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220 Arkell Road, Guelph, Second Submission of Draft Plan of Subdivision and Zoning By-Law Amendment D.P. 23T-19002, ZBA OZS19-017

Monday, February 12, 2024

Responses to 2nd Submission Engineering Comments received from:

#	C/R	Comment / Response
		Grand River Conservation Authority (GRCA) staff have reviewed the resubmission of the above-noted Draft Plan of Subdivision and Zoning By-law Amendment. At this time, GRCA staff recommends that the City of Guelph defers the decision on the Draft Plan of Subdivision. We have no objection to the proposed Zoning By-law Amendment application. Comments provided by Jessica Conroy, MES PL., Resource Planner, 519-621-2763 ext. 2230, jconroy@grandriver.ca
		GRCA staff have reviewed the following information in association with the second submission of the proposed development application: • Notice of Revised Application (City of Guelph, May 12 2023); • Environmental Impact Study Addendum – Final Report (Stantec Consulting, April 17 2023); • Cover Letter: Revisions to Draft Plan of Subdivision Plan – 220 Arkell Road (J.D. Barnes Limited, 24 April 2023); • Draft Plan of Subdivision (J.D. Barnes Limited, 11 December 2019); • Comment-Response Letter (Stantec Consulting Limited., 31 March 2023); • Environmental Impact Study Addendum (Stantec Consulting Limited, 17 April 2023); • Revised Preliminary Servicing, Grading and Stormwater Management Report (Stantec Consulting Limited, 4 April 2023); and • Revised Water Balance Calculations in Response to First Submission Comments (Stantec Consulting Limited, 29 March 2023).
		COMMENTS TO BE ADDRESSED PRIOR TO CONSIDERATION OF DRAFT PLAN CONDITIONS
1	C	In Section 5.5.1, there is discussion with respect to how the hurricane hazel rainfall event was adjusted using procedure outlined in the TCSS to obtain a rainfall amount (in mm) for each return period event. Please include the 50-year design storm event in this table. Please also include discussion with respect to the storm distribution that was utilized to develop the design storm events for use in the MIDUSS modelling. Note that GRCA accepts the 3-hour or 4-hour Chicago Storm distribution, or the 12-hour or 24-hour SCS storm distribution.
	R	The 50-year design storm has been added to this table and models. The storm events were generated by taking the Hurricane Hazel 48-hour distribution and applying the adjustment factor. This is described in the text and the TCSS. These rainfall events have a much larger volume than the typical 3-hour Chicago storm rainfall events for Guelph. The 3-hr Chicago, 100-year event was run as a check to ensure peak flows are maintained and the SWMF still functions.
2	C	The Regional Storm event (Hurricane Hazel) should also be included in the hydrologic analysis and flow summary tables.
	R	This has been included in the Addendum Report. Note, this storm does event needs to be conveyed and not controlled.
3	C	The Torrance Creek Subwatershed Study requirements indicate that post- development peak flows must be controlled down to pre-development levels for all design events (2-year to 100-year storm events). Please include the 10-year and 50- year storm events in the hydrologic analysis and flow summary tables to demonstrate that the peak flow targets for these events have been met.
	R	These have been added to the analysis and Addendum Report.
4	C	Please include a schematic ahead of the MIDUSS output illustrating how the nodes in the MIDUSS model were connected. Please also clearly label the pre- development and post-development MIDUSS output in the appendices.
	R	These have been added to the Addendum Report.
5	C	In Table 5 within the SWM Report, please also quantify and include the site runoff that is discharging to the wetland uncontrolled. Please comment on whether the combination of uncontrolled stormwater runoff and controlled stormwater runoff under post-development conditions meets pre-development peak flow targets for all design storm events (2-year to 100-year storm events).
	R	The total peak flow from the site (controlled and uncontrolled) is outlined currently in Table 5 under the "Proposed Peak Flow from Total Site to Torrance Creek". The proposed peak flow just from the SWMF is shown above this line.

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6	C	Please comment on whether the proposed major overland flow path will safely convey the Regional Storm event through the development.
	R	Major overland flow has been checked with discussion added to the Addendum Report.
7	C	The table on PDF page 82 indicates that the drawdown during the 25mm, 4-hour storm event is 29 hours, which meets criteria. Please include drawdown calculations in the reporting to support this.
	R	Drawdown calculations have been added to the Stage-Storage-Discharge Table to clarify.
8	C	There appears to be uncertainty with the design of the multi-family block. Please ensure that adequate space is available within the multi-family block to accommodate the infiltration facility. Please comment on how this will be achieved.
	R	The layout shown for the Multi-Family Block is conceptual. Stormwater Management targets will be identified for the Future Multi-Family Block. Final design of the Multi-Family Block will be subject to Site Plan Approval including a requirement to provide a Stormwater Management Brief such to confirm the targets identified as part of the Subdivision works is addressed at the Site Plan Stage.
9	C	The following comments are with respect to the information provided on Drawing C- 400: o The overland flow path within the multi-family block does not appear to have a positive slope to Street A. Please review and revise as needed.
	R	As noted above the design for the Multi-Family Block is conceptual and subject to Site Plan Approval. That said, the major overland flow route accounted for 0.3 m of ponding of the majors prior to spilling out to Street A. This is a common practice and vetted with the City
	C	o The overland flow path south of lot 29 does not appear to have a positive slope from Street A. Please review and revise as needed.
	R	Similar to the above, the major overland flow route accounted for 0.3 m on ponding of the majors prior to spilling towards the SWM Facility. Again, this is a common practice and vetted with the City
	C	o Please confirm that the overland flow path will be directed to the proposed SWMF and that overland flow will not spill over the trail and short-circuit into the Torrance Creek PSW. Please review the proposed grading in this location.
	R	The depth and size of the major overland flow path/swale has been checked and confirmed to provide sufficient conveyance. The SWM maintenance access grading will be tipped to ensure all surface flows are directed to the SWM Facility.
10	C	The Revised Water Balance Calculations memo should include a summary table of the calculated pre-development, post-development (without mitigation measures), and post-development (with mitigation measures) infiltration, evapotranspiration, and runoff values for each month of the year. Please include this table in the memo as well as a discussion interpreting the results, commenting on how the proposed mitigation measures will impact the hydrology of the receiving wetland feature and groundwater regime in the area.
	R	This requested information is now presented in Table 3 of Stantec's *Revised Water Balance Calculations in Response to First and Second Submission Comments, Draft Plan Application - 220 Arkell Road, City of Guelph, Ontario (Third Submission) - February 2024).*
11	C	It is noted in the Revised Water Balance Calculations memo that in-situ infiltration tests will be conducted during detailed design to confirm that the soils are sufficiently permeable as well as determine hydraulic conductivities of the site soils. Please comment on whether the assumptions made in the water balance calculations with respect to infiltration capacity of the site soils, in the absence of in-situ testing, are conservative and whether there will be sufficient space available on the proposed lots to accommodate the required mitigation measures if the hydraulic conductivities obtained indicate that the site soils are less conducive to infiltration.
	R	As documented in the Stantec letter report (part of Third Submission package) titled *Infiltration Testing Results in Response to Second Submission Comments and in Support of Third Draft Plan Submission - 220 Arkell Road, City of Guelph, Ontario (February 7, 2024)* , design infiltration rates for the native silty sand to sandy silt deposits located at the base of the proposed Site infiltration galleries range from 10 mm/hour to 28 mm/hour. This range of infiltration rates exceeds the minimum value of 4.8 mm/hour previously used by Stantec to size the on-Site infiltration galleries as previously documented in Stantec's second submission of the *Preliminary Servicing, Grading and Stormwater Management Report* (dated April 2023).

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12	C	Please comment on whether the infiltration requirements as outlined in the TCSS have been met.
	R	Infiltration requirements of the TCSS have been met and exceeded. Requirement is 150 mm/yr. and we have achieved approximately 367 mm/yr. The Addendum Report has been updated.
13	C	The area values should be included in the drainage bubbles within the water balance figures (Figure 1 and Figure 6 in the Revised Water Balance Calculations Memo, March 2023).
	R	Figures 1 and 6 in the next report submission (i.e., *Revised Water Balance Calculations in Response to First and Second Submission Comments, Draft Plan Application - 220 Arkell Road, City of Guelph, Ontario (Third Submission) - February 2024)* have been updated to present the area values in the drainage bubbles.
COMMENTS FOR DETAILED DESIGN		
1	C	Detailed engineering design drawings and erosion and sediment control plans, stamped and signed by a qualified professional engineer, will be required at the detailed design stage.
	R	Noted.
2	C	In the detailed engineering design drawings, please include profiles through key sections of the proposed development, such as the proposed SWMF, infiltration galleries, overland flow path, and proposed lots that illustrate the high groundwater elevation relative to each feature. Profiles that include features such as the SWMF and overland flow path should also show the water surface elevation of the Regional Storm event.
	R	Noted.
3	C	A final SWM report, stamped and signed by a qualified professional engineer, will be required at the detailed design stage.
	R	Noted.
4	C	Please include rip-rap sizing calculations in the final report. The rip-rap spillway must be sized to withstand the forces of the Regional Storm event. The rip-rap at the Dry Pond outlet pipe must be sized to withstand the outlet velocities.
	R	Noted.
5	C	Please ensure that the velocity of flow from the spillway and Dry Pond outlet pipe are reduced such that they will not cause erosion of the wetland.
	R	Noted.
6	C	The site-specific water balance demonstrates that there will be an infiltration surplus of 7,353 m3 under post-development conditions in comparison to pre-development conditions, representing a 48% increase. This is quite a significant increase in infiltration. For draft plan approval, the water balance demonstrates that the proposed mitigation measures can conservatively meet water balance requirements. Note that at the detailed design stage, the proposed mitigation measures should be designed such that pre-development targets are more closely met / balanced.
	R	Noted.
7	C	The EIS addendum is acceptable and its recommendations should be fully implemented.
	R	Noted.
8	C	EIS Section 4.0 Proposed Development states that the “offroad portion of the trail will comprise an 8m corridor of a 3m wide hard surface flanked by mow strips to allow for grading and drainage on either side”. In Section 5.3.1 Impact Assessment the report identifies that there are opportunities for the SWM pond to add to the ecological diversity of the linkage through appropriate design and planting. The proposed trail location and incorporation into the SWM dry pond encroaches into the 30m wetland buffer and reduces its performance to buffer the wetland. Enhanced vegetation plantings should be identified at detailed design to help offset the reduced function
	R	Noted.

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9	C	A dewatering contingency plan for installation of underground services will be required at detailed design.
	R	Noted.
		We advise the applicant that a permit pursuant to Ontario Regulation 150/06 will be required from the GRCA prior to any development or site alteration within the regulated areas on the property. The GRCA permit will be made a condition of draft plan approval.
END OF COMMENTS		