Appendix A

Correspondence

Premier Gateway Scoped Subwatershed Study Phase 1: Study Area Characterization February, 2016 Response Matrix	
Comments	**Response**
Conservation Halton – Matt Howatt – May 9, 2016	
Overview	
Conservation Halton staff offer the following comments from a regulatory perspective under Ontario Regulation 162/06 and technical advisory perspective under the Memorandum of Understanding with Region of Halton and local municipalities. The following points are provided as an overview with further detail provided under the appropriate section below.	
► Overall, staff appreciate the detailed information provided within the report, specifically regarding Aquatic and Terrestrial Survey Methods, Hydrogeology and Fluvial Geomorphology.	
► There is a concern with the flow gauge data being used for validation and calibration of the hydrologic model which must be revisited and agreed upon before established flows can be used in the hydraulic model for hazard delineation.	We note that the flow gauge was sited in consultation with Conservation Halton staff, and the observed trends in terms of runoff response have been verified based upon the characterization of the study area, hence it remains our opinion that the simulated peak flows are supportable for hazard definition.
► Consultation with the Ministry of Natural Resources and Forestry (MNRF) should occur regarding observations of Species at Risk including barn swallow, bobolink and eastern meadowlark in the study area and any associated habitat protection that may be required further in the study process.	The MNRF was contacted April 7 and October 20, 2015 for background information; as well as on February 23 and May 25, 2016 for specific guidance on SAR. MNRF concurs with NRSI's assessment of Barn Swallow, Bobolink, Eastern Meadowlark, and wetlands as dealt with in the Phase 1 report (personal communication with Jackie Burkart and Steve Varga, MNRF). In addition, see related responses, below.
► Additional wildlife surveying is recommended to complete a comprehensive assessment as some of the surveying was not completed during standard times and at standard locations.	See responses, below.
► The Ontario Wetland Evaluation System (OWES) was not utlizied to assess the wetlands within the study area to determine their significance. Provided that a 30 metre setback to the wetlands is maintained and that hydrologic functions remain unimpaired as per Policy 3.38.3 of the *Policies and Guidelines for the Administration of Ontario Regulation 162/06 and Land Use Planning Policy Document, April 27, 2006, revised August 11, 2011*, staff are willing to accept that this evaluation will not be completed.	See responses, below.
► The third site for the detailed headwater drainage assessment should be on the East Branch of Sixteen Mile Creek, as previously discussed.	A third detailed geomorphic site has been completed in reach E-T1-2..
Specific Comments	
1. **Table 2.1.1 Relevant Policies, Legislation and Planning Studies, Page 7**: Please revise the third bullet point as it is misleading to state that the Regulation outlines requirements for "permission" to develop. Permission is also required for interference with wetlands and alterations to watercourses (S. 5). The bullet point could read: ► The Regulation outlines the application requirements for permissions for development within regulated areas, interference with wetlands, and alterations to watercourses and shorelines. Details regarding the application and approval process area also laid out in this Regulation.	This will be revised for final reporting.
2. **Table 2.1.1 Relevant Policies, Legislation and Planning Studies, Page 7**: A fourth bullet point should be added to the description under the Conservation Halton Regulation 162/06 to recognize the Board-approved policies for the administration of the regulation. The bullet could read: ► Policies for the administration of Ontario Regulation 162/06 have been approved by Conservation Halton's Board of Directors in a document entitled *Policies and Guidelines for the*	This will be revised for final reporting.

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	Administration of Ontario Regulation 162/06 and Land Use Planning Policy Document, April 27, 2006, revised August 11, 2011. These policies guide decisions regarding permissions for development within regulated areas, interference with wetlands, and alterations to watercourses and shorelines.	
Natural Environment Existing Conditions		
3.	Obtaining additional survey information for the following species groups is recommended to complete a comprehensive assessment of wildlife:	
a.	**Table 2.1.2 Terrestrial Field Survey Summary, Page 11:** Herpetofauna and insect survey results may be different if the field work was conducted during the standard day time surveying period when these species are more active. The early morning survey time required for breeding birds is not correct for herpetofauna and insects yet this work was completed concurrently. Specifically, insect surveys should be completed when the temperature is above 15 degrees Celsius, however the surveys were completed when it was 9 degrees (Page 13). Similarly, turtle surveys were completed below the 10 degree Celsius standard and snake surveys yielded no observations when three of the surveys were completed in the early morning. In addition, the June 1st herpetofauna and insect survey was completed under 100% cloud cover, while the text following indicates that these surveys should be completed in sunny conditions.	The focus of this spring insect survey was to capture the early emergent species which are often flying at temperatures substantially lower than the recommended 15°C (e.g. species such as West Virginia White, Common Green Darner, various Baskettail species). West Virginia White is of particular interest because this species was identified as potentially occurring within the subject property based on the background review (Jones et al. 2015). Herpetofauna habitat within the subject property is minimal and consists primarily of manmade/ maintained ponds associated with the golf course lands. The temperature of 9°C on June 1 is just below the 10°C threshold. Cloud cover was also higher than recommended for this single survey, however several other surveys were completed on the subject lands under suitable conditions. Midland Painted Turtle was the only species observed (May 4) despite several other surveys being carried out in June and September under suitable weather conditions. Based on this, and the low quality habitat present, it is likely that the results from NRSI's field surveys accurately represent the turtle species present within these ponds.
b.	**Table 2.1.2 Terrestrial Field Survey Summary, Page 11:** Given the low numbers of insects in the survey results (i.e. 3 butterflies and 6 dragonflies observed in 2015) was suitable habitat surveyed? Several breeding bird monitoring stations, where insect surveys were also conducted, are found within wooded areas.	The low numbers of butterfly species within the subject property is likely more related to the small amount of high quality butterfly habitat present. Most of the subject property consists of golf course, agricultural and some forested landscapes. Although more species of odonates were recorded, this relatively low number is also likely related to poor habitat quality (i.e. high quality aquatic habitat is low).
c.	**Section 2.1.3.6 Mammal Surveys, Page 13:** This section indicates that cavity searches were completed during the vegetation surveys whereas the MNRF typically requests that these surveys be completed during the leaf off season, to more accurately assess the number of cavity trees present. Did consultation with the MNRF occur prior to undertaking these surveys to determine the appropriate time of year to survey?	The TOR stated that "cavity trees will be identified for potential bat habitat" (p. 36) and "during vegetation surveys, cavity trees will be identified for potential bat habitat, and during evening amphibian and bird surveys, bat activity will be recorded" (p. 37). As such, cavity trees for potential bat habitat were identified during vegetation surveys, as per the SWS TOR. Additional or more thorough surveys for bats or cavity trees are out of scope of this project. October 24, 2016 Meeting: Additional field work to be addressed as part of subsequent stages of planning study if needed.
d.	**Table 2.1.3 Aquatic Field Survey Summary, Page 15**: Fish community sampling occurred on September 14 and 15, 2015, however Section 8.1 of the Project Terms of Reference recommends that the sampling be conducted in "May or June when there is likely to be a greater abundance of flow, which will make fish sampling more feasible". It is requested that additional surveys be completed at the appropriate time of year in accordance with the Terms of Reference.	The Collectors Permit was applied for on April 7, 2015 from the MNRF, however the permit was not received until August 14, 2015 (despite several requests in the interim). At that time we had to add additional staff to the permit and we received it back August 25, 2015. As such, the fish community assessment could only be conducted after this date. Although spring sampling ensures that there is sufficient water flow to sample all available habitats, it may erroneously characterize ephemeral watercourses as providing high quality fish habitat. Summer or fall fish sampling is often preferred as it falls within low flow conditions and allows for the characterization of permanent fish populations. Given this and the project's timeline, the sampling dates in September

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<table>
<tr><th colspan="2">Comments</th><th>Response</th></tr>
<tr><td></td><td></td><td>were deemed appropriate by NRSI aquatic biologists.
October 24, 2016 Meeting: Further discussion with CH required to determine areas where habitat classification may change based upon spring survey data.</td></tr>
<tr><td>4.</td><td colspan="2">Section 2.1.4.1 Aquatic Habitat Assessment, Page 14</td><td></td></tr>
<tr><td>a.</td><td>Please include summary information regarding the additional habitat characterizations such as dissolved oxygen.</td><td>Table 2.1.8 has been revised to include dissolved oxygen in a separate column. The table is attached.</td></tr>
<tr><td>b.</td><td>Please consider conducting multiple readings to complete a more robust designation of thermal regime for each channel segment as it is noted that only a single temperature reading was taken during aquatic habitat surveys (May 28, 2015) and fish community assessments (September 14 and 15, 2015). Surface water temperature data should be collected via temperature data loggers (May to September) every 15 minutes. Data should be displayed using the nomogram developed by Cindy Chu, et al. (2009).</td><td>Continuous water temperature data logging was not included within the approved work plan for the Scoped Subwatershed Study.
October 24, 2016 Meeting: CH to review classification as per Drawing E5 and advise.</td></tr>
<tr><td>c.</td><td>Please emphasize that the thermal regime classifications are subject to change due to the dynamic nature of watercourses.</td><td>Noted. The final report will be revised to note that thermal regime classifications are subject to change due to the dynamic nature of watercourses.</td></tr>
<tr><td>5.</td><td colspan="2">Section 2.1.4.4 Benthic Invertebrate Community Assessment - Benthic Invertebrate Analysis, Page 18:</td><td></td></tr>
<tr><td>a.</td><td>Please include the percent Isopoda indices for the benthic invertebrate analysis as requested.</td><td>The percent Isopoda is included in Appendix 5 of the Phase 1 report.</td></tr>
<tr><td>b.</td><td>Discussion regarding how each of the metrics and indices are ranked for the sites is recommended. For example, Section 2.1.5.10 (page 36) notes that the metrics were “calculated to assess the relative health of the monitoring sites as unimpaired, possibly impaired, or impaired”. However, the calculation tables in Appendix B do not show the ranking (unimpaired, possibly impaired, or impaired) of each metric, indices or the overall ranking. A table should be included that illustrates the metrics and their associated classification (similar to those of CH’s 2012 LEMP report, see table below).
<table>
<tr><th>Water Quality Index</th><th>Unimpaired</th><th>Potentially Impaired</th><th>Impaired</th></tr>
<tr><td>EPT Richness</td><td>>10</td><td>5-10</td><td><5</td></tr>
<tr><td>Taxa Richness</td><td>>13</td><td></td><td><13</td></tr>
<tr><td>% Oligochaeta</td><td><10</td><td>10-30</td><td>>30</td></tr>
<tr><td>% Chironomidae</td><td><10</td><td>10-40</td><td>>40</td></tr>
<tr><td>% Isopoda</td><td><1</td><td>1-5</td><td>>5</td></tr>
<tr><td>% Gastropoda</td><td>1-10</td><td>0 or >10</td><td></td></tr>
<tr><td>% Diptera</td><td>20-45</td><td>15-20 or 45-50</td><td><15 or >50</td></tr>
<tr><td>% Insect</td><td>50-80</td><td>40-50 or 80-90</td><td><40 or >90</td></tr>
<tr><td>HFI</td><td><6</td><td>6-7</td><td>>7</td></tr>
<tr><td>SDI</td><td>>4</td><td>3-4</td><td><3</td></tr>
</table></td><td>To assist with your assessment of the benthic metrics please refer to the table below:
<table>
<tr><th>Index</th><th>BTH-001 Pooled</th><th>BTH-002 Pooled</th><th>BTH-003 Pooled</th><th>BTH-004 Pooled</th><th>BTH-005 Pooled</th></tr>
<tr><td>EPT Richness</td><td>Potentially Impaired</td><td>Potentially Impaired</td><td>Potentially Impaired</td><td>Potentially Impaired</td><td>Potentially Impaired</td></tr>
<tr><td>Taxa Richness</td><td>Unimpaired</td><td>Unimpaired</td><td>Unimpaired</td><td>Unimpaired</td><td>Unimpaired</td></tr>
<tr><td>% Oligochaeta</td><td>Unimpaired</td><td>Unimpaired</td><td>Unimpaired</td><td>Unimpaired</td><td>Unimpaired</td></tr>
<tr><td>% Chironomidae</td><td>Impaired</td><td>Impaired</td><td>Impaired</td><td>Impaired</td><td>Impaired</td></tr>
<tr><td>% Isopoda</td><td>Impaired</td><td>Potentially Impaired</td><td>Impaired</td><td>Potentially Impaired</td><td>Potentially Impaired</td></tr>
<tr><td>% Diptera</td><td>Impaired</td><td>Impaired</td><td>Impaired</td><td>Impaired</td><td>Unimpaired</td></tr>
<tr><td>% Insecta</td><td>Potentially Impaired</td><td>Impaired</td><td>Potentially Impaired</td><td>Impaired</td><td>Impaired</td></tr>
<tr><td>HFI</td><td>Impaired</td><td>Potentially impaired</td><td>Impaired</td><td>Impaired</td><td>Unimpaired</td></tr>
<tr><td>SDI</td><td>Impaired</td><td>Impaired</td><td>Impaired</td><td>Impaired</td><td>Impaired</td></tr>
</table></td></tr>
<tr><td>c.</td><td>Discussion regarding how the sites were ranked overall should be included as it is unclear to staff how the overall ranking was evaluated in Section 2.1.5.10. It appears that one or two</td><td>As the Phase 1 report states (Section 2.1.5.10), “all monitoring stations had a fairly homogeneous benthic community with moderate taxa richness. However, all sites lacked Gastropoda and</td></tr>
</table>

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	metrics/indices were used to provide the overall ranking and other metrics/indices were used to corroborate the result. Final assessments of unimpaired, potentially impaired or impaired should be based on the cumulative results of each individual metric. All the index values should be added up and grouped into the three categories that define the health of the stream (unimpaired, potentially impaired or impaired). The majority of the indices determine if it meets the criteria for an unimpaired, potentially impaired or impaired benthic community (i.e. if seven of ten indices were considered unimpaired, the site was categorized as unimpaired).	*Oligochaetes*, indicating **impaired conditions**. The proportion of *Isopoda*, a highly tolerant taxon, at all sites further suggests a **possibly impaired environment**. Furthermore, all sites had relatively low Shannon Wiener Diversity Index and Simpson's Diversity Index scores, indicating **fairly poor, possibly impaired water quality conditions**. The Hilsenhoff Biotic Index and the Family Biotic Index at all monitoring stations also suggest a **poor and fairly poor environmental water quality** as calculated by the family and genus level tolerance" (some text has been bolded in this response, which was not bolded within the Phase 1 report). Not all metrics are easily compared through a simple three category scale (i.e. unimpaired, potentially impaired or impaired), as they describe qualitative water quality parameters. The more directly comparable metrics, EPT Richness, Taxa Richness, % Oligochaeta, % Chironomidae, % Isopoda, % Diptera, % Insecta, HFI, and SDI can be considered to be more important when comparing benthic monitoring stations. In general BTH-001, BTH-002, BTH-003, BTH-004, and BTH-005 can be considered to be Impaired or Potentially Impaired waterbodies due to the high number of impaired results based on the general classification as described in CH's 2012 LEMP report. For further detail: BTH-001 can be considered to be Impaired or Potentially impaired due to the high number of CH recommended indices resulting in an impaired state. This is supported by the high proportion of highly tolerant taxa, and the dominant taxon representing a high proportion of the overall sample. As well as the dominant functional feeding groups being represented by the highly tolerant taxon Chironomidae. BTH-002 can be considered to be Impaired or Potentially impaired due to the high number of CH recommended indices resulting in an impaired or potentially impaired state. This is supported by the very low percentage and richness of sensitive taxa, the dominant taxon within BTH-002 was observed to occupy a comparatively reduced proportion of the total sample suggesting a more diverse community than that observed at BTH-001. BTH-003 can be considered to be Impaired or Potentially impaired due to the high number of CH recommended indices resulting in an impaired or potentially impaired state. This is supported by the very low percentage and richness of sensitive taxa, the dominant taxon within BTH-003 is the highly tolerant taxon Chironomidae occupying a high proportion of the overall sample. BTH-004 can be considered to be Impaired or Potentially impaired due to the high number of CH recommended indices resulting in an impaired or potentially impaired state. This is supported by the very low percentage and richness of sensitive taxa, the dominant taxon within BTH-004 is the highly tolerant taxon Chironomidae occupying a high proportion of the overall sample. BTH-005 can be considered to be Impaired or Potentially impaired due to the high number of CH recommended indices resulting in an impaired or potentially impaired state, however the unimpaired result of the Family Biotic Index does suggest a relatively healthy diversity. The Potentially Impaired state at BTH-005 is further supported by the low percentage and richness of sensitive taxa and the dominant taxon being represented by the the moderately tolerant groups Gammaridae and Elmidae occupying a high proportion of the overall sample.
6.	**Section 2.1.5.2 Vegetation Communities, Page 19:** Discussion regarding FOD3-1, MAM2 and MAS2-1 communities should be included. From Drawings E4A/B it appears that the communities are large enough to warrant their own discussion, rather than being noted as inclusions within the cultural meadows. Further details on the OA should be provided as well, given that there are number of them present within the Study Area and that they may provide	The listed vegetation communities are the following sizes: FOD3-1: 0.43ha

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habitat.	MAM2: 0.34ha MAS2-1:0.11 and 0.4ha As they do not meet the 0.5ha minimum size requirement under the ELC system, they were described as inclusions. It may have been more appropriate to map them as such as well on Drawing 4. The FOD3-1 community is described in the Phase 1 report as: The Poplar Deciduous Forest (FOD3-1) is dominated by Large-toothed Aspen (*Populus grandidentata*) with White Ash, Trembling Aspen (*Populus tremuloides*), European Buckthorn, Canada Goldenrod (*Solidago canadensis*), Tall Goldenrod (*Solidago altissima var. altissima*), Wild Strawberry (*Fragaria virginiana*), Riverbank Grape (*Vitis riparia*), and Field Sow-thistle (*Sonchus arvensis ssp. arvensis*). The MAM2 community is described in the Phase 1 report as: The Mineral Meadow Marsh (MAM2) community is largely dominated by Reed-canary Grass, Lance-leaved Aster, and Purple Loosestrife (*Lythrum salicaria*). The MAS2-1 community is described in the Phase 1 report as: The Cattail Mineral Shallow Marsh (MAS2-1) is dominated by Narrow-leaved Cattail (*Typha angustifolia*), Reed Canary Grass, and European Common Reed (*Phragmites australis ssp. australis*). The OA communities vary in size between 0.03 and 0.29ha and are described in the Phase 1 report as: Several areas of Open Water exist throughout the study area, and are of anthropogenic origin, mostly ponds on the golf course and one dug farm pond. In addition, the artificial ponds have minimal fish habitat with a small number of shading trees. The grass is manicured to the pond edge. This increases the pond water temperature and allows runoff to occur directly from the golf course lands. The eastern most pond on the golf course has emergent vegetation which provides some habitat for fish and amphibian communities. The farm pond east of Hornby Road is surrounded by deciduous trees. Property access was not granted to visit the farm pond.
7. **Section 2.1.5.3 Birds, Page 23:** It is noted that barn swallow, bobolink and eastern meadowlark were observed within the Study Area, however it is unknown whether consultation with the MNRF has occurred to determine if there are any *Endangered Species Act* requirements, such as habitat protection, for these species. Staff recommend consulting with the MNRF in this regard.	Jackie Burkart, MNRF Aurora District Planner, was consulted on May 25, 2016 specifically regarding these species. Ms. Burkart concurs with NRSI's approach taken on these species in the Phase 1 report (personal communication, September 23, 2016). Phase 2 of the SWS will address impact, including impact to these species. The ESA regulations have to be followed through the development process. October 24, 2016 Meeting: Comment satisfactorily addressed; MNRF consultation to be noted in final reporting. Report to include discussion on applicable regulations/management options. Compensation area to be sited in Halton Hills (locally) if possible.
8. **Table 2.1.9 Fish Community Assessment Results, Page 35:** A photo of the Yellow Bullhead (*Ameiurus natalis*) is requested to verify the species as it is not typically found within Conservation Halton's watershed.	A photo was not taken of the Yellow Bullhead. Two aquatic biologists conducted the fish community sampling where this species was identified on September 14, 2015. Both biologists have years of experience conducting a variety of aquatic surveys and identifying fish. Both aquatic biologists have

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		excellent fish identification skills and feel confident in their identification of this species.
9.	**Section 2.1.5.10 Benthic Invertebrate, Page 36**: The lack of Gastropoda and Oligochaetes may not indicate impaired conditions. Site conditions should not be classified based on one or two metrics/indices but on the cumulative results.	It is noted that single metrics do not necessarily characterize the state of a given stream, however the overall condition of each site was based on the analysis of multiple indices. It can also be noted that the lack of any one group may have little effect on the condition of the site. See the response for Comment 5.c) for further discussion.
10.	**Section 2.1.6.1 Significant Wetlands, Page 38:** Recent direction from Aurora District MNRF is that all unevaluated wetlands are assumed to be provinicially significant (PSW) until evaluated and demonstrated to be otherwise, in order to demonstrate conformity with the PPS Policy 2.1.4a). Staff are not in agreement with the approch that the wetlands are "too small to be evaluated on their own merit, as they are less than 2ha in area" for the following reasons:	It should be clarified that the MNRF wants unevaluated wetlands to be ***treated*** as provincially significant where they are proposed for development prior to an evaluation and does not want the assumption made that they are provincially significant (personal communication with J. Burkart, July 13, 2016). MNRF agrees that the wetlands within the Premier Gateway lands do not need to be evaluated through OWES (personal communication with Steve Varga, September 8, 2016). October 24, 2016 Meeting: Compensation to be discussed in Phase 2. Buffers to be established (CH requirements and Region requirements if not designated PSW's). Additional text to be included in final report to document discussions with MNRF and MNRF concurrence. Wetland compensation may be permissible for "non-significant" wetlands subject to further discussion.
a.	The OWES manual indicates that in general, wetlands smaller than 2 ha (5 acres) are not evaluated. However very small wetlands can provide habitat for wildlife or serve other ecological, hydrological, hydrogeological or social functions. This is particularly true in wetland complexes. A single contiguous wetland smaller than 2 ha, and wetland complexes less than 2 ha in size (i.e., total area of all wetland units) can be evaluated provided that the rationale for including them is attached to the Wetland Evaluation Data and Scoring Record (page 22).	NRSI biologists are familiar with the OWES and are trained in it. NRSI has reviewed the "Reasons for the Inclusion of Wetland Units Under 2.0 Hectares in Size" document provided by the MNRF Aurora District Office and according to our assessment, there is no reason to assess the small wetlands within the study area on their own merit. The MNRF concurs that the wetlands within the Premier Gateway lands do not need to be evaluated through OWES (personal communication with Steve Varga, September 8, 2016).
b.	It is indicated that the closest evaluated wetland is 430 metres to the north, which these wetlands may be complexed with. The Hornby Swamp was evaluated in 1982 using the first edition of the OWES manual, and using the most current edition may result in a different scoring of the wetland. At this time, we do not have enough recent detailed information on this feature to determine if it would or would not meet the scoring criteria of a PSW.	The date of the Hornby Swamp wetland evaluation is new information that was not provided to NRSI in our background review; neither the fact that the wetland should be re-evaluated, nor that it may meet the criteria for provincial significance. The re-evaluation of the Hornby Swamp wetland complex is outside the scope of the SWS, as the wetland is outside of the study area. The MNRF was contacted for additional guidance and concurs that the wetlands within the Premier Gateway lands do not need to be evaluated through OWES (personal communication with Steve Varga, September 8, 2016). The Phase 1 report indicated that the Hornby Swamp wetland was 430m from the subject lands. The Hornby Swamp wetland is more than 1km from the nearest wetland pocket in the study area, therefore also outside of the distance to be complexed. The point of the Significant Wetlands discussion in Section 2.1.6.1 of the Phase 1 report was that the wetlands within the study area are very small (0.11, 0.34, 0.48, 0.82ha) and do not merit an evaluation on their own. Even if they were complexed with another wetland, the closest one is a non-provincially significant wetland. As such, the conclusion was made that the wetland pockets within the study area are not provincially significant.
c.	The report states that these wetlands are highly impacted and do not contain any significant features, but one has been identified as Significant Wildlife Habitat.	True. The SWM1-1 community is identified as SWH because Amphibian Breeding Habitat (Woodland) was identified in the pond adjacent to this community. This is noted in Section 2.1.6.3 of the Draft Phase 1 Report.
d.	Finally, the Terms of Reference for the Subwatershed Study indicated that wetlands within the study area would be evaluated, however this has not occurred.	The Significant Wetlands discussion in Section 2.1.6.1 of the Phase 1 report was intended to address the wetland evaluation question.

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	Given that these wetlands are to be retained within the Natural Heritage System (NHS), staff are willing to accept that the evaluation for these wetlands did not occur, provided that a 30 metre setback to the wetlands is maintained and that hydrologic functions remain unimpaired. As per Policy 3.38.3 of the *Policies and Guidelines for the Administration of Ontario Regulation 162/06 and Land Use Planning Policy Document, April 27, 2006, revised August 11, 2011*, no new development is permitted within 30 metres of a PSW or a wetland greater than or equal to 2 hectares in size.	The larger wetland, SWM1-1 (0.82ha) will be included in the Premier Gateway NHS (PGNHS) with 30m buffers. The PGNHS is still being identified and may be revised based on results of the HDF analysis and identification of the Land Use Concept. If any wetland pockets are to be removed, discussions with CH will be initiated to discuss compensation. It is stressed that these "wetland pockets" are very small and highly impacted, especially the MAM2 and MAS2-1 communities.
11.	**Section 2.1.6.4 Significant Wildlife Habitat, Page 39**:	
a.	We agree that the ecoregion criterion specifies that man-made ponds such as "sewage lagoons and SWM facilities" are not Significant Wildlife Habitat (SWH), however the criterion does not state that all man-made ponds are discredited as SWH. Given that five midland painted turtles were observed on a single survey day, it is our option that these ponds potentially offer significant overwintering habitat. We note that these ponds are proposed for retention within the NHS, therefore this habitat should be protected. Enhancement discussions include replication of this habitat elsewhere within the NHS and buffering of these habitats is recommended in future phases of the study.	The Ecoregion Criteria Schedules for Ecoregion 7E state that "man-made ponds *such as* sewage lagoons or storm water ponds should not be considered SWH" (emphasis ours). As such, it is our interpretation that man-made ponds are not to be considered SWH with respect to turtle wintering areas, and that sewage lagoons and storm water ponds are provided as examples. Regardless, this same pond meets the requirements for Amphibian Breeding Habitat (Woodland) SWH, which does not exempt man-made ponds. As such, this pond has been identified as SWH and is protected within the PGNHS.
12.	**Section 2.1.6.5 Habitat of Endangered and Threatened Species, Page 41**: We are appreciative and supportive of the recommendation to seed Milkweed plants in buffer and open areas during and following development to support the Monarch butterfly, a provincial and national Special Concern species.	Noted.
13.	**Section 2.1.6.5 Habitat of Endangered and Threatened Species, Page 41**: As noted above, consultation with the MNRF regarding the observed Species at Risk within the Study Area is recommended. This section indicates that the habitat for bobolink is likely not used for breeding, however the breeding bird field notes indicated that the species was observed in suitable nesting habitat (June 1st survey at station 007).	Based on a single observation in suitable habitat on June 1, the breeding evidence for Bobolink is considered 'possible' (OBBA 2001) under strict application of the survey protocol. However, Bobolink requires large, open expansive grasslands with dense ground cover, such as hayfields, meadows or fallow fields. This species generally requires habitat >10ha in size although use of these areas may be influenced by other landscape attributes such as topography and patch shape (McCracken et al. 2013). In Ontario, hayfields and pastures are preferred, and this species is usually absent from grain fields and row crops (COSEWIC 2010). As such, through analysis as part of Phase 1, the report (Section 2.1.6.5) identified that habitats within the subject area are not considered optimal for Bobolink due to the small, fragmented nature of the open fields, and as large fields are planted in soy and corn, unsuitable for these species. The MNRF was contacted again on May 25, 2016 regarding this species. The MNRF agrees with NRSI's approach taken with regards to Bobolink within the Phase 1 report (personal communication with Jackie Burkart, September 23, 2016). The ESA regulations have to be followed through the development process.
Hydrogeology		
14.	**Section 2.2.4 Characterization and Analysis, Page 52**: The report notes that the Hornby Golf Course is tiled. It is important to understand the extent of the tiles and the discharge points to fully characterize existing hydrologic conditions and potential changes due to development. As required by the Terms of Reference, please research and add a discussion to the report.	The tile assessment is ongoing with the Hornby Golf Course and the available information will be included in the final report. October 24, 2016 Meeting: Work underway; additional work may be completed for subsequent stages of planning study.
Hydrology		

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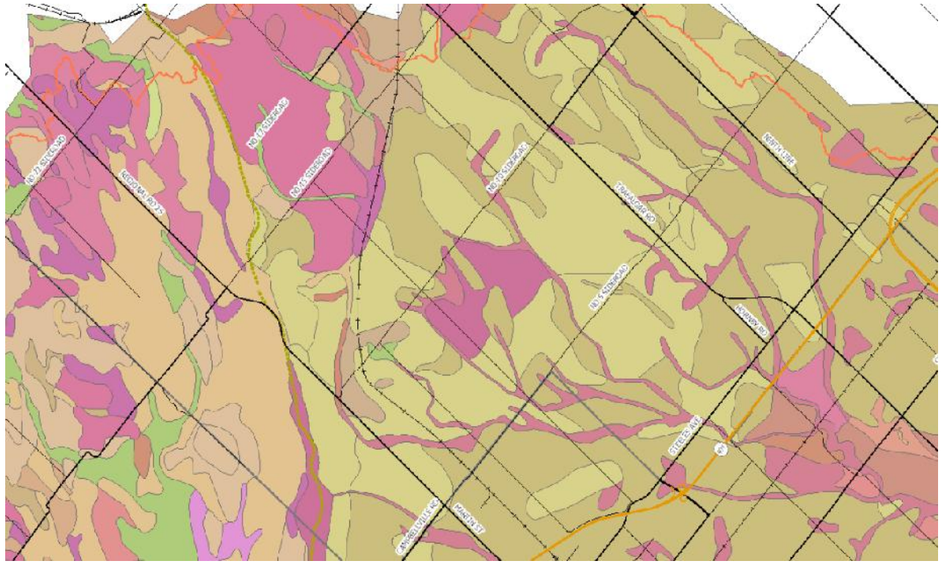
15.	**Section 2.3.3 Field Reconnaissance, Page 55**: There are concerns with the data being used for validation and calibration of the hydrologic model as described below:	October 24, 2016 Meeting: CH to review; further discussion TBA.
a.	Is the flow gauge picking up the appropriate events or is there a lag in which earlier events could be generating the peak flow? How do measured peak flows relate to frequency events? Rainfall of 78 mm generated peak flow of 0.12 cms at a depth of 0.44 m (September 11 – 13, 2015), while no rainfall generated peak flow of 0.68 cms at a depth of 0.64 m.	The rainfall data has been reviewed against nearby stations to verify the coverage of rainfall within the study area. As noted in the Characterization Report, higher permeability material is located below a thinner layer of the Halton Till soil within the drainage areas external to the study area, hence higher infiltration is afforded within these area. Based upon the consistent trend in the runoff response and the insight gained by the hydrogeologic characterization, the lower runoff response is considered plausible and supportable.
b.	What is the anticipated relationship between rainfall depth and runoff coefficient (runoff/rainfall) compared to observed correlation between the two sets of values? It is recommended that the low runoff coefficients be reassessed and justified.	The runoff coefficients have been thoroughly reviewed as part of the characterization study, and are considered supportable. Please note that “actual” runoff coefficients are influenced by more than the amount of rainfall which occurs (i.e. seasonal variations in soil conditions, type of vegetation/crop, evaporation/evapotranspiration, antecedent moisture conditions, etc.), hence it is respectfully suggested that drawing a relationship between rainfall depth and runoff coefficient would be inappropriate and misleading.
c.	Furthermore, low runoff coefficients are being attributed to higher permeability soils within the headwaters of the contributing areas to the gauge; however, based on soil mapping, the entire catchment area consists of type C/D soils with exception of a small pocket at the north end of the catchment identified as soil type A (sandy loam, shown on map as pink, south of railway and west of Sixth Line).  Legend: light brown – Type C (silt loam); darker brown – type C (clay loam); lighter purple – type D (clay loam); darker purple – type C (silt loam); green – type C (loam);	The hydrogeologic characterization has noted a thin layer of the Halton Till north of the study area, which overlays a more permeable material. The thin layer of the Halton Till is considered to afford greater groundwater recharge.

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d.	Please confirm the use of the calculated runoff coefficient. If it is being used for calibration/validation purposes, the approach should be revisited due to lack of accuracy.	As noted above, the calculated runoff coefficients have been thoroughly reviewed as part of the characterization, and are considered to be accurately calculated, supported by the observed rainfall and flow rates, and representative of the conditions within the study area. As such, it is respectfully suggested that the Authority's suggestion that the approach lacks accuracy is inappropriate.
16.	**Section 2.3.4 Characterization and Analysis, Page 57**: The validity of the hydrologic model is questionable based on the limited data and analysis presented in the draft report. Including additional detail and analysis to support results and conclusions is recommended. The key concerns are as follows:	October 24, 2016 Meeting: CH to review; further discussion TBA.
a.	70% reduction factor on peak flows must be justified;	A comparison of the Regional storm event peak flows between the parent HSP-F model with the revised February 2016 model indicated a 28.74% reduction in the peak flows at the outlet of Subwatershed 4 to the Middle Sixteen Mile Creek Tributary. Calibrated infiltration parameters have been applied for the revised model for each catchments in the external areas according to the Parent HSP-F model, hence the reduced simulated runoff compared to those generated by the parent model. The differences in runoff compared to the parent HSPF- model developed as part of the 2000 Subwatershed Study are within anticipated ranges, given the adjustments made to reproduce observed runoff responses from the monitoring data. As noted above, the hydrogeologic characterization has noted a thin layer of the Halton Till north of the study area, which overlays a more permeable material. The thin layer of the Halton Till is considered to afford greater groundwater recharge, therefore a reduction in peak flow rates. The combined effect of higher infiltration and higher interflow recession has attributed to the reduction in peak flows through the external areas which has been carried way through the outlet of Subwatershed 4. The 70% reduction in the peak flows along the regulated watercourses through the middle of the property are based upon comparisons between the refined HSP-F hydrologic model, and the modelling which was developed for the 1986 floodline mapping for the Sixteen Mile Creek Watershed. The differences are considered attributable, in part, to the different modelling platforms applied for the two studies, and also likely due to the different datasets associated with the vintage of the previous modelling.
b.	Results need to be compared to older models with scientifically defensible variations. Please include a discussion of how 2016 flows compare to historical flows (2 to 100-year storm events and Regional);	A comparison to the frequency flows generated by the parent HSP-F hydrologic model will be completed and provided as part of Phase 2. It is respectfully noted that the variations in model response for the Regional Storm event have been documented in the Phase 1 report.
c.	Flows measured do not appear to come close to those identified as 1.25 storm frequency in Table 2.3.4 (e.g. $Q_{1.25\text{-}yr}$=3.6 cms for Middle Sixteen Mile Creek at Steeles Avenue; while maximum measured flow downstream is 2.62 cms, with majority of measurements below 0.5 cms.);	Recognizing that the frequency flow is determined based upon statistical analyses of annual maximum flows, the correlation between the maximum observed flow from the one year of monitoring and the 1.25 year frequency flow is considered plausible.
17.	**Section 2.3.4 Characterization and Analysis – Hydrologic Modelling, Page 58:** Please provide the digital model for review and ensure that the full list of deliverables in the Terms of Reference regarding characterization analysis of hydrology is provided.	Digital copies of the hydrologic model are provided in Appendix D of the Characterization Report.
18.	**Table 2.3.4 Simulated Peak Frequency Flows and Regional Storm Event Flows for Existing Land Use Conditions, Page 61**: Please provide a map showing location of listed Nodes.	The node locations have been added to Drawing WR-3. A copy is attached for reference.
19.	**Table 2.3.5 Erosion Assessment for Existing Land Use Conditions, Page 62**:	

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	It is not clear how results of continuous simulation have been used to assess the existing erosion potential of selected watercourses and what flows were used for the assessment. Please explain how this analysis ties into assessment completed in Stream Morphology section of the report. It is also noted that most downstream reaches within the study area have been chosen for representation, although reaches further downstream likely need to be looked at for this assessment.	The stream morphology section of the report has provided the critical flow, above which erosion is anticipated to occur. The results of the continuous simulation have been reviewed to determine the duration (in hours) of flows above the critical flow. This duration of critical flow exceedance represents the duration of erosive flow, and hence erosion potential, within the study area. October 24, 2016 Meeting: Additional text to be added to justify the site selection.
20.	Hornby Glen Golf Course, located within the study area, maintains a Permit-to-Take-Water. Discussion regarding the golf course's water taking in the context of the existing hydrologic conditions should be included.	The Golf Course-'s Permit-to-Take-Water will be noted within the updated Phase 1 report, and will be referenced in the Phase 2 report to identify constraints to development.
21.	Discussion on climatic conditions typical for the site based on the data collected by the locally installed rain gauge, including whether the period of study was normal, should be included to add context to the hydrologic condition.	This will be added to the final Phase 1 report.
22.	As per the Terms of Reference, the hydrologic analysis should include other historical events in the evaluation such as the August 4, 2014 Burlington Storm and July 8, 2013 Mississauga Storm.	This will be completed as part of Phase 2 to inform the "stress testing" of the SWM strategy.
Hydraulics		
We note that the Hydrologic Model must be revisited and agreed upon before established flows can be used in the Hydraulic Model for hazard delineation.		
23.	**Section 2.4.4 Characterization and Analysis, Page 65**: Please provide a comparison of 2016 and historical flows and parameters.	A comparison to previous modelling has been provided in the Characterization report.
24.	**Section 2.4.4 Characterization and Analysis, Page 65**: Routing the model in mixed flow regime and routing a range of storm events in addition to the Regulatory storm is recommended.	Flows for the full suite of events will be included in the HEC-RAS model. Recognizing that the purpose of the hydraulic analyses is to establish floodline mapping, it is respectfully suggested that executing the model in subcritical profile as opposed to mixed profile would be appropriate, as this would generate the more conservative condition.
25.	**Section 2.4.4 Characterization and Analysis, Page 65**: It is noted that spill is identified from the Hornby Tributary at Steeles Avenue. Based on the assessment, we recommend that discussion regarding crossing improvement considerations occur in future phases of the study.	This will be completed as part of Phase 2. Note: Region of Halton to be consulted as bridges are being replaced.
26.	**Section 2.4.4 Characterization and Analysis, Page 65**: The schematic of tributaries in geometric data does not match true representation and should be addressed. As previously identified, all submitted models are to be georeferenced to NAD 83 UTM coordinate system.	The hydraulic model has been developed based upon an import of the currently approved HEC-2 hydraulic model, and refined as required through the study area, hence geo-referencing of the full model including the external reaches is not within the scope of the Scoped Subwatershed Study. Nevertheless, we note that the cross-section locations are geo-referenced and this information can be provided in digital CAD format if requested by the Authority. October 24, 2016 Meeting: CH to review HEC-RAS model and provide comment; AMECFW to re-send HEC-RAS and HSP-F models.
Fluvial Geomorphology		
27.	**Section 2.5.2.3 Meander Belt Width Delineation, Page 76**: Meander Belt Width has been determined for all reaches within the study area, although it is	Topographic contours (0.25m intervals) were reviewed as part of the meander belt width assessment.

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	understood that some reaches are confined. Please identify reaches that are confined and unconfined. As per Terms of Reference, should Geotechnical Studies of confined systems not be undertaken at this time, conservative estimations of geotechnical parameters (i.e. stable slope inclination of 3:1 and a toe erosion component of 8 metres) are to be used for hazard delineation.	While some of the western reaches (W-T1-3, W-T1-2 and W-T1-1) were noted as entrenched during the field assessment, the bank heights based on topography were primarily between 1.0-1.75m. Under Conservation Halton Policy, top of bank of valley features is defined as being greater than or equal to 2m in height. Therefore based on this assessment, no reaches were classified as 'confined' by a surrounding valley. A secondary review will be completed to determine if there may be any specific locations where the height of the bank is sufficiently high to warrant a confined hazard delineation.
28.	**Section 2.5.2.3 Meander Belt Width Delineation, Page 76**: The Stream Morphology Section should include toe erosion assessment. The assessment should take into consideration widening as dominant mode of adjustment identified for majority of reaches within the study area. Alternatively, a conservative component can be applied as toe erosion for confined systems, as previously indicated. Please confirm if toe erosion of 8 metres is considered appropriate for reaches within the study area.	Toe erosion setbacks are generally applied as part of the PPS erosion hazard delineation for confined systems. Meander belt width delineation for unconfined systems employs either an erosion setback or factor of safety depending on available data. The erosion setback is based on lateral migration rates determined from historic aerial imagery. Due to quality of photos, scale of the watercourse, and density of vegetation, it may not be possible to accurately quantify migration rates. In these cases, a setback of 10% of the preliminary meander belt width is added to both sides as a factor of safety for future erosion. As noted in the previous response because no reaches were identified as confined as part of the meander belt width assessment, there was no toe erosion allowance component. October 24, 2016 Meeting: No confined systems identified by Study Team. CH to review and advise if agree.
29.	**Section 2.5.2.3 Meander Belt Width Delineation, Page 76**: Several methods should be used to determine meander belt width, supported with rationale of which method is most appropriate. Please include reference to acceptable procedures that are used.	Meander belt width delineation methodology is described in section 2.5.2.3 Meander Belt Width Delineation which references the belt width delineation protocol (Parish Geomorphic Ltd., 2004).
30.	**Section 2.5.2.3 Meander Belt Width Delineation, Page 76**: Please provide rationale for applying 10% factor of safety, considering widening is identified as the dominant mode of adjustment for majority of reaches within the study area.	Procedure 3 of the Belt Width Delineation Protocol (Parish Geomorphic Ltd., 2004) outlines the approach for watercourses where there is an anticipated change to land use/cover which will result in changes to the hydrologic regime (flow frequency and duration). Under this procedure the preliminary belt width is multiplied by a factor of safety of 1.20 (or 10% on both sides) to determine the final belt width. This factor of safety is suggested for channels in which the preliminary belt width is >50 m. Therefore because nearly all of the preliminary belt widths for the Premier Gateway study area are less that 50 m, this is a conservative factor of safety.
31.	**Section 2.5.4 Characterization and Analysis, Page 86:** Please identify drainage areas contributing to the detailed assessment reaches.	Please refer to the subcatchment boundary plan (WR-2) provided in the Characterization Report for the contributing drainage areas to the watercourses.
32.	**Section 2.5.4 Characterization and Analysis, Page 86:** Please identify channel bank material in addition to channel bed material.	This will be updated in the report.
33.	**Section 2.5.4 Characterization and Analysis, Page 86**: It is stated that feature E-T1-4 was determined to be an HDF (p. 86); however, it is understood that the feature is being reassessed during the spring 2016 field visit(s), in order to finalize characterization, as stated on page 100.	E-T1-4 was classified as an HDF based on the May 28th, 2015 site visit. It has been assessed and classified as such.
34.	**Section 2.5.4.1 Detailed Characterization – Erosion Thresholds, Page 95**: Terms of Reference state that climate change is to be taken into account when completing erosion	The primary impact of climate change on river systems is changes to the hydrologic regime resulting in

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	threshold analysis. Please identify how this has been addressed.	an altered hydrograph. It is recognized that climate change may result in more frequent higher intensity storms. This will result in river systems becoming more 'flashy'; more frequent peak flows which occur over a shorter period of time. An erosion threshold value is calculated based on the dominant bed material (D_{50}) and the discharge which is required to mobilize that material. The required discharge is a result of both the size of the D50 and channel geometry (cross-section and gradient). While climate change may impact the frequency of flow exceeding the erosion threshold, it does not directly impact the determination of the threshold flow. October 24, 2016 Meeting: Comment addressed.
35.	**Section 2.5.4.1 Detailed Characterization – Erosion Thresholds, Page 95**: Please confirm if the erosion threshold of selected reaches is the most critical based on bed and bank substrate of upstream reaches within the study area. Please also confirm that the rates do not need to be adjusted based on more sensitive reaches further downstream as referenced in the *401 Corridor Integrated Planning Project, Scoped Subwatershed Plan*, prepared by Dillon Consulting. March 2000.	Reach HT-1 was selected for several reasons ► Historic air photos indicate that the channel there was significant planform development in this reach (as well as HT-2a-1, HT-2b-1 and HT-2) between 1978 and 2002. ► The reach is located immediately downstream of the study area and therefore has higher potential for receiving stormwater. ► The reach has experienced minimal impacts from surrounding land use as the surrounding area is undeveloped and the reach appeared unmodified. ► Reaches HT-2a-1, HT-2b-1 and HT-2 were on properties that were not accessible at the time of the detailed field characterization (Sept 2015). Reach W-T1-2 was selected because ► It was located downstream of the study area and is more likely to receive stormwater. ► Reaches within the study area were modified and impacted by surrounding land use (golf course, agricultural use) A detailed field site has since been completed in reach E-T1-2 to provide additional characterization and additional information will be included in the Phase 2 report as appropriate. Based on the 2000 Dillon report, reach HT-1 (reach C) was identified as an erosion sensitive reach. It is the most likely to be impacted by changes to land use within the Premier Gateway study area. This reach was reassessed as part of the current study to determine the appropriate threshold. Therefore the sensitivity of downstream reaches based on the Dillon 2000 report has been addressed.
36.	**Section 2.5.4.1 Detailed Characterization – Erosion Thresholds, Page 95**: Erosion threshold analysis should take into consideration cumulative effective work, as well as cumulative effective discharge. We would be pleased to discuss other cases in the watershed where this is implemented such as North Oakville.	The cumulative effective work analysis is typically undertaken as part of the Phase 2 impact assessment work in the assessment of pre- and post- development conditions. October 24, 2016 Meeting: CH to confirm approach to be used for erosion analysis.
37.	**Section 2.5.4.1 Detailed Characterization – Erosion Thresholds, Page 95**: Please identify equations used for determination of erosion threshold(s).	The erosion threshold section outlines which methods/equations were used to determine the critical value for particle entrainment (shear stress or velocity). The two methods selected were Komar (1987) and Chow (1959). The equation used from Komar (1987) is provided on page 96. Chow (1959) provides an estimation of net tractive force for a range of cohesive soil compositions based on compactness of material. The critical value is interpreted graphically.

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38.	**Section 2.5.4.1 Detailed Characterization – Erosion Thresholds, Page 97**: Please revisit the erosion threshold assessments for Reach W-T1-2 and Reach HT-1 as there appears to be inconsistency in the reach analysis as described below:	
a.	Reach W-T1-2 – On page 97 it is stated that "these types of channels lack alluvial material such as gravel". Furthermore, even based on gravel substrate (D_{50}), the critical discharge is significantly more than bankfull (175% of bankfull discharge). Assessment should provide additional methods of erosion threshold determination for comparison. Please confirm the erosion threshold through field verification (e.g. monitoring as suggested in the Terms of Reference; and, field visits during bankfull or just above bankfull conditions).	Discussion regarding the difference in critical and bankfull discharge was provided in the Phase 1 Report (page 96), "The calculated critical discharge for reach W-T1-2 is 1.49 m3/s. Based on this, bed load transport of the gravel material would be initiated at 174% of the bankfull. This generally indicates that a reach is 'armoured' in that the bed material has sufficiently coarsened to the point that it requires flows larger than bankfull to mobilize it. For reach W-T1-2, the D50 is not overly coarse given the size of the channel; the channel should have sufficient capacity to mobilize the gravel at bankfull or lower. The issue in W-T1-2 is not that the material is too coarse; it is that the channel has become inefficient due to the overly sinuous planform and the resulting low gradient. Because shear stress is primarily derived from slope and depth of flow, the channel needs a higher flow to compensate for the low gradient."
b.	Reach HT-1 – The critical discharge is significantly increased in comparison to findings in the report by Dillon, 2000 for the same reach (e. g. from 5% to 22% of bankfull discharge). Although rationale is provided, the assessment should provide additional methods of erosion threshold determination for comparison. Furthermore, please confirm erosion threshold through field verification (e.g. monitoring as suggested in the Terms of Reference; and, field visits during bankfull or just above bankfull conditions).	We believe the explanation provided in the report text (page 96) is sufficient and do not believe that further work is required. Additionally, the data from the 2000 Dillion study was presented to provide additional context for what was determined in the current study, not for the purposes of validating the current results. Due to the age of the data it can be assumed that there have been changes in substrate and channel morphology over the 15-year period that has elapsed between the two studies resulting in difference that are noted in both the increased threshold (change in substrate distribution) and bankfull discharge estimation (change to morphology). October 24, 2016 Meeting: Comment addressed.
39.	**Section 2.5.5 Summary of Findings, Page 99**: Reach HT-1 is identified as an appropriate surrogate for Reach HT-2. Please identify factors for making this determination considering HT-2 was not visited.	Review of historic and current aerial photography reveals that HT-1 and HT-2 are very similar in terms of historic planform adjustment processes, channel morphology, surrounding vegetation. Thus it can be assumed that had reach HT-2 been visited, similar conditions would have been documented.
40.	**Section 2.5.3.1 Headwater Drainage Feature Assessment, Page 80**: The HDF "first visit" occurred in the spring of 2016. Please provide the results of this assessment and update the relevant sections of the report as required.	A HDF Assessment memorandum has been issued which documents and summarizes the results and management recommendations from the HDF assessment work during 2015 and 2016.
41.	**Section 2.5.3.3 Detailed Characterization, Page 82**: The third site for detailed assessment should be on the East Branch of Sixteen Mile Creek, as previously discussed.	A third detailed site was completed in reach E-T1-2.
42.	The geomorphic analysis should include discussion on the installation of a monitoring site with permanent monitoring pins to be revisited and re-measured for historical changes in the cross-sectional area of the channel at an appropriate stage of the study as per Section 5.0 Geomorphological Assessment, Analysis, item o) of the Terms of Reference.	One monitoring XS was installed in HT-1, not at either of the other sites because conditions weren't appropriate. In reach W-T1-2 the large difference in bank heights made it difficult to install a monitoring cross-section. Reach E-T1-2 was used as a cow pasture and therefore it was not appropriate to install monitoring with rebar exposed.
Integration Summary		

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43.	**Section 3.1 Integration Summary Approach, Page 105**: Staff are concerned with the proposed integration between terrestrial features and the rest of the disciplines being limited to one paragraph on the ground water discharge connection with these features. Given that the Integration Summary "allows the stakeholders to more fully understand the fundamental environmental components and systems within the study area", please revise the descriptions to reflect this direction and provide a more thorough overview.	A more fulsome discussion will be included with the final Phase 1 report. The primary intent of the current discussion was to note that integration occurs at all stages of the study process, with the primary objective being to direct the planning and environmental management system for the study area. October 24, 2016 Meeting: Integration summary to be updated for Phase 1.
44.	**Section 3.1 Integration Summary Approach, Page 105**: Recommendations for crossing upgrades based on field and hydraulic assessments completed to date should be discussed in future phases of the study.	Requirements for hydraulic structure upgrades will be identified in Phase 2.
45.	**Section 3.1 Integration Summary Site Servicing and Stormwater Management, Page 107**: Implementation of Low Impact Development should not be limited to infiltration practices and is to be considered as a treatment-train-approach in site servicing and stormwater management (e.g. water quality component in addition to recharge and baseflow contributions).	Opportunities for incorporating LID's will be identified in Phase 2 and will consider a broader suite of functional and performance objectives.
46.	**Section 3.2 Application, Page 108**: In addition to utilizing the characterization findings and results of the Headwater Drainage Features assessment to help site SWM facilities, a comprehensive constraints plan should be prepared to help delineate development limits.	The constraints and opportunities for managing the watercourses and terrestrial features will be used to develop preliminary siting of stormwater management facilities as part of Phase 2.
47.	**Appendix B Terrestrial and Aquatic Ecology:**	
a.	Please consider adding a column to the Species at Risk/Significant Species Screening Table to identify if the species was observed on the site.	The Species at Risk/Significant Species Screening table already clearly identifies if the species was observed on site or not (final column), and provides information on observations where applicable.
b.	Jefferson salamanders were not observed during the field surveys. Given that targeted surveys were not undertaken as part of this study, we recommend that the notation in the table be revised to reflect this.	NRSI biologists are very familiar with Jefferson Salamanders and their habitat through work on other projects. There is no suitable habitat for this species within the study area. Section 2.1.5.4 of the report clearly states that "Species specific surveys were not conducted and are outside the scope of the current study."
c.	The table indicates that "suitable aquatic habitat is not present within the subject property" for snapping turtles however this turtle has been known to inhabit smaller ponds such as those on the golf course lands. Further, there are records of snapping turtle from the Halton Natural Areas Inventory (NAI) within the study area, specifically along Hornby Road. For these reasons, we recommend that the text in the table be revised to reflect the potential for this species within the study area.	It is agreed that habitat for Snapping Turtle is found within the study area. Section 2.1.5.4 of the report mentions the Conservation Halton sighting from 1989. The Halton Natural Areas Inventory (2006) did not have any study areas within the vicinity of the Premier Gateway study site. The only reference in that report to Snapping Turtle was generic and did not provide locational information (p. 105 of Volume 2). If we have missed records within the Halton Natural Areas Inventory, or if CH has additional information that the public is not privy to, please advise/provide.
d.	Similarly, the table notes that "sand and gravel adjacent to waterbodies" were not observed within the study area. The sand traps adjacent to the ponds may provide this requirement, and turtles could also excavate through small bare patches in the sod. Since five midland painted turtles were observed but targeted nesting surveys were not completed, it is our option that this has not been accurately assessed.	The final column, Assessment Details, in Appendix B, Significant Wildlife Habitat Assessment Tables, Table 3. Characteristics of Specialized Wildlife Habitat for Ecoregion 7E, **Wildlife Habitat: Turtle Nesting Area** (p.4) should be revised to state the following: Candidate SWH. Sand pits within the golf course lands may provide nest sites. Midland Painted Turtles were observed basking within a golf course pond on May 4, 2015. No turtles were observed nesting, although extensive search were not conducted as part of the SWS. NRSI staff contacted the Hornby Glen Golf Course on May 31, 2016 and spoke with one of the golf

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		course employees. According to two staff, turtles have never been observed nesting on the golf course lands.
48.	**Appendix B – Benthic Metric Calculations Tables by Monitoring Station**: The data for the following metrics/indices are missing; Density, Dominant/Subdominant Taxa and Percent Functional Feeding Group. Please include the above noted information as it is utilized in the summary of each station.	Density and subdominant taxa were not identified in the TOR. Functional Feeding Groups are discussed in Section 2.1.5.10 of the Phase 1 report. Reference to density or subdominant taxa will be removed from Section 2.1.4.4 of the Phase 1 report as part of the final reporting, as these were not reported on.
49.	**Drawing E5 Watercourse Thermal Regime**: Based on the information provided regarding the location of the Brook Trout (*Salvelinus fontinalis*) and American Brook Lamprey (*Lethenteron appendix*), presence of watercress and known records of Brook Trout, the East Branch of Middle Sixteen Mile Creek Tributary and Middle Sixteen Mile Creek Tributary will be managed as a coldwater system. The presence of Brook Trout and American Brook Lamprey at the northern edge of the study area indicates that the East Branch Tributary and the Middle Sixteen Mile Creek Tributary provide a migratory route to spawning grounds. Due to the presence of watercress indicating possible groundwater discharge and the fact the West Branch of Middle Sixteen Mile Creek Tributary and Hornby Tributary flow into Middle Sixteen Mile Creek Tributary, staff recommend that these tributaries be classified as coldwater.	The presence of cold water fish species and groundwater indicators in the upper reaches of the East Branch of Middle Sixteen Mile Creek suggest a cold water regime, as indicated on Drawing 5E. Cold water fish were not observed in any other reaches or tributaries. The thermal regime identified for each watercourse segment was based on NRSI field studies. Temperature monitoring will have to be conducted on the watercourses as part of the next phase of planning (SIS) to determine their thermal regime more accurately. October 24, 2016 Meeting: Thermal regime to be confirmed as part of future planning stages.
50.	**Figure WR-3**: Please confirm external drainage area to the Hornby Tributary.	The drainage area to the Hornby Tributary has been verified based upon the topographic mapping provided for this study.
51.	**Figure WR-6**: A more appropriate terminology than “regulated” and “unregulated” watercourses may be “mapped” and “unmapped”, as it is understood that we will collectively determine what features currently unmapped will be regulated.	The reference to “regulated” versus “unregulated” has been applied based upon the Authority’s current practice of regulating watercourses with drainage areas greater than 50 ha. This will be clarified within the text as part of the final reporting.
52.	Section 8.0 of the Premier Gateway Phase 1B Employment Area Integrated Planning Project Terms of Reference notes that an inventory of fish barriers and on-line ponds is to be completed. Please include a section regarding fish barriers and on-line ponds. This section should also discuss whether any watercourses in the study area serve as migration routes, especially for brook trout.	The only potential barrier to fish movement was observed at the Trafalgar Road box culvert due to the potential for flow restriction during low flows. No additional barriers to fish movement were observed within the study area. On-line ponds were observed within the watercourse reaches associated with the golf course lands (reaches HDF-2 and HDF-4, Figure 2.5.3). The remaining ponds within the golf course lands are bypass ponds with single outlets into the east branch of Middle Sixteen Mile Creek Tributary. The east branch of Middle Sixteen Mile Creek Tributary including reaches E-T1-1, E-T1-2 and E-T1-3 (Figure 2.5.3) is a possible migration route for fish. This tributary could be a migration route for Brook Trout. However, the temperature influence of the bypass ponds when water levels are sufficient to allow flow, may provide a thermal barrier to Brook Trout. They may use this tributary for migration in spring and fall; the thermal limitations of the tributary may cause them to stay in the cold water area in the summer. The Hornby Tributary including reaches HT-2, HT-2a-1, and HT-2a-2 (Figure 2.5.3) is also possibly a fish migration route. However, the restriction of flow from the Trafalgar Road box culvert may have an impact on fish trying to move upstream. This tributary would most likely not serve as a migration route for Brook Trout due to the thermal regime of the tributary. No Brook Trout were observed from this tributary during the fish community assessment.

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Editorial Comments	
Table 2.1.4 Electrofishing Conditions, Settings, and Shocking Time, Page 16: Please revise the second reference to “Station EMS-001” to read “Station EMS-002”.	Noted.
Section 2.1.4.4 Benthic Invertebrate Community Assessment, Page 17: There appears to be a typo error within the sentence “Where possible, benthic monitoring sites (BTH) coincided with fish community sampling sites (EMS) (ref. Drawing E3)1.” The “1” should be removed.	Correct.
Section 2.1.5.8 Fish Community, Page 33: Staff recommend that the Latin names of fish species be italicized.	Noted. It is standard practice for NRSI reports to italicize Latin names of all species; it was not done in this report.
Section 2.5.2.3 Meander Belt Width Delineation, Page 76: Please consider presenting Meander Belt Width Delineation Section after Field Reconnaissance Section.	The meander belt width section can moved to after the field reconnaissance section when the phase 1 report is finalized.
Halton Region – Owen McCabe – May 16, 2016	
General Comments	
53. The Draft Characterization Report should be revised to address the comments below, as well as any relevant comments from Conservation Halton ("CH") and the Ministry of Natural Resources and Forestry ("MNRF") prior to its finalization and prior to further detailed land use option development as part of the Premier Gateway Phase 1B Employment Area Integrated Planning Project.	The report will be revised and re-issued at the completion of the study as part of the final reporting. October 24, 2016 Meeting: Generally addressed; contingent upon input required for developing management recommendations.
54. CH staff provide technical advice to the Region and Town with respect to the delineation and assessment of various natural heritage features and areas, aquatic habitat and natural hazard constraints. It is recommended that comments prepared by CH staff in response to the Draft Characterization Report be addressed prior to the finalization of the Draft Characterization Report.	See above
55. Sixteen Mile Creek has 4 branches: West, Middle, Mid-East and East Branches. The study area is in the ’Mid-East subwatershed’ and the tributary is called the ’Mid-East Branch of Sixteen Mile Creek’. The Draft Characterization Report refers to the tributary as ’Middle Sixteen Mile Creek Tributary’ or ’Middle Branch of Sixteen Mile Creek’. It would be our preference to be consistent with the naming of the tributaries with Conservation Halton mapping.	The subject reach of the Sixteen Mile Creek will be referred to as the “Middle Branch of Sixteen Mile Creek”. The Phase 1 report will be updated for final reporting to consistently apply this reference.
Baseline Inventory – Natural Environment Existing Conditions	
56. **Section 2.1.3 -Terrestrial Field Survey Methods:** It appears on Drawing E2 as though much of the study area was not surveyed directly; presumably due to the access restriction timing outlined on Map 1. In particular it appears that surveys for grassland birds across many of the agricultural fields may have been missed. Similarly, the amount of time utilized for the vascular flora inventories outlined in Table 2.1.2 appears low considering the size of the study area. Finally, the level of survey effort related to bats is not clear. It appears that while only suitable cavity trees were directly searched for, incidental observations of bats were	Surveys were completed in accordance with the SWS TOR. Property access was a factor, however NRSI staff believe that the study area could be surveyed sufficiently. There really is no suitable habitat for grassland birds in the study area. The agricultural fields are planted in corn and soy, not suitable for these species. As the report identifies (Section 2.1.6.5), “Habitats within the subject area are not considered optimal for either species [i.e. grassland birds] due

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	encountered. However, while Section 2.1.5.5 indicates that bats cannot be identified to species without specific acoustic surveys, a particular species has been recorded in the species list (Big Brown Bat: Eptesicus fuscus). There should be a discussion included in the Report that provides rationale as to why the level of effort completed for the study is sufficient.	to the small, fragmented nature of the open fields, and as large fields are planted in soy and corn, unsuitable for these species." Admittedly, more time could have been spent surveying vegetation in the study area given a larger budget. However, thorough vegetation inventories were completed May 4, when 10 person hours were spent within the study area. Surveys later in the year (June 29, Sept. 1) were conducted to search for species not observed during the first inventory. As such, these surveys did not take as much time, but still consisted of 3 hours (one person). Only properties where permission to enter was granted could be accessed. Natural features are very limited within the study area. The survey effort is consistent with what can be expected from a scoped SWS. As per the SWS TOR, cavity trees for potential bat habitat were identified during vegetation surveys. The mammal species list should not have identified a specific species, as the report is correct: "bats cannot be identified to species without specific acoustic surveys" (Section 2.1.5.5). Surveys were completed in accordance with the SWS TOR and within the budget available. Bat surveys are extremely expensive. Bat surveys are generally recommended when bat habitat (i.e. woodlands) are being removed, which is unknown (and unlikely) at this time. October 24, 2016 Meeting: Include additional text in final reporting regarding extent and adequacy of field work for current level of planning and study.
57.	**Section 2.1.5 - Characterization and Analysis:** Some of the ELC community classifications reported for the Coulson Tract differ from those identified in a Profile of the Halton Forests prepared for the Region (Gartner Lee, 2002). Further, Regional staff is not in agreement with some of the report polygons based on a site visit on April 28, 2016. The most notable difference is the forested polygon along the upstream portion of the Hornby Tributary. The Profile of the Halton Forests report identifies this as an FOD 7-4 Fresh-Moist Black Walnut Lowland Deciduous Forest Type while the Draft Characterization Repor:t identifies this area as CUP 1-3 Black Walnut Deciduous Plantation. Regional staff are in agreement with the FOD 7-4 classification based on our site visit and the fact that the 1954 Historic Air Photo provided in Appendix F of the Draft Characterization Report displays these lands as treed while the remainder of the Tract is cleared (i.e. has not been converted into plantation yet). This distinction is important as the FOD 7-4 community is considered an S3 - Rare community type in Ontario which confers Significant Wildlife Habitat (SWH) status upon it and is therefore also a Key Feature in the Regional Natural Heritage System (RNHS). Revise the classification for this area and include the polygon as SWH. The remainder of the different polygons are differences between plantation types and therefore do not need to be revised. The wetlands identified through the ELC on Drawings E4a and E4b do not match CH wetland mapping. While recognizing that field-truthing is generally more accurate, the identification and delineation of wetlands across the study area should be confirmed by CH. Native Honey Locust (S2}, a rare species in Ontario has been identified in the vegetation list. Although this species does not receive any formal protection, every effort should be made to preserve all occurrences of this species. The Draft Characterization Report should make this recommendation to help ensure it will be carried through to subsequent stages including the finalization of the Premier Gateway Natural Heritage System (PGNHS). Similarly, a regionally rare odonate (Beaverpond Baskettail- Epitheca canis) was identified in the study area; however, its location was not reported. Recommendations to preserve its habitat within the refined PGNHS should be included in the report.	NRSI botanists stand by their assessment of the Black Walnut community as a plantation. The community, although naturalizing well, has Black Walnut growing in rows, clearly indicating this is a plantation. Staff who assessed the Black Walnut community have a clear understanding of what a natural and provincially significant FOD7-4 Fresh-Moist Black Walnut Lowland Deciduous Forest looks like through a field trip with the Field Botanists of Ontario (FBO) to a site on the Ausable River, where this community was encountered. As well, NRSI has identified such communities through other project work in other locales. The only natural vegetation community within the Coulson Tract is the FOD7 Fresh-Moist Lowland Deciduous Forest along the tributary. This community contains Black Walnut as well, but these have spread from the plantation (CUP1-3). Also to note is that there is a small area of planted Bur Oak within the CUP1-3 Black Walnut Deciduous Plantation, which has not been encountered by NRSI biologists before. The entire Coulson Tract is recommended for protection and is included in the PGNHS. CH has reviewed the Phase 1 report and we have addressed their comments on wetlands. CH did not provide wetland mapping to us when we requested background data. Honey Locust were observed growing within the FOD7-3 Fresh-Moist Willow Lowland Deciduous Forest community on the golf course property. Honey Locust (*Gleditsia triacanthos*) was listed in the appendix, however, as the report states (Section 2.1.5.2; p. 22), "The origin of the Honey Locusts is unknown; some thorns were observed on some individuals, whereas some individuals remained thornless, suggesting these trees were planted and are of non-native origin, therefore not significant. As well, the Honey Locusts appeared to be evenly-aged, suggesting an anthropogenic origin." As such, these trees would not require protection for their significance, but as trees, they may require compensation if removed. As the FOD7-3 community straddles a watercourse, the community and the trees are protected within the proposed PGNHS. The Beaverpond Baskettail was observed May 4, 2015 from a fairly open area within the CUP1-3 community, north of Trafalgar Road and east of the tributary. This community is found within Coulson

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		Tract and the Regional forest is being protected in the PGNHS and so habitat for this species will also be protected. Habitat for this species is the following: "The species is found in rivers and slow streams; sloughs seem preferred over ponds and lakes in Northwest, but latter also used. Aquatic vegetation usually prominent. Males more likely at moving water than other *Epitheca*, sometimes even over swift streams. More likely over bog ponds in eastern part of continent." Source: Paulson, D. R. 2009. *Tetragoneuria canis*. The IUCN Red List of Threatened Species 2009: e.T165019A5963972. http://dx.doi.org/10.2305/IUCN.UK.2009-2.RLTS.T165019A5963972.en. Downloaded on 01 June 2016.
58.	**Section 2.1.6 -Associated Drawings:** In addition to Drawings E5 and E6, please provide Drawings to illustrate the location of all Key Features identified within the study area.	Section 115.3 of ROPA 38 lists key features as: ► significant habitat of Endangered and Threatened species ► significant wetlands ► significant coastal wetlands ► significant woodlands ► significant valleylands ► significant wildlife habitat ► significant Areas of Natural and Scientific Interest ► fish habitat Significant woodlands are found within the study area and are shown on Drawing E4 (ELC communities) and coincide with the Habitat for Eastern Wood-Pewee as shown on Drawing E6. Significant Wildlife Habitat is shown on Drawing E6. Fish habitat is shown on Drawing E5 as indicated by "watercourse".
59.	**Section 2.1.6.1 - Significant Wetlands:** According to the definition of significant wetlands contained in Section 276.5(3) of the Regional Official Plan (September 2015 Office Consolidation), for lands within the RNHS, but outside the Greenbelt Plan Area, the term significant wetlands means Provincially Significant Wetlands and wetlands that make an important ecological contribution to the RNHS. Confirm whether any of the non-Provincially Significant Wetlands in the study area would be considered significant wetlands based on their ecological contribution to the RNHS and ensure any significant wetlands will be incorporated as Key Features within the refined PGNHS and be buffered appropriately (i.e. with a 30m Buffer). We note that the statement that the wetlands "do not contain any significant features" is inaccurate as the SWM1-1 wetland polygon has been identified on Drawing E5 as SWH.	Section 276.5(3) of the Regional Official Plan (September 2015 Office Consolidation) states that regionally significant wetlands are provincially significant wetlands and wetlands *within* the RNHS that make an important ecological contribution to the RNHS. 2 of the 4 wetland pockets are found within the RNHS: SWM1-1 on the golf course and MAM2 along the eastern tributary. As the SWM1-1 community is part of the Amphibian Breeding Habitat (Woodland) SWH, it provides significant ecological contribution to the RNHS. The MAM2 community does not provide significant ecological contribution to the RNHS. As such, the SWM1-1 wetland pocket is considered regionally significant; the MAM2 community is not. The SWM1-1 is protected within the PGNHS. The MAM2 community may be as well, but the final PGNHS configuration is yet to be identified. Correct. The SWM1-1 community is identified as SWH because Amphibian Breeding Habitat (Woodland) was identified in the pond adjacent to this community.
60.	**Section 2.1.6.5 - SAR Habitat Protection:** Please confirm how the habitat for SAR will be considered through more detailed study at the development stage. Further, provide rationale as to why this is acceptable along with consultation with MNRF as needed. As a Key Feature in the RNHS per Section 115.3 of the Regional Official Plan (September 2015 Office Consolidation), it is preferred that any lands required to be set aside for the protection of identified existing and potential SAR (Barn Swallow, Bobolink, Eastern Meadowlark, and bats) within	The MNRF was contacted May 25, 2016 for further guidance on SAR and concurs with NRSI's approach to SAR in the Phase 1 report (personal communication with Jackie Burkart, September 23, 2016). As per the Phase 1 report, habitat for Bobolink and Eastern Meadowlark is not found within the study area. Barn Swallows are likely nesting within the study area and were observed foraging over fields. If barns, bridges, or other structures are to be removed, renovated, or repaired, a search for Barn Swallow nests must occur. If Barn Swallow nests are observed, the Endangered Species Act regulations must be

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	the study area be identified at this time and be incorporated within the refined PGNHS.	followed, which includes the following: 1 km of the original nest and within 200 m of suitable foraging habitat certain observations Swallows is destroyed Source: https://www.ontario.ca/page/alter-structure-habitat-barn-swallow (Accessed June 1, 2016) SAR bats may be impacted if trees are removed. A cavity search of trees to be removed will be required, as well as potential acoustic bat surveys. The MNRF should be contacted for guidance if trees are to be removed. The ESA regulations have to be followed through the entire development process. October 24, 2016 Meeting: Comment addressed; communication with MNRF to be documented in final reporting.
61.	**Section 2.1.6.6- Linkages:** PGNHS.	Noted. Linkages are included in the PGNHS. October 24, 2016 Meeting: Reference to “limited” linkage opportunities to be removed; study to provide map depicting linkages and enhancement areas.
62.	**Section 2.1.7- Natural Heritage System**	
a.	Unmapped Key Features- Any Key Features identified through the Subwatershed Study process that were not previously mapped as part of the RNHS should be included in the refined PGNHS and be buffered appropriately (i.e. with a 30m buffer). These previously unmapped Key Features should also be included on Drawings consistent with Comment #6 above.	Refer to the response of Comment 58. The PGNHS will be identified and detailed in Phase 2.
b.	Enhancements- the Report makes no reference to RNHS Enhancement Areas within the study area. A discussion in this regard is required. Enhancement Area refinements, including additions, removals, and relocations, must be discussed in the Subwatershed Study.	The Phase 1 report (Section 2.1.6.6) states “Map 1G of ROPA 38 identifies the RNHS, as well as the Greenbelt NHS, and key features within each NHS. *Enhancement lands* are part of the RNHS within the study area, as shown on Map 1G (see Appendix VI)” (emphasis added). The components, including enhancement lands, are also listed in Section 2.1.7 of the Phase 1 report. The preliminary PGNHS does include enhancement areas. These will be discussed and identified in the Phase 2 report, once the final PGNHS is identified.
c.	NHS Components Drawing - Please include a figure that clearly shows all Key Features (by type), Buffers, Linkages, and Enhancements that will comprise the refined NHS for the study area.	This will be completed as part of Phase 2, once the PGNHS has been identified.
d.	Refinements to the RNHS -This Section describes potential refinements to the RNHS to consider in the refined PGNHS. There is no discussion in the report regarding any of these	Refinements to the RNHS will be discussed in the Phase 2 report once the PGNHS has been identified. The removal of existing homes from the NHS is consistent with the agreed to approach by the Region

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	potential refinements. Justification for the refinements should be provided. With respect to potential refinements to avoid existing residences adjacent to the Coulson Tract, it is not clear that this refinement is justified. In consideration of the fact that the Secondary Plan will be proposing a new Land Use category that will affect many of the residences in the study area, it is not clear why the PGNHS needs to be refined to avoid the residences that could ultimately be replaced to accommodate Employment Lands.	and Town in the former Hamlet of Stewarttown in OPA 10.
e.	Drawing E7- please revise the legend item which reads "Natural Heritage System" to identify it as the proposed Premier Gateway Natural Heritage System, and, revise the drawing to show the existing RNHS underneath the refined PGNHS for context.	The NHS for the study area will be referred to as the PGNHS in future mapping and reporting.
63.	**Section 2.1.5.7- Aquatic Monitoring Stations**	
a.	Reference Reach Naming Convention - the naming convention of monitored reaches used should be based on the tributary instead of being named by proximity to landscape features. For instance, the 'GOLF' prefix describes 3 separate tributaries and GOLF004 flows into Steeles001. It would be preferred to use a naming convention that reflects the tributary (i.e. the Golf004 and Steeles001 should have the same prefix as they are the same tributary and coded with numbering starting from the most upstream reach to the furthest downstream). An option is to adopt the reach naming convention seen in Section 2.5.2.1 to maintain consistency throughout the document.	Thank you for the comment. We will keep this in mind for future projects, but to remain consistent with field sheets, the terminology is maintained for this report.
b.	Descriptions of Aquatic Monitoring Reaches- Consistency in the descriptions of each site would be helpful in this characterization. Not all the descriptions have the date surveyed tied to the observations and some do not have the temperature regime listed. Please include the same amount of detail in each description.	The requested information is provided in Table 2.1.8 of the Phase 1 report. The write up on each reach was to provide more of an overview and description of the reach; information that could not be provided well enough within the table.
Integration Summary - Approach		
64.	**Section 3.1 – Approach** In discussing integration between disciplines it is concluded that the assessments "suggest relatively higher quality surface water through the study area compared to findings from other studies in similar settings". However, in Section 2.1.6.3 it was indicated that "Benthic sampling indicated all the watercourses within the study area are impaired" and the results of the RSAT and RGA assessments in Section 2.5.3.2 resulted in 'moderate to low' stream quality and a majority of 'transitional/stressed' classifications for the stream reaches respectively. This apparent discrepancy should be rationalized as part of the integrated assessment and any associated opportunities for enhancement of the PGNHS should be recommended.	The significance and sensitivity of the aquatic resources based on NRSI's field work is summarized in Section 2.1.6.3 of the Phase 1 report. The characterization of the surface water chemistry will be clarified as part of the final report to note that the characterization relates to the Middle Branch of Sixteen Mile Creek, and will back-reference the findings of the benthic sampling to characterize the water quality for the reaches within the study area.
Halton Region – Owen McCabe – August 23, 2016		
General Comments		
	Halton Region staff have reviewed the Report titled "Results of Headwater Drainage Feature Assessment for Premier Gateway Seeped Subwatershed Study" prepared by Parish Aquatic Services, dated June 3, 2016 (the "HDF Assessment") and offer the comments below.	
65.	The HDF Assessment should be revised to address the comments provided below, as well as any relevant comments from Conservation Halton ("CH"), prior to its finalization. Once finalized, it should be integrated into the Premier Gateway Seeped Subwatershed Study so as to reflect any	Noted. Responses to the individual comments are provided below.

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	refinements to the Natural Heritage System required to accommodate the Management Recommendations. The Subwatershed Study should also incorporate recommendations to ensure any mitigation recommendations are carried forward into the Secondary Plan, EIR, and Detailed Design stages of the Integrated Planning Project.	
66.	CH staff provide technical advice to the Region and Town with respect to the delineation and assessment of various natural heritage features and areas, aquatic habitat and natural hazard constraints. It is recommended that comments prepared by CH staff in response to the HDF Assessment be addressed prior to its finalization.	Noted.
67.	Appendix A of the HDF Assessment contains a Summary Table which includes information regarding the Classification of the HDFs and the resulting Management Recommendations. For certain HDFs, the information and rationale used to determine the appropriate Classifications and Management Recommendations are unclear and/or appear to be incorrect. As a result, Regional staff cannot support the management recommendations (both 'Protocol' and 'Final') for many of the HDFs at this time. These are described in greater detail in the 'Specific Comments' section below.	Noted. Specific responses are provided below to the corresponding comments regarding the findings and recommendations of the HDF assessment.
68.	It is recommended that a meeting between the Region, the Town, Conservation Halton, Parish Aquatic Services and other appropriate members of the consultant team be held to discuss these comments and help ensure agreement on the required revisions.	Noted.
69.	Under Step 1 - Hydrology, many of the HDFs were reported as 'Limited or Recharge'. As none of the Management Recommendations were to maintain recharge, it is assumed that the actual hydrological determination was 'Limited'. As was done for 'Valued' and 'Contributing' hydrology, reporting the actual classification rather than the category associated with Figure 2 of the Protocol would aid in review. Please confirm the actual Hydrology Classification is 'Limited' for all of the relevant HDFs.	Agreed this will be updated in the tables.
70.	Certain Management Recommendations provided in the Summary Table are not depicted consistently in the Figures in Appendix B (for example, HT-2b-2 S2 and E-T1-4 S2). These should be corrected.	Noted, Figures in Appendix B will be updated to be consistent with the provided Summary Table.
Specific Comments		
	The following comments pertain to the Classifications and Management Recommendations as described and shown in Appendix A and Appendix B of the HDF Assessment.	
71.	**Section HT-2b-3b** The rationale for changing the 'Protocol' Management Recommendation ('Mitigation') to the 'Final' Management Recommendation ('No Management') is not understood. Therefore staff cannot determine if the Management Recommendation for this HDF is supported.	As discussed on Page 1 of the HDF report, the Site Visit #1 was completed under somewhat different conditions than a traditional freshet event as outlined in the CVC/TRCA protocol. The visit was completed closer to the melt event than is suggested due to the lack of snowpack in 2016. This seemed to result in higher flows than would normally be anticipated for a typical Site Visit #1. As mentioned in the summary table, this impacted the classifications for HT-2b-3b and HT-2b-3a. Based on the conditions during Site Visit #2, in which no evidence of the features was noted, it was concluded that 'No Management' is a more appropriate management recommendation. We are open to further discussion on this feature or a site visit if the Region would find it beneficial.
72.	**Section HT-2b-3a**	

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	As the Summary Table notes indicate flows were observed, the Hydrology Classification ('Limited or Recharge') appears incorrect. As such, the Management Recommendation is not supported.	As discussed on Page 1 of the HDF report, the Site Visit #1 was completed under somewhat different conditions than a traditional freshet event as outlined in the CVC/TRCA protocol. The visit was completed closer to the melt event than is suggested due to the lack of snowpack in 2016. This seemed to result in higher flows than would normally be anticipated for a typical Site Visit #1. As mentioned in the summary table, this impacted the classifications for HT-2b-3b and HT-2b-3a. Based on the conditions during Site Visit #2, in which no evidence of the features was noted, it was concluded that 'No Management' is a more appropriate management recommendation. We are open to further discussion on this feature or a site visit if the Region would find it beneficial.
73.	**Section HT-2b-3** The Management Recommendation is supported, subject to the further assessment of the feature's location within the regulated area as requested by Conservation Halton.	No response needed
74.	**Section HT-2b-2** The Terrestrial Classification for S1 ('Limited') appears incorrect as wetland is present along the channel. The correct Classification may alter the Management Recommendation. The 'Protocol' Management Recommendations for S2 and S3 are incorrect as the Protocol requires downstream segments to be upgraded to match upstream segments. Nevertheless, the 'Final' Management Recommendations for S2 ('Conservation') and S3 ('Watercourse') are supported provided S1 does not change based on the above, and subject to the further assessment of the feature's location within the regulated area as requested by Conservation Halton.	The Terrestrial Classification for S1 was identified as 'Limited' for several reasons: 1) No breeding amphibians (i.e. not 'Important' function); 2) Does not act as stepping stone habitat (no wetlands up or downstream) (i.e. not 'Valued' function); 3) The feature does not connect other features upstream or downstream (i.e. not 'Contributing' function) – upstream are agricultural fields and just downstream is Trafalgar Road and beyond that more agricultural fields and some cultural meadows; 4) The area comprised of wetland vegetation present along this segment is very small (0.3ha). Upon reviewing the ELC classifications in the area, the wetland vegetation in combination with the small cultural meadow, it could be argued that the HDF provides 'Contributing Functions' for Terrestrial. However, this does not change the end result of the overall management recommendation. Agreed regarding the 'Protocol' recommendations for S2 and S3, they have been upgraded to be consistent with S1.
75.	**Section HT-2b-4** Management Recommendation supported.	Original mapping provided for HT-2b-4 suggests that the feature is related to the two wetland features identified as part of the ELC classification completed by NRSI. The two wetland features are both classified as MAS2-1 (cattail mineral shallow marsh). When the field assessment was completed (Site Visit #1) water was pooling along the edge of the agricultural field as a result of furrowing and altered drainage. This water did not appear to be properly draining two the two wetland areas and was flowing in a northwest direction along the edge of the field. Therefore an additional line was added to indicate where the water was primarily draining due to the landscape modification. The two wetland pockets are very small (0.11 and 0.48ha) and are dominated by Narrow-leaved Cattail, Reed Canary Grass, and European Common Reed, the latter which is non-native and highly invasive plant species. These wetland pockets may be removed, but as per above, under Comment 10, if any wetland pockets are to be removed, discussions with CH will be initiated to discuss compensation. It is stressed that the 'wetland pockets' are very small and highly impacted, especially the MAM2 and MAS2-1 communities. We are open to further discussion regarding this feature as drainage patterns in this area were complex and altered.
76.	**Section HT-2b-4b**	

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	Management Recommendation supported.	No response needed
77.	**Section HT-2b-4a** Management Recommendation supported.	No response needed
78.	**Section E-T1-4** It is not clear that the 'Limited' Riparian and Terrestrial Classifications are correct given that a significant portion of the HDF appears open on aerial imagery. Additionally, it is not clear why 'Contributing' was selected as the Fish Habitat Classification. Fish are recorded in E-T1-3. Is there a barrier that prevents seasonal access to E-T1-4 and/or no suitable habitat present? Based on these unknowns, it is not clear if staff can support the Management Recommendation for S1. The Management Recommendation for S2 is supported, subject to the further assessment of the feature's location within the regulated area as requested by Conservation Halton.	E-T1-4 S1 was given 'Limited' classification for both Riparian and Terrestrial habitat because the classification is based on the dominant surrounding vegetation class. While there were narrow riparian buffers (1-2m), the dominant vegetation was manicured lawn. This is supported by the ELC mapping completed by NRSI. For ET-1-4 S2, the terrestrial classification can be increased to 'Contributing' based on the ELC classification of FOD7-3; this does not impact the Management Recommendation. For both segments (S1 and S2) the fish habitat classification was based on the piping of the feature across the golf course, which would be a barrier to fish. However this can be more refined, to allow S2 to be classified as 'Valued' fish habitat up until the point of the first piped section. Mapping will be updated to show this more clearly. Increasing fish habitat classification to 'Valued' will increase the Management Recommendation to 'Protection'. This will match the Final Management Recommendation.
79.	**Section HDF-1** The 'Valued' Riparian Classification corresponds to meadow while the 'Valued' Terrestrial Classification corresponds to wetland – assigning these two classifications in conjunction appears inconsistent. The Subwatershed Study ELC Characterization did not classify this HDF and therefore is not helpful in resolving this. However, the notes in the Summary Table indicate that tadpoles were observed in the feature and therefore the HDF was assigned a 'Valued' Classification. This appears incorrect as the Protocol indicates that the presence of breeding amphibians dictates an 'Important' Terrestrial Classification. Further, the Riparian Classification could be 'Important' as well due to the presence of wetland (considering there are breeding amphibians). These issues would not change the 'Protocol' Management Recommendation from 'Protection', but would remove the stated rationale for downgrading the 'Final' Management Recommendation to 'Conservation' as the hydrology arguments would not matter. As such, the Management Recommendations are not supported.	The 'Valued' Riparian Classification was given based on the surrounding vegetation being a combination of meadow and agricultural. After additional discussion and review of the feature, the Riparian Classification will be changed to 'Limited' due to the lack of substantial area of meadow vegetation. NRSI did not identify a separate ELC community along the HDF, as it did not meet criteria for being mapped separately. The Terrestrial classification was given 'Valued' due to the presence of tadpoles in an isolated pool that formed in a farm lane depression (see Photos 123 and 124 in Appendix of HDF report). After additional discussion and review, the Terrestrial Classification will be changed to 'Contributing'. This area was not assessed using the Marsh Monitoring Protocol by NRSI, as it was not identified as a wetland. Calling anurans were not noted from this area during surveys at other locations within the study area. This feature likely serves as a movement corridor, but does not classify as breeding amphibian habitat. We feel that the 'Conservation' classification is appropriate but would be open to further discussion or a site visit to confirm conditions.
80.	**Section HDF-2** The 'Limited' Riparian Classification appears incorrect as the feature is open and vegetated on aerial imagery. Similarly, it is not clear that the 'Limited' Terrestrial Classification is appropriate given the feature connects two ponds, one of which is associated with a swamp and has been identified in the SWS as containing Woodland Breeding Amphibian SWH. Additionally, the rationale for downgrading the 'Final' Management Recommendation to 'No Management' is unclear. Is it being suggested that there would not even be an ephemeral HDF if the ponds were not present? Finally, some discussion regarding whether the feature should be considered to extend through the upstream pond and into the swamp community is warranted. Due to the above, the Management Recommendation is not supported.	The 'Limited' riparian classification was given as the riparian buffer was only 1-2m before transitioning to manicured lawn, therefore the dominant vegetation is manicured lawn. This is consistent with the ELC completed by NRSI. Based on additional discussion, the Terrestrial Habitat classification should be 'Contributing' as the HDF connects 2 ponds in which breeding amphibians were noted, but the HDF corridor itself does not include wetland. The HDF would therefore serve as a movement corridor between the two ponds. It does also appear that there is a connection between the HDF and the upstream swamp (SWM1-1) upon review of historical aerial imagery. Considering this and the increased classification for Terrestrial Habitat, this feature can be considered 'Mitigation'. The classification will be updated to reflect this.

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81.	**Section HDF-3** A defined swale can be seen on aerial imagery. As such, it is not clear how a 'Limited' Hydrology Classification was assigned. What maintains the feature if there is no flow? The 'Limited' Riparian Classification appears incorrect as the feature is vegetated on aerial imagery. Given the uncertainty regarding the Hydrology Classification, the Management Recommendation is not supported.	The 'Limited' Riparian Classification was given as the riparian buffer was only 1-2m before transitioning to manicured lawn, therefore the dominant vegetation is manicured lawn. This is consistent with the ELC completed by NRSI. For the Hydrology Classification, only standing water was noted during Site Visit #1 which indicates that the classification should be 'Limited'. The feature is located on the golf course and flow is likely a result of the altered surface drainage. We feel the 'No Management' classification for this feature is appropriate.
82.	**Section HDF-4** The 'Limited' Riparian Classification appears incorrect as the feature is vegetated on aerial imagery. The rationale for downgrading the 'Final' Management Recommendation to 'No Management' is unclear. Due to the above, the Management Recommendation is not supported.	The 'Limited' riparian classification was given as the riparian buffer was only 1-2m before transitioning to manicured lawn, therefore the dominant vegetation is manicured lawn. This is consistent with the ELC completed by NRSI. For the Hydrology Classification, increased flow was present during Site Visit #1 due to the timing of the visit in relation to the melt event. Additionally it was felt that the altered drainage of the golf course may have increased the permanence of this feature beyond natural conditions (the 1954 pre golf course photo was reviewed). This is why the Final Management Recommendation was reduced to 'No Management'.
83.	**Section HDF-4a** This feature is not labelled on the accompanying figures. As such it is not clear which HDF was assessed. There appear to be two HDFs extending north from HDF-4. It is assumed it was one of these but it is noted that both should be included in the assessment. The 'Limited' Riparian Classification appears incorrect as both features are vegetated on aerial imagery. Defined swales can be seen on aerial imagery. As such, it is not clear how a 'Limited' Hydrology Classification was assigned. What maintains the features if there is no flow? Due to the above, the Management Recommendation is not supported.	Figures will be updated to show proper labelling of HDF-4a. The 'Limited' riparian classification was given as the riparian buffer was only 1-2m before transitioning to manicured lawn, therefore the dominant vegetation is manicured lawn. This is consistent with the ELC completed by NRSI. For the Hydrology Classification, only standing water was noted during Site Visit #1 which indicates that the classification should be 'Limited'. The feature is located on the golf course and flow is likely a result of the altered surface drainage. We feel the 'No Management' classification for this feature is appropriate.
84.	**Section W-T1-2b** The accompanying text (supported with photographs) indicates that S1 is diverted towards Sixth Line. As such, this drainage path should be assessed as an HDF in its entirety and S2-S3 should be considered to be a separate HDF. Notwithstanding, the Management Recommendations are supported, subject to the consideration of comments from Conservation Halton.	The portion of S1 that was diverted toward Sixth Line was walked during the assessment. It drains to the roadside ditch running parallel to Sixth Line. As noted in the HDF reporting, it was unclear what portion of the flow continues through S2 as these properties could not be accessed. We do not think it is appropriate to assess S2 and S3 as a separate HDF.
Conservation Halton – Matt Howatt – August 5, 2016		
Overview and General Comments		
	The assessment provides two sets of management recommendations for Headwater Drainage Features (HDF). One set of "protocol" management recommendations is based on the *Evaluation, Classification and Management of Headwater Drainage Feature Guidelines* (2014) prepared by the Toronto and Region Conservation Authority and Credit Valley Conservation Authority. The other set of"final" management recommendations is based on Parish Aquatic	

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	Services' protocol results and interpretation of the overall function and importance of the HDF to the system. Based on our review of the assessment, CH staff has the following concerns and recommended actions:	
	► Conservation Halton's regulation mapping indicates that E-TI-4, HT-2b-2 and portions of HT- 2b-3 are regulated watercourses however, they have been assessed as HDFs. We recommend that a site visit be carried out with CH staff to further assess these watercourses as it is inappropriate to consider regulated watercourses as HDFs	These features were assessed as HDFs based on field conditions at time of survey as no headwater drainage feature mapping was provided prior to the assessment. The final recommended management strategy for the features will consider Conservation Halton's regulation.
	► The assessment does not incorporate ecological technical studies such as Ecological Land Classification, Marsh Monitoring Protocol and barrier assessment as recommended in the TRCA/CVC protocol. In the absence of this integrated assessment, we recommend that the classifications be considered draft until this ecological information is integrated and reviewed by CH staff.	The assessment referenced the ELC and Marsh Monitoring Protocol that was completed by NRSI.
	► The determination of reach breaks, differing segment classifications of the same HDF and lower "final" management recommendations than the "protocol" management recommendations require further explanation and supporting technical information (e.g. ecological, hydrological) to be supported by CH staff.	Segment classifications are completed in accordance with the methods outlined in the CVC/TRCA policy. New segments are established when there is a change in the classification (hydrology, riparian, fish habitat, or terrestrial habitat).
	It is our opinion that the "final" management recommendations are premature as a comprehensive understanding of the form and function of the HDFs has not been provided. The "final" management recommendations should be based on consideration of all HDF functions including flow storage and conveyance, fish and amphibian habitat, sediment and nutrient regulation and the cumulative effects of the recommendations on the drainage network. Many of the watercourses described in the assessment drain into regulated watercourses which are protected under CH regulatory policy. Any watercourse that does not depend on additional input from another tributary should receive a "Conservation" classification to ensure that future drainage will connect downstream as it does in the existing condition and meet flow requirements. The management recommendations are to be implemented through development design, including stormwater management and sustainable management practices and must take into consideration the recommendations of the relevant Fisheries Management Plan (FMP) and Subwatershed Plan. In keeping with the advice in the TRCA/CVC protocol regarding cumulative effects and the precautionary principle, we recommend that the more conservative management recommendations be assigned for the interim period, or the "final" management recommendations be considered draft, until the comments contained in this letter are addressed. We recommend that a meeting with staff of CH, the Town, the Region and the pertinent members of the consultant team take place to address the comments expeditiously and to keep the Subwatershed Study process moving forward.	The responses provided herein provide further clarification and supporting rationale for the classification and corresponding recommendations for management. The recommended management for the headwater drainage features has been discussed among the respective Team members to verify compatibility with the requirements from each discipline.
Specific Comments		
85.	Cover Letter, Page 2, Third Paragraph, W-TI-2b - It remains unclear how reach S2 can be classified as "Mitigation" considering that the downstream portion of this reach and reach S3 (downstream) are classified as "Conservation". AMEC Foster Wheeler's Aquatic Habitat Assessment noted groundwater inputs from the middle sections of reach S2 which are challenging to replicate in features proposed for alteration. The assessment also noted that a portion of the flows are diverted	S2 of feature W-T1-2b was given a preliminary classification based on upstream and downstream conditions. This particular section of W-T1-2b could not be visited as permission to access was not granted. It is not supported that the S2 segment should be classified as 'Conservation' based on S3 receiving a 'Conservation' classification. Classifications should be consistent in a downstream direction ie a lower

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	westerly to Sixth Line. We note that the combined function of these two channels should be considered especially if alterations may be proposed. Please provide further explanation regarding the determination of reach breaks between SI and S2, and S2 and S3 on W-TI-2b. Based on the assessment, it is our opinion that the "Conservation" classification should cover the entire portion of reach S2.	classification should not be located downstream of a higher classification. The logic that classification should translate in an upstream direction as suggested in this comment is not appropriate. The aquatic habitat assessment noted potential groundwater inputs from S2 based on presence of watercress in S3. This is unconfirmed as there was no field access to S2. Additionally while watercress may suggest groundwater, it is not a guaranteed indicator of groundwater. The reach breaks which form S2 between S1 and S3 are based on the property boundaries. Because there was no access to a cluster of properties along sixth line, this segment of W-T1-2b was delineated as one reach (S2).
86.	Appendix A, Summary Table - Please identify the drainage areas contributing to the assessed HDFs to better understand their function.	The drainage areas to the reaches will be included as part of final reporting.
87.	Appendix A, Summary Table, Page I and 2 - HT-2b-3 is classified as "Mitigation" and E-TI-4, SI is classified as "Conservation" however, these features are considered partially or entirely regulated based on our mapping. Portions of each watercourse may also be confined valley features based on the topographic information on Figure WR-6 from the Characterization Report. A site visit with CH staff is requested to further assess these watercourses.	HT-2b-3 and E-T1-4 are not confined valley features; please refer to photo appendix in HDF report. We would be willing to participate in a site visit if CH finds it necessary to review these two features further.
88.	Appendix A, Summary Table, Page 2 - Staff disagree with the classifications of HDF-1 as "Conservation" and HDF-4 as "No Management" on the basis that the origins of these features are uncertain and may have been altered in the past. Please provide further justification and supporting technical information for the reduced classifications of these features.	We respectfully request further clarification on the disagreement regarding these features. We acknowledge that these features (along with HDF-2 and HDF-3) are part of the altered landscape of the golf course and that this requires particular consideration. Reviewing the 1954 aerial provides some additional context; however we would be open to further discussion regarding these features and their function as it relates to golf course operations.
89.	Appendix B, Management Recommendation Maps, Figure 1 - Additional explanation regarding the determination of the reach breaks between SI and S2, and S2 and S3 on HT-2b-4 is requested.	The distinction between S1 and S2 on feature HT-2b-4 was made based on where the feature transitioned down towards the Trafalgar Road culvert and defined bed and banks were established. Up until where S2 has been indicated the water was primarily pooling in agricultural furrows. In S2, the bed/banks were defined and gravel substrates were noted. Therefore the feature was split into two segments to acknowledge this change. There was no S3 for HT-2b-4.
90.	Appendix B, Management Recommendation Maps, Figure 2- Additional explanation regarding the determination of reach breaks for HT-2b-2 is requested. Higher resolution on the mapping may be helpful in this regard. The TRCA/CVC protocol states that if a lower level of protection is identified for a segment downstream of a segment with a higher level of protection, the downstream segment should be reclassified to match upstream. Therefore, a revision to the rating for S2 and S3 of HT-2b-2 to "Conservation" is recommended in accordance with the protocol.	The inconsistency between classification for S2 and S3 is noted as an error in the HDF maps that will be updated. The summary table correctly classifies S2 and S3 of HT-2b-2.
91.	Appendix B, Management Recommendation Maps, Figure 4- Additional explanation regarding the determination of the reach break between Sl and S2 on E-TI-4 is requested. It is difficult to understand why S1 should be classified as 'Conservation' and S2 as 'Protection', especially given the uncertainty of historic modification of S1.	As stated in the summary table, S2 had riparian vegetation that was dominated by scrubland as well as woodlot. NRSI classified this area as FOD7-3 in their ELC assessment. Comparatively, riparian vegetation for S1 was dominated by manicured lawn, which is supported by NRSI's ELC classification. Additionally, S2 had both defined bed/banks and standing water at Site Visit #2 suggesting more permanence and hydrological importance. The strict application of the Protocol identified S2 of E-T1-4 as 'Mitigation'. However because of the high flows noted in the spring, this HDF is recommended for restoration. A review of historic and current aerial imagery also indicated that conditions upstream of the study area appear to be more significant than what was noted on the golf course. Based on this, we recommended an increase to 'Conservation'.
92.	Appendix B, Management Recommendation Maps, Figures *2* and 4- Maintenance of flows to portions of features that may not be altered as well as connection points between Natural Heritage	Agreed, the CVC/TRCA protocol outlines that flow to unaltered sections of HDFs must be maintained. W-T1-2b S1 is not within Significant Wildlife Habitat, the identified bat maternity colonies are located

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	Features is required. For example, W-TI-2b, S I is within the identified Significant Wildlife Habitat and any proposed alteration would need to ensure no negative impact to this habitat. Similarly, any proposed alteration to HT-2b-3 and HT-2b-2 would need to ensure that the connection point does not impact the adjacent wetland and its hydrologic function.	north of the feature. Agreed, any alteration to HT-2b-3 must ensure proper connection and conveyance to HT-2b-2.
93.	Appendix C, Assessment Photographs, Page 38, Picture 76- The description as to whether or not standing water was noted in the field requires clarification.	Agreed, wording is unclear for this photo caption; this will be updated to say, “Facing upstream at upstream end of golf course. Feature type is classified as tiled drainage; flow condition is no surface water”.
Specific Comments		
94.	Cover Letter, Page 2, Fourth Paragraph - Protection is identified twice; clarify whether or not the latter is in reference to terrestrial linkage.	This is a typo, the sentence should read, “The management recommendations from the protocol listed in order of importance (high to low) are Protection, Conservation, Mitigation, Recharge Protection, Maintain or Replicate Terrestrial Linkage, and No Management Required.”
95.	Appendix B, Management Recommendation Maps, Figure 2, Page 2 - HT-2b-2, S2 is classified as "Conservation" in Appendices A and C, not "Mitigation", under the final management recommendation. Figure 2 should be corrected.	This will be corrected and updated.
96.	Appendix B, Management Recommendation Maps, Figure 3, Page 3- E-TI-4, S2 is classified as "Conservation" under the protocol management recommendation, not "Mitigation". Figure 3 should be corrected.	This will be corrected and updated.
97.	Appendix B, Management Recommendation Maps, Figure 3, Page 3 - Label HDF-4a on Figure 3.	This will be corrected and updated.
98.	Appendix C, Assessment Photographs, Page 24, Picture 48 - Confirm segment location, as Segment I does not appear to run along Trafalgar Road.	This will be corrected and updated.
99.	Appendix C, Assessment Photographs, Page 63, Picture 127- Confirm reach labeling, as HDF-1 confluences with E-TI-1, not E-TI-2.	This will be corrected and updated.