



April 27, 2015

**Via: Email**

Ms. Christine Gervais, MCIP, RPP  
Township Planner  
Township of East Garafraxa  
191282 13<sup>th</sup> Line  
East Garafraxa ON L9W 7B4

Dear Christine:

**Re: Marsville Heritage Estates Development**  
**Owner: Khurram Tunio**  
**Township of East Garafraxa, Marsville**  
**Application for Amendment to Zoning By-Law and Draft Plan of Subdivision**  
**Project No.: MSO020868.0000**

We have received your circulation for the above noted application and are providing our preliminary comments. This letter has been withheld for some time pending receipt of comments from the Province of Ontario. Further correspondence may arise when their comments have been received.

**Proposed Lot Fabric**

1. The lot layout needs to be revised to address potential house sitting issues at Lot 41 (referring to schematic provided on the Grading and Servicing Plan).
2. There was no discussion regarding Block 5 and 6 in the Planning and justification report. A 0.3 m reserve should be provided between the Lots and the respective blocks. Sight triangles, 10 m x 10 m should be provided at all intersections. The draft plan should include dimension widths of road right of ways (ROW), ROW radii and site triangle dimensions.
3. A 20 m road ROW is proposed. The ROW width is sufficient for the proposed development. A roadway cross section is included in Appendix A of the Functional Servicing Report (FSR). Final details can be confirmed as part of detailed design (asphalt width, watermain and storm sewer location, requirement for sidewalk (if required) etc.).
4. The lot fabric will need to be revised to reduce the number of lots proposed to address on-site sewage system comments detailed below.

**On-Site Sewage Systems**

5. Section 4.3 of the Hydrogeological Assessment indicates the predicted nitrate loading for the proposed development is 14.6 to 18.5 mg/L which is above the Ontario Drinking Water Quality Standard of 10 mg/L.

There are no provisions in MOE(CC) Procedure D-5-4 to allow nitrate concentrations greater than 10 mg/L. Similarly, Chapter 22 of the MOE(CC) *Design Guidelines* (referenced in Section 4.3) *for Sewage Works* does not apply as this is not considered to be a large system. In addition, although the guideline does indicate that attenuation calculations may not be required in areas where sufficiently thick low permeability material is present, it also indicates that "the assessment would however need to demonstrate the absence of higher permeability pathways in the lower permeability material". In this case it would appear that higher permeability material has resulted in the preferential concentration of nitrate in the sandy silt at BH3 and BH5.

The applicant should reduce the number of lots in order for the predicted nitrate loading for the development to be under 10 mg/L.

6. Nitrate levels at BH3 and BH5 were measured at 12.3 and 13.2 mg/L respectively. The hydrological assessment indicates that these levels are considered to be a result of agricultural practices and that it is anticipated that the level of nitrate in the shallow groundwater system will reduce over time as the land changes from its current agricultural use to residential.

There is insufficient data to conclusively demonstrate that nitrate concentrations are due to agricultural activities and will decline once the land use changes to residential. The applicant should be required to revise the Hydrogeological Assessment to address the items below:

- Additional water level and quality data is required to confirm groundwater flow direction and nitrate concentrations. The current flow direction on Figure 6 in the Hydrogeological Assessment shows that BH5 is down gradient from the older developed area east of Grand Crescent and therefore may be receiving nitrate from septic's. There is insufficient data to place the 94.00 m contour with any confidence. As a result, it is possible that BH3 may be down gradient from the existing development.
  - The infiltration rate used in the mass balance calculation needs to be justified and the number of lots reduced so that the mass balance calculation results in nitrate less than 10 mg/L
  - The source of the elevated nitrate at BH3 and BH5 needs to be confirmed. If the source is agricultural then WSP should provide supporting evidence to demonstrate the mass loading from historical agriculture use is sufficient to result in the elevated nitrate values at BH3 and BH5. It appears that BH1S, BH3, BH5 and BH6 are all completed in a similar formation above the clayey silt unit. Given the lack of any confining layer at these borehole locations, it might be expected that elevated nitrate would be more widespread if agricultural activities were the source.
7. For the existing lots behind Lots 16-19, please identify locations of their wells. This may impact the location of the proposed sewage systems.
  8. The distribution piping for Lot 40 sewage system will be required to be set-back from the proposed SWM pond by a minimum of 15 m.

### **Stormwater Management and Drainage**

9. The applicant should provide the Grading and Servicing Plan and the drainage figures in the FSR at a scale of 1:500. The current scale is difficult to read for review purposes. The drainage figures should include labeled contoured information and any other information

relevant to confirm drainage boundaries. All MH's should be labeled on the Grading and Servicing Plan in order to review design sheet submitted with the FSR.

10. Tributary 2 is a municipal drain which should be identified within the FSR including a description of how the re-aligned municipal drain is being conveyed through the subdivision. The Thunderbird drainage works report shows a 300 mm field tile in the channel that bisects the subdivision. A plan and profile should be provided that shows that the new alignment can be accommodated. Sizing of the proposed pipe to be provided. The current road design impacts the overland flow route of the municipal drain. Please include an assessment in the report to show that existing residents will not be negatively impacted by the re-aligned municipal drain. The enclosure of Tributary 2 from County Road 3 to a sufficient outlet downstream of the subject development should be planned with the portion starting at Victoria Boulevard being part of the subdivision works.
11. Under pre-development conditions, the area draining to Tributary 2 is through sheet flow rather than a point source discharge proposed in post-development conditions. The flow type should remain consistent.
12. On the Grading and Servicing Plan, it appears that drainage from the 13<sup>th</sup> Line is directed through Blocks 6 and 5 and in the rear of Lots 20 and 21. Drainage of the road through residential lots will not be permitted unless located within a block or an easement. Existing inverts of the 600 mm culvert on the 13<sup>th</sup> Line should be labeled. A new culvert may be required to extend into Block 6. On the drawing there is a line type identified as → - - → - - -. Please identify this line type in the legend. Reconstruction and paving of the 13<sup>th</sup> Line will be required up to the community boundary.
13. There appears to be some discrepancies in the FSR between Figures 2.0 and 3.0 with Sections 4.2 and 4.3. The applicant to confirm and revise report accordingly.
  - Section 4.2 – Area 107 is missing from the list of areas included in COM 101.
  - Section 4.3 – Areas 207 is missing from the list of areas included in COM 203.
  - It is difficult to see where the catchment boundaries are on Figure 3.0. The line type for the catchment boundaries should be changed to improve visibility.
14. As indicated in the FSR, the storm sewers are proposed to convey the 5 year storm event. The FSR including Grading and Servicing Plan needs to be revised to show how the overland flow route for drainage areas within COM 203 are being conveyed to the SWM pond. There are multiple low points in the road network and based on the elevations on the plan, it does not appear that all areas within COM 203 will be conveyed to the SWM pond and there are areas where significant ponding and flooding into private properties would occur. Please review elevations proposed and confirm that flows from drainage areas in COM 203 can be adequately conveyed to the SWM pond.
15. The applicant should indicate the level of quality being provided within Section 4.1. Enhanced quality should be provided subject to GRCA requirements.
16. SWM Pond sizing calculations should be provided in the appendices of the FSR including a table summarizing the pond characteristics. On the Preliminary Servicing and Grading Drawing, the permanent pool elevation, the extended detention elevation, the 100 year elevation, and the regional elevation, and emergency spill way elevation should be identified. The overland flow route into the SWM pond should also be shown on the drawing.

17. Section 4.4 in the FSR regarding erosion and sediment control is brief. Silt fence is typically not the only method of erosion and sediment control and may include measures such as interceptor/diversion swales to sediment basins. More detail will be required as part of detailed design submission.
18. The subdivision adjacent to the development is not curb and gutter. The FSR or Grading and Servicing Plan needs to identify how drainage from the adjacent Thunderbird Subdivision will be conveyed through the subdivision.
19. In Section 4.5 of the FSR, an oil/grit separator (OGS) was identified in the maintenance plan. There was no discussion of the OGS until the maintenance plan. Please confirm if it is part of the SWM strategy. Also not discussed is the sediment cleanout frequency of the forebay. The opening paragraph to this section should be reviewed. The Developer is required to maintain the drainage system (pond, OGS, CBs, etc.) until the Township has assumed the subdivision. Please remove the reference to the Hamlet of Marsville, County of Dufferin being responsible for the maintenance. The Township will maintain the road ROW and SWM pond once the subdivision has been assumed.
20. The storm sewer appears to be shallow and should be reviewed. For example at the MH in front of Lot 28, the top of ground appears to read 98.65 and the west invert is 98.11. Depending on pipe size, that is +/- 1 foot of cover. This will not be accepted. Please review in order to provide more cover.
21. Storm services for each lot are shown on the Grading and Servicing Plan while the FSR, Section 3.5 indicates that foundation drainage will be provided via sump pumps discharging to the rear of side yard area. The applicant should confirm what is proposed and revise the section. Though dealt with at detailed design stage, water services are not to be installed within the driveways.
22. The Archaeological Assessment and Phase 1 Report both identify a soil berm which is on portions of the Park and Lots 16 to 18. The Phase 1 Report indicated that the stockpiled topsoil should be removed. We do not know the history of this berm; however it appears to encroach to the nearby adjacent lots. The grading plan matches property line grades which are elevated due to encroachment of the berm. Please confirm the proposed grades in this location. Work outside the property limits will require permission from the respective property owners.

### **Water Supply and Fire Protection**

23. The applicant has proposed to use the existing Marsville Subdivision Well Water Supply System which currently services 33 residential homes in the existing Thunderbird Subdivision. The approved flow rate for the well is 364 L/min (6.06 L/s) with a total approved daily volume of 182 m<sup>3</sup>. There is a second well located nearby that is capped and unequipped/connected to the pumphouse. Upgrades will be required to support the development.
24. The location of the second well that is capped and unequipped should be identified on the plans.
25. The FSR notes that *“any upgrades to the existing municipal water system will be confirmed during detailed design. We do not anticipate that there is a need to uncap existing second well in the area. Once confirmed, the existing second well will be decommissioned as per MOE Guidelines”*. The Hydrogeological Assessment indicates that the combination of these

two wells will likely provide sufficient water supply to the proposed development on the Site, but additional study is needed to address firm capacity.

- a. The report needs to demonstrate that there is an adequate supply (quantity and quality) to meet the needs of the development. A pumping test will be required before draft plan approval.
  - b. Ultimately, firm capacity should be provided for the water system. An assessment of the second well for suitability of use should be completed. The well would be required to be decommissioned if studies indicate that the well is not suitable for future use. The Developer will be required to provide a new well in order to provide firm capacity.
  - c. The assessment regarding supply did not discuss peak flow rate. Presumably this will be dealt with when Fire Protection requirements are addressed.
26. The subdivision servicing report does not address fire protection aspects (i.e., a fire protection storage reservoir/pond) and defers any further discussion to the detailed design stage. The existing municipal system does not have fire protection, but does have hydrants for flushing purposes only. Fire protection should be required.

### **Source Water Protection**

27. A portion of the subdivision lies within the wellhead protection area (WHPA) for the municipal well. It appears that Lots 13, 14, 15 and 16 will have sewage systems within WHPA A (within 100 m of the municipal well) and some lots may be within WHPA B (likely Lots 17 to 19). These lots will be subject to on-site sewage system maintenance inspection program as part of the Source Protection Plan. A covenant advising future lot owners that their lot is situated within a Wellhead Protection Area should be included in the subdivision agreement. Please show the WHPAs on the Grading and Servicing Plan. When considering any lot fabric adjustments, the applicant should minimize the number of sewage systems within WHPA A.

### **Geotechnical Report**

28. The applicant should confirm that the 2012 OBC was used. Section 4.4 of the report references 2006.
29. Section 4.6 identifies two pavement structures. The pavement design identified in the FSR differs. The geotechnical report suggests an increased base asphalt depth is required. The pavement design should be confirmed including the recommended pavement design for the 13<sup>th</sup> Line. The requirement to submit an updated geotechnical report should be a condition of draft plan approval.
30. Section 3.2 indicates groundwater levels were taken on April 1, 2014 and were encountered at 0.2 m to 5.3 m below the prevailing ground surface level. Please confirm that these elevations are those shown on Table 1 of the Hydrogeological Assessment.
31. Draft plan conditions should require external upgrades be completed to the 13<sup>th</sup> Line including paving up to the community boundary to the satisfaction of the Township. There were no recommendations regarding external works required on the 13<sup>th</sup> Line.

## Summary

A number of questions have been raised in previous sections of this correspondence that are deemed to be an integral part of the proposed development design and approval. Once the foregoing comments and questions have been dealt with, we will be in a better position to comment further to the Township on this application.

Yours truly,

### **R.J. Burnside & Associates Limited**



Carley Dixon, P.Eng.  
CD/GF:sd



Gord Feniak, P.Eng.

cc: Susan M. Stone, CAO/Clerk-Treasurer, Township of Amaranth (Via: Email)  
Glenn Wellings, Wellings Planning Consultants Inc. (Via: Email)  
Jeffrey J. Wilker, Thomson, Rogers (Via: Email)