2 HILLSIDE ENVIRONMENT

NATURAL ENVIRONMENT & HAZARDOUS CONDITIONS DEVELOPMENT PERMIT AREA

CITY OF CHILLIWACK

Area

The areas shown on Map 15 are designated as Development Permit Area 2 (DPA 2) for the protection of the natural environment, its ecosystems and biodiversity, and for the protection of development from natural hazards. This DPA is established in accordance with Sections 488(1)(a) and (b) of the *Local Government Act*.

Justification

Lakes, wetlands, and streams, including ephemeral watercourses, provide natural habitats for fish and wildlife. Many also supply drinking water to individual wells, water license holders or community water supply systems. If not carefully managed, development in this Area could result in the degradation of water quality to the detriment of the fish and wildlife populations. It could also incur high costs of remedial water treatment.

This DPA contains terrestrial habitats for many different species and is particularly susceptible to disturbance. Development could lead to losses of, or high stresses on, a disproportionately large number of native plant and animal species, some of which are species at risk.

Land in this DPA has been identified as having serious hazards due to slope instability or soil erosion. If not carefully managed, disturbance of the land in this Area could result in significant soil erosion and increased hazards to developments.

This DPA may be subject to high forest fire risks. Adequate forest fire interface must be identified and carefully managed through a Fire Risk Assessment Analysis Report.

Objectives

The objectives of this DPA are to:

1. Protect the quality of drinking water supplies, including safeguarding the water supply of private wells;
2. Protect aquatic and terrestrial ecosystems;
3. Ensure development remains compatible with the natural environment;
4. Protect development from potential landslides, debris torrents and other unstable conditions; and
5. Reduce the potential forest fire risks.

Definitions

For the purpose of this DPA, the following definitions shall apply:

1. “qualified environmental professional” means a registered professional, acting alone or together with another registered professional, who meets the following criteria:
    a. The individual is registered and in good standing in British Columbia with an appropriate professional organization in accordance with the *Professional Governance Act* (e.g. College

of Applied Biologists or British Columbia Institute of Agrologists), acting under that association's code of ethics and subject to disciplinary action by that association, and

b. The individual's area of expertise is recognized by the City as one that is acceptable for the purpose of providing all or part of an assessment report in respect of that development proposal, and
c. The individual is acting within that individual's area of expertise

2. "qualified professional" means a professional with appropriate education, training and experience, fully insured and in good standing with the relevant professional association, and means:
    a. For the purpose of the flood and slope hazard assessments, a specialist Professional Engineer or Professional Geoscientist, as appropriate, with experience or training in geotechnical and geohazard assessments, river hydraulics and hydrology and, where appropriate, debris flow processes experience or training and/or structural engineering expertise in connection with mitigation works; and
    b. For the purpose of the wildfire hazard assessments, a Registered Forest Professional qualified by training or with at least two years experience in the assessment, fuel management prescription development and mitigation of wildfire hazards in British Columbia

Requirements and Exemptions

In areas where development is permitted, a Development Permit is required for the:

- Subdivision of land;
- Construction of, addition to, or alteration of a building or structure on the land; or
- Alteration of land, including the following:
    - Removal of trees with a trunk diameter greater than 30cm measured 1.5m above ground;
    - Removal of vegetation in a wetland;
    - Any works or installation of structures within a stream or below the natural boundary of a lake;
    - The subdivision of land parcels that creates additional lots within this DPA; and
    - Construction of a building greater than 100m^2.

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

- Fish habitat enhancement work approved by the applicable provincial and federal agencies;
- The emergency removal of a hazardous tree carried out by a certified arborist or registered professional forester;
- Emergency works to prevent flood damage to structures or repair to public service utilities;
- The subdivision of land parcels where a conservation covenant satisfactory to and in favour of the City of Chilliwack has already been registered for the maintenance of natural drainage and protection of environmentally sensitive and hazardous areas; and

- Tree removal required for surveying, geotechnical investigations, road construction, and utility servicing by the City of Chilliwack.

Guidelines

HE-1 Riparian vegetation must be protected in accordance with Development Permit Area 3.

HE-2 Fencing must be designed to allow the movement of wildlife.

HE-3 The Tree Management (Land Development) Bylaw is considered critical to the implementation of this DPA's guidelines.

HE-4 The Development Approval Information Bylaw is an essential part of this DPA's implementation.

HE-5 The City may require a flood assessment by a Qualified Professional in accordance with the Legislated Flood Assessments in a Changing Climate in BC guidelines published by Engineers and Geoscientists BC (EGBC). No development will be allowed in areas subject to high risks from debris torrents, flooding or erosion unless properly engineered floodproofing and protection measures are incorporated and certified by a Qualified Professional.

HE-6 A Qualified Professional is required to certify site development on hillside and upland areas, and may recommend conditions or requirements for the issuance of the permit. The certification must clearly show how to control storm drainage, flood hazard and erosion, and to protect groundwater, including:

a) Preserving natural channels to the maximum extent possible;

b) Utilizing detention or retention ponds and minimize impervious surface;

c) Establishing interceptor ditches above steep slopes, where required, in such a way to not saturate soil, and the intercepted water should be conveyed in a pipe or other appropriate manner to a municipal storm sewer system or to the bottom of a ravine or bluff;

d) Utilizing discharge point stabilization for natural drainage path; and

e) Providing a control mechanism to minimize erosion and siltation.

HE-7 Development proposals must be accompanied by a hydro-geotechnical study that identifies the hazardous nature of the subject area, including:

a) Vegetation types;

b) Ecologically sensitive areas;

c) View vistas;

d) Soil types;

e) Soil and terrain stability;

f) Rock outcroppings;

g) Specific hazard area; and

h) Protective and mitigating measures to be used during and after construction and development.

HE-8 A Qualified Professional must submit a geotechnical study in accordance with the Landslide Assessment in British Columbia guidelines published by EGBC and the City of Chilliwack Guidelines for Geohazard Assessment and Investigation indicating that the development will not be endangered, or that the measures have been taken to ensure that the development will not be endangered, by rock fall hazard, landslides, earthflow or other slope or foundational instability.

HE-9 A storm water management plan must be submitted to the satisfaction of the Director of Engineering and must provide on-site drainage so as not to adversely affect adjacent properties. Further, all post development water flows into the storm drainage system must not exceed predevelopment flows in accordance with the City of Chilliwack Policy and Design Criteria Manual for Surface Water Management.

HE-10 A Qualified Environmental Professional must prepare an environmental impact study to identify any potential issues and impacts relating to the proposed development and relating to protection and conservation of environmentally sensitive areas (e.g. habitat for species at risk, watercourses and wetlands, wildlife corridors, nesting sites of raptors and other species protected under provincial and federal legislation, etc.). The environmental impact study may be required to include:

a) Delineation of the environmentally sensitive area including details on the features and extent of the said area. This may need to be done in conjunction with a certified B.C. Land Surveyor;

b) Description and relevant details of the proposed development and an assessment of the impacts of said development including impacts associated with the construction, operation and/or maintenance of the development on vegetation, wildlife, habitat, hydrology and soils;

c) Description of required mitigation measures for environmental protection; and

d) Where necessary and appropriate, description of any habitat compensation projects.

HE-11 Stream crossings and roadway construction adjacent to streams must obtain all necessary approvals and be designed to accommodate flows and retain the streambed in a natural condition.

HE-12 A Qualified Professional is required to supervise all excavations or placement of fill in natural slope areas.

HE-13 Road design should minimize the potential danger of erosion, landslide and flooding. The following techniques may apply where appropriate:

a) Follow contours;

b) Allow split level, one-way streets;

c) Allow flexibility in the placement of lot lines to accommodate “traversing driveways”; and

d) Employ narrow pavement widths, within the limits of public safety, by the use of off-street parking in bays and clusters.

HE-14 Hillside and upland development should employ environmentally sound techniques in engineering and architecture such as:

a) Grading to complement natural land forms to minimize terracing (cut and fill);

b) Using indigenous materials in landscaping; placing, grouping and shaping of manmade structures to complement the natural landscape; and

c) Encouraging a variety of building types clustered to maximize the amount of open space and natural features.

HE-15 Hillside and upland development should complement or enhance the aesthetic qualities of the natural landscape. Where possible, skylines and ridgetops, and tree and shrub masses should be preserved, and all man-made structures should be properly positioned, scaled and designed so as not to dominate the general hillside and upland landscape. A site plan addressing these concerns must accompany the development permit application.

HE-16 Development must be restricted in areas subject to occurrence or high susceptibility of rock fall hazard, landslide or earthflow with unstable soil conditions in accordance with requirements stipulated in the Zoning Bylaw.