1 DRINKING WATER SUPPLY

NATURAL ENVIRONMENT DEVELOPMENT PERMIT AREA

CITY OF CHILLIWACK

Area

The municipal watershed protection areas shown on Map 11 Sardis-Vedder Aquifer, Volkert Creek, Vedder River Fan, Elk Creek-Dunville Creek, and Marble Hill Aquifer, are designated as Development Permit Areas (DPA 1) for the protection of the community's sources of water supply from contamination, flow reduction and quality degradation. This DPA is established in accordance with Section 488(1)(a) of the *Local Government Act*.

Justification

This DPA is designated for the protection of watershed areas that supply, or have the potential to supply, water to community water systems. If not carefully managed, development in this Area could result in the degradation of drinking water quality and quantity for many homes, endangering public health and incurring substantial remedial costs.

Objectives

The objectives of this DPA are to protect the quality of drinking water supplied from community water systems, and to ensure the long-term sustainability of these sources by reducing risks of contamination or flow reduction. This designation supports the objectives of *the Local Government Act*, *Drinking Water Protection Act*, and *Water Sustainability Act* with respect to safeguarding drinking water sources.

Requirements and Exemptions

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 or other vegetation that results in a cleared area or exposed soil disturbance greater than 280m^2 in area;
    - Construction of buildings larger than 70m^2 in floor area;
    - Installation of a septic field;
    - Subdivision of land parcels that creates additional lots within this DPA;
    - Installation of fuel oil or gasoline storage tanks;
    - Construction of a new private well, including geothermal wells, within the Sardis-Vedder Aquifer, Vedder River Fan, or Marble Hill Aquifer protection areas;
    - Channel alteration or any activity that may affect existing watercourses; or
    - Excavation of an area larger than 20m^2 and deeper than 0.5m within the Sardis-Vedder Aquifer or Vedder River Fan protection areas.

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

- Construction of a structure that does not require a building permit and is located outside of the corresponding riparian protection area of a permanent or temporary stream;
- Normal residential gardening activities that occur outside of the corresponding riparian protection area of a permanent or temporary stream;
- Works undertaken by a municipal drinking water system;
- Emergency removal of a hazardous tree;
- Emergency works to prevent flood damage to structures; and
- 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 groundwater quality.

Guidelines Specific to Groundwater Sources

Sardis-Vedder Aquifer, Vedder River Fan & Marble Hill Aquifer:

DW-1 All developments must be designed to minimize water quality and quantity degradation to the requirements of the City.

DW-2 Excavations greater than 3m in depth or within 2m of the highest recorded water table elevation from June 1st to October 1st must implement, under the supervision of a Qualified Environmental Professional, groundwater protection measures including, but not limited to, the following:

a) Dewatering for the excavation, if required, should not:

- Impact operation of existing municipal supply wells;
- Impact base flow in creeks within 5 kilometers; or
- Exceed 75 liters per second flow.

b) Excavations unattended must be secured by rigid security fencing;

c) Surface runoff must be directed away from the excavation to prevent direct seepage into the aquifer

d) All necessary steps must be taken to limit the amount of time that the excavation/ aquifer is exposed;

e) Disposal of dewatering water into the storm water system is not allowed unless approved by the City; and

f) The excavated native material or equivalent as approved by the City must be used to backfill the excavation, where possible.

DW-3 Below-grade structures that extend more than 3m in depth from ground surface or are within 2m of the highest recorded water table elevation from June 1st to October 1st must:

a) be water proof. Water proofing of the structure must utilize materials that will not impact groundwater quality and be approved by the Engineer;

b) have an internal design that minimizes potential cracking of the foundation and includes treatment of cold joints to create a complete separation between the structure and the Aquifer;

c) be constructed with a monitored drainage system for water volumes and hydrocarbons to detect all upsets;

d) not adversely impact groundwater flow patterns; and

e) include an internal drainage system that discharges drainage from below grade structures to a sanitary sewer line.

DW-4 All storm water, with the exception of residential foundation drains, must be conveyed off-site to municipal storm sewers.

DW-5 Stormwater from roadways and driveways must not be discharged directly to ground by means of exfiltration systems or rock pits within the 200-Day Capture Zone (shown on Map 11). The Director of Engineering or designate may approve discharge to groundwater within the 200-Day Capture Zone if discharging the stormwater outside the 200-Day Capture Zone is not technically feasible and the stormwater is first treated.

DW-6 Drainage from subsurface structures and parking lot facilities, with the exception of residential roof and foundation drains, must be controlled using a closed system, which includes oil and grit separators conveyed off-site to a municipal storm sewer.

DW-7 Where a municipal storm sewer system is not available, drainage from subsurface structures and parking lot facilities must be conveyed to outside of the 200-Day Capture Zone (shown on Map 11) to a triple chamber treatment facility, which must include, but is not limited to, an oil and grit separator and a gate valve before the infiltration chamber to contain spills.

DW-8 On-site storm water treatment facilities must be designed by a Qualified Professional and must ensure the discharged water will not degrade the quality of the aquifer.

DW-9 Industrial, Commercial, and Institutional and parking facilities, having areas that are not paved or completed with buildings, must be covered with low permeability material to reduce infiltration. A soil liner consisting of 0.60m of fine textured soil (clay or clay-loam) constructed beneath Topsoil is an acceptable alternative.

DW-10 All Hazardous Materials, as defined under the *Hazardous Products Act*, which are handled, and/or stored, must be minimized and subject to secondary containment utilizing nonpermeable construction material, which may consist of a concrete pad

and sidewalls to contain the substances should a spill or leak occur. The storage area must be covered and secured against vandalism. The capacity of secondary containment must equal at least the maximum volume of the stored material, plus 10%. Secondary containment systems for volumes of hazardous material greater than 200 litres must be inspected by a Qualified Environmental Professional.

DW-11 No underground storage tanks for Hazardous Materials must be permitted. Above ground storage tanks for Hazardous Materials must conform to requirements set out in this guideline for Petroleum Storage Tanks.

DW-12 Temporary storage of Hazardous Materials during development and/or construction must:

a) Utilize secondary containment;

b) Be covered and secured against vandalism; and

c) Be protected from damage due to construction equipment and/or construction activities.

DW-13 During construction and/or development:

a) All equipment not in use must have oil drip pans under the equipment to prevent contamination;

b) Equipment refueling must be performed in a controlled and secured location and every effort taken to prevent fuel spillage; and

c) Spill containment and cleanup equipment and material must be available on site. This cleanup material must include, at a minimum:

- adequate quantities of sand for containment on paved or impervious surfaces; and
- adequate quantities of absorbent pads or material to cleanup hazardous spills (capable of absorbing 100% of the Hazardous Materials)

DW-14 The operator of a facility handling or storing Hazardous Materials exceeding a volume of 200 litres must have a Best Management Plan (BMP) prepared by a Qualified Environmental Professional. The certified BMP must address the handling, storage and disposal of Hazardous Materials, and include provisions for strict inventory controls.

DW-15 The operator of a facility handling or storing Hazardous Materials exceeding a volume of 200 litres must have a Spill Response Plan prepared by a Qualified Environmental Professional, and forward one copy to the City's Engineer. The certified Spill Response Plan must address measures that should be taken at the site in the event of a spill or accident.

DW-16 No underground storage tanks are permitted for storing petroleum products. Aboveground storage tanks used for the purpose of containing petroleum products within the Total Capture Zone must be smaller than 800 liters in size and meet or

exceed the Environmental Code of Practice for Storage Tank Systems (2020 or latest edition) and the British Columbia Fire Code (2018 or latest version).

DW-17 Without limitation to Section 16, aboveground petroleum product storage tanks (ASTs) within the Total Capture Zone must be constructed to include the following:

a) Double-walled steel tank construction;

b) Secondary containment of piping;

c) Tanks coated with rust-resistant material;

d) Overfill protection device;

e) Spill containment device around fill pipe;

f) A dispenser sump and tank sump, for the control of possible leakage from the dispenser or piping; and

g) Leak detection of the interstitial space, piping and sump(s).

DW-18 Installation of aboveground petroleum product storage tanks must be conducted by a licensed qualified contractor under the supervision of a Professional Engineer.

DW-19 Every storage tank must be tested for leakage, following procedures outlined in the Fire Code of British Columbia before putting a new tank into service.

DW-20 Installation of new private wells on properties serviced by the municipal drinking water system regardless of purpose is prohibited unless approved by the City. Approvals must only be considered for properties not serviced by the municipal drinking water system, or for wells intended for exclusively agricultural use. Owners that have a new private water supply well installed must provide the City with a copy of the well installation record within 30 days of installation.

DW-21 The disconnection and proper decommissioning of private wells when a property is connected to the municipal drinking water system is required, in order to minimize water quality and quantity degradation. Private wells used exclusively for agricultural purposes are exempt. Where an agricultural property is connected to the municipal drinking water system for domestic use, the private well must be disconnected from the domestic plumbing system, but may remain in use for agricultural purposes.

DW-22 Subsurface geothermal systems including the installation of wells are prohibited.

DW-23 New buildings must be connected to the municipal sanitary sewer system.

DW-24 Where a municipal sanitary sewer system is not available residential sewage must be conveyed to an on-site private sewerage system which must include, but is not limited to, a two-stage septic system, a large capacity tank and a gate valve before infiltration to subsurface. The two-stage system must be designed by a Qualified Environmental Professional.

DW-25 New Industrial, Commercial and Institutional facilities with an on-site sewage disposal system are not permitted unless approved by the Director of Engineering or designate.

Guidelines Specific to Surface Water Sources

Volkert Creek & Elk Creek-Dunville Creek:

DW-26 All developments must be designed to minimize water quality and quantity degradation to the requirements of the City.

DW-27 An applicant for a development permit must provide, at their expense, a plan certified by a Professional Engineer with experience in the protection of ground and surface water, which clearly shows how to control storm water drainage and avoid the deterioration of water quality.

DW-28 Non-residential structures for the purpose of storage or handling materials in quantities sufficient to pollute water supply should not be located in this DPA. If such a location cannot be avoided, the structure must be designed and constructed to ensure that spills can be properly contained and handled without causing pollution.

DW-29 New roads and septic fields should not be permitted within this DPA. If such a location cannot be avoided, then a qualified professional should supervise the design and construction of the road or septic field to satisfy the objectives and guidelines of this DPA.

DW-30 For subdivisions that create additional lots, any new lots, roads, building sites, septic fields and driveways must be positioned, designed and constructed to meet the objectives and guidelines of this DPA.

DW-31 Guidelines DW-2 through DW-25 may also be applied to the Vedder River Fan and Elk Creek-Dunville Creek at any time at the discretion of the Director of Engineering or designate in line with the objective to protect the quality and quantity of drinking water supplied from community water systems.