisions; or

h. interior/exterior building alterations that do not expand the existing building foundation; or

i. Construction, addition or alteration not exceeding 30m² (323 ft²) where no variance(s) of the Zoning Bylaw is (are) required; or

j. Replacement of a building that has been destroyed by natural causes, in cases where the replacement building is identical to the original in both form and location; or

k. A technical subdivision for lot consolidation or road widening.
The following guidelines may be applied when setting Development Permit conditions:

HAZARDOUS CONDITION GUIDELINES

In setting Development Permit (DP) conditions, the City may cite municipal, provincial or federal government policies, regulations, guidelines and best management practices (BMPs).

The general guidelines for issuing development permits in Hazardous Condition Development Permit Areas are set forth below; however, not all guidelines will be applicable to all developments. Typically an assessment report which has been prepared by a professional qualified in the relevant discipline and licensed to practice in British Columbia will be required. Where a report has been accepted by the City of Kelowna, recommendations will be used to establish conditions for the Development Permit. Care will need to be taken that guidelines intended to mitigate hazardous conditions are implemented in a manner sensitive to the environmental protection and preservation guidelines in Chapter 12.

GENERAL GUIDELINES

- No excavation or filling shall be undertaken, nor any building or permanent structure erected, constructed or placed in areas subject to hazardous conditions. Further, buildings and structures shall be sited in accordance with setbacks determined by the City or a geotechnical report.

- Disturbance of steep slopes and hazardous condition areas will be avoided in accordance with City of Kelowna hillside development guidelines.

- Existing vegetation shall be maintained to control erosion and protect slopes.

- Accesses such as footpaths and stairways shall be constructed so as to minimize slope disturbance.

- Development shall be set back a minimum of 10 metres from the top of ridgelines, cliffs or ravines. Variation of the setback may be considered if a geotechnical review can justify a reduced setback.

- May require the registration of restrictive covenants for areas that have been identified as hazardous.

- Prohibit habitable buildings on hazardous condition lands where future danger cannot, or should not be mitigated.

- Prohibit the use of non-engineered retaining walls over 1.4 metres.

- Require that all development have a level of safety for geotechnical failures with no more than a 2% probability of failure occurring in a 50 year period (a return period of 1:2,500 years), or adhere to the prevailing standard as set by the B.C. Building Code, whichever is greater. The City reserves the right to modify this standard to suit the proposed development.

- Require rock fall mitigation recommendations for rock fall hazards on the subject, adjacent and potentially affected properties.

"Accesses such as footpaths and stairways shall be constructed so as to minimize slope disturbance."
• Require that all new construction necessitating an Urban Design Development Permit also meet the minimum flood elevation specified in the Flood Plain Bylaw.

1.0 **Wildland Fire Interface Area Guidelines:**

1.1 **General**

As part of the subdivision process, the following guidelines shall be addressed:

• Improve access in areas of the community that are considered isolated and that have inadequate developed access for evacuation and fire control;
• Require access points suitable for evacuation and the movement of emergency response equipment are provided. The number of access points and their capacity should be determined during subdivision design and be based on threshold densities of houses and vehicles within the subdivision;
• Consider, where forested lands abut new subdivisions, requiring roadways to be placed adjacent to those lands. These roads both improve access to the interface for emergency vehicles and provide a fuel break between the wildland and the subdivision;
• Ensure hydrant locations optimize ability to protect forested parks; and
• Require that fire hazards on forested lands be mitigated to a level deemed acceptable by a qualified professional in a forest fire hazard assessment before they become the property of the City.
• Development shall be set back a minimum of 10 metres from the top of ridgelines, cliffs or ravines. Variation of the setback may be considered if a wildfire review can justify a change in the setback.
• Encourage wildfire hazard reduction in a way that is supportive of restoring the natural environment. Such hazard reduction mimics the natural effects of localized ground fires that once were common but that human settlement has removed from the environment. Typical methods include thinning and spacing trees and vegetation, removal of debris and dead material from the ground, and removal of lower tree branches. Wildfire hazard reduction, done responsibly, can be compatible with habitat conservation and restoration.
• May require the registration of restrictive covenants for areas that have been identified as hazardous.

1.2 **Buildings**

The following provisions shall be registered, at subdivision, either as part of a building scheme or a restrictive covenant.

• The roof covering must conform to Class A or Class B fire resistance as referenced in the BC Building Code.
• Any material used for cladding of exterior walls must be fire resistant. Examples could include stucco, metal siding, brick, cement shingles,
cement board, concrete block, poured concrete, concrete composite (i.e. hardie plank etc), rock and logs or heavy timber construction as defined in the BC Building Code. Wood trim and architectural features are exempt from this requirement.

- Structural components (post & beam) of decks, balconies and porches must be heavy timber construction as defined in the BC Building Code, or must be clad with fire resistant material such as stucco, metal siding, brick, cement shingles, cement board, concrete block, poured concrete, hardie plank or rock.

- All chimneys constructed for wood burning fireplaces must have spark arrestors made of 12 gauge (or better) welded or woven wire mesh, with openings not exceeding 12 mm.

- All windows must be double paneled or tempered.

- Manufactured homes must be skirted with a fire resistant material as outlined in the previous guideline for exterior wall cladding.

Proposed deviations from the above can be submitted to the City as an alternative solution and will be considered if the applicant can verify that the expected level of performance meets or exceeds the level of fire safety conferred by the above measures.

1.3  Landscaping

1.3.1. The following landscaping modifications shall be addressed prior to subdivision:

To a distance of 30 metres from anticipated building sites:

- Thin the canopy and understory and prune lower branches to create an environment that reduces the risk of a crown fire;

- Space and maintain trees so that canopy spacing is a minimum of 3 metres;

- Remove dead and dying trees;

- Dispose of all slash created by treatments through pile and burning or removal from the site; and

Where hazard levels are high as a result of fuel loads or steep topography, fuel management should also be undertaken in the zone between 30 and 100 metres from anticipated building sites.

1.3.2. In addition to the landscaping modifications to be addressed prior to subdivision, in order to support ongoing mitigation of risks, the following provisions shall be registered either as part of a building scheme or a restrictive covenant:

The following apply to the area on a property within 10 metres of the dwelling units located on the property:
• Use non-combustible landscaping material;
• Ensure there are no trees, limbs or shrubs overhanging roofs or growing under the eaves of buildings;
• Space and maintain trees so that canopy spacing is a minimum of 3 metres;
• Prune coniferous trees so that there are no branches to a height of 2.5 metres (up to three whorls of live branches may be left on smaller trees);
• Maintain hedges below a height of 2.0 m (juniper and cedar hedges are discouraged);
• Landscape using xeriscape principles;
• Use native vegetation;
• Keep piled debris (firewood, building materials, and other combustible material) out of this zone; and
• Remove (at least annually) surface litter, downed trees and dead and dying trees.

The following landscape guidelines apply to the entire property:
• Remove dead and dying trees at least annually.

1.4 Alternatives

Where a Registered Professional Forester, Registered Forest Technician or Registered Professional Engineer qualified by training or experience in fire protection, has undertaken an assessment and determined the fire hazard to be low provided specific conditions are met, the requirements noted in sections 1.1 through 1.3 above may be relaxed. Any relaxation of guidelines requires that provisions are in place to ensure that development is carried out in accordance with the conditions noted in the professional’s assessment.