

Sloped Lands Development Permit Areas

ND1- Fraser River Escarpment, ND10- Cougar Creek, SD2- English Bluff

A Guide to Determine the Requirement for a Development Permit

Protecting Slope Stability

Properties within the Development Permit Areas noted above were designated to protect sloped lands and require greater consideration and care when changes are made to that property. The associated Development Permit Guidelines and the “Guideline for Geotechnical Studies in Steep Slope Areas” outline a careful approach to activities on those lands. Where an owner wants to make some changes on the property, from extensive landscaping to building a new house, a geotechnical study may be needed to ensure that the changes do not affect slope stability.

Not Everything Requires a Development Permit

Not all activities have the potential to affect slope stability and may not require a landowner to obtain a Development Permit. The following guide is meant to clarify when certain activities may trigger the need for a Development Permit or when building or landscaping activities are considered safe enough to eliminate the need for a Development Permit. It also describes the objectives and guidelines for Development Permit applications and who Delta considers qualified to prepare the geotechnical study.

Other Regulations May Apply

Landowners should consider that even when a Development Permit is not required for slope stability issues, other regulations still apply. Some proposed activities may be affected by requirements in the *Local Government Act*, flood protection requirements, building permit requirements, Streamside Protection and Enhancement Development Permit Guidelines, the Tree Protection Bylaw, Soil Removal and Deposit Bylaw, municipal zoning and other bylaws. A Delta building official can also require a geotechnical study where, in his or her opinion, the land is subject to or likely to be subject to erosion, land slip, rockfalls or avalanche, whether or not a Development Permit is required.

Activities Requiring a Development Permit

Interpretation and implementation of Delta’s Development Permit Guidelines must follow the principles and regulations outlined in Section 920 of the *Local Government Act*. The *Act* requires that “land must not be altered” before a property owner obtains a Development Permit. The range of activities that might be considered “alteration of land” is quite broad and affects all types of land uses. Examples of the range of activities that may require a Development Permit are:

- removal, alteration, disruption or destruction of vegetation;
- removal, deposit or disturbance of soils;
- demolition or alteration of buildings or structures;
- construction or erection of buildings and structures;
- creation of non-structural impervious or semi-impervious surfaces;
- installation of water and sewer lines;



- flood protection works;
- construction of trails;
- provision and maintenance of sewer and water services;
- development of drainage systems;
- development of utility corridors; and
- subdivision.

The terms of the *Local Government Act* and even the list above do not, however, become more specific about the many different degrees of activity or circumstances that may reduce or increase the impact of that activity. The table below provides a more specific list of situations and conditions that would determine the need for a Development Permit.

Proposed Activity	Interpretation
<p>a) Removal, alteration, disruption or destruction of vegetation</p>	<p>A DP will <u>not</u> be required for most works involving the alteration of lawns or gardens or for minor or routine property maintenance activities (e.g., mowing lawns, trimming or pruning trees, planting vegetation/ gardens, minor soil disturbances, removal of weeds and invasive species which exposes less than 10% of the soil (by area) between the crest and toe of the slope and within 5 m of the crest of the slope per year.)</p> <p>A DP will not be required for cutting of up to 2 trees, provided that at least 2 ft of the stump remains standing and the root structure remains intact. Any tree cutting is still subject to the provisions of the <i>Tree Cutting Regulation Bylaw</i>.</p> <p>Garden ponds or other water features require a DP only where they have the potential to alter drainage, discharge water over the slope, or result in a net increase in load on a slope.</p> <p>Installation of irrigation systems is discouraged due to the risk of leaks affecting slope stability but installation of systems applying moderate amounts of water do not require a DP.</p>
<p>b) Removal, deposit or disturbance of soils</p>	<p>A DP is required for any soil removal or deposit requiring a permit according to the <i>Delta Soil Deposit and Removal Bylaw</i> or for changes to land contours which involve the deposit or removal of more than 2 m³ of soil per year on or within 5 m of the crest of the slope.</p>

Proposed Activity	Interpretation
<p>c) Construction or erection of buildings and structures</p>	<p>A DP is required for any building or structure requiring a building permit as per <i>Delta Building/Plumbing Bylaw</i> except as follows:</p> <ul style="list-style-type: none"> • Demolition of an existing building where the foundation remains and where demolition equipment is neither staged or stored within 5 m of the slope; • If it is otherwise exempted under Schedule E of the OCP. <p>Accessory buildings or structures (e.g., garden sheds, gazebos, etc.) less than 10 m² in area, that do not require excavation of soil, and are associated with single-family residential use will not require a DP but are subject to all other requirements (e.g., zoning setbacks and flood protection).</p> <p>Swimming pools and hot tubs require a DP unless set back at least 10 m or 2/3 the height of the slope, whichever is greater, from the crest of the slope. A survey defining the crest of the slope and location of the proposed construction shall be submitted to the Municipality to confirm whether the exemption will be permitted.</p>
<p>d) Building renovation</p>	<p>A DP will not be required for renovation of buildings within the original footprint of a building which does not cause a change in load on a slope. Applications for renovations or additions to a portion of a building that is located opposite to and away from the slope will be reviewed on a case by case basis.</p>
<p>e) Fences & Retaining walls</p>	<p>Fences and small retaining walls will not require a DP provided that any retaining wall is no higher than 1 m and retains no more than 10 m³ of soil. Fences may be set on posts with a maximum 100 cm² footing, spaced every 1.8 m.</p>
<p>f) Creation of non-structural impervious or semi-impervious surfaces</p>	<p>Non-structural impervious/semi-impervious surfaces will be reviewed in the context of the broader development with which they are associated. For example, a driveway associated with the construction of a building will be considered under the DP process for that building.</p> <p>A DP will not be required if the impervious/semi-impervious surface meets all of the following:</p> <ul style="list-style-type: none"> • it is ancillary to a primary permitted use of the property, • it is an appropriate size in relation to the primary use of the property, (e.g. sidewalks up to 2 m wide leading to the entrance of a building; one

Proposed Activity	Interpretation
	<p>driveway per "lot" to a maximum of 6 metres wide)</p> <ul style="list-style-type: none"> • it is located appropriately, • it is within zoning bylaw provisions limiting impervious surfaces, and • surface water run-off is not discharged over the crest of a slope.
g) Flood protection works	Any flood protection works that require a Building Permit will also require a DP unless otherwise exempted.
h) Construction of trails	<p>Development of a trail will not require a DP provided that all of the following conditions are met:</p> <ul style="list-style-type: none"> • Only one trail is built • The trail is for personal use only and is less than 1 metre wide • No trees are removed • The trail is surfaced with gravel • The overall gradient of the trail is less than 10% (6° slope) and any portion where the gradient is more than 10%, the trail is designed to prevent erosion.
i) Development of utility corridors	A DP is not required if new service infrastructure is installed and/or constructed by The Corporation of Delta or its contractors although all required geotechnical investigations and precautions will be undertaken.
j) Subdivision	A DP is required for land subdivision per the <i>Local Government Act</i> .
k) Emergency actions required to prevent, control or reduce an immediate threat to life, to public property or private property	<p>A DP is not required <u>before</u> undertaking:</p> <ul style="list-style-type: none"> • Emergency actions for flood protection, erosion protection, and clearing of obstructions; and • Emergency removal of dangerous tree(s) – see "a)" above. <p>The emergency situation must be reported to the Corporation of Delta's Director of Engineering within 48 hours of the emergency occurrence. The need for a DP or further geotechnical analysis will be determined at that time.</p>

Further Background: Development Permit Guidelines for Properties on Sloped Land

The Development Permit Guidelines for the ND1 (Fraser River Escarpment), ND10 (Cougar Creek Canyon) and SD2 (English Bluff) Development Permit Areas contain a number of objectives to ensure the safety of any activity on sloped land. They are not, however, specific about how these objectives are to be achieved. The descriptions provided below are intended to provide further insight into the guidelines and should be considered by anyone intending to alter or develop property in one of the Development Permit areas noted above, whether a Development Permit is required or not.

More specific information on standards for geotechnical studies is found in the “Guidelines for Geotechnical Requirements in Steep Slope Areas of Delta”, approved by Council on November 2, 1999.

Guideline	Interpretation and Information Requirements
Protect development from hazardous conditions.	A geotechnical study of the proposed activity or development must confirm that, if recommendations are followed, the land may be used safely for the intended development over the projected life of the development. This study must have been prepared, signed and sealed by a “qualified professional” as defined by the Association of Professional Engineers and Geoscientists of BC. The study must also contain a construction management plan and a two year, post-construction monitoring plan. (Refer to “Guidelines for Geotechnical Studies in Steep Slope Areas” for more specific information requirements.)
Prevent damage to the natural environment.	<p>Many sloped areas in Delta include areas with sensitive natural environments. Any development needs to protect the unique qualities that define that natural environment, including its biodiversity, habitat features, existing vegetation and existing drainage patterns.</p> <p>Sloped areas of Delta also often lead to watercourses. A development that compromises slope stability could also have a negative impact on sensitive natural environments and fish habitat. Erosion and sedimentation produced by the development can destroy fish habitat or other sensitive natural environmental features. Where a proposed development is within 30 m of a watercourse, a DP for streamside protection and enhancement may also be required.</p>
All new lots created should provide for suitable building sites in areas not subject to sloughing.	Locate development on portions of the lot not subject to slope instability, flooding or erosion or be protected from damage by slope instability. Where a site includes a sufficient amount of land with minimal slope, clustering development on those portions of the site is recommended.

<p>Alteration of the natural drainage of the site should be minimized.</p>	<p>The “qualified professional” shall provide an assessment of the predicted changes to site drainage and propose measures to manage drainage impacts.</p>
<p>All existing vegetation and tree cover should be preserved.</p>	<p>Vegetation and tree cover help to control erosion and protect slopes. If they need to be removed, removal should be phased to avoid creating large expanses of bare slope.</p> <p>Where trees and/or large expanses of vegetation are proposed for removal, and the removal is not necessary to accommodate a proposed building, structure or site access, a tree permit must be obtained. Potential slope stability impacts and mitigation for removal of the vegetation and/or trees must also be addressed in the study prepared by the “qualified professional”.</p>
<p>A restrictive covenant acknowledging that the land may be subject to mud flows, erosion, landslip and subsidence will be required.</p>	<p>The owner may be asked by the Municipality to register covenants prior to the start of any development. Covenants will be required to maintain any works installed for the protection of slope stability. Covenants should be registered in favour of The Corporation of Delta.</p>