

DISTRICT OF MAPLE RIDGE PLANNING DEPARTMENT

Groundwater Impact Assessment Guidelines

A Groundwater Impact Assessment (GIA) may be required in any of the following instances:

- If the development will be serviced by well and/or septic field;
- If the development is located on or adjacent to agricultural land; or
- If the development is located on or immediately adjacent to, the Grant Hill, Whonnock, Blue Mountain, or Iron Mountain Aquifer.

These guidelines have been created to assist you with obtaining the information required for your application. The level of detail of the GIA will depend on a number of factors, including the following:

- The scale of development or disturbance proposed;
- The type and intensity of activity or land use proposed;
- The complexity of the topography, including soil types, slopes, and hydrogeological sensitivity associated with the site or surrounding sites; and
- The hydrological complexity of surrounding properties, i.e. proximity to vulnerable aquifer areas, surrounding water wells, water use licenses, watercourses, etc.

A GIA may be combined with an Agricultural Impact Assessment (AIA), if an AIA is required, and if the development is serviced by municipal water and sanitary systems. A preliminary GIA may lead to the requirement for a more detailed assessment. For larger developments, a GIA must be conducted by a registered Professional Engineer or Geoscientist with specific expertise in hydrogeology. The written report submitted to the District will address the following applicable criteria:

1. Describe the proposal, water supply and discharge (septic & storm) requirements and indicate whether or not the development or septic fields will impact the quality and quantity of surface water and groundwater in the area. The proposal must demonstrate compliance with the Ministry of Health's *Sewerage System Regulations*, http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/22_326_2004.
2. Describe the hydrogeological system and setting, the quality and quantity of water, including the type of aquifer, the vulnerability of the aquifer based on Provincial classification, and extent of aquifer boundaries (where possible), surficial and bedrock geology, physical hydrogeology, local surface water features including ponds, wetlands, drainage channels, springs, estimated recharge area and conditions, and climate.
3. Identify recharge areas (such as onsite ponds, springs and wetlands) that should be protected, any groundwater-limited areas and any site-specific information that can help the District improve its existing aquifer mapping.
4. Demonstrate that an adequate water source is available year-round and potable for the site and surrounding properties which have water licenses or water wells that may be impacted. The Professional Engineer must certify that the quantity of water meets a minimum of 2250 litres/day/lot and that the quality of water on each lot complies with the Canadian Drinking Water Standards and must provide professional assurance that states that "*the land may be used safely for the use intended*".

For the purpose of subdivision, the Approving Officer will not accept shallow drilled wells that are sole sourced by surface water flows or are influenced by them. Wells may not be located within 30 m of septic fields, top of bank of watercourses, or on slopes greater than 25%.

The District is requiring that all water wells are registered with the Ministry of Environment Water Protection and Sustainability branch. A copy of the completed Schedule 2 (Reporting Requirements for Well Identification for a Well that is for the Purpose of Supplying a Water Supply System), with the Well Identification Plate Number will be required prior to subdivision approval. See http://www.env.gov.bc.ca/wsd/plan_protect_sustain/groundwater/wells.html for more information.

A Water Supply Operating Permit from Fraser Health is also required for any water supply system serving everything other than a single family dwelling. A copy of the Operating Permit will be required prior to occupancy. See http://www.fraserhealth.ca/your_environment/drinking_water/permits/ for more information.

5. Address the long-term and cumulative impacts of the additional water sources, surface water run-off and/or consumption by attesting that these impacts will not interfere with other wells, surface water, aquifers, or water features that contribute to fish habitat on the property or adjacent properties.
6. Describe the effect of contaminants from on-site proposed activities and septic systems, as well as adjacent lands and their land use activities including industrial, commercial, agricultural, or residential activity. This assessment should also include potential impacts from road run-off, ditch irrigation water, and the use of pesticides, chemical, or biological agents, with recommended mitigation measures.
7. Where the following information is required or recommended by either the consultant or the District, the report should include the methodology and design information for: well location criteria, well drilling and well design, pump tests and drawdown data collection/analysis, water quality sampling/monitoring, numerical model documentation and application, and uncertainties and limitations of the report.
8. Summarize the results of the impact assessment and provide recommendations on the operation of the well(s), a monitoring program, well and aquifer protection, and a contingency plan.

Detailed Assessment

Refer to available information from the Province and the District to assess groundwater in a watershed or catchment, including a sustainable yield analysis for year-round well operation, and provide a conceptual model of groundwater occurrence and groundwater-surface water interaction.