



STAFF REPORT

TO: Council **MEETING DATE:** May 12, 2015

FROM: André Boel, Director of Planning **FILE NO:** 3220-20 Gower 377-385
Odete Pinho, Planning Consultant ZA-2013-01

SUBJECT: George Hotel and Residences – Geotechnical / Hydrogeological Review Results

RECOMMENDATION(S)

THAT the staff report and results of the Geotechnical / Hydrogeological Review for the proposed George Hotel and Residences be received.

PURPOSE

This staff report provides Council with the results of the geotechnical investigations and hydrogeological review for the proposed George Hotel development. (A separate staff report will discuss the proposed Zoning Bylaw Amendment).

BACKGROUND

In February 2013, Klaus Fuerniss Enterprises Inc., submitted a zoning application and a number of development permit applications for the proposed “George Hotel and Residences” to allow for a hotel, tourist commercial, marine and multifamily uses. One of the applications is for Development Permit Area No. 1 (DPA No. 1) for Geotechnical Hazards. The applicant provided a geotechnical report dated November 16, 2012, which outlined a foundation concept where the project would be constructed above the Gibsons aquifer, based on geotechnical information available at the time.

The Gibsons’ aquifer is the Towns major drinking water source and the Town completed the Gibsons Aquifer Mapping Study in 2013. In that study the Gibsons Landing area was identified as a sensitive area because the Aquifer is located relatively close to the surface. The subject site is a complex site and it is of critical importance to the Town that development on this site is investigated with high rigor and attention to the sensitivities of the Gibsons aquifer and geotechnical conditions. Because the George Hotel and Residences proposes two levels of partially underground parking structures the Town requested further review of the geotechnical report. On January 21st, 2014, Council resolved the following:

THAT Council request staff to arrange an independent review of the proposal’s geotechnical investigation by a geotechnical engineer selected by the Town, as well as a hydrogeological review of the proposal by Waterline Resources, and that the cost of both studies be covered by the applicant. (resolution R2014-020)

DISCUSSION

In February 2014, the Town retained Levelton Consultants Ltd. (Levelton) to undertake a geotechnical engineering peer review and Waterline Resources Inc. (Waterline) for hydrogeological (aquifer protection) peer review of Horizon's report recommendations. Levelton's Carl Miller has specialised expertise in soil and rock slope stability assessments. Waterline's Darren David and Jessica Doyle were authors of the earlier Gibsons Aquifer Mapping Study and are qualified hydrogeologists. Both companies reviewed the work from the applicant's geotechnical experts of Horizon Engineering Inc. (Horizon). Waterline also oversaw the drilling on site on behalf of the Town. In total, approximately \$ 45,000 for review of the geotechnical report and the oversight on the drilling programs have been recovered from the applicant to date.

The peer review resulted in a process where questions and suggestions from Levelton and Waterline resulted in three additional investigations by the applicant's consultant Horizon. Extensive testing has been conducted which has provided the Town and the applicant with greater insight into this site and the complex geotechnical and hydrogeotechnical conditions. This resulted in an updated report by Horizon dated April 7, 2015.

Horizon report April 7, 2015

The updated geotechnical report by Horizon (see executive summary attached) has resulted in a better understanding of the aquifer underneath the site and defined the limits to excavation in different areas of the site to ensure aquifer protection. The report is extensive, discusses subsurface conditions, identifies local hydrogeology and potential geotechnical challenges and provides recommendations for the future detailed design and construction of the project.

The increased understanding has resulted in recommendations to protect the aquifer and to consider sea level rise:

- Recommendation to limit site excavation to an elevation of 5 m geodetic¹ for the north west portion of the site and to 0.5 m below existing grade for the remainder lower areas of the site (see figure 1 below).
- Identification of a Flood Construction Level of 5.33 m (17 feet 6 inches) geodetic.

The implications for the design of the project are discussed in a separate staff report regarding the Zoning Bylaw Amendment.

Peer review reports Levelton and Waterline

The peer review results from Levelton and Waterline (attached to this report) evaluate the updated report by Horizon and identify items that need to be addressed in the future. The full details of the review results can be found in the peer review reports.

¹ "geodetic" refers to Canadian Geodetic Datum, where 0 m is the mean sea level.

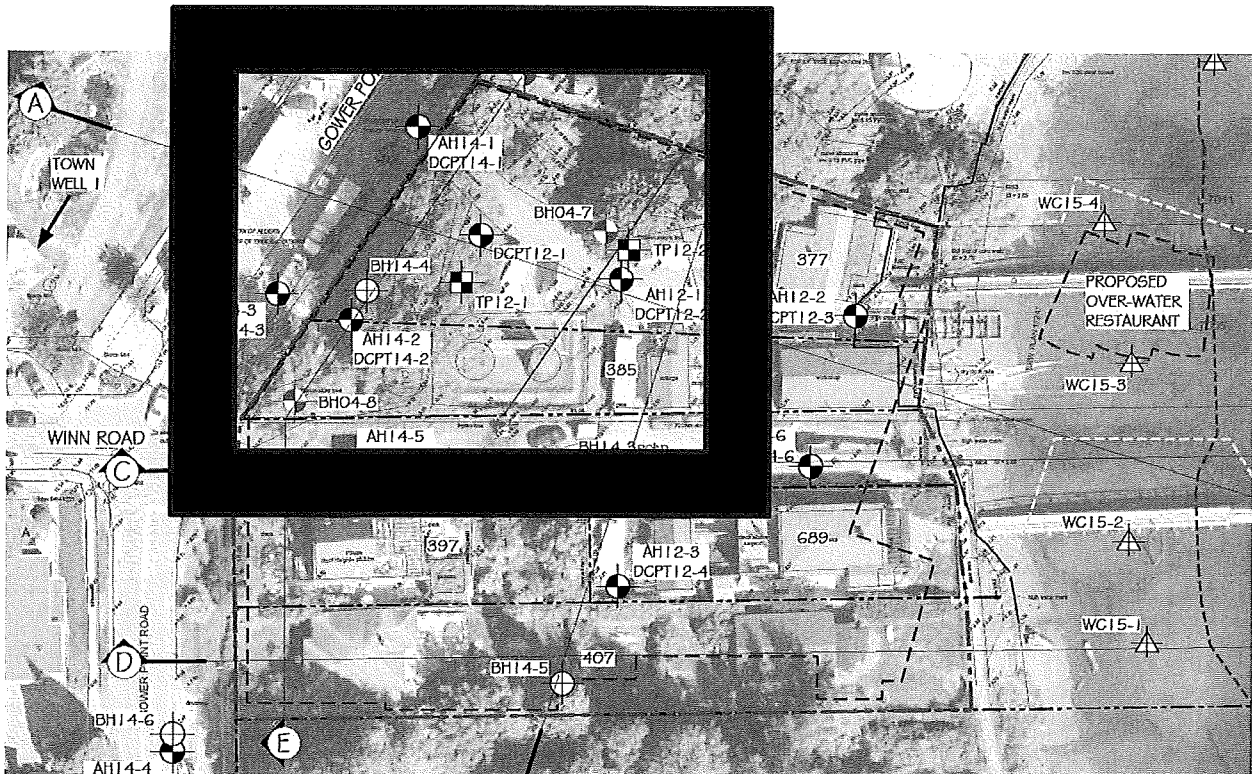


Figure 1. Approximate location of area identified in top left corner of the site, where excavations should be limited to a depth of +5 m geodetic (excerpt from figure 2, Horizon, April 7, 2015).

The Levelton peer review report states “we are not at this time in a position to advise the Town that the (Horizon) report as submitted has adequately addressed the potential geotechnical issues or provided a suitable confidence level as to the adequacy of the proposed site preparation and foundation concepts”. The review identifies a range of topics, some of which need to be addressed at time of rezoning and other that can be addressed later in the development process. Some of the key recommendations for the current zoning amendment process are:

- Suggestion to truncate parkade level P2 to reduce the need for deep excavation
- Request more information to confirm whether the proposed dredging for the marina is feasible while protecting the Gibsons aquifer
- Seek assurances that site contamination remediation can be addressed within the recommended excavation limits
- Request a statement that the site is considered to be safe to be used for the use intended

The Waterline peer review report states that the updated report has led to a better understanding of the hydrogeology beneath the land portion. They suggest some clarifications to provide further assurances. For the marine portion of the development Waterline states “there is insufficient data to characterize the Gibsons Aquifer-Aquitard system within the proposed (marine development) dredging area”.

CONCLUSION

The peer review reports have identified the need for further investigations that will need to take place over the course of the development process. More information is needed to inform the detailed design of the project and to identify future site monitoring and protective measures during construction.

Respectfully Submitted,



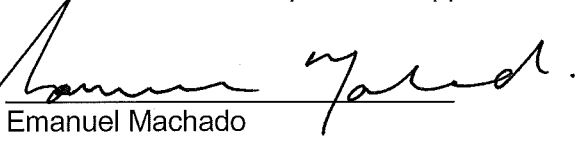
André Boel, RPP
Director of Planning



Odete Pinho, RPP
Planning Consultant

CHIEF ADMINISTRATIVE OFFICER'S COMMENTS:

I have reviewed the report and support the recommendation(s).



Emanuel Machado
Chief Administrative Officer

ATTACHMENTS

- A. Horizon Geotechnical Report April 7, 2015, executive summary (digital version of complete report has been made available to Council as part of the agenda distribution)
- B. Levelton Peer Review letter dated May 7, 2015
- C. Waterline Peer Review letter dated May 4, 2015