NOVATECH
Engineers, Planners & Landscape Architects

M E M O R A N D U M

DATE: AUGUST 14, 2023

TO: ERIC SUPRENANT

FROM: LUCAS WILSON

RE: VAN GAAL LANDS – CLARIDGE DEVELOPMENT
STORMWATER MANAGEMENT ANALYSIS (ZONING UPDATES)

CC: GREG MACDONALD

1.0 BACKGROUND

The developer (Claridge) has requested a zoning amendment to increase the rear-yard setback from 6.0 m to 7.5 m for all single lots. As this will increase the runoff coefficients throughout the site, the City has requested Novatech to demonstrate that this increase in imperviousness per new maximum zoning footprint can be accommodated with the designed minor and major systems.

This technical memorandum provides a comparison of the previously submitted SWM analysis and the updated analysis regarding HGL elevations, ponding depths, and minor/major system release rates.

2.0 SUBCATCHMENT PARAMETERS

The increased rear-yard setback and re-lotting has resulted in the overall runoff coefficient to increase from 0.61 to 0.63. The specific subcatchments where the increases occur are shown in the attached Subcatchment Parameters PDF.

Stormwater Quality Control

The existing Vortechs unit immediately upstream the outlet to Cell 1 of the Monahan Drain Constructed Wetlands has been designed to provide an Enhanced level of water quality control for the contributing drainage area, including Claridge Van Gaal Lands. The proposed site layout has a smaller drainage area and slightly higher runoff coefficient than was used to size the Vortechs unit. When comparing the area x runoff coefficient values, the updated subcatchments results in a lower value (shown below) and as such will still provide the required level of water quality treatment.

Design	Catchment ID	Parameters	Description
Stantec (2007)	FUT-13A	8.26 ha, C = 0.65 (AC = 5.37)	Area to Cope Drive / Vortechs Unit
Novatech (2023)	A1-A7,A9-A32, A34	7.16 ha, C = 0.66 (AC = 4.73)	Area to Cope Drive / Vortechs Unit

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3.0 PCSWMM MODEL RESULTS

HGL Analysis

As expected, the HGL within the storm sewers was not affected by the increased imperviousness. Since the subdivision minor system was being restricted to meet the allowable release rate to Cope Drive, no additional flow is being directed to the storm sewers due to the slight increase in subcatchment runoff coefficients. The HGL analysis for the 100-yr and 100-yr + 20% storm events are provided in the attachments.

Ponding Depths

The updated imperviousness values have resulted in slight ponding depth increases within select rear-yards and roadway sag points. During the 100-yr storm event, these increases are limited to 0.01 m of additional ponding (CB304, CB305/306, CB307, CB308 and CB403) and do not exceed the maximum allowable ponding depth of 0.35 m within the right-of-way. The only locations with ponding occurring above the 0.01 m increase is during the 5-yr storm event within select rear-yards. The increased 5-yr ponding will have no meaningful impact on the designed rear-yards as the maximum ponding depths are still well below the building envelopes. A more detailed analysis of the ponding depths for all relevant storm events are included in the attachments.

Minor/Major System Release Rates

The minor system release rate to Cope Drive has slightly increased from 700.5 L/s to 700.8 L/s and is still below the allowable release rate of 702.1 L/s. With the slight increase in ponding depths, the major system release rate has increased from 915.3 L/s to 936.2 L/s and is still below the allowable release rate of 1,537 L/s. A summary of the peak flows are shown in the table below.

Outfall	Allowable Release Rate (Stantec, 2007)	100-year Peak Flow[(2)] (L/s) 3-hour Chicago	Description
Minor System	702.1 L/s [(1)]	680.6	To Cope Drive MH1013
		7.0	From Rear-yard (CB435)
		13.2	From A32 (Uncontrolled Flow)
TOTAL MINOR SYSTEM		**700.8**	**To Cope Drive Storm System**
Major System	1,537 L/s	500.4	Overland flow to Cope Drive (Outfalls MS-CopeDr1, 2 and 3)
		57.7	Overland flow to Terry Fox Ditch (CB300-301)
		378.1	Overland Flow to Cell 1, OF3
TOTAL MAJOR SYSTEM		**936.2**	**To Cell1 and Cope Drive**
TOTAL	**2,239 L/s**	**1,637.0**	

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