



DEVELOPMENT PERMIT

NO. DP-2018-04

TO: **Schulte Investments Ltd.**

ADDRESS: **415-1489 Marine Drive
West Vancouver, BC
V7T 1B8
(Permittee)**

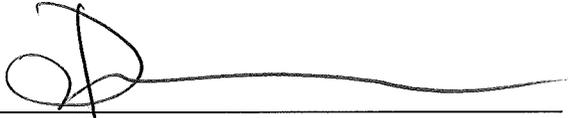
- 1) This Development Permit is issued subject to compliance with all of the Bylaws of the Town of Gibsons applicable thereto, except those specifically varied or supplemented by this Permit.
- 2) The Development Permit applies to those "lands" within the Town of Gibsons described below:

Parcel Identifier: 011-984-651

Legal Description: Lot 3, Plan 3971, Block D, H, J., District Lot 686

Civic Address: 442 Marine Drive
- 3) These lands are within Development Permit Area('s) of the Town of Gibsons Official Community Plan (Bylaw 985, 2005). This permit applies to the following Development Permit Area:
 - Development Permit Area No. 9 (Gibsons Aquifer) for the purpose of the protection of the Gibsons Aquifer.
- 4) The "land" described herein shall be developed strictly in accordance with the terms and conditions and provisions of this Permit, and any plans and specifications attached to this Permit which shall form a part thereof; specifically:
 - March 30, 2018, Memorandum from ARYA Engineering Inc.
- 5) All requirements of the memorandum are to be followed. A Geotechnical Engineer is to be on site during excavation. If a glacial till layer is encountered, contact the Director of Infrastructure Services for a site meeting.
- 6) Minor changes to the aforesaid memorandum that do not affect the intent of this Development Permit are permitted only with the approval of the Town of Gibsons and ARYA Engineering Inc.
- 7) If the Permittee does not commence the development permitted by this Permit within twenty four months of the date of this Permit, this Permit shall lapse.
- 8) This Permit is NOT a Building Permit.

ISSUED THIS 11 DAY OF MAY, 2018.

A handwritten signature in black ink, consisting of a stylized 'D' and 'N' followed by a long horizontal flourish.

Dave Newman
Director of Director of Infrastructure Services

Copy of permit to the Geotechnical Engineer



Memorandum

File No.:	17-120-SC	Date:	March 30, 2018
To:	Schulte Investments Ltd.		
Email:	elschmittltd@outlook.com	Phone:	604.924.2912
From:	Emir Hot, EIT; Ben Tomasz, P.Eng.	CC:	Joe Oteruelo
Subject:	Development Permit Area 9 Review – Gibsons Aquifer 442 Marine Drive, Gibsons, British Columbia		

Arya Engineering Inc. (Arya) presents the following memorandum providing a summary of the professional services completed for the above listed site. The intent of this memorandum is to assess the impact of excavation at the project site with respect to the potential presence of an underlying aquifer (Gibsons' Aquifer). As part of this commercial development project, Arya has been retained to evaluate the stability of the coastal slope located on the property, as needed to satisfy the Town of Gibsons development permit criteria. As such, it is Arya's intention to excavate an exploratory test pit at the southeastern portion of the site to evaluate soil conditions needed for slope stability assessment. This memorandum was completed to satisfy the Development Permit Area (DPA) 9 requirements for the Lower Gibsons Subarea, outlined in the Town of Gibsons Official Community Plan (adopted on March 17, 2015), in support of excavation proceedings required at this time.

Based on information reviewed as part of this assessment, and based on Arya's previous project experience in the area, the property is likely located near the contact of Capilano Sediments and Salish Sediments, and may be underlain by either or both deposits, at different locations/elevations across the site. Capilano Sediments deposited in the vicinity of the proposed development area are expected to consist of marine and glacio-marine deposits, comprised of gravel and sand, with a trace fines fraction of silt and clay, and trace cobble sized rock fragments. Salish Sediments are expected to consist of more recent shore deposits typically comprised of gravel and sand.

It is expected that these unconsolidated deposits vary in thickness (less than a meter to several meters in thickness) across the lot, and are expected to constitute a thicker horizon on uphill portions of the site near Marine Drive. Lodgment till, deposited during the Vashon Stage, and consisting of a sand/silt mixture with trace clay, gravel, cobbles, and boulders is expected below this unconsolidated, granular overburden. This till material is typically cemented, indurated and overconsolidated, and commonly ranges in thickness from a veneer to several meters. As a result of the compact nature of this deposit and its fines fraction, this glacial till material has low permeability characteristics and serves as an aquitard, confining the Gibsons Aquifer throughout portions of Lower Gibsons, and restricting the aquifers upward mobility.



As part of this assessment, provincially published well log data for several water wells nearest to the subject site were evaluated to develop a more comprehensive understanding of the potential location of an underlying, confined aquifer (Gibsons Aquifer) with respect to the subject site and the proposed excavation area. The wells were estimated at distances ranging from 250 m and 500 m from the subject site, and the well log data indicated a minimum overburden thickness (Capilano/Salish Sediments) of 6 m overlying the glacial till layer (aquitarde). Due to the location of these wells with respect to the proposed excavation area, well data alone is considered insufficient to accurately determine stratigraphy in the vicinity of the subject site.

Additionally, an aquifer mapping study submitted to the Town of Gibsons by Waterline Resources Inc. (Waterline) was referenced as part of this assessment. The Waterline study was completed to evaluate the aquifer boundaries, hydraulic properties, and recharge/discharge properties of the aquifer, and includes a schematic geological cross section through the Gibsons aquifer, extending from Upper Gibsons to the oceanic waters of the Howe Sound through the Lower Gibsons Subarea (across Winn Road). The results of this assessment generally indicate that an overburden of granular material (Salish/Capilano Sediments) is present across lower Gibsons, which overlays the glacial till aquitarde, which itself overlays granular pre-Vashon deposits that comprise the aquifer. Aquitarde thickness ranges from a veneer near the contact of the oceanic waters of Howe Sounds, increasing to several meters in thickness towards Upper Gibsons. However, as the subject site is located several hundred meters from the mapped cross sectional area utilized for the aquifer study, the report could also not be used to gauge precise depths to, or confirm the presence of, an underlying aquifer in the vicinity of the site.

Based on previous project work, including a comprehensive subsurface investigation conducted by the undersigned on an adjacent parcel, the upper boundary of the glacial till aquitarde is expected near surface (within 2 m) in the proposed excavation area. Previous subsurface activities conducted by the undersigned have not confirmed the presence of the Gibsons' Aquifer beneath the subject site, and indicate that if present, the aquifer likely coincides with a depth equivalent to mean sea level, or deeper, near the parcel.

The proposed works are expected to consist of a maximum excavation on the order of 2.0 m as needed to remove only the loose, unconsolidated overburden and uncover the upper boundary of glacial till. Based on this limited extent of excavation, and as the surface elevation at the test pit location is approximately 3.0 m to 4.0 m above the Canadian Geodetic Vertical Datum (CGVD2013), excavation is not expected to have an adverse effect on the confining layer of the aquifer.

Based on the proposed location and extent of excavation, and the anticipated geological conditions of the parcel, the Gibsons' Aquifer is expected to be outside of the influence zone of the proposed works. We trust this information is sufficient for project continuation at this time. Should additional information or clarification be required, please do not hesitate to contact us.



Sincerely,

Arya Engineering Inc.

Emir Hot, B.Asc., EIT
Geotechnical Engineer in Training



2018-03-30

Ben Tomasz, B.Eng., P.Eng.
Principal | Senior Geotechnical Engineer