County File: 15T-21005 & Town File: OPA-04-21 - 2nd Submission Comment Response				
The Biglieri Group Ltd.		County File: 15T-21005 & Town File: OPA-04-21		TBG Project: 20699
		Address: S.E. CR 10 & Fallis Line, Millbrook		TBG Client: Vargas (C/o Peter Berardi)
Ref	**Item**	**Comment**	**Consultant**	**Formal Response**
		Curve Lake - June 15, 2022		
	1	Curve Lake First Nation is requiring a File Fee for this project in the amount of $250.00 as outlined in our Consultation and Accommodation Standards. Curve Lake First Nation is requiring a File Fee for this project in the amount of $250.00 as outlined in our Consultation and Accommodation Standards.	TBG	This fee has already been submitted and receipt confirmed December 8th 2021.
	2	Curve Lake First Nation may require a Special Consultation Framework for this project. Information on this Framework can be found on page 9 of our Consultation and Accommodation Standards document.	TBG	Noted.
	3	In order to assist us in providing you with timely input, it would be appreciated if you could provide a summary statement indicating how the project will address the following areas that are of concern to our First Nation within our Traditional and Treaty Territory: possible environmental impact to our drinking water; endangerment to fish and wild game; impact on Aboriginal heritage and cultural values; and to endangered species; lands; savannas etc. After the information is reviewed it is expected that you or a representative will be in contact to make arrangements to discuss this matter in more detail and possibly set up a date and time to meet with Curve Lake First Nation in person (or virtually).	TBG	Summary has been provided June 23rd 2022. Preliminary phone conversation has occurred. Awaiting further discussion and comment.
	4	Should excavation unearth bones, remains, or other such evidence of a native burial site or any other archaeological findings, we must be notified without delay.	AECOM	Noted.
	5	Curve Lake First Nation expects engagement at Stage 1 of an archaeological assessment so that we may include Indigenous Knowledge of the land in the process. We insist that at least one of our Cultural Heritage Liaisons be involved in any Stage 2-4 assessments, including test pitting, and/or pedestrian surveys to full excavation.	AECOM	Noted. To be scheduled in Spring.

Otonabee Conservation - July 6, 2022				
Flood plain analysis	1	Figure 4B Floodplain Mapping Post-Development Drainage Plan delineates drainage area 201-205 with 21.05Ha. a)There is a note in the report directing the reader to Figure 8 for post development 201 –205 SWM drainage plan. However, Figure 8 does not provide the internal drainage boundaries for areas 201 to 205.Please provide a drainage plan that delineates drainage areas 201, 202, 203, 204 and 205.	Valdor	Refer to Figure 8, provided in the FSR.
	2	Otonabee Conservation, through a Data Release Agreement, will provide a digital copy of our May 2022 Baxter Creek hydraulic model. Please provide digital copies of the hydraulic model.	Valdor	Figure E.1 has been added to Appendix E, which overlays the cross-section locations of the May 2022 Baxter Creek hydraulic model in the vicinity of the subject site (taken from Sheets 6 & 7). As shown on this figure, the tributary through the study area connects to Baxter creek between *Sections 297.64, 407.06 & 553.58* . The highest Regional floodplain elevation is 208.33 m, associated with *Section 553.58* . This is lower than the Regional floodplain elevation of 209.17 m associated with the downstream end of the study area (*Section 1*). There will therefore be no tailwater impacts on the subject site. The digital copy of the HEC-RAS model has been submitted.
Erosion Hazard Limit - Appendix G Erosion Hazard Limit Assessment	3	a) The Erosion Hazard Limit, as defined using the confined system, includes an erosion access allowance. Please include the 6.0m erosion access allowance when delineating the Erosion Hazard Limit. Cross-Sections 4-4 through 9-9 need to add the 6.0m erosion access allowance to the Erosion Hazard Limit.	GHD	Noted. EHL cross-sections and figures updated in the revised report
	4	B) None of the Cross-Sections 4-4 through 9-9, as presented within Appendix G provide any vertical elevations. Provide elevations for toe and top of slope on the cross-sections.	GHD	Figures for cross-section 4-4 to 9-9 updated with toe and top of slope elevations
	5	Why do the Cross-Sections 4-4 through 9-9, only define one side of the valley at a time when there is development being proposed on both sides?	GHD	Engineering judgment. GHD selected two representative cross-section locations from each quadrant adjacent to the valley where development is being proposed. Cross-sections were placed at critical locations where slopes were observed to be steeper and /or slope toe was observed to be closer to the creek based on the available topo plan.
	6	Erosion Hazard Limit needs to be calculated for the slope behind Lots 56, 57, 58 and 59. Please plot the Erosion Hazard Limit on the PSG-1 Preliminary Site Servicing and Grading Plan.	GHD	Available topo plan shows very gentle slopes (flatter than 3H:1V) behind lots 56, 57, 58 and 59. The Erosion Hazard Limit is expected to be consistent with calculations/illustrations provided for Cross-Sections 8-8 and 9-9. The Erosion Hazard Limit line was extended to the east limits of the property and is included on the PSG-1 Preliminary Site Servicing and Grading Plan.
	7	Erosion Hazard Limit needs to be calculated for the slope adjacent the stormwater management pond. Please plot the Erosion Hazard Limit on the PSG-1 Preliminary Site Servicing and Grading Plan	GHD	The Erosion Hazard Limit adjacent to the stormwater management pond block is calculated/illustrated on Cross-Sections 4-4 and 6-6. All development, including grading, is being done outside the delineated Erosion Hazard Limit. The Erosion Hazard Limit line is included on the PSG-1 Preliminary Site Servicing and Grading Plan.
	8	Please delineate the Erosion Hazard Limit on PSG-1 Preliminary Site Servicing and Grading Plan.	GHD	The Erosion Hazard Limit line is included on the PSG-1 Preliminary Site Servicing and Grading Plan.
	9	There will no development, including lot line limits (for example Lot 44) and filling, within the Erosion Hazard Limit	GHD	Noted.

Slope Stability Study	10	In Cross-Section 2-2, the 120 kPa load is placed where the proposed townhouse units will be. There is no load placed on the proposed fill for the road and house construction. a) Does the stability model allow for additional load placements? b) If additional loads are placed on the fill placement and retaining wall location (reference black circle on Figure 1), does this have any affect on the critical slope surface and factor of safety?	GHD	Modeling updated. Surcharge load moved to potential residential house location. As noted in the report, it is recommended that further global stability analysis be completed once design details for the proposed retaining wall are available.
	11	Should similar loads and locations be applied to Cross Section 3-3?	GHD	Surcharge loads included on Cross-Section 3-3
		Until these issues are satisfactorily addressed, it is the opinion of Otonabee Conservation that consistency with PPS Section 3.1 and compliance with ORCA development policies have not yet been demonstrated.	GHD	Noted.
Stormwater Management and Technical Review Hydrologic Parameter	12	Please provide the Figure that delineates drainage areas 201, 202, 203, 204 and 205.	Valdor	Figure 8 shows the revised drainage areas (201-204) that were used for the SWM analysis.
	13	The TIMP and XIMP values for Drainage Area 201 a)as presented in Table F.2: Proposed Condition–VO Model Parameters are 0.7 and 0.6 respectfully. b)As presented in Table E.1-B: VO Model Parameters –Floodplain are 0.8 and 0.7 respectfully. c)The flood plain parameters (TIMP&XIMP) were changed to represent the future built-out	Valdor	We confirm that Catchment 201, which consists primarily of single lots with some townhouses and mixed-use units, has TIMP and XIMP values of 0.70 and 0.60, respectively. Tables E.2 (previously E1-B) and F.2 have been updated accordingly.
PSG-1	14	Please delineate the Erosion Hazard Limit (including the required erosion access allowance of 6.0m) on PSG-1 Preliminary Site Servicing and Grading Plan.	Valdor	Erosion Hazard Limit is indicated on the plan.
	15	Wetland Boundary and 30m Buffer a) Wetland Organic soils are considered to be unstable soils or hazardous lands. Assuming the wetland boundary has been properly delineated, the 30m wetland buffer has been delineated on PSG-1. b) Lot limits for proposed lots 60,61,62,63,64,65,and 69 are within the required 30m wetland buffer. There will be no development, including lot limits and filling within the wetland buffer. Please modify the lot layout to remove everything from within the buffer. c) The 30m wetland buffer has not been clearly delineated west of Street 'A' in the vicinity of the watercourse and proposed stormwater management block. Please clearly delineate the 30m buffer. I. There will be no development, including stormwater pond and filling within the wetland buffer. Adjustments are required. ii. The emergency spillway will discharge flows over the valley slope. At the detail design stage, a natural spillway will be designed decrease the disturbance to the existing vegetation, slope and watercourse d)Please delineate the 30m wetland buffer in association with the proposed lots 55,56, 57, 58 and tie-in to 30m behind lot 59. e) The proposed lot limits, the associated filling and construction of the retaining wall within proposed lots139,140,141 and142 are within the 30m wetland buffer. Please modify the lot layout to remove everything from within the buffer. f) The proposed lot limits, and the associated filling for Street 'D' and proposed lots131, 130,including the Parkland are within the 30m wetland buffer. Please modify the lot layout to remove everything from within the buffer.	Valdor / GHD / TBG	a) An additional field visit with ORCA and GHD staff confirmed the wetlands on the property. Wetland boundary has been delineated on Drawing PSG-1 b) We have adjusted the grading and lot fabric in order to eliminate or minimize entry into the wetland buffer as best as possible. Wetland removal has been minimized (only located at the creek crossing)(Figure 3) and amounts to 525 m2. Wetland Compensation will be completed on Site at a 2:1 ratio. c) The 30m wetland buffer should be clearly delineated on PSG-1. i) SWM Pond is located outside the wetland buffer. ii) Acknowledged. d) The 30m wetland buffer is clearly shown and labelled on PSG-1. e) The grading and lot fabric have been adjusted as much as possible in order to minimize or eliminate encroachment into the wetland buffer. f) Adjustments have been made in order to eliminate or minimize encroachment into the wetland buffer.

PSG-1 Preliminary Site Servicing and Grading Plan		g) The proposed lot limits, the associated filling and construction of the retaining wall within proposedlots77,78,79,80 81,82,83,84 and85 are within the 30m wetland buffer. Please modify the lot layout to remove everything from within the buffer. h) The proposed lot limits, and the associated filling for Street 'B' and proposed lots 44, 45, including lot 70 on Street 'A' are within the 30m wetland buffer. Please modify the road and lot layout, there will be no development (including filling) within the buffer. i) As delineated on the Preliminary Site Servicing and Grading Plan, Lots 24,25, 26, 27, 28,29,30,31,32,33 and 34 on Street 'A' and Lots 35,36,37,38,39and 40 on Street 'B' have split drainage with the majority of the lot draining toward /onto Area 202 and directly into the watercourse uncontrolled. i. How will the overland drainage be diverted back onto the Street 'B' right-of-way and conveyed to the stormwater management pond? j) The proposed grades along the property limits between the SWM Pond and the existing lots on Nina Court don't match existing. The changes need to be delineated on the grading plan. k) The proposed grades do not meet existing grades along the lot limit between lots 56 & 57. The proposed elevation is 213.03m, however, the existing grade is 211.38m.Please make the appropriate grading changes. l) The portion of Drainage Area 204,rear lot drainage for lots 46 to 54, Block 90 and lot 55 will require a drainage swale. m) Please provide the typical drainage swale detail on the grading plan. n) How does the swale and water traverse the servicing and walkway Block?	Valdor / GHD / TBG	g) Adjustments have been made to the lot grading and lot fabric to minimize encroachment into the wetland buffer h) Street B has been eliminated along with any encroachment into the wetland buffer i) All lots will now be fronting onto Street A and conveyed to the SWM Pond by storm sewer and overland flow j) We are matching existing elevations at the south limit of the SWM Pond with the development to the south k) Lot elevation adjustment has been maid. l) Now lots 123 to 131 shows arrows for drainage swales and details will be provided at the detailed design stage. m) Typical drainage swale detail has been added to PSG-1. n) A typical walkway detail (Township standard) will be provided at detailed design stage for the walkway block.
	16	The storm water management block has not been assessed for Erosion Hazard Limit or the 30m watercourse setback. a) Please calculate the Erosion Hazard Limit for this portion of the slope associated with the watercourse and plot on PSG-1.Please reference Figure 2 and yellow circle for location. b) Please extend the 30m water course set back to the property limit c) Please modify the location of the stormwater management pond to remove the pond and any associated fill outside the Erosion Hazard Limit and watercourse 30m setback.	GHD / Valdor	The SWM pond and associated grading is outside the erosion hazard limit and 30 m watercourse setback. It is noted that some localized grading associated with the emergency spillway enters within the 30 m watercourse setback.
Wet Pond	17	The design of the wet pond, including sediment drying areas should be done at this design stage, since we are defining the size for the stormwater management block. Changes to block size are difficult at later stages.	Valdor	The SWM pond has been revised to include a sediment drying area.
	18	Impacts on the wet pond outlet a) Please run the 2-year through 100-year storms in the flood plain hydrology VO model. b) Please apply the 2-year through 100-year flow rates to the hydraulic model.	Valdor	The floodplain analysis has been completed only for the uncontrolled Regional storm. The 2- to 100-year flows will be controlled by the SWM pond to pre-development rates, which is less than the uncontrolled Regional flow rates. The pond outlet hydraulics have been calculated assuming the Regional flow tailwater conditions, to be conservative.
Watercourse and Valley Crossing	19	The proposed crossing involves the filling of the valley to install a pre-cast concrete culvert approximately 23m in length. a) Please provide the rational behind choosing a pre-cast closed bottom concrete culvert versus a clear span bridge or an open bottom culvert. The following needs to be considered: i. Impacts of infrastructure and fill placement (construction footprint) on the natural heritage features and natural hazards, ii. Impacts on groundwater seeps, ecological process in cold-water tributaries, and native substrate iii. Loss of fish/wetland habitat, required compensation/restoration iv. Location of services (storm & sanitary sewers, watermain)	Valdor	See response to Comment 29.

Conveyance	20	Street 'A' has been designated as the major storm flow conveyance route to the stormwater management facility. a)The overland flow being conveyed on Street 'A'' (100-Year flow minus the 5-Year flow) within the provided calculations was 0.99 m3/s (Area 201). i. For accurate flows within the road allowance and crossing the bridge, the flows should also include Area 202.The revised flow would be 1.3 m3/s. ii. Prior to providing revised flow calculations, please refer to comment point #X, which references the changes to be made to the hydrology parameters and VO model. iii. Please adjust the calculations for both the road and bridge segment. b)Based on the VO model, this flow is not correct.	Valdor	Section 4.2 of the FSR has been revised to clarify the overland flow route. The VO modelling and conveyance capacity calculations have been revised accordingly.
Water Balance	21	There is no Appendix with water balance calculations within the FSR. Please provide.	Valdor	Excerpts of the water balance calculations completed by GHD have been included in Appendix H.
	22	Without the calculation and associated drawings with drainage area(s) it is difficult to verify how there is only a 27% reduction in annual infiltration when the percent impervious for the development is between 65 to 80%	Valdor	Excerpts of the water balance calculations completed by GHD have been included in Appendix H.
	23	Once the water balance calculations are provided, additional comments will be made.	Valdor	Noted.
	24	The infiltration trench design table in Appendix F only provides calculations for Phase 1 A with an area of 4.32 Ha. a) What are the boundaries for Phase 1A? b) If capturing the runoff from a 15mm event across the 4.32 Ha, the required volume of water is approximately 648 m^3. The volume provided in 430m of trench is only 240.8 m^3.	Valdor	The infiltration trench calculations have been revised based on the updated drainage plans. We offer the following clarification: - Reference to a Phase 1A area was mistakenly included and has been removed. We confirm that the infiltration trench design table is for the entire development. - We clarify that the rear yard areas associated with Catchment 204 (3.12 ha) will be directed to the infiltration trenches. The area indicated on Table F.10 refers only to the drainage area to the infiltration LIDs, not the whole development area. - Capturing the full 15 mm runoff is not required. The intent is to capture adequate runoff to demonstrate that the pre-development infiltration volumes are being maintained. Given the drainage area to the infiltration trenches (3.12 ha), only a portion of the runoff needs to be captured. A rainfall analysis has been included (Table F.11) to calculate the annual runoff depth for rainfall events up to 15 mm, discounting the first 5 mm (the first 5 mm is assumed to have already infiltrated to prevent double-counting). Based on this analysis, there is an annual runoff depth "available for infiltration" of 263.9 mm (i.e. the annual 15-5 mm runoff). For the entire 3.12 ha drainage area, this equates to an annual runoff volume of 8,233 m3, exceeding the target of 6,818 m3. Working backwards, we can calculate the approximate minimum drainage area required to meet the target is 2.60 ha (263.9 mm x 2.60 ha = 6,862 m3, which is very close to the annual target). To achieve this, a total "per-event" storage of 260 m3 is required ((15mm - 5mm) * 2.60 ha = 260 m3).

	25. Matrix Comment #5 and #1 a) from GHD	EIS Section 2.2.2.7 Wetland Boundary states that "the entire property was walked, and plant species, soils and soil moisture checked". To support this statement, please complete the ELC protocol, including: assessment of plant dominance, soil profiles, microtopography, slope aspect, and other site-specific characteristics to confirm ELC ecosites. This is particularly important when dominant plants thrive in both upland (terrestrial) and lowland (wetland) conditions. This wetland area was characterized by noted hydric soils (organics/ hazardous), groundwater seeps, and dominated by wetland indicator plants (spotted jewelweed, black ash, and ostrich fern). This wetland follows the length of the tributary, including ELC ecosite SWD2-1 (11), FOC4 (12), FOC4-1, and FOM within the valley. Based on site conditions, several wetland ELC ecosites within the valley have been incorrectly identified as terrestrial communities (non-wetland). The EIS has proposed a 30-m buffer from the creek (is this the high-water mark, the wetlands, or the top of bank. Technical staff note that the wetland buffer will need to be adjusted once final ELC ecosites are mapped. a)Please illustrate the buffer/ setback. It is either missing from top of bank or top of bank is not mapped. While the Baxter Creek tributary has a defined channel, it is confined within a valley. Steep slopes and associated natural hazards are present. The tributary's entrenchment area/floodplain is a wetland. The valley support steep slopes. b)The significance of the valley in accordance with criteria outlined in the Natural Heritage Reference Manual has also not been assessed in the EIS. Therefore, technical staff are of the opinion the application has not yet demonstrated consistency with PPS policies 2.1.5 c) and the associated natural hazard policies in Section 3.1.	GHD (EIS)	An additional site visit with ORCA and GHD staff confirmed the wetland communities within the valley. All Figures were updated to reflect the additional wetland. a)An Erosion Hazard Limit has been established along the Tributary of Baxter Creek, with no recommended Setback as identified within the Geotechnical Study (GHD, 2022). No other Erosion Hazard Limits were identified on the property. The presence of an erosion hazard limit, with no applicable buffer is not an ecology issue and therefore was not displayed on the EIS Figures. b) The municipal planning authority has not completed the exercise of defining significant valley lands within the planning area and as documented within the Natural Heritage Reference Manual, as documented *The identification and evaluation of significant valley lands is based on the recommended criteria from MNR is the responsibility of planning authorities (MNR, 2005)*. Significant Valley have not been identified in any of the schedules associated with the County of Peterborough Official Plan or the Township of Cavan Monaghan Official Plan (2021)
	26.Matrix Comment #1 b) from GHD	See Section 2.4.2 Resource Significance in the EIS Terms of Reference. It is still unknown whether the new information (additional wetlands, seeps, hydrologic connections, fish habitat, endangered Black Ash) collected by GHD may, or may not, change the status of the evaluated Locally Significant Millbrook Northwest Wetland on the subject property. To demonstrate consistency with PPS policy 2.1.4 a) and 4.6, the recommended approach is to review the wetland boundary adjustments, as well as other data collected in support of the EIS, with provincial staff to update the Millbrook Northeast wetland OWES file accordingly. Otherwise, planning authorities should treat the wetlands as significant in the absence of further review.	GHD (EIS)	The MNRF has not been contacted to provide an update to the evaluated Locally Significant Millbrook Norwest Wetland on the subject property. This was not part of the scope of work. The implementation of an average 30 meter buffer from the wetland will support the setback often assigned to a Provincially Significant Wetland therefore significance assumed. A detailed compensation and restoration plan will be prepared at the design phase in order to address any buffer encroachments or wetland removal.
	27.Matrix Comment #1 b), c) and d) from GHD	Please see comments above related to boundary confirmation, soil sampling and plant lists. Please confirm final ELC ecosites and wetland boundaries using appropriate protocols. Technical staff note that communities 6, 10, 11 and 12 are characterized by black ash. Black ash is a wetland indicator and, as of January 2022, listed as an Endangered plant species subject to the Endangered Species Act. While black ash is temporarily exempted from ESA regulations, discussions with MECP to establish development constraints and opportunities prior to detailed design is recommended.	GHD (EIS)	A site walk with ORCA and GHD staff confirmed the wetlands in questions in late summer of 2022. The EIS and Figure 2 & 3 have been updated to reflect this. See Comment Response above. MECP will be contacted at the detailed design stage to establish constraints and opportunities of black ash

Responses to Previous Comments	28.Matrix Comment #1 h) from GHD	Otonabee Conservation staff conducted a site visit to Community 23 on May 18, 2022. This was observed to be the origins of a headwater drainage feature supporting hydric soils, hydrophytic plants, and is connected to a drainage feature that conveys flow towards a larger wetland to the north. Changes to this feature on the subject property may affect development on adjacent lands. a)Please reconfirm the ELC ecosites for this feature and assess functionality and management options according to the 2014 Evaluation, Classification and Management Head Water Drainage to demonstrate consistency with PPS 2.2.1 and to satisfy regulatory policies. While mitigations measures for this area may be considered given the existing disturbances, additional field work is required to discuss options.	GHD (EIS)	The block north of Fallis Line was assessed and results will be presented to ORCA in a separate EIS.
	29.Matrix Comment #1 h) and i) from GHD	According to scientific literature, stream crossings affect riparian habitat and stormwater run-off and the use of machinery can introduce deleterious substances to the water (erosion and pollution). Where avoidance is impossible, a clear span bridge is preferred to a culvert as no structures are placed on the stream bed, which mitigates alteration to natural channel processes and downstream habitats. Rational for the crossing design was not provided; therefore, staff have the following questions: a) A Clear Span would provide less ecological impact. Please discuss why a Clear Span bridge cannot be installed to avoid the natural heritage features and associated natural hazards? b)Please discuss why installing an open bottom culvert to support groundwater seeps, which are important for ecological processes in cold-water tributaries, and incorporate the native substrate, cannot be used? c)Please discuss the full extent of the construction footprint for the box culvert installation versus other options d)Please discuss how downstream impacts to stream channel stability and ecological integrity from an enclosed stream be will mitigated over the long-term e)Where is fish/wetland habitat compensation/restoration proposed? Please incorporate Effectiveness Monitoring for development within features. Given the crossing encroaches into a wetland, cold-water watercourse, valley lands, woodlands, and associated habitat, development designs that avoid these natural heritage and water features, and associated natural hazards (unstable soils, flooding, erosion), is most consistent with the intent of provincial policies (e.g., PPS 2.1, 2.2 and 3.1) and Otonabee Conservation regulatory policies. Technical staff concur with EIS Section 6.1.1 that the application has not yet demonstrated consistency with PPS policy 2.1.6 and recommends consultation with the Department of Fisheries and Oceans to assess project details (EIS Section 5.4, 5.5 and 6.1.1) prior to detailed design.	GHD (EIS)	a) Multiple services, including the storm sewer, sanitary sewer and watermain must cross the watercourse with adequate cover. This is only possible with a culvert that provides enough room to pass the services between the top of the culvert and the road. b) Given the relatively small footprint of the culvert compared to the overall groundwater seep contributing area, there will not be a significant benefit to an open-bottom culvert over a box culvert. A box culvert will be faster to install (less in-stream works) and with a smaller construction footprint (no excavations), so it is the preferred option to reduce impact to the watercourse. As the culvert will be embedded, native substrates added overtop will contribute to habitat complexity within the culvert. c) As mentioned in b), a box culvert will require a smaller construction footprint and a shorter duration of in-stream work compared to an open-bottom culvert, so it is the preferred option. d) The proposed culvert will tie into the existing channel locations. Given that this is a narrow valley system, significant downstream impacts to the channel are not anticipated, other than the natural channel meandering and migration over time. e) Wetland compensation will be completed on site and the location has been displayed on Figure 3. Fish habitat compensation locations will be determined at detail design and in consultation with DFO. On-site opportunities will be investigated and may include riparian plantings for enhanced shading, bank stabilization and overhead cover. However, off-site compensation will likely be required due to the nature of the site. Effectiveness monitoring will be a part of the DFO mitigation/offsetting (depending if an Authorization is required).

30.Matrix Comment #1 j) from Valdor	Stormwater management (SWM) infrastructure placed in wetlands is not consistent with Otonabee Conservation wetland polices or CA Act Section 28 regulation tests (pollution and erosion). According to Valdor, the SWM pond will not be in wetlands. However, given the preliminary ELC ecosite mapping discrepancies for the subject property, soil sampling to confirm ELC ecosites impacted by the SWM pond and outfall channel is required to determine the appropriateness of the area for SWM and extent of wetland compensation in support of the permit and future compensation agreement. SWM infrastructure will be setback 30 metres from a wetland boundary, where feasible, according to Otonabee Conservation policy 7.2(14). Maintaining the vegetated setbacks between SWM infrastructure and natural features enhances infiltration or uptake of pollutants, especially salt, and provides a margin of error should plans require change during the construction phase. Please confirm and discuss the “site conditions” which are “preventing the SWM outlet from being setback 30-metres from the wetland and watercourse” Will these site conditions impact the as built SWM infrastructure?	Valdor	See PSG-1. SWM pond and associated grading is outside of the 30m setback other than the SWM outfall structure. Also refer to response in item 16 above.
31.Matrix Comment #2 c) and d) from GHD	Without appropriate soil information, technical staff are of the opinion that the ELC protocol was not executed properly, and therefore, the extent of this Authority’s regulated area associated with wetlands (defined by the regulation) and appropriateness of proposed wetland compensation areas can not be confirmed. a. Technical staff request soil information and refinement of ELC ecosites in support of the 30 metre wetland buffer, for all communities and buffers where development/site alteration is proposed, and all other ecosites within proximity of the development that do not fall within the previous two categories. b. Technical staff recommend using the four tests of the Conservation Authorities Act regulation's ‘wetland’ definition in support of refining the final constraint map to satisfy regulatory policies. c. Please provide proposed wetland compensation areas – or discuss if the new wetlands area included within the proposed tree compensation areas illustrated on Figure 3?	GHD (Leandro) GHD (EIS) Valdor, TBG	An additional site visit was completed with ORCA and GHD staff in late summer of 2022. Wetland was verified on site and confirmed using soil cores. Updates have been made to all Figures. The wetland compensation plan was updated based on the new delineation and included in Figure 3.
32.Matrix Comments #3 a-d from GHD	Technical staff support GHD’s recommendation (S.6.1.2) for further consultation with the Ministry of the Environment, Conservation and Parks (MECP) as a condition of approval. Consultation with MECP and confirmation of Endangered Species Act (ESA) compliance should be conducted prior to development as defined by the ESA regulation. The updated Planning Rational Report (PRR) dated April 2022, states that: the Natural Core Area designation also applies to lands that form a natural 30 metre vegetative protective buffer zone for significant natural heritage features. Natural Linkage Areas designation applies to lands forming a 120-metre vegetative protective buffer zone for Key Natural Heritage Features lands. The Natural Linkage Areas designation forms part of a central corridor system that supports or has the potential to support the movement of plants and animals and provide linkages to natural heritage features. The central function and purpose of Natural Linkage Areas is to provide a natural buffer from key natural heritage features and a linkage between these features in the Township. The schedule in appendix A does not illustrate where the proposed Natural Core (NC) or Natural Linkage areas (NL) are to be. Please update to include all the updated constraints and address PPS, OP and ORCA policies. Block 112 ‘Natural Heritage System’ on the DPS appears to be traverse lots 44 and 45 the road allowance of and a small portion of ‘Street B’. a. Please amend all proposed blocks to be outside the ecological and hazardous constraints.	TBG, GHD (EIS)	Lotting proposed is consistent the with recommendations of the EIS.

Geotechnical Peer Review - July 12, 2022				
	1	This item is considered closed.	GHD	Noted.
	2	The item is considered closed.	GHD	Noted.
	3	This item is considered closed.	GHD	Noted.
	4	This item is considered closed.	GHD	Noted.
	5	This item is considered closed.	GHD	Noted.
	6	This item is considered closed.	GHD	Noted.
	7	This item is considered closed.	GHD	Noted.
	8	This item is considered closed.	GHD	Noted.
	9	This item is considered closed.	GHD	Noted.
	10	This item is considered closed.	GHD	Noted.
	11	This item is considered closed.	GHD	Noted.
	12	This item is considered closed.	GHD	Noted.
	13	Paragraph 2 refers to the excavation requirements above and below the water table. With consideration for the conditions encountered in the investigation, can the authors provide an indication of the depth or elevation of the groundwater table that should be assumed for purposes of design and construction The recommendation was not addressed in the updated report.	GHD	The groundwater table was not encountered in our investigation and is not expected to be intersected by the proposed excavation depths. Paragraph 2 provides recommendation for excavation of site soils classed by OHSA as Type 3 and site soils affected by surface water or perched seepage zones classed by OHSA as Type 4.
	14	This item is considered closed .	GHD	Noted.
	15	Paragraph 2 references the potential to reuse “some” of the excavated soils as service trench backfill. A recommendation for suitable imported fill should be added for the case where portions of the excavated material are not satisfactory for reuse and imported material is required for this purpose. The recommendation was not addressed in the updated report.	GHD	It is GHD's opinion that suitability of imported fill material for trench backfill, if required, should be verified during construction once a potential source site is identified.
	16	This item is considered closed.	GHD	Noted.
	17	This item is considered closed.	GHD	Noted.
	18	This item is considered closed.	GHD	Noted.
	19	This item is considered closed.	GHD	Noted.
	20	This item is considered closed.	GHD	Noted.
	21	This item is considered closed.	GHD	Noted.
	22	This section refers to addressing hydrostatic pressure where the basement walls extend below the groundwater table. Can clarification be provided regarding this statement given that an earlier section referenced seepage between 1.8 m and 4.0 m below grade but no static groundwater table to the depth(s) investigated. The comment for consideration was not addressed in the updated report.	GHD	Based upon the subsurface investigation and our interpretation of the information obtained during this program, the basement walls will not extend below the groundwater table of this subdivision. Statement regarding hydrostatic pressure deleted from the report.
	23	This item is considered closed.	GHD	Noted.
	24	The test pit logs indicate the presence of silty sand with no mention of clay. All of the borehole records indicate the presence of clay in the majority of strata encountered and the grain size test results on the till samples indicate the presence of trace clay. It is suggested that the authors review the results of the investigation to confirm if the predominant soil strata encountered in the test pits contain a clay component. Based on a review of the test pit logs in the appendix, it is not clear if this comment for consideration was addressed.	GHD	Test pit logs updated.

Santec FSR - July 25th , 2022				
2.0 Water Servicing	1	As mentioned in the introductory paragraphs of this letter, the FSR states that the Township has recent initiated a Water and Wastewater Master Servicing Study recommended as part of a Municipal Class Environmental Assessment (EA) to examine water and wastewater servicing alternatives within the current urban boundary and beyond. The EA indicated that expansion of the existing urban boundary of Millbrook requires additional water storage and expansion of the existing water servicing network	Valdor	The Township to provide further update on this process.
	2	As a result of the EA, the water system was expanded including the northerly extension of a watermain and a larger water storage tank and booster pump station constructed on the site of the Township's municipal office and connected to the existing water supply main to service other Millbrook Subdivisions (South - Phase 1, south of Fallis Line and west of County Road 10 and North - Phase 2, north of Fallis Line and west of County Road 10). These new facilities addressed storage issues and ensured proper fire pressures could be maintained at the higher elevations of the Phase 2 development	Valdor	Acknowledged
	3	Water meters are required and are to be purchased from the Township and are to be installed inside the basements of the dwellings and have remote readout devices to be located on the exterior ground floor wall of the dwelling unit.	Valdor	Acknowledged
	4	The calculations which reflect the governing conditions for minimum fire suppression flows for the largest detached dwelling and for the largest interior townhouse unit, being 8,000 litres / minute and 7,000 litres / minute respectively. These fire flows must be available at the nearest hydrants to the dwelling unit types with a minimum pressure of 140 kilo pascals (KPa).	Valdor	Acknowledged
	5	Fire hydrants will be installed along the streets off of the watermain distribution system at the required locations and distance between them in accordance with design guidelines and the OBC, such that a hydrant is available within 90 metres of the principal entrance of each dwelling unit.	Valdor	Acknowledged
	6	As mentioned above, the FSR did not address or comment specifically on the adequacy of the supply and flow of water to this development from the external water system. Rather it refers to the recently initiated Water and Wastewater Master Servicing Study as part of a Municipal Class Environmental Assessment to examine water and wastewater servicing alternatives within the current urban boundary and beyond. Further, the study needs to consider the current proposed Conceptual Master Plan for the subject development.	Valdor	Currently being assessed as part of the overall Master Servicing Study. Township to provide update.
	7	The FSR states that in May 2013, Township had completed a Class Environmental Assessment (Class EA) which investigated alternatives to address concerns with the existing WWTP, in particular, the fact that it did not have sufficient capacity to sustain projected growth and that the existing plant was at the end of its useful life and required substantial upgrades. Based on the recommendations of the EA an expansion and upgrade of the Millbrook WWTP was completed in 2015 to accommodate the additional flows from the urban area including high-level tertiary treatment to provide improved effluent quality to meet new effluent discharge criteria as well as increased capacity to accommodate future flows.	Valdor	Acknowledged.
	8	As mentioned in Section 2.0 above, the Township has recently initiated a Water and Wastewater Master Servicing Study recommended as part of the completed Municipal Class Environmental Assessment to examine water and wastewater servicing alternatives within the current urban boundary and beyond. Further, the study needs to consider the current proposed Conceptual Master Plan for the subject development.	Valdor	Study will include the development area. Part of an MZO approval.

3.0 Wastewater Servicing	9	The wastewater flows to be generated use the Township design standards which are based on a Residential Average Daily Flow of 450 litres/person/day with a Residential Peaking Factor formula applied based on population and including an allowance for infiltration. The FSR states that the total flow from the current proposed Conceptual Master Plan for the subject development is calculated to be 20.10 litres / second based on an equivalent population of 621 and an infiltration area of 12.04 ha., which appears to be reasonable and accurate.	Valdor	Acknowledged
	10	The FSR states that 525 mm diameter trunk sanitary sewer has been constructed to the south limit of the subject lands. The trunk sewer, ranging in size from 375 mm diameter to 525 mm diameter will be extended northerly along Street “A” to the proposed Fallis Line sanitary sewer east of County Road 10, to service the subject lands as well as future development north of Fallis Line. The alignment of the proposed trunk sanitary sewer is indicated in Figure 3 of the FSR. The FSR further states that an analysis of the downstream sanitary sewer from the subject site to the WWTP, confirmed that there is sufficient capacity as documented in the sanitary sewer design sheet, which is included in Appendix “C”.	Valdor	Acknowledged.
	11	The FSR states that the subject site will be serviced internally by a local sanitary sewer system consisting of 200 mm diameter sewers with a minimum of 1% slope to assist with self-cleansing with maintenance holes provided at a maximum spacing of 120 meters in accordance with standard practice and design guidelines. Each dwelling unit is to be provided with a 100 mm diameter service connection in accordance with Township standards. The FSR states that the layout of the sanitary sewers is illustrated on the Preliminary Site Servicing & Grading Plan included with the FSR (however was not available for the Peer Review).	Valdor	General layout is shown on Drawing PSG-1.
	12	There are no internal sanitary sewer design sheets included in any Appendix in the FSR for the sanitary sewer runs on each of the proposed streets to review.	Valdor	To be included at detailed design. Outfall pipe to the south has sufficient capacity to service the subject site.
	13	Again, as mentioned in Section 2.0 above, the Township has recently initiated a Water and Wastewater Master Servicing Study recommended as part of the completed Municipal Class Environmental Assessment to examine water and wastewater servicing alternatives within the current urban boundary and beyond. Further, the study needs to consider the current proposed Conceptual Master Plan for the subdivision.	Valdor	The study will include the subject site which was a part of an MZO.
	14	The proposed development is within the Baxter Creek watershed area, one of twelve watersheds under the jurisdiction of the Otonabee Region Conservation Authority. Baxter Creek originates in the Oak Ridges Moraine and flows in an easterly direction and outlets to the Otonabee River approximate 20 kilometres upstream of Rice Lake. A map showing the location of the Baxter Creek watershed is included in Appendix D of the FSR.	Valdor	No comment to address.
	15	In accordance with Township standards a major / minor stormwater conveyance concept has been addressed in the FSR for this development.	Valdor	No comment to address.
	16	As per the Township engineering design criteria, the proposed development is to be serviced with a minor storm system that is designed to convey runoff form the 5 year storm event .	Valdor	No comment to address.
	17	Rainfall intensities for both the 5 year (minor) and a 100 year (major) storm event, are calculated in accordance with the 2014 rainfall intensity duration frequency (IDF) data from the Peterborough Airport weather station. The calculations for the rainfall quantities for both the 5 year and a 100 year storm event using the Rational Method, are included in the text of the FSR. The IDF (intensity / duration) curve data is included in Appendix D of the FSR. The FSR states that a schematic layout of the minor system is shown on the Preliminary Site Servicing and Grading Plan included with the FSR (however was not available for the Peer Review).	Valdor	No comment to address.
	18	There are no storm sewer design sheets included in any Appendix in the FSR for the storm sewer runs on each of the proposed streets to review	Valdor	Storm sewer design sheets will be provided at detailed design.

4.0 Storm Conveyance System	16	The proposed minor storm sewer system will discharge to a proposed stormwater management (SWM) facility (pond) located in the southwest corner of the site (the FSR incorrectly states that it is located in the northwest corner of the site).	Valdor	The report has been revised to indicate the correct pond location (the south-west corner).
	17	Major storm flow system will generally be comprised of overland flow routes along the internal road network directing runoff to a safe outlet. The major system will convey flows in excess of the capacity of the minor (piped) storm sewer system. The FSR states that the major system flow routes are shown on the Preliminary Site Servicing & Grading Plan. Major storm flows will be captured at the low point on Street "A" and conveyed to the SWM pond via an overland flow route. It is further stated the major storm flows are to be conveyed along Street "A" with a flow depth of 0.11 m. which is within the allowable flow depth of 0.3 m. as per typical municipal requirements. This appears to be reasonable and acceptable.	Valdor	No comment to address.
	18	There is no indication in the FSR that the Commercial Blocks will have any type of stormwater detention facility or system.	Valdor	We confirm that the commercial blocks will be serviced by the proposed SWM pond.
	19	In accordance with Township standards, storm service connections are to be provided to each dwelling unit. The FSR states that it is presumed that dwellings will have basements and therefore foundation weeping tile systems will be required to discharge to the storm service connections typically through a basement sump pump. It is further stated that a hydraulic grade line analysis of the storm sewer system will be completed at the detailed design stage to ensure that basements will be protected during a 100 year storm event.	Valdor	No comment to address.
	20	The FSR states that it is presumed that dwellings will have conventional peaked roofs with eaves troughs and downspouts. As per standard practice downspouts are to discharge to grade over splash pads, preferrable towards sodded areas. Roof downspouts are not to be connected to the storm sewer system.	Valdor	No comment to address.
	21	The south part of the subject site is traversed by a tributary of Baxter Creek which flows easterly under Street "A". The total upstream pre-development drainage area of this tributary is approximately 68.29 ha. as shown on Figure 4A in the FSR. The total post-development drainage area is approximately 75.49 ha. as shown on Figure 4B. In order to determine the extent of the ORCA Regulatory Floodplain at this location a model was developed and the floodplain has been delineated for both the predevelopment (Figure 5 in the FSR) and the post-development (Figure 6 in the FSR) conditions. As shown in Figure 6, the regulatory floodplain will be contained entirely within the Natural Heritage System open space block as per the current proposed Conceptual Master Plan for the subject development. Therefore, the proposed lots will be protected from flooding. Supporting documentation for the model and hydraulic calculations are provided in Appendix "E" of the FSR.	Valdor	No comment to address.
	22	The FSR indicates that a 2.4 metre wide by 1.5 metre high concrete box culvert is proposed to cross below Street "A" sized to convey the regional storm flow via the tributary of Baxter Creek	Valdor	No comment to address.
	23	A good comparative description, discussion and analysis of Pre-Development versus Post-Development drainage area stormwater flows, Figure 7 and Figure 8 respectively in the FSR, based on the existing topography and the proposed grading within the limits of the current proposed Conceptual Master Plan for this development, an external area fronting on County Road 10 and a small portion of open agricultural land north of Fallis Line is presented and discussed in this section of the FSR. As well this section of the FSR provides detailed design criteria and calculations for the design, dimensioning and planned operation and maintenance of the SWM pond, previously referred to	Valdor	No comment to address.

	24	Under the existing (Pre-Development) condition, the subject site north of the Baxter Creek tributary drains in a south-easterly direction to the tributary along with the external area fronting on County Road 10 and the small portion of open agricultural land north of Fallis Line. The portion of the site located south of the tributary drains in a north-easterly direction to the tributary.	Valdor	No comment to address.
	25	The existing site land is currently primarily forests, meadows and row crops.	Valdor	No comment to address.
	26	Under the proposed Post-Development scenario, drainage for the majority of the site, will drain to the SWM pond. The external area along the east side of County Road 10 slated for future development and the small portion of open agricultural land north of Fallis Line have also been identified in the FSR to be conveyed to the SWM pond.	Valdor	The external area along the east side of County Road 10 is no longer proposed to be conveyed to the SWM pond, due to grading and environmental constraint reasons.
	27	The discharge from the SWM pond will be released to the Baxter Creek tributary downstream of the tributary culvert crossing under Street “A”, via an outlet pipe also crossing under Street “A”.	Valdor	No comment to address.
	28	Due to grading constraints, the rear of the dwelling lots along the eastern and southern portion of the site will drain uncontrolled to the natural heritage system as show on Figure 8.	Valdor	No comment to address.
	29	The FSR states that the proposed SWM pond is to be designed to provide the following levels of control as per the requirements of the MECP, the ORCA and the Township. - Quality Control: The proposed permanent pond pool shall be sized to provide Enhanced Level 1 treatment of storm runoff from the proposed development. The proposed pond will be of the wet pond type utilizing a Forebay and a Main Cell located at the southwest corner of the proposed development and is shown in Figure 9 of the FSR. - Erosion Control: Stormwater runoff for the minimum 25 mm storm event is to be stored and released over a minimum of 24 hour period. - Flood Control: Flood storage and control is to be provided to maintain peak outflows from the pond to be at or below pre-development levels for the critical of 6, 12 & 24 hour SCS, the 6,12 & 24 hour AES and the 4 hour Chicago storm distributions for the 2 year through 100 year design storm events.	Valdor	No comment to address.
5.0 Stormwater Management	30	The total service area for the SWM pond is approximately 18.52 hectares, including the future development areas. As per the Township standards, MECP SWM pond criteria and recommendations in the geotechnical report, the SWM pond design calls for 5 horizontal to 1 vertical side slopes for the depth range containing the normal water level, with 4 horizontal to 1 vertical slopes for the depth range above the normal water level and 3 horizontal to 1 vertical slopes for the depth range below normal water level. A 4.0 metre wide maintenance access road is to be provided along the top perimeter of the pond.	Valdor	The total service area to the SWM pond has been adjusted. The report and calculations have been revised accordingly.
	31	Other considerations, in addition to the SWM Ponds in regard to quality control discussed in the FSR include: - Roof water leaders directed to ponding areas or soak away pits or to grassed conveyance rear and side yard swales. However, soak away pits and ponding areas are not recommended in the Township design criteria, because of the large footprint are required for them. Roof leaders will discharge directly to pervious surfaces to encourage infiltration and filtration on the lots. - It was deemed that oil/grit separators along the storm sewer system are not required to augment the required quality control and level of enhanced treatment of storm water runoff that the SWM pond will achieve and discharge after minor storm events. - Grassed swales on the rear and side yards will be incorporated into the grading plan. The swales will convey runoff to rear yard catch basins but will also encourage infiltration	Valdor	No comment to address.
	32	In accordance with the ORCA requirements for development within the Baxter Creek watershed, Enhanced Level 1 water quality protection is to be provided by the proposed SWM pond.	Valdor	No comment to address.

	33	Based on detailed calculation's in the body of the FSR in this Section, the permanent pool storage required is 3,581 cubic metres. Based on detailed calculations to MECP design criteria, the proposed forebay is to be 58 metres in length and 25 metres in width on average.	Valdor	No comment to address.
	34	In accordance with the ORCA guidelines, erosion control is to be provided using an extended detention active storage zone sized to capture the runoff from a 25 mm rainfall event and release it over a 24 hour (minimum) period. The active detention volume required for erosion control is 2,571 cubic metres but a volume of 3,573 cubic metres is achieved in the design, thereby exceeding the required erosion control volume.	Valdor	No comment to address.
	35	For quantity control, based on stormwater modeling, the SWM pond has been designed for a total active storage of 8,763 cubic metres. Detailed design calculations are included in Appendix “F” of the FSR.	Valdor	No comment to address.
	36	Consideration was also given to minimize the temperature gradient of the water discharged to the receiving water course to mitigate potential negative effects to aquatic life. Measures to achieve this include utilizing a bottom draw discharge pipe and plantings around the perimeter of the ponds to shade the shallower areas.	Valdor	No comment to address.
	37	Criteria have also been established and stated in the FSR to ensure that both ongoing scheduled pond inspection is undertaken and that specific maintenance items and measures are adhered to.	Valdor	No comment to address.
	38	In regard to site water balance, in accordance with the requirements of the ORCA, a site water balance assessment was completed by GHD Ltd. and included in the updated Geotechnical Investigation Report (March 2022), excerpts from which are included in Appendix F of the FSR. The goal of the site water balance assessment is to determine the overall infiltration deficit resulting from impervious roadway pavements, sidewalks and building roofs, in order to design infiltration facilities to maintain pre-development infiltration volumes. Excerpts from the GHD letter report regarding the water balance analysis are included in Appendix “H” of the FSR. Based on an estimated infiltration deficit of 11,914 cubic metres per year from Predevelopment to Post-Development, Best Management Practices making use of low impact development (LID) strategies must be implemented. These strategies, to be determined during detailed design can include such things as reducing lot grades, increasing topsoil depth, rainwater harvesting, infiltration trenches, permeable pavement, perforated pipe system, among others.	Valdor	No comment to address.
	39	The FSR indicates that the layout of the proposed subdivision has been designed with consideration for efficient and safe access and circulation of both vehicular and pedestrian traffic.	Valdor	No comment to address.
	40	The subject site has a frontage on both Fallis Line and County Road 10. However, Fallis Line is currently just a 20 metre wide Township Road Allowance which is unopened and untraveled. County Road 10 is an arterial road which is under the jurisdiction of Peterborough County. It is a rural cross second with two lanes, partially paved shoulders and roadside ditches.	Valdor	No comment to address.
	41	Vehicular and pedestrian access at the north end of the subdivision will be facilitated by two connections to the Fallis Line extension, at Street “A” and at Street “C”. At the south end of the subdivision Street “A” will access will terminate in a cul-de-sac. It is presumed that there will be pedestrian access to the existing Nina Court residential street from the south cul-de-sac end of Street “A”, through a green block between two single detached unit lots. Therefore, there will be no southerly vehicular access to the subdivision. This is not desirable from the perspective of not being able to provide emergency - EMS, Fire, Police access to the southerly end of Street “A” if there was ever another emergency or other type of blockage mid-length on Street “A”, thereby isolating the southerly end.	Valdor	The walkway block will be designed to accommodate emergency vehicles only.

6.0 Vehicular & Pedestrian Access	42	The roadway allowance widths of all of the streets within the subdivision will be 20 metres, with Street “A” having a 10.0 metre wide pavement and the rest of the streets an 8.5 metre wide pavement. The proposed streets will have an urban cross section with curb and gutter, crowned with a 2% crossfall. The longitudinal grade ranges from 0.5% to 6.5%. The standard road cross sections are shown in Appendix “G” of the FSR. The sidewalks are to be concrete and 1.5 metres wide.	Valdor	No comment to address.
	43	The geotechnical investigation and report undertaken for this site recommends that the pavement structure be 40 mm of HL3 surface course asphalt, 50 mm of HL8 base course asphalt, 150 mm of Granular “A” base stone and 450 mm of Granular “B” subbase stone.	Valdor	No comment to address.
	44	All of these roadway design parameters are reasonable and typical	Valdor	No comment to address.
		Each dwelling will have an attached garage and driveway to be constructed of 40 mm of HL3 surface course asphalt and 150 mm Granular “A” base stone. Internal pedestrian access will be provided by standard 1.5 metre wide concrete sidewalks generally constructed on one side of the street. Wheelchair ramps are to be constructed at street intersections with tactile warning plates installed in accordance with Provincial Accessibility Standards.	Valdor	No comment to address.
	46	The text of the FSR didn’t discuss street lighting, but the standard road cross sections indicate street-lights and there is detail for a decorative light pole and fixture in Appendix “J” of the FSR. The detail didn’t indicate if the luminaire fixture is of the full cut off (FCO) type, but indicates Type III distribution, which may be FCO. Stantec’s recommendation is that all street-light fixtures should be full cut off LED lights, for maximum efficiency and to minimize light trespass and light pollution. It did indicate that the luminaire is 75W LED.	Valdor	Streetlighting to be addressed at detailed design as per Township standards and requirements.
	47	Comments as to any specific internal or external intersection traffic control measures that may be required in terms of capacity, safety, etc., such as traffic signals and turning lanes, were previously addressed in Stantec’s separate review of the Traffic Impact Study prepared for this site, which was submitted at the time of the initial FSR submission. However, with the revised roadway network incorporated in the current proposed Conceptual Master Plan for the subdivision submitted with the 2nd Submission of the FSR, these issues will have to be addressed again	Valdor	Refer to Transportation Study
7.0 Grading	48	A building lot and road grading plan, the Preliminary Site Servicing and Grading Plan, has been prepared as part of the FSR (however was not available for the Peer Review). The FSR states that the plan was prepared in accordance with the Township grading criteria which calls for road grades to be between 0.5% and 8.0% and sodded yard areas to be between 2.0% and 5.0%. Where large differential grades can’t be avoided sodded embankments can be designed with a maximum slope of 3 Horizontal to 1 Vertical. In areas where space is limited, retaining walls can be used, but their use should be minimized. There are several other grading design criteria/considerations spelled out in the FSR that were followed in developing the grading plan during the preliminary design including: matching the existing grades along the adjacent properties and road allowances; providing an overland flow route to direct drainage to a safe outlet and providing sufficient cover over the sanitary sewers.	Valdor	No comment to address.
	49	Given that the site is relatively steep, a road grade of 6.5% will be utilized for a length of Street “A” and for the same reason as well, many basement walk-out type lots will be utilized and some areas will require 3:1 slopes and retaining walls.	Valdor	No comment to address.
	50	With the above measures, it is stated in the FSR, that it is anticipated that it will be feasible to achieve the Townshi	Valdor	No comment to address.
	51	This site is within the ORCA Regulated Area. Therefore, a Grading Permit will be required from their office prior to commencing any topsoil stripping and earthworks. The application for same is to be submitted with the detailed design.	Valdor	Noted.

8.0 Erosion and Sediment Control During Construction	52	The FSR indicates the need for and the types of erosion and sediment control measures to be employed during construction to protect the environment, water courses and adjacent properties. These include temporary sediment control basins, silt fences, mud mats, sediment traps and rock check dams. These are all typical erosion and sediment control measures and demonstrate best management practices. As well they are in keeping with the Erosion & Sediment Control Guidelines for Urban Construction (ESC Guideline) issued by the Greater Golden Horseshoe Area Conservation Authorities in 2006.	Valdor	No comment to address.
	53	Mud mats are particularly important at construction access locations to minimize the tracking of mud onto municipal roads.	Valdor	No comment to address.
	54	The FSR summarizes the sequence of construction activities and the related required implementation of sediment controls and as well it provides a schedule for inspections of the erosion and sediment control measures to be undertaken during construction and the maintenance of same.	Valdor	No comment to address.
9.0 Utilities	55	The FSR states that while some external upgrades by utility providers may be necessary, utilities such as electrical (Hydro One Networks Inc.), natural gas (Enbridge Gas Distribution Inc.) and telecommunications – cable, telephone, internet (Nexicom) will be available to service the subject site. It is standard practice in subdivisions that all electrical and telecommunications utilities be installed underground. The detailed engineering design stage will determine the best location for pedestals, vaults, transformers, streetlights, etc., and will coordinate the layout and other details with the respective utility providers.	Valdor	No comment to address.
	56	The FSR recommends that all utility installations be in the form of a joint trench, which allows coordination of the placement of all utilities in a common trench excavated by a single contractor, which provides for a safe installation and easier demarcation for future reference. A copy of a typical joint trench detail is included in Appendix “J”.	Valdor	No comment to address.
	57	In general, Stantec found the Functional Servicing Report, April 2022, for the Millbrook South East Subdivision development (current proposed Conceptual Master Plan for the subdivision) to be a detailed and thorough document outlining the municipal infrastructure servicing requirements for the development, while providing for the protection of the adjacent lands and natural environment undertaken for the Preliminary Design. The report, related studies, methodologies and calculations were undertaken in adherence to generally accepted design and best management practices and in accordance with guidelines issued by the local Municipalities, Provincial Ministries, Conservation Authorities and other regulatory agencies normally involved with the approvals required to enable development of a residential subdivision. Several items, issues and areas, both internal and external, need to be finalized either before or as part of the detailed design for the subdivision. The main differences between the initial FSR and the 2nd Submission of the FSR, relate to water demand, sewage flows and roadway network considerations, due to the reconfiguration and numbers by type of dwelling unit and the commercial blocks in the current proposed Conceptual Masterplan compared to the previous draft plan of subdivision submitted in the initial FSR There are some specific points related to several of the Sections, by Section Number, that Stantec indicated in this letter, which requires further consideration and / or that need to be addressed, as noted below. Some of the points are still the same as mentioned in Stantec’s Peer Review of the initial FSR.	Valdor	No comment to address.

Summary	58	Section 2.0 Water Servicing The FSR did not address or comment specifically on the adequacy of the supply and flow of water to this development from the external water system. Rather it refers to a Water and Wastewater Master Servicing Study recommended as part of the completed Municipal Class Environmental Assessment, that the Township has recently initiated, to examine water and wastewater servicing alternatives within the current urban boundary and beyond. The study needs to consider the current proposed Conceptual Master Plan for the subdivision	Valdor	Township to provide update on the Master Servicing Study.
	59	Section 3.0 Wastewater Servicing Based on the recommendations of the completed Class Environmental Assessment (EA) undertaken by the Township, an expansion and upgrade of the Millbrook Wastewater Treatment Plant (WWTP) was completed in 2015 to accommodate additional flows from the urban area including high-level tertiary treatment to provide improved effluent quality to meet new effluent discharge criteria as well as increased capacity to accommodate future flows. However, the FSR does not comment specifically on the adequacy of the WWTP to treat flows from this development. The Township has recently initiated a Water and Wastewater Master Servicing Study recommended as part of the completed Municipal Class Environmental Assessment to examine water and wastewater servicing alternatives within the current urban boundary and beyond. The study needs to consider the current proposed Conceptual Master Plan for the subdivision for wastewater treatment capacity.	Valdor	Study will include the development area. Part of an MZO approval.
	60	Section 4.0 Storm Conveyance System There is no indication in the FSR that the Commercial Blocks will have any type of stormwater detention facility or system. Commentary needs to be provided on this. There are no storm sewer design sheets included in any Appendix for each storm sewer run on each of the proposed streets, so it appears that storm sewer sizes are still to be determined during detailed design	Valdor	We confirm that the commercial blocks will be serviced by the proposed SWM pond. Section 4.0 has been revised to clarify this. We confirm that storm sewer sizes and the accompanying design sheets will be provided at detailed design.
	61	Section 6.0 Vehicular & Pedestrian Access The text of the FSR didn't discuss street lighting, but the standard road cross sections indicated street-lights and there is detail for a decorative light pole and fixture. The detail didn't indicate if the luminaire fixture is of the full cut off (FCO) type, but indicates Type III distribution, which may be FCO. Stantec's recommendation is that all street-light fixtures should be full cut off LED lights, for maximum efficiency and to minimize light trespass and light pollution. It did indicate that the luminaire is 75W LED.	Valdor	Streetlighting to be addressed at detailed design as per Township standards and requirements.
	62	Comments as to any specific internal or external intersection traffic control measures that may be required in terms of capacity, safety, etc., such as traffic signals and turning lanes, were previously addressed in Stantec's separate review of the Traffic Impact Study prepared for this site submitted. However, with the revised roadway network incorporated in the current proposed Conceptual Master Plan for the subdivision submitted with the 2nd Submission of the FSR, these issues will have to be addressed again.	Valdor	Refer to Transportation Study.

Cavan Monaghan Township Staff Comments - July 22nd, 2022				
Parks, Open & Trails	1	Is there more detail for Parkland Block 107? Will this have equipment, sidewalks, landscaping, fencing, etc.?	TBG	Now Block 148. Per discussions with staff, further detail will be provided at detailed design. However, the intent is that the park will be serviced by sidewalks from adjacent roads and include fencing to demarcate the park from adjacent lots. Programing to be determined by the Township.
Phasing Plan	2	Phasing – only two (2) townhouse blocks are identified in the first phase. Should there be more multiples required in first phase?	TBG	Based on the MZO a phased approach is no longer proposed. All units are included in the DPS.
	3	When would we expect further details on “Future Development” (Block 116)?	TBG	Based on the MZO a phased approach is no longer proposed. All units are included in the DPS.
Roads/Layout	4	The road pattern is acceptable. Township Public Works original comment on Street ‘A’ not interconnecting with Coldbrook Drive still applies.	GHD Valdor asurza	Noted. Connection not provided. However, emergency services connection and walkway block will be provided.
	5	Details of sidewalks, fencing, & landscaping will be detailing through subdivision agreement.	TBG	Noted.
	6	Will Street B (cul-de-sac) connect with Buckland Drive? What are the future plans if the two (2) streets connect?	GHD	Street 'B' removed due to Natural Heritage and grading constraints.
	7	Will set back from County Road 10 mirror that of the setback on the other side or County Road 10 (including landscape details, fencing, back yards)? Back yards along County Road 10 will need to be fenced.	TBG	Draft Plan has been revised in north-west corner of site to mirror the west side of County Road 10 with provision of a 25m window road.
	8	Township Staff would like to see the intended connections (i.e., walkway) from residential to commercial.	TBG	No longer applicable.
	9	In addition, it would be good to see overall development landscape designs (i.e., sidewalks, trees).	TBG	To be provided with first engineering submission.
Stormwater Management/Servicing	10	Is the updated traffic report available?	ASURZA	To be provided with first submission for commercial block site plan - to ensure all proposed development appropriately captured.
	11	Section 6.2 f) of the OP prohibits SWM ponds in key natural heritage features and/or key hydrologic features and the respective vegetative protection zones (VPZ). Section 5.5 of the EIS indicates that site conditions do not support the 30 m VPZ for the SWM facility. Will OPA address this issue?	Valdor / TBG	The SWM pond and associated grading is outside the natural heritage features and associated buffers. It is noted that some localized grading associated with the emergency spillway enters within the 30 m watercourse setback. For simplicity, OPA text is proposed which indicates that the development will be consistent with the text and mapping included in the MZO. See TBG cover letter. Also note that similar approaches to MZOs are being taken in other jurisdictions.
	12	Township Staff are having our consultant RV Anderson review servicing capacity for this site. We will update the comments after we receive results from this review.	Valdor	Noted.
	13	Location of commercial development along Fallis Line East should be outlined in more detail and consideration of a park/scenic lookout at the eastern end of Fallis Line East (this has been discussed previously).	TBG	A Conceptual Development Plan for Block 144 has been provided. Plans proposes live/work uses consistent with the MZO. Park Block 147 will provide for a Scenic lookout as requested.
	14	Architectural control will be applied and included as a draft plan condition	TBG	Noted.
	15	Section 4.1.7 x) of the OP generally prohibits reverse lotting and acoustical fencing. Reverse lotting is proposed for County Road 10. Will OPA address this policy in the OP to permit reverse lotting?	TBG	Reverse lotting no longer proposed.
	16	If not, will this involve either a re-design or if there is reverse lotting the Township would like to review enhanced landscaping to hide the anticipated fencing?	TBG	Reverse lotting no longer proposed.
	17	The Planning covering letter says that the 4-storey building is residential. MZO indicates this area is part of commercial mixed zone. How will this plan implement the MZO in this regard?	TBG	See Conceptual Development Plan for Block 144 proposing live/work uses consistent with the MZO

Planning	18	The OPA needs to address the issue of 4-storeys.	TBG	For simplicity, OPA text is proposed which indicates that the development will be consistent with the text and mapping included in the MZO. See TBG cover letter. Also note that similar approaches to MZOs are being taken in other jurisdictions.
	19	Architectural control will be applied included as a draft plan condition.	TBG	Noted.
	20	Public Notice says no change to NC and NL designations. Appendix 1 to the revised OPA does not indicate any change to NC and NL designations. However, draft plan appears to indicate that some residential lots are located in NC and NL designations.	TBG	For simplicity, OPA text is proposed which indicates that the development will be consistent with the text and mapping included in the MZO. See TBG cover letter. Also note that similar approaches to MZOs are being taken in other jurisdictions.
	21	Permitted residential uses in NC and NL designations include single detached dwelling on existing lots of record provided several conditions are satisfied. Since the proposed lots are not existing lots of record, should the OPA address the designations?	TBG	For simplicity, OPA text is proposed which indicates that the development will be consistent with the text and mapping included in the MZO. See TBG cover letter. Also note that similar approaches to MZOs are being taken in other jurisdictions.
	22	Section 6.7 of OP prohibits development and site alteration within key natural heritage features and hydrologically sensitive features and the related vegetation protection zones. Technical documentation indicates a 30 m vpz for wetlands, woodlands and watercourse.	TBG / GHD	Acknowledged. Discussion with Jasmine Gibson at ORCA are underway and GHD proposes and rationalizes minimal wetland removal within the EIS. Wetland will be compensated for 2:1 and the location demonstrated on Figure 3.
	23	Development appears to be located in vpz of key natural heritage – i.e. wetland and watercourse. Will OPA address this policy?	TBG	For simplicity, OPA text is proposed which indicates that the development will be consistent with the text and mapping included in the MZO. See TBG cover letter. Also note that similar approaches to MZOs are being taken in other jurisdictions.
	24	Sections 5.1 of the EIS says development is not going to impact wetlands. Yet Figure 3 shows and area of wetland to be removed and compensation is proposed.	GHD	Minimal wetland is proposed for removal. GHD proposes and rationalizes the removal within the updated EIS. Section 5.1 has been updated. Wetland removal is only associated with crossing of the creek. See Figure 3.
	25	Section 5.2 of the EIS indicates that there are several areas of wider buffers and some where it is slightly less than 30 m. The report also identifies area of compensation opportunities.	GHD	Acknowledged.
	26	An edge management plan and buffer planting are recommended to address where development “encroaches on wooded areas or narrow buffer areas”. Will the issue be addressed in the OPA? Township Staff will consider the edge management plan and buffer planting and including as a draft plan condition?	GHD	An Edge Management Plan will be completed as a draft plan condition. The buffer areas are proposed for plantings. For simplicity, OPA text is proposed which indicates that the development will be consistent with the text and mapping included in the MZO. See TBG cover letter. Also note that similar approaches to MZOs are being taken in other jurisdictions.
	27	The MZO and draft OPA show land in NE corner as Community Zone and Residential. Local commercial uses are permitted in Residential designation however the Community Zone does not appear to permit commercial uses. How will this issue be addressed?	TBG	For simplicity, OPA text is proposed which indicates that the development will be consistent with the text and mapping included in the MZO. See TBG cover letter. Also note that similar approaches to MZOs are being taken in other jurisdictions.