

16.10 Gibsons Aquifer Development Permit Area No. 9

Purpose

The Gibsons Aquifer Development Permit Area is designated pursuant to the Local Government Act section 919.1(1)(a): protection of the natural environment, its ecosystems and biological diversity; section 919.1(1)(i): establishment of objectives to promote water conservation; and under Section 919.1(1)(b) of the Local Government Act for protection of development from hazardous conditions. The area is also designated under s. 920.01 as an area for which development approval information may be required. This Development Permit Area works in tandem with provisions of the Town's Water Regulation Bylaw aimed at protecting the Gibsons Aquifer, and development permit applicants should inform themselves of the requirements of that Bylaw when applying for a Development Permit.

Area

All properties within Gibsons Aquifer Development Permit Area No. 9 and its sub-areas are defined by the map in Schedule F.

Justification

The Gibsons Aquifer Development Permit Area is known to be on top of an aquifer and groundwater system that supplies potable water for approximately 73% of the Town of Gibsons. The groundwater system may also sustain important habitat as base flow or discharge to surface water sources; this includes potential discharge/recharge points within Charman Creek, Gibson Creek and Goosebird Creek. Care must be taken in construction methods, excavation, surface drainage and the storage, handling, manufacture and use of products on parcels of land within this Development Permit Area to avoid contamination of the underlying aquifer and to protect and promote its sustainable use as a drinking water resource. Penetration of the aquitard that confines the aquifer could cause an uncontrolled release of large volumes of groundwater under artesian pressure.

Creeks within the Gibsons Aquifer Development Permit Area provide habitat for fish, wildlife and plants; may supply recharge to the Gibsons Aquifer; or are sources for water license holders. Maintaining both water quality and quantity requires careful management for the long-term sustainability of ecosystem and drinking water supplies. Degraded water quality would be detrimental to the Town's water supply from the Gibsons Aquifer as well as fish and wildlife populations.

The objectives of the Gibsons Aquifer Development Permit Area designation are:

- *To protect the Gibsons Aquifer forming part of the Town of Gibsons water supply from possible pollution from land use and development activities.*
- *To protect the integrity of the low-permeable till layer (the aquitard) which confines and maintains artesian pressure and protects the aquifer from surface activities.*
- *To promote the efficient use of water to ensure a sustainable hydrologic system in the watershed and to ensure a sustainable source of potable water.*
- *To provide opportunity for furthering the understanding of the hydrology of the Gibsons Aquifer system.*

Application

A Development Permit under this Development Permit Area is required for the following types of activities:

- Any development with contamination potential in the Development Permit Area involving new or existing uses for any of the purposes or activities listed in Schedule 2 of the Contaminated Sites Regulation, (B.C. Reg. 375/96).
- Any development in the Well Head Protection Area designated on Schedule F except for a Building Permit for a single family or two family building.
- Any development that involves excavation or other subsurface disturbance in the sub-area designated as "Lower Gibsons" on Schedule F, except for the excavation of a building site for the construction or alteration of a single family residential dwelling, provided that at no point the depth of the excavation exceeds 1.5 metres (approx. 5ft) below natural grade.

	Contamination potential guidelines	Well head protection guidelines	Lower Gibsons excavation guidelines
Commercial / Industrial uses	Applicable	Applicable	Applicable
Residential subdivision	Not applicable	Applicable	Applicable
Multifamily construction	Not applicable	Not applicable	Applicable
Single family construction	Not applicable	Not applicable	Not applicable if less than 1.5 m below natural grade

Summary table regarding the applicability of the guidelines for types of development

In cases where the boring of test holes is required to assess the impact of development on the Gibsons Aquifer a Development Permit is required for the boring of the test holes and the scope of such a permit shall be limited to the site investigations required to prepare a Development Permit application for the development.

In this section, "development" means the subdivision of land; construction of, addition to or alteration of a building or other structure; or alteration of land, and includes the boring of test holes that may penetrate into the Gibsons Aquifer or the overlying aquitard that confines and protects it.

Depending on site characteristics any or all of the guidelines below may be applicable to Development Permit applications for this area.

Guidelines

Professional Qualifications - General

Studies and reports submitted in support of applications for Development Permits within DPA 9 shall be prepared by qualified professionals only. For this Development Permit Area the expertise of one or more of a geotechnical engineer, a hydrogeologist, a hydrologist, and a biologist may be required to evaluate proposals for development. The qualified professional must be registered and in good standing in British Columbia with an appropriate professional organization, acting under that association's code of ethics and subject to disciplinary action by that association. The individual's area of expertise must be recognized by the Town as one that is acceptable for the

purpose of providing all or part of an assessment report in respect of the particular development proposal that is being assessed.

Guidelines for Developments with Contamination Potential

All applications for a Gibsons Aquifer Development Permit Area for any proposed development that includes any of the purposes or activities listed in Schedule 2 of the Contaminated Sites Regulation, (B.C. Reg. 375/96) shall be accompanied by a report by an appropriately qualified professional which must include:

- *Inventory of potential contamination sources of the proposed use including contaminants currently present that could be released or mobilized by the proposed development activities.*
- *Definition of study area, provision of the cross-section of the aquifer and overlying geological layers in the area of the proposed development, identifying any other areas of importance to the aquifer on the parcel.*
- *The location of any existing or proposed above ground or underground storage tanks for fuel or other potential contaminants, abandoned or operational water wells within 300 metres of the proposed development, and underground utilities.*
- *An assessment of the potential for contamination of wells within 300 metres of the development parcel or contamination of the Gibsons Aquifer should a spill, leak or disturbance of soils occur.*
- *Spill response and contingency plans.*
- *Identification of appropriate site-specific groundwater protection measures for existing and proposed uses.*
- *Design and implementation of a site-specific groundwater monitoring program that includes the monitoring of groundwater quality.*

The report must describe how the applicant will manage hazardous materials storage, handling and disposal of hazardous materials so as not to compromise the quality of the underlying aquifer. The report shall address, but not necessarily be limited to, facility design and operation, site design, and recommended practices for sewage disposal and handling, storage and disposal of hazardous materials, and mitigation of water contaminants. Specified mitigative measures may include requirements for physical structures or facility-specific operational plans and guidelines, and secondary containment systems.

In addition to the above mentioned guidelines for uses with contamination potential, the following guidelines apply for development sites where stormwater runoff from the site is connected directly or indirectly to any creeks designated in Development Permit Area No. 2 Environmentally Sensitive Areas.

A report prepared by an appropriately qualified professional must clearly address rainwater (stormwater) management, flood hazard and erosion, and protection of groundwater, including:

- *Preserving natural riparian channels.*
- *Using stormwater management best practices to improve the quality of the runoff.*
- *Intercepting stormwater above steep slopes, in such a way as to ensure that soil is not saturated to the extent slopes may be destabilized.*
- *Ensuring all stormwater is intercepted and conveyed to appropriate stormwater collection facilities.*
- *Using discharge point stabilization for natural drainage path.*
- *Providing runoff control mechanisms to minimize erosion and siltation.*
- *Integrating all recommendations with the stormwater management requirements in the Town's Subdivision and Development Servicing and Stormwater Management Bylaw.*

Guidelines for Development in the Well Head Protection Area

For any development on parcels where existing wells are located, and for sites in the Well Head Protection Area (shown in Schedule F) a report prepared by an appropriate professional must address the following guidelines:

- *Identify possible contaminants from proposed uses and existing conditions.*
- *All wells on or within 300 m of the subject property must be identified.*
- *Definition of study area and the relationship of the proposed development to the Town's production wells and the capture zones of the wells.*
- *A rainwater/stormwater management plan providing details of how the on-site drainage avoids adversely affecting the capture zones for the Town's production wells;*

Guidelines for Excavation in the Lower Gibsons Subarea

Developers are cautioned that the portion of Gibsons Aquifer beneath Lower Gibsons is under artesian pressure and is vulnerable to breaching and blow out if proper geological controls are not implemented during site investigations. For any development involving excavation of material above the till layer (aquitard), or penetration of the till aquitard in the Lower Gibsons sub-area a report prepared by an appropriately qualified professional must address the following:

- *Review and evaluation of the relevance and applicability of the Town's information regarding the Gibsons Aquifer's location, depth, pressure and geometry (including identification of the covering aquitard). This baseline information will help in the identification of any additional investigations that may be needed to address data gaps related to the evaluation of the proposed development;*
- *All geological/hydrogeological/engineering data provided by the proponent must be integrated with any aquifer information provided by the Town and reconciled to a common geodetic datum with an elevation survey accuracy of +/- one centimeter. Handheld GPS data is insufficient for foundation and structural design consideration.*
- *All data collected must be provided to the Town of Gibsons in an acceptable electronic format.*
- *Review and evaluate how the proposed engineering design considers and protects the Gibsons Aquifer, including changes in pressure to the aquifer resulting from stripping the overburden and from the construction of the proposed development.*