

Mr. David Cunningham
Resource Planner
Grand River Conservation Authority

October 6, 2011

Dear Mr. Cunningham:

Re: Nith Peninsula Area Study - Response to GRCA Comments

The following is provided in response to comments raised in the July 7, 2009 and March 1, 2011 correspondence regarding the development proposal associated with the Nith Peninsula Area Study. This letter references studies/analyses completed by J.H. Cohoon (JHC) Engineering Limited, as discussed in letters dated December 16, 2010, December 23, 2010 and September 5, 2011.

GRCA Comment:

Two small wetlands (units B-2 & J) were identified by Ecoplans and subsequently verified in the field by GRCA staff. Unit B-2 was characterized as a Jewelweed Organic Meadow Marsh (MAM 3-8) is sustained by groundwater. Unit J contained both a Forb Mineral Meadow Marsh (MAM 2-1) sub-unit and Cattail Mineral Shallow Marsh (MAS 2-10) sub-unit. A more detailed assessment of post-development impacts on water quality and quantity within these wetlands is required in order to demonstrate that the hydrologic conditions within these wetlands will be maintained, restored, or enhanced, in accordance with GRCA policy. A comparison of pre- and post-development water balance is required.

Response:

To address this comment, additional hydrogeological and surface flow analyses have been completed by J.H. Cohoon Engineering Limited – they are provided as Attachments A and B in the September 5, 2011 JHC letter to the County.

Surface Water. Though the contributing drainage area is slightly reduced in the post-development scenario (3.31 ha vs. 3.62 ha for pre-development), the SWM strategy recommends that roof water runoff from abutting homes be directed via sheet drainage to the wetland, thereby maintaining pre-development hydrological inputs. As demonstrated in Attachment A of the September 5, 2011 letter, pre-development runoff volumes from the surface water contribution to the wetland will be maintained for all storm events from the 2-year through the 100-year events.

Ground Water. Based on a contributing groundwater catchment of 6.36 ha, and in the absence of any other measures, there would be a post-development deficit in groundwater inputs to the wetland of approximately 8745 cu.m/year (7155 cu.m. / year post-dev. vs. 15,900 cu.m./year pre-dev.). To balance this deficit, the SWM strategy recommends installation of soakaway pits in approximately 120 units, which would result in an increase in infiltration of approximately 8580 cu.m/year, approximately equal to the calculated deficit.

Water Quality. Under the current condition, untreated runoff from adjacent agricultural fields is directed to the wetland with no intervening buffers in some areas. Hence, there is potential for sedimentation / erosion and introduction of agricultural chemicals (e.g. pesticides, herbicides, fertilizer). Under the post-development condition, surface water will be directed to the SWM facility for treatment. In addition, sheet drainage from adjacent lands will include 'clean' roof runoff or yard / park runoff and be filtered through the intervening buffer lands prior to reaching the wetland.

Conclusion. With the maintenance of surface and groundwater inputs and implementation of measures to improve water quality (SWM treatment, buffers, cessation of agricultural use), the hydrologic and ecological functions of the wetland will be maintained or enhanced relative to the current condition.

Comment:

Because the centrally located wetland (Unit J) is relatively small and size and isolated, and is expected to be surrounded by development, a 15 m buffer width is not considered adequate to protect its form and function over the long-term. The wetland boundary was verified during the fall period, when soils were relatively dry. There is some expectation that the wetland boundary may shift on a seasonal basis and/or yearly basis depending on soil moisture conditions. Furthermore, indirect impacts associated with long-term residential activities will be more difficult to mitigate and the potential for municipal trail expansion will be limited. Therefore, in order to ensure the long-term viability of this wetland and to allow for greater flexibility in terms of management of public open space, a 30 m buffer/development setback is recommended.

Response:

Regarding 'buffers' to natural heritage features, scientific literature offers some guidance, but there is no consensus on general setbacks to wetlands. In southern Ontario, larger setbacks such as 30 m are typically applied to Provincially Significant Wetlands and/or more significant and sensitive wetland habitats. In our opinion, larger setbacks are appropriate for those areas.

Furthermore, development setbacks and buffer management approaches should be determined on a site-specific basis, to address the ecological and hydrogeological features and functions of a particular site and in consideration of the land use proposal and broader site context.

In this case, the ‘central’ wetland area on the subject property (Unit J) is a small, transitional feature with relatively low overall ecological sensitivity. It provides a small amount of common, tolerant vegetation (with some more sensitive and habitat-specific plants also present), and habitat for urban-tolerant and open-country / generalist wildlife. No specialized or particularly sensitive wildlife habitat (e.g. uncommon vegetation types, amphibian breeding habitat ...) are present. In consideration of these ecological attributes, Ecoplans’ Scoped EIS recommended an integrated buffer management approach, with a minimum 15 m development setback as one component of that approach. It should be noted that the development setback is actually greater for the majority of the adjacent lands where abutting land uses include the existing valley slope, proposed parkland and the SWM facility.

Notwithstanding the above, the wetland is maintained by a combination of surface and groundwater inputs and the wetland has a relatively higher sensitivity in terms of dependence on groundwater inputs that support wetland vegetation. With the addition of the surface runoff and the groundwater contributions to the wetland, the September 5, 2011 letter prepared by J.H. Cohoon Engineering Limited demonstrates that overall hydrogeological inputs to the wetland will be maintained post-development.

One additional point that is important to note is that the updated draft plan (May 31, 2011) has been substantially revised in the vicinity of the wetland. In the December 2008 draft plan, 20 residential lots were proposed abutting the wetland (i.e. abutting ~ 65% of the wetland). With the revised plan, the majority of the abutting lands are proposed as parkland; only 6 residential lots are proposed abutting the wetland, with the remainder as parkland. This has effectively increased the development setback (i.e. from residential homes) abutting the majority of the wetland to 15m to ± 50 m. Hence, the wetland will not be “surrounded by development”; in fact, a large portion abuts adjacent valleyland or park, with adjacent lots directly abutting approximately 30 % of the wetland. Further, there is additional opportunity to increase physical setback in the multiple residential block to the south, via specific design measures.

Several specific points are raised in the comment:

- Potential for seasonal / yearly wetland boundary shift. Agreed, though it is unlikely that the boundary would shift more than 15 m (and will likely be less than a few metres); hence the recommended setback should accommodate this potential. There is additional room to accommodate expansion during ‘wet’ years within the proposed park blocks abutting the majority of the wetland.
- Potential for occupancy related impacts. This was considered in the EIS and the recommended buffer management approach identified the physical setback, plus other mitigation measures (fencing, trail location, signage and stewardship) to mitigate. Of these, the permanent fencing is the most important and most effective in reducing access / impacts; the ‘expanded’ buffer is not required to maintain water balance, and in our

opinion, increasing the physical setback from 15 m to 30 m would not further mitigate potential for occupancy-related impacts.

- Limited potential for municipal trail expansion. The recommended trail location shown in the updated plan (May 31, 2011), combined with sidewalks, provides adequate pedestrian travel opportunities and access / viewing for the wetland and valleylands to the northeast, but is not proposed within the wetland or its setback. We don't recommend any further trail links in the vicinity of the wetland.

In our opinion, and in consideration of the above, the minimum 15 m setback / buffer (which actually ranges from 15m to ± 50 m) recommended in the Scoped EIS and retained connectivity with the natural valley slope vegetation, coupled with maintenance of hydrogeological inputs, as well as implementation of fencing/trail/stewardship measures, will ensure the long-term viability of the wetland.

Prepared by:

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