5 HILLSIDE DEVELOPMENT

NATURAL ENVIRONMENT, HAZARDOUS CONDITIONS & FORM AND CHARACTER DEVELOPMENT PERMIT AREA

CITY OF CHILLIWACK

Area

The City of Chilliwack in its entirety forms a Development Permit Area (DPA 5) for the purpose of:

- Protecting the natural environment, its ecosystems and biological diversity;
- Protecting development from hazardous conditions; and
- Establishing objectives for the form and character of intensive residential, multi-family residential, commercial and industrial development.

This DPA is established in accordance with Sections 488(1)(a), (b), (e) and (f) of the *Local Government Act.*

Justification

The establishment of this DPA is to ensure that development, while it may be accommodated, must respond to the steeper slope context in a sensitive and flexible manner. It emphasizes the protection of the natural environment, the protection of development from hazardous conditions, and the preservation of the character and beauty of Chilliwack's hillside areas.

Nothing in the following Development Permit Guidelines require the City to issue a Development Permit where it remains concerned that the requirements have not being satisfactorily addressed.

Objectives

The objectives of this DPA are to ensure that new hillside development:

1. Positively contributes to Chilliwack's hillside character;
2. Integrates seamlessly with its hillside context through context-sensitive design approaches;
3. Preserves the aesthetic values of Chilliwack's scenic "green backdrop";
4. Respects views both to and from the hillside;
5. Provides safe access and services that fit the hillside context;
6. Maintains many of the unique features of the hillside, such as rock outcrops, watercourses, ravines, mature trees and vegetation, and ridgelines;
7. Protects wildlife habitat and environmentally sensitive areas;
8. Avoids unstable or hazardous portions of the hillside and provides protection against slope instability and erosion; and,
9. Uses economic and efficient approaches to construction and maintenance.

Requirements and Exemptions

A Development Permit is required for the following works and activities:

1. Subdivision of land with 20% or greater slopes; or

2. New construction or earthworks on 20% or greater slopes.

In addition, a third-party review of the application will be required per the City's Development Approval Information Bylaw, as amended, where the subject development proposal involves 30% or greater slopes.

The following activities are exempted from the requirement of a Development Permit:

1. The subject property contains only areas with natural slopes less than 20%;
2. Development activities are restricted to areas with natural slopes less than 20%, and any areas with slopes of percent or more are permanently protected through dedication, registration of a covenant, or other acceptable method; or
3. Construction only involves fences or single-tier retaining walls of less than 1.2m in height.

Guidelines

Site Planning

HD-1 In the development concept plan, identify and integrate natural site characteristics such as rock outcrops, watercourses, wetlands, ravines, mature stands of trees, and significant wildlife habitat.

Ridgelines

HD-2 Preserve the natural qualities of ridgelines for the benefit of the community-at-large. To minimize view impacts to the ridgeline, development must:

a) Provide additional setbacks from the top of the ridgeline; and/or

b) Preserve or plant trees and vegetation to screen development; and/or

c) Ensure building height is minimized to maintain a low profile along the ridgeline.

Trees and Vegetation

HD-3 Clearly identify tree clearing limits in the Development Concept Plan.

HD-4 Identify and preserve stands of trees and vegetation.

HD-5 Complete a Tree Management Plan and plant new trees in accordance with the provisions of the Tree Management (Land Development) Bylaw, as amended.

Restoration of Disturbed Areas

HD-6 Restore disturbed areas as soon as possible and prior to occupancy in accordance with a re-vegetation plan that is prepared by a registered landscape architect (BCSLA) and designed specifically to promote plant health, mitigate erosion, and offset any visual impacts of hillside development.

HD-7 Intensely landscape each lot, with particular attention to areas adjacent to street frontages and areas adjacent to retaining features.

HD-8 Use native plant species to the greatest extent possible.

HD-9 Limit the use of irrigation. Where irrigation is essential, water conserving principles must be employed in the design of the irrigation system. In addition, automatic shut-off valves must be provided for all irrigation systems to prevent risk of accidental erosion due to system failures.

HD-10 Replace trees and vegetation in a manner that replicates the characteristics and performance of the natural setting, including the provision of a sufficient density of trees (as specified in the Tree Management (Land Development) Bylaw, as amended), sufficient ground cover, and intensity of vegetation. Trees must be planted in organic clusters rather than in lines or formal arrangements.

HD-11 Replace trees and vegetation in such a way that they reach maturity in a 10 year time frame.

HD-12 Manufactured slopes must not appear engineered but must blend with existing slope conditions.

HD-13 Re-vegetation must consider viewscapes from the hillside.

HD-14 When restoring disturbed areas, adequate depth of growing medium must be provided in accordance with the specifications of the BC Landscape Standard.

Lot Size and Configuration

HD-15 Cluster development as a means of minimizing site disturbance, protecting open space in steeper areas, and protecting the natural environment.

HD-16 Where possible, direct higher density development, including small lot single detached residential and townhouses, towards areas with less steep slopes that are most easily developable.

HD-17 In general, locate the majority of hillside development in areas with natural slopes of less than 30%, and preserve open space in areas with natural slopes of 30% or more, where there are greater inherent risks associated with development.

HD-18 Utilize alternative lot configurations (e.g. wide/shallow lots) to reflect unique site conditions.

Parks, Open Space and Trails

HD-19 Retain natural hillside features as a means of creating unique park spaces.

HD-20 Avoid extensive grading when creating parks, trails and open spaces.

HD-21 Preserve contiguous open space networks to provide habitat linkages within the site and to neighbouring areas. Where practical these networks must be integrated into existing riparian corridors.

HD-22 Utilize trails to connect parks and schools as well as parts of the community that cannot be linked by roads due to topographic constraints.

HD-23 Locate key park spaces to capitalize on scenic views from the hillside.

HD-24 Set up barriers with clear warning signage to discourage the public from accessing slopes that are considered dangerous.

Roads

HD-25 Align roads to follow natural site contours, conforming to topographic conditions rather than cutting across contours.

HD-26 Provide for reduced design speeds (minimum 40 km/hour on collectors and arterials and minimum 30 km/hour on local roads) and increased road grades (maximum 15%) where it can be demonstrated that design measures will be employed to help ensure that travelled speeds remain close to the posted speed limits through reduced straight sight distances and road geometric design.

HD-27 Utilize connectivity in the road network over long cul-de-sacs and “dead-end” situations where topographic conditions permit.

HD-28 Utilize alternative approaches to turnarounds (e.g. hammerhead configurations) to reduce the amount of required grading works.

HD-29 Allow cul-de-sac length to be increased where connectivity in the road network is not possible due to topographic conditions, provided that appropriate emergency access is constructed. Emergency vehicle access lanes must generally have a minimum hard packed surface width of 4m and a cleared width of 6m.

HD-30 Utilize split roads and/or one-way roads to preserve significant natural features, to reduce the amount of slope disturbance, or to improve accessibility to individual parcels.

HD-31 Require one-way roads to have a minimum pavement width of 6m and a minimum right-of-way of 10m.

HD-32 Utilize reduced pavement widths and right-of-way widths (e.g. local road with minimum pavement width of 6m plus parking bays and minimum right-of-way of 12m) where service levels and emergency access can be maintained. The reduced widths must demonstrate less slope disturbance, and the reduced widths must contribute to the overall neighbourhood character.

HD-33 Encouraging meandering sidewalks adjacent to the road as a means of eliminating long, sustained steeper grades, preserving natural features, or reducing grading requirements within the right-of-way. Varied offsets between the road and sidewalk will be considered for these purposes.

Driveways and Lanes

HD-34 Individual driveway grades up to 20% may be permitted where site conditions warrant and where it can be demonstrated that grade transitions will ensure good vehicular access.

HD-35 Ensure the first 3.5m on a downslope driveway has a grade no greater than 7%.

a) Single in and out lanes, and shared driveways must be limited to servicing 6 lots and they must include turn around provisions.

b) Through lanes may service up to 15 lots.

c) Minimum paved lane width must be 4m for one-way lanes with widening where necessary to permit safe vehicle movements.

d) Lane design must allow for access by emergency, garbage collection vehicles, and moving vehicles at a design speed of 20 km/hour.

e) One on-site guest parking spot must be provided per lot serviced.

f) Where house frontage is not visible from the street, civic addresses must be placed on a sign that is visible from the street.

g) For shared driveways, an appropriately sized and located area will be required for common garbage and recycling pick-up from the road. Space must be provided to allow for a vehicle to pull off the road to access this area.

HD-36 Rear lanes are encouraged particularly on the high side of lots, in order to allow for stepping of buildings, eliminate the need for steep driveways, and to allow for retaining features and/or reduced grading requirements in front yards.

HD-37 Driveway widths must not exceed 3.5m at the curb face, in order to minimize grading requirements.

Building Siting and Orientation

HD-38 Orient buildings so they run parallel with the natural site contours to reduce the need for site grading works and to avoid high wall facades on the downhill elevation.

HD-39 Site buildings to minimize interference with the views from nearby (uphill) buildings.

Earthworks and Grading

HD-40 Maintain yard areas in a natural slope condition. Large cuts and fills to achieve flat yards will not be permitted.

HD-41 Ensure cuts and fills blend in with the natural topography, providing smooth transitions and mimicking the pre-development site contours. This can be accomplished by providing berms, grading the site to reflect original topographic conditions, and providing landscaping that mimics the site topography.

HD-42 Re-vegetate manufactured slopes to reflect natural conditions.

HD-43 Rock cuts are an acceptable alternative to retaining and they will be permitted where necessary (i.e. for roads) but with consideration for the visual impact of the exposed rock faces.

Lot grading must be provided on a consistent, comprehensive basis throughout the whole of the development. Grading must not be undertaken on a parcel by parcel basis: all grading and retaining must be completed by the master developer, and at an individual parcel level, there must not be a requirement for builders to manipulate land.

Retaining

HD-44 Retaining materials must evoke a sense of permanence and reflect natural qualities in appearance through the use of context sensitive materials (i.e. stone, masonry, brick, etc.), colours, and textures. Large, flat surfaced Lock Blocks are not permitted for use as retaining wall or landscape features in hillside areas.

HD-45 Retaining walls must generally be curvilinear and follow the natural contours of the land.

HD-46 Utilize terracing of retaining walls to break up apparent mass and to provide planting space for landscaping features.

HD-47 Use systems of smaller, terraced retaining walls where significant retaining is necessary, rather than providing a single, large, uniform wall. The height and depth of terraced walls must be consistent with the natural terrain and the general predevelopment slope conditions above and below the walls.

HD-48 Provide landscaping to screen or supplement all retaining features.

HD-49 Minimize the height of retaining walls. In site-specific circumstances, high walls may be permitted where warranted. Retaining walls over 1.2m in height must either be terraced with landscaped tiers, be screened by landscaping, have a unique surfaced texture/pattern, or use innovative design techniques (e.g. green retaining wall systems primarily on southern exposures) to mitigate visual impacts. Note that for proposed walls in excess of 1.2m the developer will be required to show that the wall is essential to accommodating road geometry.

Building Mass and Height

HD-50 Utilize a range of design tools to reduce apparent building height and mass. Options include:

a) Stepping the building foundation to reduce site grading and retaining requirements (i.e. buildings must be set into the hillside and integrated with the natural slope conditions);

b) Avoiding single vertical planes in excess of two storeys;

c) Varying rooflines;

d) Articulating buildings;

e) Avoiding unbroken expanses of wall;

f) Designing buildings in smaller components that appear to fit with the natural topography of the site; and

g) Designing roof pitches to reflect the slope of the natural terrain (i.e. angling roof pitches at slopes that are similar to those of adjacent slopes).