

February 1, 2013
File No. 12-322-03

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Darwin Properties (Canada) Ltd.
220 - 18 Gostick Place
North Vancouver BC V7M 3G3

Attention: Mr. Oliver Webbe
President

Re: Proposed Stormwater Management Concepts for Proposed 24 Unit Townhouse Development "Hugo Ray Townhomes", Mathers Avenue, District of West Vancouver, BC
Civic Address: 370 and 380 Mather Avenue, West Vancouver, BC
Legal Description: The East ½ of the NW ¼ of District Lot 1074 Except Part in Plan 10097 and Lot 1, District Lot 1074 Plan 10097, Both of Group 1, NWD

Dear Mr. Webbe:

Project Information

R.F. Binnie & Associates Ltd. (Binnie) was retained by Darwin Properties (Canada) Ltd. to undertake a high level review of the stormwater management concepts required by the District of West Vancouver for the consolidation and re-development of two lots into a townhouse development on the South side of Mathers Avenue in West Vancouver, BC. Based on the site plan provided by Matrix Architecture, the proposed development would consist of 19 townhouse units in single and duplex type buildings.

The existing development site consists of two lots: a single family dwelling located on Lot 1 and a church with a paved parking area located on the southern lot. The site is bordered by Mathers Avenue to the north, Highway 99 to the southwest, and existing properties to the west and east. Mathers Avenue will serve as the main access point for the site and Lawson Avenue which ends at the east property line provide emergency access to the site. The site area is approximately 0.88 hectares (2.19 acres). The topographic information shows that the site is sloped from the northeast corner to the southwest corner.

Matrix has prepared a conceptual site plan showing the proposed building layout, road ways, and landscaping areas. A geotechnical report has not been completed at the time of this letter report. We have assumed that the proposed access road and parking areas will consist of permeable pavement.

Stormwater Management Concepts

There is an existing 200mm diameter storm sewer located along the east property line which receives storm runoff from Lawson Avenue, which then is conveyed through a ditch to an existing 200mm diameter storm sewer along the south property line, and discharged into an existing ditch along the north side of Highway 99.

It is our understanding that the District of West Vancouver wants the proposed development site to incorporate, permanent, low impact development (LID) measures installed to manage stormwater runoff at the pre-development rates.

To meet these objectives, we suggest that LID measures be incorporated in the site design, including absorbent landscaping and pervious pavements on hard surface areas to provide water quality treatment for the storm runoff from the site before discharging into the storm sewer collection system. These LID features would be incorporated into the landscaping design.

Some of the Best Management Practices proposed to provide water quality treatment and promote infiltration of the storm runoff are as follow:

- Site grading shall be designed to direct the storm runoff toward landscaping areas to allow the plantings to treat contaminants from the storm runoff and promote infiltration. Catch basins/lawn basins would be provided for overflow as required.
- Use of pervious surfaces for walkways and patios such as pavers to promote infiltration.
- Roof leaders to be disconnected from the storm sewer and directed on to splash pads and toward landscaped areas.
- A dry rain garden at the south end of the site to provide opportunity for captured runoff to infiltrate into the existing soil.
- Oil separators to treat the contaminants in the storm runoff from parking areas.

The use of catch basins in the roadway will provide an initial opportunity to treat hard surface runoff through the use of catchbasin sumps and trapping hoods which will reduce TSS levels. Prior to entering the municipal system, hard surface runoff will be further treated by being routed through oil interceptors which will reduce hydrocarbon levels and improve water quality.

The District of West Vancouver design criteria required that the post-development peak flow be restricted to the pre-development peak flow levels for the 10-Year 24-Hour Storm Event.

A hydrologic analysis using the Rational Method showed that for a 10-Year design storm, the pre-development peak flow is 47.1 L/s and the post-development peak flow will be 50.1 L/s. Since the post-development peak flow is greater than the pre-development peak flow, stormwater detention will be required to meet the required flow attenuation. The required storage volume is approximately 5 cubic metres.

The proposed detention facility design includes two oversized pipes located at the south end of the site, designed to surcharge and provide the additional storage capacity in the system for the required detention. The pipes also accept overflow from the proposed rain garden, to capture runoff that does not infiltrate or accumulates to quickly during larger rainfall events.

Downstream of the detention pipes is a flow control manhole which includes an overflow riser to allow runoff from larger storm events to pass through and downstream to the municipal system.

If you have any questions or require any additional information, please do not hesitate to contact the writer.

Yours truly,
R.F. Binnie & Associates Ltd.

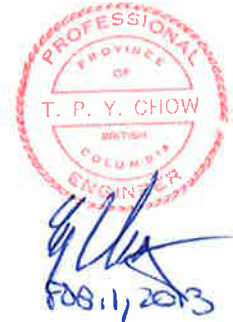


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Reviewed By:



Terry Chow, P.Eng.
Engineering Design Manager



TC:tc
Enclosure

cc: Mr. Oliver Webbe, MAIBC/MRAIC - Matrix Architecture & Planning Inc.
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