Memo

To: Steve Burke, Town of Halton Hills

From: Abhijeet Patel/Aaron Farrell, Wood

Date: January 10, 2019

File: TPB188001

cc: Steve Grace, Town of Halton Hills
Dirk Janas, Palmer Environmental Consulting Group Inc.

Re: **Review of Watercourse Constraint Ranking for Watercourse Reaches 'C-1' and 'C-2', Vision Georgetown Secondary Plan Area, Town of Halton Hills**

1. INTRODUCTION

As requested (ref. e-mail correspondence Burke-Farrell, July 24, 2018), Wood has completed a review of the constraint ranking established in the Vision Georgetown Subwatershed Study (AECOM, May 2017) for Watercourse Reaches 'C1' and 'C2', located toward the terminus of Tributary 'C', specifically to confirm whether the "Low" constraint ranking for the Water Resources Criteria (i.e. "Flooding/Conveyance") of the feature. The following has been prepared to summarize the findings based upon our review of the information provided in the May 2017 Subwatershed Study and to provide Wood's professional opinion in this regard, based upon our prior experience on similar studies in Conservation Halton's jurisdiction.

2. BACKGROUND

The subject watercourse reaches 'C1' and 'C2' are located toward the terminus of Tributary 'C', and immediately upstream of Eighth Line. Tributary 'C' is the second tributary in the study area that is within the Sixteen Mile Creek watershed, conveying flows across Eighth Line. It confluences with Tributary 'A' approximately 500m downstream of Eighth Line and then crosses Side Road 10. As part of the May 2017 Subwatershed Study, Tributary 'C' has been subdivided into six (6) stream reaches for the watercourse constraint ranking (ref. Figure 5.9.1 attached).

The information provided within the May 2017 Subwatershed Study indicates that the constraint rankings associated with the flooding and conveyance characteristics of the watercourse reaches have generally been based upon contributing drainage area to determine whether or not the feature would be regulated by Conservation Halton based upon flooding hazard. This approach is noted to be consistent with conventional practice applied by Wood in other settings within

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Conservation Halton's jurisdiction. Drainage features with contributing drainage areas greater than 50 ha would generally be regulated by Conservation Halton based upon flooding hazard and thus be classified as "Medium" or "High", and drainage features with contributing drainage areas less than 50 ha, would generally not be regulated by Conservation Halton and would thus be classified as a "Low" constraint.

The information provided within the May 2017 Subwatershed Study (Appendix I) indicates that the contributing drainage area to reach 'C1' measures 70.6 ha at the downstream limit at Eighth Line. A review of the contour mapping provided within the Subwatershed Study indicates that the size of the contributing drainage area is due to the confluence of the downstream limit of the watercourse with roadside ditches west of Eight Line. Immediately upstream of this confluence, the contributing drainage area would be reduced to 56.1 ha at the upstream limit of watercourse reach 'C1'.

The contributing drainage area to the upstream limit of reach 'C2' is 40.7 ha as specified in the May 2017 Subwatershed Study. The contributing drainage area to the upstream limit of reach 'C2' is noted to be less than the 50 ha limit generally applied as the threshold between "Low" and "Medium" constraint watercourses.

Additional information provided within the Subwatershed Study indicates that the subject watercourse reaches 'C1' and 'C2' are located within a grassed area adjacent to an existing residence and that the vegetation is subject to frequent maintenance (i.e. mowing) (ref. AECOM May 2017, Appendix I).

3. DISCUSSION AND CONCLUSION

The information provided within the May 2017 Subwatershed Study indicates that contributing drainage areas to watercourse reaches 'C1' and 'C2' would be at or near the 50 ha threshold generally applied by Conservation Halton to establish regulated features based upon flooding hazard. As such, based upon the criteria presented in the Subwatershed Study and conventional practice, the contributing drainage areas to the watercourse features would be sufficient to classify watercourse reaches 'C1' and 'C2' as "Medium" constraint for flooding and conveyance criteria.

However, recognizing that the features are located within a lawn that is frequently maintained (ref. AECOM 2017, Appendix I), watercourse reaches 'C1' and 'C2' are considered to be subject to frequent disturbance as part of the routine lawn maintenance by the property owner. Furthermore, the 100m total reach length of watercourse reaches 'C1' and 'C2' are noted to be relatively small and further represent a low portion of Tributary 'C' which has been classified as a "Low" constraint watercourse, hence is considered to provide limited benefit to the flooding and conveyance system of the Vision Georgetown Area and the contributing drainage areas to the reach. In this regard, it is noteworthy that a similar situation was identified during the watercourse

constraint ranking completed for the Boyne Survey Area in the Town of Milton as part of the Sixteen Mile Creek Subwatershed Update Study (ref. Amec et. al., November 2015). In that instance, it was ultimately agreed that a "Low" constraint ranking was appropriate for the full length of the subject watercourse (ref. Boyne Survey Area watercourse SE-2-D-1) upstream of Britannia Road and was applied accordingly.

Given the relatively small drainage area to the watercourse reaches, the frequent disruption of the feature due to lawn maintenance of the property, and the limited benefit derived from protecting the reach as an open feature for flooding and conveyance, we concur with the "Low" constraint ranking for the surface water component of watercourse reaches 'C1' and 'C2', as advanced in the May 2017 Subwatershed Study for the Vision Georgetown Area.

We trust that the foregoing satisfies your current requirements in this regard. Feel free to contact our office should you have any questions or require anything further.

AF/AP/ap/af

Legend

Watercourse Characterization

- Low
- Medium
- High
- High-Rehabilitation Needed
- Enhance In Current Location
- Potential Medium

General Features

- Intermittent Watercourses
- Permanent Watercourses
- Roads
- Study Area
- Conservation Authority Boundary*

N

Note
*Division between Credit Valley Conservation and Conservation Halton Jurisdiction

0 100 200 400 600
Meters

Southwest Georgetown Integrated Planning Project

Watercourse Characterization for Management

June 2016	1:10,000	Datum: NAD 83, Zone 17 Source: Chapman and Putnam, 2007. Ontario Geological Survey, MRD 228, LIO
P#: 60297831	V#: 005	

AECOM

Figure 5.9.1

Map location: P:\60297831 SW Georgetown900\CAD-GIS\920 GIS-Graphics\Design\Groundwater Report Figures

PALMER
ENVIRONMENTAL
CONSULTING
GROUP INC.

74 Berkeley Street, Toronto, ON M5A 2W7 Tel: 647-795-8153 | www.pecg.ca

Technical Memorandum

Date: March 4, 2019
Project #: 15881

To: Steve Burke, Town of Halton Hills
From: Dirk Janas & Michael Brierley
cc: Robin McKillop
Re: Vision Georgetown – Tributary C Realignment Alternative near 10512 8th Line

1. Introduction

Palmer Environmental Consulting Group Ltd. (PECG) has been involved in previous discussions with the Town of Halton Hills regarding the lower reaches of Tributary C (reaches C1 to C4) and the feasibility of realignment of C3. PECG has completed an additional assessment of these lower reaches to determine the potential for future realignment and refinement of the associated NHS corridor along reaches C3, C2 and C1. As part of this assessment, PECG has reviewed a memo completed by Wood (2019) entitled, *Review of Watercourse Constraint Ranking for Watercourse Reaches C-1 and C-2, Vision Georgetown Secondary Plan Area, Town of Halton Hills*, which includes a review of the catchment basin of reaches C1 and C2.

PECG has prepared a conceptual realignment of Reach C3 of Tributary C, within the Vision Georgetown Study Area, to create a naturalized environmental corridor and maintain Tributary C as an open channel from reach C4 to C1. This memorandum provides the results of our assessment. The potential for realignment will require engagement of Conservation Halton and the Regional Municipality of Halton.

2. Background

PECG has been retained on two separate occasions by the Town of Halton Hills to provide Fluvial Geomorphological guidance for the Vision Georgetown project. PECG was retained by the Town of Halton Hills to establish and/or refine the meander belt widths for seven reaches of Tributary A and Tributary C within the Vision Georgetown study area in order to inform development setback limits (PECG, 2018). The theoretical meander belts suggested for Tributary C were theoretical, conceptualized only in response to questions from Conservation Halton, but are not strictly applicable to such a drainage feature and thus should not dictate development setbacks. Following the completion of the Meander Belt Width Assessment for Tributary A and C, PECG was retained to complete a Peer Review (PECG, 2018) of the Geo Morphix Ltd. (2017) report, *Fluvial Geomorphological Assessment – Southwest Georgetown, Town of Halton*

Hills. For context and comparison, PECG has also reviewed the Vision Georgetown Subwatershed Study completed for the Town of Halton Hills (AECOM, 2017). This background information has been used to inform the current assessment of proposed realignment of the C3 reach.

Appendix I of the Vision Georgetown Subwatershed Study (AECOM, May 2017) provides the Stream Characterization Tables. The aquatic habitat, vegetation, and linkage assessments, habitat classifications and drainage feature management recommendations for the lower reaches of Tributary C have been reviewed.

For the purposes of determining constraint rankings associated with flooding and conveyance characteristics of a watercourse, a contributing drainage area should typically be greater than 50 ha. As drainage features of this size are considered to have flooding hazards classified as medium or high, these watercourses are subject to regulation by Conservation Halton. Drainage features with catchments under 50 ha are classified as low constraint and not subject to regulation (Wood, 2019).

2.1 Tributary C

At the request of Conservation Halton, PECG completed a cursory fluvial geomorphological assessment of Tributary C to establish the feasibility of creating an intermittent channel to replace a segment of drainage feature classified as a headwater drainage feature (HDF). As HDFs generally have smaller catchments, their flows are of insufficient frequency, magnitude and duration to fluvially erode and deposit sediments in a way that would form a sinuous planform.

Field reconnaissance for the PECG geomorphological assessment was completed on March 13, 2018 to document and confirm field conditions in the Tributary C feature. During this assessment our geomorphologist walked the full length of the feature (reach C6 to C1). Within the Vision Georgetown property limits near 10512 8th Line, Georgetown, Ontario, Tributary C of Sixteen Mile Creek is considered to be an HDF, which flows intermittently following rain events and spring freshet. As part of the Vision Georgetown Subwatershed Study (AECOM, 2017), six (6) reaches along Tributary C were identified. The six reaches were classified as defined (discernible banks and bed) and undefined (no discernible banks and bed). Undefined reaches are within cultivated agriculture fields (reaches C3 and C5), and defined reaches are within woodlots or lawn vegetation (reaches C1, C2, C4 and C6).

Following is a summary of key considerations regarding HDF classification and constraints that were considered as part of the AECOM SWS (2017) for Tributary C and associated reaches:

- Tributary C is considered an HDF because it does not have permanently flowing water but does convey surface water periodically during the year, mainly during rainfall events.
- HDFs serve an important function to the overall watershed and need to be assessed prior to development to determine what existing functions need to be preserved
- The HDF assessment document provided by the Toronto Region Conservation Authority (TRCA 2014) and Credit Valley Conservation (CVC) considers several different aspects of function:
    - Hydrology – how frequently does the feature convey water? Does water remain in the feature during the driest time of the year?

  - Riparian vegetation – what type of vegetation surrounds the feature? How extensive is it?
  - Fish habitat – how do fish use this feature? Year round or seasonally? Although there is no habitat in the feature, it contributes sediment and nutrients to fish habitat located downstream.
  - Terrestrial habitat and linkage – does the feature provide terrestrial habitat? Is the feature a wetland? Is the HDF corridor used by wildlife to move to different habitat types?
- An HDF is assessed on these separate categories to determine a final management recommendation, which guides how the feature can or cannot be altered as part of land development.
- HDFs are broken into different segments as part of the assessment based on changes to these different functions, such as different surrounding vegetation or differences in flow.
- Management recommendations must maintain consistency progressing in a downstream direction. If a segment requires a certain level of protection, all segments located downstream should be considered for equal or higher level of protection.
- Based on the AECOM (2017) reporting, the following characterization was determined for the segments of Tributary C as outlined in the Stream Characterization Tables in Appendix I (excerpt for Tributary C attached to memo) of the SWS report:
  - Reaches C3, C2, and C1 were all classified as “mitigation” by AECOM based on hydrology as the dominant function. These features convey flow intermittently or during spring melt.
  - Reach C4 was classified as “conservation” by AECOM based on riparian vegetation as the dominant function. The feature is contained within a cultural thicket, which is considered important vegetation. The feature also had defined channel dimensions, which is indicative of function.
  - Because reaches C3, C2, C1 are located downstream of reach C4, they should also be managed as “conservation” to maintain function progressing downstream.
  - Conservation management requires a feature to remain open on the landscape and it therefore cannot be piped.
- Tributary C reaches C1 and C2 are located within private property at 10512 8th Line:
  - While the “conservation” management allows features to be relocated, the feature must maintain the open connection to the immediate downstream segment.
  - Reach C1 must connect to the culvert located at 8th Line in order to connect to the downstream watercourse.

2.2 Description of Existing Channel Conditions along Reaches C4 to C1

Reaches C1 and C2 are within a private residential property. Reach C-1 is poorly-defined and flows through shrub and graminoid vegetation with mowed lawn to the edges. Standing water was present during the PECG assessment in a wide, backwatered pool at the inlet of the 8th Line culvert. The wetted depth of the backwater pool was 0.20 m. Coarse gravel was observed on the bed near the inlet.

Reach C2 consists of a defined channel that has been cut through a maintained lawn. Measured wetted depths of reach C2 ranged from 0.05 to 0.15 m and wetted width ranged from 0.30 to 0.80 m. Bed material consisted of small pebbles and sand. Minor erosion was observed along the banks. There is a distinct

change in the vegetation cover between reaches C1 and C2 as shown in the attached Stream Reach Photos from Appendix F of the SWS.

Reach C3 is located in an agricultural field. No standing water or defined channel morphology was observed as shown in the attached Stream Reach Photos from Appendix F of the SWS. A general flow path could be inferred based on the surrounding topography but there were no indicators of recent flow.

Reach C4 is located along the outer edge of a woodlot and thicket (see attached photo). The downstream end of the reach is marked by a wide (3.0 to 4.0 m), poorly-defined area where water presumably pools after draining from the woodlot. Cobbles, likely placed in the channel following removal from the surrounding agricultural field, were locally present in the channel. The bankfull cross-section dimensions ranged from 2.50 to 5.0 m wide and 0.30 to 0.45 m deep. The reach was dry during the assessment; however, garlic mustard was growing along the margins of the feature, indicative of wet conditions. The reach becomes less defined progressing upstream and is undefined at the upstream end of the reach.

3. Tributary C Design Considerations

Tributary C is a heavily fragmented HDF providing limited habitat connectivity upstream of 8th Line. As highlighted previously (Section 2.2), the defined channels of reaches C1, C2 and C4 are separated by an undefined flow path, reach C3. Vision Georgetown Subwatershed Report (AECOM, 2017) classified reach C4 as “conservation”. This classification of reach C4 indicates that reaches C1, C2 and C3 should also be managed as “conservation” to maintain function progressing downstream as an “open feature”. A review and confirmation of watercourse constraints ranking for reaches C1 and C2 was completed by Wood (2019). The constraints review confirmed the classification of reaches C1 and C2 as “Low constraint” by AECOM (2017) based on the relatively small subwatershed (56.1 ha), frequent disturbance to watercourse (lawn maintained across reach C2 and adjacent to C1) and short length of defined channel (100 m). Wood concluded that Tributary C provides limited benefit to the flooding and conveyance systems. Therefore, the realignment of reach C3 to establish a defined channel and environmental corridor connecting reaches C4 with C1 and C2 would be considered an enhancement to preserve naturalized habitat within the Vision Georgetown Study Area along the lower reaches of Tributary C.

3.1 Channel Realignment Considerations

Several opportunities to enhance the fluvial geomorphological form and function of Reach C3 are worth considering:

- *New Channel Corridor (**Figure 1**)* – The construction of a defined environmental corridor would create a functional development setback and establish terrestrial and hydrological connectivity from C4 to C1. The length of open channel would increase from approximately 200 m to approximately 425 m. The new channel would be roughly centred along the 30 m-wide corridor. The proposed open channel corridor would establish a restoration and enhancement area of approximately 6,000 m^2 that would be part of the NHS.
- *Sinuous planform* – The construction of a defined channel along reach C3 would increase longitudinal habitat connectivity from C4 to C1. A more sinuous planform would increase the

channel length (decrease channel gradient) and provide for improved aquatic and terrestrial habitat functions. The channel would be approximately centered along the environmental corridor, with a buffer of approximately 15 m on either side. Based on an investigation of surrogate reaches within the Sixteen Mile Creek watershed, meandering channels are not common within similarly sized headwater subwatersheds. The establishment of a 30 m environmental corridor would provide ample space for minor lateral adjustments to occur over the 100-year planning horizon.

- *Defined Channel* – Reach C3 has an identifiable general flow pattern within a cultivated agricultural field with no defined channel morphology. The construction of a low flow channel with a width:depth ratio >10 and floodplain accessed during higher flow events would maintain a sustainable sediment transport regime within the new channel corridor, which would reduce instability. As well, the minor erosive potential would be evenly distributed across a defined flood-prone area within the greater Vision Georgetown study area.
- *Enhanced Channel Habitat* – The use of Natural Channel Design (NCD) principles would reinstate natural form and function to the undefined channel, with subdued pool and riffle sequences and/or pocket wetlands to provide habitat diversity. Riparian planting would increase the shear strength of the channel banks and provide habitat benefits through increased shading, shelter and allocthonous food sources.
- *Restoration and Enhancement Plan* – A detailed plan would be developed providing for the planting of native trees, shrubs and herbaceous plants along reach C3 in place of the current agricultural field conditions. This would provide enhance terrestrial and aquatic habitat and wildlife connectivity.

3.2 Additional Realignment Option

- *Realignment of reaches C1 and C2* – This realignment scenario is presented with an understanding of a pending Environmental Assessment along 8th Line. The relocation of reaches C1 and C2, and the culvert beneath 8th Line, would position Tributary C south of the 10512 8th Line private property, thereby creating one continuous reach from reach C4 to downstream of 8th Line. In addition, the relocation of reaches C1 and C2 would limit the continued vegetation management (mowed/maintained lawn under current conditions) along this section of the channel. This realignment scenario faces considerable constraints/challenges. For example, topography of the realignment area would require substantial cut and fill to achieve the desired channel grade. Further, vegetation removal from the coniferous woodlot along the eastern embankment of 8th Line would be required. Evaluating the feasibility of this option would require agency consultation.
- *Replacement of 8th Line Culvert* – Reach C1 currently pools at the inlet of the CSP culvert beneath 8th Line. A replacement culvert would restore connectivity by widening and constructing of a defined low flow channel along its bed to reconnect a fragmented HDF upstream of 8th Line, thereby improving hydrological connectivity and reducing backwater conditions. The replacement of the culvert would allow it to be sized to improve conveyance of flood flows beneath 8th Line, which are expected to be augmented by discharging stormwater management ponds.

The channel enhancement opportunities identified above would not only improve the fluvial geomorphological form and function of the lower reach of Tributary C but would also improve the ecological function of the channel corridor.

Figure 1: Plan view of the proposed realignment of reach C3, centered along a 30 m-wide environmental corridor contiguous with an existing woodlot.

References

AECOM, 2017. Southwest Georgetown Subwatershed Study: VISION GEORGETOWN Subwatershed Strategy Report. Final Report. Submitted to: Town of Halton Hills.

Geo Morphix Ltd., 2017. Fluvial Geomorphological Assessment. Southwest Georgetown, Town of Halton Hills. Submitted to: Southwest Georgetown Landowners Group, November 16, 2017

Palmer Environmental Consulting Group Inc., 2018. Vision Georgetown – Meander Belt Assessment for Select Reaches of Tributary A and Tributary C. Submitted to: Town of Halton Hills.

Palmer Environmental Consulting Group Inc., 2018. Vision Georgetown - Peer Review of Southwest Georgetown Landowners Group Private OPA Submission – Fluvial Geomorphological Assessment. Submitted to: Town of Halton Hills.

Wood., 2019. Review of Watercourse Constraints Ranking for Watercourse Reaches 'C-1' and 'C-2', Vision Georgetown Secondary Plan Area, Town of Halton Hills. Submitted to: Town of Halton Hills

TRCA and CVC, 2014: Evaluation, Classification and Management of Headwater Drainage Features Guidelines.

Conservation Halton

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Protecting the Natural Environment from Lake to Escarpment

July 23, 2019

Steve Burke, MCIP, RPP
Manager of Special Projects & Research
Town of Halton Hills
1 Halton Hills Drive
Halton Hills, ON L7G 5G2

BY MAIL AND BY EMAIL

Dear Mr. Burke,

Re: Vision Georgetown (South) Subwatershed Study and Secondary Plan, Tributary C Management – Constraint Ranking and Realignment Alternatives
CH File: MPR 634

Conservation Halton (CH) staff has reviewed the following items and offers comments below and in Appendix A:

- *Review of Watercourse Constraint Ranking for Watercourse Reaches 'C-1' and 'C-2', Vision Georgetown Secondary Plan Area, Town of Halton Hills; Wood Inc.; January 10, 2019*
- *Technical Memorandum – Vision Georgetown – Tributary C Realignment Alternative near 10512 8th Line; Palmer Environmental Consulting Group Inc.; March 4, 2019*

Proposal:

The above memo's were prepared for the Town of Halton Hills to support the additional study outlined in Policy H6.13.4.5 of the Vision Georgetown Secondary Plan which states the Town shall undertake additional analysis in consultation with Conservation Halton and the Region, to address the potential for re-alignment of the C1-C3 reaches and refinement of the width or location of the associated ecological linkage.

A meeting was also held on June 17, 2019 with representatives from the Town of Halton Hills, Wood Inc. Palmer Environmental Consulting Group Inc., Region of Halton and Conservation Halton staff. The intent of the meeting was to review the two memos mentioned above and to discuss Conservation Halton and the Region of Halton's requirements for possible realignment of C-1 to C-3 reaches. Key comments have been provided below.

Key Comments:

1. Conservation Halton has reviewed the additional information provided and the analysis that was completed as part of the Subwatershed Study and has confirmed that reaches C-1 to C-3 are considered regulated watercourses. The watercourses, associated flooding and erosion hazards, and 15 metre hazard allowance (buffer) are to be protected in public ownership as development proceeds in appropriately sized channel blocks.

Conservation Halton uses multiple criteria for watercourse classification. While features C-1 and C-2 were ranked "low" from the perspective of flooding/conveyance, other factors contributed to the ultimate ranking of "Special Medium" of these features. A reduction in drainage area from what was established within the SWS to below 50 ha does not necessitate a change of watercourse status including the regulatory status of the watercourse.

The classification of the C-1 to C-3 is consistent with Conservation Halton's previous comments on the final SWS and Secondary Plan dated February 12, 2018 and consistent with Table 5.9.2 Development of Overall Stream Classification Net Rating and Management Rating for reaches C-1 to C-6 within the SWS. Additional discussion is required with Conservation Halton to determine the most appropriate method to defining the channel corridor width. Please update text of both memoranda to reflect the classification of reaches C-1 to C-3 as regulated watercourses.

2. Conservation Halton has no objection to the realignment of C-3 as illustrated in Figure 1 in the Palmer Environmental Consulting Group Inc. Technical Memorandum assuming appropriate buffer and channel corridor widths are provided. As C-3 is considered a regulated watercourse all associated flooding and erosion hazards and 15 metre hazard allowance must be contained within the realigned channel corridor. Conservation Halton will continue to work with the Town of Halton Hills in the design of the realigned corridor to ensure it meets Conservation Halton requirements and incorporates Natural Channel design techniques.

3. With respect to the potential realignment of reaches C-1 and C-2, Conservation Halton has no objection to the proposal assuming the potential impact on flood conveyance and storage and stream length, both upstream and downstream of Eighth Line, will be analyzed. Conservation Halton is open to this analysis being completed as part of the Eighth Line Class Environmental Assessment, in conjunction with potential improvements to the road and culvert, assuming the Class EA can be advanced ahead of or coordinated with development applications within the Vision Georgetown lands. The realignment of reaches C-1 and C-2 would be considered regulated watercourse and therefore all associated flooding and erosion hazards and 15 metre hazard allowance must be contained within the realigned channel corridor.

4. As noted in Conservation Halton's letter dated February 12, 2018, additional aquatic investigation have been recommended for reach C-2.

Recommendation

Conservation Halton hope the above comments help to define the expectations as it relates to reaches C-1 to C-3. As mentioned above, additional discussion is required with Conservation Halton to determine the most appropriate method to defining the channel corridor width for the potential realignment of C-1 to C-3. The text of both memorandums will need to be updated with respect to the classification of reaches C-1 to C-3 as regulated features. We trust the above is of assistance and if you have any questions do not hesitate to contact the undersigned at extension 2231.

Sincerely,

Heather Dearlove, B.Sc.
Environmental Planner

CC (by email): Aaron Farrell, Wood. Inc.
Dirk Janas, Palmer Environmental Consulting Group Inc.
Richard Clark, Halton Region
Rick Reitmeier, Halton Region

From: Heather Dearlove <hdearlove@hrca.on.ca>
Sent: September-19-19 1:30 PM
To: Steve Burke
Cc: steveg@haltonhills.ca; Farrell, Aaron; Dirk Janas (dirk@pecg.ca); Clark, Richard; Reitmeier, Rick
Subject: RE: Vision Georgetown (South) Subwatershed Study and Secondary Plan, Tributary C Management – CH Comments

Good Morning Steve,

I apologize for the delay in responding to you. In your previous email you asked for the following clarification:

- *From our review of the comments and the discussion with Wood and Palmer, we understand that Conservation Halton has classified reaches C1 and C2 as regulated watercourses. This differs from Palmer's classification of the features as HDFs, hence we require clarification as to why Conservation Halton has defined the features as watercourses."*
- *In addition, Conservation Halton's comments note that "other factors [besides drainage area] contributed to the ultimate ranking of 'Special Medium'". - we remain unclear as to what criteria or characteristics of the feature have triggered the regulation from Conservation Halton.*

The following is a summary of the information that Conservation Halton used in confirmation that reaches C1 and C2 as a regulated watercourse:

- Current Classification:
    - C1 and C2: Both reaches are designated as regulated in Conservation Halton's ARL mapping as shown below (with a 15 m buffer from the greatest hazard – shown as a meanderbelt).
    - Within the Southwest Georgetown Subwatershed Study C1 and C2 were classified as regulated watercourses. The following sections of the SWS reference the status of C1 and C2:
        - Table 5.9.1: Net Rating and Management Rating, Page 299 of SWS: C1 and C2 are rated as Special Medium, based on a Medium rating for Terrestrial Resources/Linkage as well as a Medium rating for stream morphology for C2.
        - Table 5.9.2: Development of Overall Stream Classification Net Rating and Management Rating, Page 308 of SWS: Describes reasoning behind rating for reaches C1 and C2.
        - Appendix P: CH Correspondence: Correspondence confirming C1 and C2 to be classified as blue streams but to be maintained in their current location, with floodplain characteristics to be maintained.

- Drainage Area: If the reach has a drainage area equal to or greater than 50 hectares it is considered a regulated feature. Any watercourses with a drainage area less than the 50 hectares can be considered a regulated feature with the consideration of other factors (ie. aquatic and terrestrial features).
    - C1: 56.1 ha
    - C2: 40.7 ha
- Flow Regime: The classification of the watercourse as ephemerally, intermittently, permanently or perennially.
    - C1 and C2: Intermittent
        - If permanently or perennially present always considered a regulated watercourse. An intermittent watercourses can be considered a regulated watercourse if there are other factors considered in addition to the flow regime.
- Channel Form: If there are defined bed/banks, substrate sorting, evidence of past flows considered
    - C1 and C2: There is limited defined channel (bed and bank) but reach C1 and C2 have been extensively altered (mowed) by the current property owner. Reach C3 has also been extensively impacted by plowing of the agricultural fields. If the watercourses reaches are impacted by anthropogenic uses Conservation Halton looks at the feature upstream and downstream of the reaches in question. Downstream of Eighth Line, Tributary C is well defined and considered a regulated watercourse. Upstream of C3, the feature is more defined through the woodlot (Reach C4) and extends into Reach C5 and C6.
    - Note that C2 was rated "medium" for stream morphology in the Southwest Georgetown SWS.
- Aquatic Species/Habitat:
    - C1 and C2: provides indirect/contributing aquatic habitat. Downstream of Eighth Line Tributary C is a well-defined watercourse that does provides direct fish habitat.
- Riparian Conditions/Terrestrial Habitat:
    - C1 and C2: no important or valued riparian conditions or terrestrial habitat. In the Southwest Georgetown Subwatershed Study it was recommended that a terrestrial corridor be protected between Blocks B and C along the alignment of Tributary C. It is important for Tributary C to be protected and enhanced/restored to provide terrestrial linkage function.
- Anthropogenic impacts to aquatic, riparian or terrestrial habitat:
    - C1 and C2: have been extensively impacted by the current property owner (currently mowed and plowed). Reaches C1, C2 & C3 would be a defined watercourse if not for active anthropogenic interference.

As stated in Conservation Halton's letter dated July 23, 2019 there are many factors that contribute to the classification of a watercourse as a regulated feature as outlined above. Conservation Halton considers reaches C1 to C3 to be regulated watercourses. The watercourses and the associated flooding and erosion hazards, as well as a 15 meter hazard allowance are considered regulated by Conservation Halton and should be protected in public ownership as development proceeds. We are open to have additional discussion to determine the most appropriate method to define the channel corridor width.

I hope the above helps to clarify the many aspects of the feature that are considered in the determination of the regulatory status of a watercourse. If additional discussion is required, please do not hesitate to contact me at ext. 2231.

Sincerely,

Heather Dearlove, BSc.
Environmental Planner

Conservation Halton
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From: Steve Burke <SteveBu@haltonhills.ca>
Sent: August 7, 2019 11:51 AM
To: Heather Dearlove <hdearlove@hrca.on.ca>
Cc: steveg@haltonhills.ca; Farrell, Aaron <aaron.farrell@woodplc.com>; Dirk Janas (dirk@pecg.ca) <dirk@pecg.ca>; Clark, Richard <Richard.Clark@halton.ca>; Reitmeier, Rick <Rick.Reitmeier@halton.ca>
Subject: RE: Vision Georgetown (South) Subwatershed Study and Secondary Plan, Tributary C Management – CH Comments

Hello Heather.

Thank you for providing the comments on the memoranda. Town staff has discussed the comments with Wood and Palmer. From our review of the comments and the discussion with Wood and Palmer, we understand that Conservation Halton has classified reaches C1 and C2 as regulated watercourses. This differs from Palmer's classification of the features as HDFs, hence we require clarification as to why Conservation Halton has defined the features as watercourses.

In addition, Conservation Halton's comments note that "other factors [besides drainage area] contributed to the ultimate ranking of 'Special Medium'". While we recognize that drainage area is not the only metric used by Conservation Halton in determining whether a feature is regulated, we remain unclear as to what criteria or characteristics of the feature have triggered the regulation from Conservation Halton. As discussed during the June 17, 2019 meeting, limited information is provided within the Subwatershed Study to support the regulated status of the feature and the "Special Medium" ranking; as such, we request that Conservation Halton provide additional clarification regarding the criteria applied, which establishes the regulated status of the feature.

Let me and/or Steve Grace know if your require clarification on the above.

We would appreciate your timely attention to this request for clarification to assist the Town in determining how best to move forward with the Region on the OPA 32 approval process with respect to Tributary C.

STEVE BURKE, MCIP RPP
MANAGER OF SPECIAL PROJECTS & RESEARCH
OFFICE OF THE CAO|TOWN OF HALTON HILLS

From: Heather Dearlove [mailto:hdearlove@hrca.on.ca]
Sent: Wednesday, July 24, 2019 8:54 AM
To: Steve Burke
Cc: Farrell, Aaron; Dirk Janas (dirk@pecg.ca); Clark, Richard; Reitmeier, Rick
Subject: Vision Georgetown (South) Subwatershed Study and Secondary Plan, Tributary C Management – CH Comments

Good Moning Steve,

Please find attached Conservation Halton's comments on the Tributary C – Constraint Ranking and Alignment Alternatives. If you have any questions, do not hesitate to contact me at ext. 2231.

Sincerely,

Heather Dearlove, BSc.
Environmental Planner

Conservation Halton

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