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January 18, 2008

To: Chris Barnett
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From: Todd Salter, Manager of Policy, Town of Caledon

Re: **Comprehensive Broader Scale Environmental Study, Caledon Aggregate Resource Area 9-A
Draft Part C Report, Volumes 1 & 2, dated October 30, 2007 (Volume 1) and November 12, 2007 (Volume 2)**

The Town of Caledon, Region of Peel and Credit Valley Conservation have completed a review of the above-noted documents and wish to provide the following comments. These comments are based on the agencies' expectations for the Comprehensive Broader Scale Environmental Study (CBSES) as set out in the CBSES Recommended Terms of Reference prepared by the agencies, dated January 23, 2004, and the scope of work outlined in the CBSES "Final Work Plan", prepared by JDCL, dated January 2005, with June 2006 Addendum and September 2006 & January 2007 Revisions. The agencies' expectations also reflect ongoing discussions that have been occurring between the agencies and JDCL during the course of the CBSES process to-date.

Due to timing constraints, it has not been possible to fully integrate the municipal and CVC comments, as a result there may be some duplication in content. It should also be noted that any agency comments provided with respect to the draft Part B comments that are relevant to Part C should also be considered, as applicable.

As always, the agencies would be pleased to review and discuss any of these comments with JDCL.

KEY ISSUES:

1. The implementation components of the report generally lack the level of detail and specificity that was expected by the agencies. For example, Section 4.6.1 provides very little new direction regarding site specific application requirements beyond commonly understood existing processes and requirements. More recently completed Subwatershed studies contain implementation matrices for example, linking individual actions to an implementer, and as has been discussed in the past, the CBSES is being undertaken at a finer scale than a typical subwatershed study.
2. As noted in the agencies' Part B comments, the Part C Report needs to include a discussion regarding mechanisms for operationalizing the various implementation recommendations. As an example, there is a need to establish necessary administrative and financial structures to manage decades of during and post-extraction monitoring, mitigation and Adaptive Management measures. This discussion is critical, particularly in light of the roles and responsibilities proposed to be assigned to the public agencies (e.g. long term monitoring).
3. In reviewing the Part C Report, it is unclear how Adaptive Environmental Management (AEM) is being defined and applied in the context of this CBSES and reflected in the recommendations/strategies contained in the Part C Report.

4. The concept of "Risk Management" is discussed at a relatively superficial level and the degree to which it has informed and been integrated into the CBSES is not readily evident. This is an important element of an AEM approach and should be more fully explored and explained.
5. There are numerous instances throughout the report where wording is used that appears to be favourable to, or supportive of land use change within the study area. While it is possible that land use changes may occur in this area, it is important for a study of this nature to adopt a neutral tone in this regard, since one of the purposes of a CBSES is to assist approval agencies in determining if land use changes should be permitted. A number of examples of this are noted in Appendix A Detailed Municipal Comments, although this is not intended to be a comprehensive list.
6. The language used around the scenarios is unbalanced (e.g.: "unrealistic", "worst case", etc..) and has the effect of down-playing or misrepresenting the intent of the scenarios. The intent was to look at stress response and prediction of change, which are key components of AEM: stress response - level of risk - AEM.
7. There are numerous references to new provincial planning directions, such as the Greenbelt Plan and the Growth Plan for the Greater Golden Horseshoe and statements regarding municipal conformity requirements. The report also makes note of anticipated provincial guidance documents, which may or may not be produced by the Province. These references include selected commentary on how the conformity requirements and guidance documents influence the CBSES and how they may affect existing municipal policy (e.g. Section 4.8.3). The Region of Peel and Town of Caledon are undertaking provincial conformity exercises which are projected to be completed by June 2009, and this could result in proposed revisions to their respective Official Plans. While it may be acceptable for the CBSES to acknowledge these Provincial Plans and the ongoing municipal conformity process, it is premature and inappropriate for the Part C Report to make any assumptions regarding the outcome of the municipal conformity exercise and the nature of any proposed policy changes. It is also, therefore, inappropriate for the Part C Report to base any recommendations on the anticipated effect/outcome of the conformity exercise.
8. Again, and for the record, the Town of Caledon continues to take the position that the Official Plan requires that the social impact associated with the environmental impacts that have been modeled through the scenarios be assessed and considered as part of the CBSES.
9. The agencies fundamentally disagree with the discussion in Section 4.8.5 and 4.8.6 regarding the agencies' interpretation of policy related to the CBSES and the scale and scope of the agencies requirements. This matter has been discussed with JDCL extensively in the past and the agencies continue to be of the opinion that the expectations with respect to the CBSES are reasonable, and are fully consistent with the intent and specific policy directions contained in the Caledon and Peel Official Plans.
10. Until the agencies agree that all issues identified with respect to the draft Parts A, B and C Reports have been satisfactorily addressed, the policy conclusions reached in Section 4.8.6 are not supportable.

DETAILED MUNICIPAL COMMENTS:

Volume 1: Report, Tables, Figures and Appendices

1. Pg 1-2, 3rd bullet point: It should be noted in the first sentence that the Part C report also guides the consideration of land use change, not just the management of change.
2. Pg 1-2, final paragraph and Pg 1-3 first paragraph: use of non-neutral language (refer to Key Issue # 5).

3. Pg. 1-5, Sec. 1.3.1: the term "heavily" is too ambiguous, the nature and purpose of the agencies' involvement should be clarified.
4. Pg 1-6, Sec. 1.3.4: thought there were more than 59 people at the workshop, please confirm.
5. Pg 2-18, Sec. 2.2.1 3rd paragraph: use of unbalanced language regarding the scenarios (refer to Key Issue # 6).
6. Pg 2-19, Sec. 2.2.2: use of non-neutral language (refer to Key Issue # 5).
7. Pg. 2-19, Sec. 2.2.2, 1st paragraph: It is not clear what the basis is for the statement made in the third sentence regarding the "avoidance" and "do nothing" as not being consistent with "objectives...policies and legislation". This should be explained or removed.
8. Pg. 3-2, 1st paragraph: as noted in the agencies' draft Part B comments, the reference to the wording contained in Section 5.11.2.2.6 of the Caledon OP is incomplete. The actual wording is as follows "By satisfying the performance measures set out in Section 5.11.2.2.6 a) to h), the Ecosystem Objectives of Section 3.1.2 and the policies relating to additional lands as set out in Section 5.7.3.7.3 are likewise satisfied *insofar as they relate to those specific features.*" (emphasis added). The complete policy should be cited, or this wording deleted.
9. Pg. 3-4, Sec. 3.3: Previously, comments on Part B CBSES report (provided after Part C report was delivered to agencies) indicated that the following Region of Peel Official Plan Objectives should be included in the analysis: 2.4.1.1, 2.4.1.2, 2.4.1.3, 2.4.3.1, 2.4.4.1, 2.5.1. These objectives deal with Natural Hazards and Restoration of the Natural Environment and are relevant to the matters being addressed through the CBSES.
10. Pages 3-4 to 3-7: Section 3.3.1: why was ROP Objective 3.4.1.1 not included in the analysis?; Section 3.3.3: why was ROP Objective 2.1.3.5 not included in the analysis?; Section 3.3.4: why were ROP Objectives 2.2.1.2 and 2.3.1 not included in the analysis?
11. Pg 3-7, Sec. 3.3.4: there seems to be a lack of objectives related to woodlands, wetlands and endangered/threatened species or species of special concern.
12. Pg 3-10, 1st paragraph: This paragraph appears to be stating that social impact is solely a site specific consideration, which the Town disagrees with (refer to Key Issue # 8).
13. Pg. 3-10, 1st paragraph under Sec. 3.3.6: should say "...*potential* aggregate extraction..." (refer to Key Issue # 5).
14. Pg. 3-12, Sec. 3.3.7: Since the objectives listed in the paragraph referring to the ROP have not been reviewed as part of the CBSES, reference to specific objectives should be removed.
15. Pg. 3-13, 2nd paragraph: it should be noted that the Study Area objectives can also be used by approval authorities in considering proposed land use changes.
16. Pg 3-14, last paragraph: The lead agencies are not necessarily in agreement with the statements regarding climate change and the suggested roles and responsibilities.
17. Pg. 4-1, 2nd paragraph: use of non-neutral language (refer to Key Issue # 5).

18. Pg. 4-1, Sec. 4.1: refer to Key Issue # 4.
19. Pg. 4-4, 2nd paragraph under Sec. 4.2: the last sentence regarding large scale development and the use of structural measures seems to be a fairly substantial policy conclusion that seems out of context in this section and perhaps should be explained more fully in Section 4.8.
20. Pg. 4-5, 1st paragraph: the first sentence regarding structural mitigation "becoming a normal approach for quarries in limestone plain environments" seems to be contradicted by the first paragraph on Pg. 4-35 which notes that "aggregate extraction operations have generally made limited use of such measures. ". Please clarify.
21. Pg. 4-5, bullet point at bottom of page: the principle regarding groundwater should also include the notion of avoidance of change where necessary to meet applicable objectives and policies.
22. Pg. 4-9, 1st paragraph: the agencies do not entirely agree with the statement regarding sentinel features and the protection of water supply wells.
23. Pg. 4-12: the reference to the proposed role of CVC with respect to monitoring requires further discussion (refer to Key Issue # 2).
24. Pg. 4-13, last bullet point: the statement on setting of specific Monitoring Targets at the site specific development stage requires further discussion (refer to related CVC comments).
25. Pg. 4-15, Sec. 4.4.1: refer to Key Issue 4.
26. Pg. 4-15, 3rd paragraph: the reference to the CAMP being an "overall program for the implementing agencies" requires clarification. There are other intended users of the CAMP including development proponents, and potentially landowners. There are also a number of references to an "overall legislative framework" in this paragraph, the purpose of which is unclear.
27. Pg. 4-16, Sec. 4.4.2: it is unclear why particular reference is made to Greenbelt Plan conformity under the Municipal Plans section (refer to Key Issue # 7).
28. Pg. 4-18, Sec. 4.4.2: shouldn't there be an adaptation/adjustment component of the CAMP described in this section?
29. Pg. 4-19 – 4-21, Sections 4.4.3, 4.4.4, 4.4.5 & 4.5: the proposed implementation responsibilities outlined in these sections require significant discussion before the agreement can be reached on any particular implementation model (refer to Key Issue #2).
30. Pg. 4-30, Sec. 4.6: this section appears to focus almost entirely on describing existing, known processes, and adds very little new direction specific the CBSES Study Area flowing from the detailed findings and technical information contained in the Parts A and B Reports (refer to Key Issue # 1).
31. Pg. 4-34, 1st paragraph of Sec. 4.6.2: refer to detailed comment # 15.
32. Pg. 4-39, second bullet point under "Other Measures": this is a good example of an item that requires further discussion regarding costs and responsibilities (refer to Key Issue # 2).

33. Pg. 4-55 to 4-58, Sec. 4.8.1: refer to Key Issue # 7 with respect to the discussion regarding the Greenbelt Plan and the Growth Plan.
34. Pg. 4-56, 4th paragraph: for clarification, the Greenbelt Plan enables municipalities to propose refinements to the NHS, at the time of the municipal conformity exercise.
35. Pg. 4-58, Sec. 4.8.2: comments regarding Section 4.8.2 are provided primarily through the comments on Volume 2 Appendix P, due to overlap in content.
36. Pg. 4-61, under heading of Significant Wetlands: For the purposes of historical accuracy, the PWS coverage which appears on Schedule A of the ROP dates back to the mid 1990's. Since then the mapping has been updated by MNR and all updates will be incorporated into Schedule A during the review of the ROP currently underway. Furthermore, it is the text of the ROP that governs, and as such the policies determine that PSW's are Core Areas of the Greenlands System, so while not appearing on the map, all PSW's are to be treated as Core.
37. Pg. 4-62, first sentence: Where was the criterion for minimum dimension of less than 100m derived from? This criterion does not originate from the ROP and therefore should not be used to define regionally significant woodlands.
38. Pg. 4-62, last paragraph: The policy framework of the ROP (2.3.2.7) provides that plantations are to be considered woodlands until such time as a detailed environmental study has demonstrated that the plantation does not exhibit the characteristics necessary to satisfy the definition of woodlands in the ROP. The CBSES does not specifically present information at a sufficient level of detail to make the determination that all plantations in the study area do not meet the definition of woodlands. Since only one plantation appears to have been studied in sufficient detail to be differentiated on Figure P-2 (with an asterisks) and that plantation is associated with the Rockfort Quarry lands, consideration of that plantation should take place in conjunction with review of the site specific application and not as part of the CBSES. Therefore, differentiating plantations from woodlands for illustrative purposes is not appropriate in the CBSES. All woodlands that meet the criteria of 30 ha or greater should be shown. Therefore, all text, after the words "directed by the Official Plan" should be deleted.

The reference to removal of the conifer plantations and the effects that would have on the depiction of Core woodlands is premature until such time as the site specific studies have determined the characteristics of the plantations. The sentence should be removed.

39. Pg. 4-63, under heading of Environmentally Sensitive or Significant Areas: The ESA mapping used in ROP Schedule A dates from the mid 1990's and has subsequently been updated by CVC. The updated CVC ESA boundary information should be used.
40. Pg. 4-64, paragraph starting with "The Natural Area": The responsibility for identifying and protecting the Natural Areas and Corridors and the Potential Natural Areas and Corridors rests with the Town of Caledon and as such, if the intent of the ROP policies are satisfied, further mapping of the features under the Regional category is not required.
41. Pg. 4-65, 2nd paragraph under Town of Caledon: this paragraph incorrectly states that Caledon uses a three-tiered natural heritage system with only the Natural Core Areas being mapped in the Official Plan. The Town's Ecosystem Framework, as set out on Table 3.1 of the OP, contains four components, with both Natural Core Areas and Natural Corridors being included in the Environmental Policy Area designation and mapped in the OP (based on data and mapping that was available at the time). Later sections of the report correctly describe the Town's approach, and inconsistencies need to be corrected.

42. Pg. 4-77, 2nd paragraph under Sec. 4.8.3: The agencies do not agree with the sweeping generalization that Greenbelt conformity will "require a fundamental reassessment of current Official Plan criteria and mapping" with respect to natural heritage systems (refer to Key Issue # 7).
43. Pgs. 4-83 to 4-86, Sections 4.8.5 & 4.8.6: Refer to Key Issue # 9.
44. Pg. 5-1, Section 5: the statements contained in this section will need to be reviewed/revise in light of the Key Issues and detailed comments provided in this letter.

Volume 2: Appendix P Municipal Constraints Analysis

1. Pg. 1, 3rd paragraph: for clarification, there has never been final agency "sign-off" on an agreed upon Work Plan for the CBSSES, although significant agreement was reached on many aspects of the most current version, and there has been productive ongoing discussion on various work plan components.
2. Pg. 3, second bullet point: the agencies do not entirely agree with the discussion regarding future conformity with new provincial planning directions (refer to Key Issue # 7).
3. Pg. 3: the discussion regarding the Region of Peel Official Plan should note that the text prevails over the mapping.
4. Pg. 5: the discussion in this section and elsewhere regarding woodlands and plantations in particular seems intended to down-play the basic policy approach to plantations: they are to be considered woodlands unless a site specific study proves otherwise. Reference to the Study Team's "awareness" of some plantations that do not meet the definition of woodlands is not relevant to the CBSSES and should not be reflected in the text or mapping in Volume 2.
5. Pg. 8, 2nd paragraph under Town of Caledon Official Plan: Volume 1 refers to detailed comment # 32.
6. Pg. 12, last paragraph before final bullet point: the statement regarding fish habitat not being considered "Core" could require further discussion, as the Caledon OP does allow a consideration of HADD within EPA.
7. Summary page of Region of Peel Analysis: disagree with inclusion of statement regarding future Greenbelt Plan conformity (refer to Key Issue # 7).
8. Town of Caledon Analysis:
 - same comment as earlier regarding treatment of plantations.
 - For all Figures the legend should reference EPA date to December 2004, not 1997, as this is the most recent consolidation date and would reflect refinements made through the OPA 124/161 settlement process. Also, the text "Natural Core Areas" should be removed or add the words "and Natural Corridors".
 - The section regarding Fisheries and Fish Habitat requires further discussion.

CVC Comments PART C DRAFT IMPLEMENTATION REPORT OCTOBER 2007

General Comments

It should be noted that due to schedule constraints the draft Part C report was issued to the Agencies for review prior to the JDCL team receiving the Agencies' comments on the Part B report. Therefore, CVC comments on the Part B report and accompanying Groundwater Modelling report could not be reflected in this draft of the Part C report.

The References appear to be missing from this document.

Specific Comments

1. INTRODUCTION

This section of the report should contain a brief description of the Adaptive Environmental Management concept and how it is used in the CBSES.

1.2 PART C APPROACH AND REPORT OUTLINE

This section of the report should contain a full description of the Adaptive Environmental Management concept and how it is used in the CBSES. In keeping with this, there should be a summary of the key environmental features, functions and linkages (from Part A). There should also be a brief description of the stress-response analyses carried out through scenario testing in Part B. The analysis carried out in Part B should be used to carry out the following: description of the connectedness of the environment features and functions and their sensitivity to changes in land uses. There must also be a discussion on the degree and extent of relative impacts. The ability to mitigate, and the risk associated with various mitigative approaches, is key. This analysis is essential to the CBSES process and provides more detail at a more refined subcatchment level than a subwatershed study can. Please recall the discussion on scale and deliverables prior to JDCL re-initiating the Part A report.

2. SUMMARY OF PARTS A AND B

Generally, there remains some concern to accept this summary until comments submitted previously have been addressed (e.g. hydroperiod sensitivities). Nevertheless it is a good concise summary, and in some cases some previous concerns are better addressed (eg. emphasis is given to the sensitivity of intermittent reaches).

Good integration section and summary of Part A and B reports. However, there remains the issue that an interim filling of the quarry with water has not been assessed for impacts to fisheries.

Generally there is the tendency to describe the Upper, Middle and Lower Regions as distinct and contrasting. Please emphasize that they act together as a system and describe this system.

Generally, there is still a lot of emphasis on historical environmental degradation that could be toned down or balanced with present and potential functions.

2.1 RESULTS OF PART A STUDY

2.1.1 ENVIRONMENTAL RESOURCES IN STUDY AREA

Aquatic Habitat and Fisheries

p2-7) There still needs to be recognition of the River Continuum Concept (RCC) in that headwater and coldwater reaches are supposed to be different and not necessarily compared in terms of "quality". There is a natural transition between tolerant, cool and coldwater species. The transfer of impacts in a downstream direction also remains an issue to be resolved. Headwaters need to be recognized for their cumulative contributions that dominate any watershed and not necessarily compared on a reach by reach basis to groundwater rich permanent habitats. Their predominance is often mentioned to suggest there are large areas that are not significant.

Surface Water and Channel Processes/Form

p. 2-12, Second paragraph – Changes to sediment load - Section discusses implications of changes to sediment load on watercourses. Section should include discussion on potential impacts to wetlands, such as water quality, increased erosion, sedimentation, alteration of hydroperiod, loss of wetland area, alteration of vegetation composition and structure, and changes to faunal composition.

2.2 RESULTS OF PART B STUDY

Due to schedule constraints the draft Part C report was issued to the Agencies for review prior to the JDCL team receiving the Agencies' comments on the Part B report. Therefore, CVC comments on the Part B report could not be reflected in this draft of the Part C report. Some of the content of the CVC comments on the Part B report are mentioned in the comments on the Part C report; however, please refer back to the full version of CVC's Part B comments for complete details. As indicated in agency comments on the Part B report, if the agencies' review of the draft Part C Report identifies implications that flow backwards into the draft Part B or Part A Reports, the agencies reserve the right to make additional comment on those reports

2.2.1 IMPACT ASSESSMENT

There should be a brief description of the stress-response analyses carried out through scenario testing in Part B. The analysis carried out in Part B should be used to carry out the following: description of the connectedness of the environment features and functions and their sensitivity to changes in land uses. There must also be a discussion on the degree and extent of relative impacts. The tone of the discussion in this section does not recognize the analyses were carried out in a stress-response framework and terms such as "hypothetical worst case" and "unrealistic scenario" are inappropriate in this context.

The summary of the key findings from the Part B report are helpful and well presented; however, a key finding of the Part B report was that the time required for full development of the Resource Area and to reach the ultimate rehabilitated state would constitute at least several decades, and this finding is not given sufficient consideration in the Part C discussion. In order to appropriately consider the Part C report's recommendations on management alternatives, monitoring programs, etc., it is very important for the reader to keep in mind that the development process being described would take place over at least several decades and therefore would require careful management, monitoring, and maintenance over that period of time.

page 2-18, first paragraph:

The discussion of 'direct impacts' correctly indicates that natural features within the Resource Area would be removed by the development of the Resource Area. However, the corresponding figure (2-2) is somewhat confusing because the title is 'Direct Impacts' but there is not enough information presented on the figure to explain that the removal of the features with the Resource Area would constitute the 'direct impacts' of development. Perhaps an explanatory note would help to clarify what information is meant to be conveyed by the figure.

3.4 REVIEW OF OBJECTIVES

p3-14 last) Although climate change is a "global" issue it should be stated that monitoring and adaptation is a local issue that would also be addressed at a "project specific basis."

4. RECOMMENDED PLAN AND IMPLEMENTATION

Overall this section lacks the detail that would be essential for successful implementation. We refer the writers back to the examples of the subwatershed studies that were provided and which have been used in developing Parts A and B of the CBSES. Further discussions are required to resolve this fundamental concern.

Generally there is too much reference to "features" rather than functions.

Both Part B and C reports focus on the likely most significant impact in the study area, changes to groundwater; to the point the other potentially significant impacts are addressed as minor considerations. Other potentially significant impacts that are associated with any development in the area include: the direct loss of habitat and corridors, habitat fragmentation, degradation of adjacent habitats, new barriers to wildlife migration associated with increased vehicle traffic and road upgrades. These impacts have been discussed in previous versions of the reports, but not addressed in more than a couple of paragraphs. Consequently, implementations measures do not focus enough attention to address these issues. As stated in the Part C report, monitoring targets for sentinel features "will be water-based" p. 4-12 3rd paragraph. This approach does not monitor the other impacts associated with the operation of a quarry on the biological features and ecological function of the study area. Due to the potential significance of the impacts on the ecological function of the area, a more specific focus should be given to these issues in the impact analysis and the implementation strategies. These issues may be addressed as part of the site studies (i.e. traffic and degradation of adjacent features), but should be at least mentioned in the Part C report and some issues (i.e. corridors, and fragmentation) are best assessed at the landscape scale.

4.1 INTRODUCTION

The ability to mitigate, and the risk associated with various mitigative approaches, is key. The connection of Adaptive Management to risk has not been made and needs to be made. The level of uncertainty associated with the characterization of the natural environment, coupled with prediction of impacts should lead to a discussion of risk. Unfortunately this section does not make this connection and should be revised accordingly.

The first two components of Risk Management noted in this section speak to the importance of comprehensive characterization of a study area so that proper management and mitigation of future development can be adequately planned. Without sufficient characterization of the study area it would not be possible to have an adequate understanding of the natural systems to enable anticipation of potential impacts and the design of adequate mitigation measures to address the impacts. Given that it has been determined that any unmitigated impacts will extend far beyond the property parcel being developed it

will be difficult to design appropriate mitigation measures without a detailed assessment of the study area. This issue was also raised in CVC's comments on the Part B Groundwater Modelling Report:

In particular, the impact of major lateral fracture zones on local transmissivity of the Amabel Formation and the potential variation in storativity should be discussed. While the Part A Study noted that no large scale karst features have been identified in the Study Area, it is still expected that groundwater flow in the Amabel Formation (particularly the unweathered portion) would be somewhat controlled by fractures and would reflect heterogeneous aquifer properties typical of fractured media.

While the Part C report is correct in indicating that the scale and level of detail for a characterization study in support of a site-specific development application would largely be determined by the magnitude and complexity of the proposed undertaking, the heterogeneous aquifer properties of the unweathered Amabel Formation should be noted in the Part C report as a potentially complicating factor for a site-specific application's characterization study and subsequent management and mitigation plans.

We believe that the seven measures set need further discussion to provide clarity so that the agencies can assess whether a fulsome approach has been taken for longterm management of the resource area. It would have been very beneficial if a discussion with the JDCL team could have taken place prior to report preparation.

4.2 MANAGEMENT MEASURES

Section 4.2, Page 4-4, first sentence

It states that the Study Area environment will benefit from carefully planned and conscientious management of the watershed. "Will" should be changed to "could", as it cannot be guaranteed that with there will be a benefit to the environment, no matter how well planned.

p4-5 and 4-6 bullets) There is no specific reference to upwelling and gradients normally measured by piezometers, just groundwater levels and baseflows? These measurements may be required in brook trout spawning areas. Please state groundwater levels must be maintained vs. minimized in critical spawning areas.

Section 4.2, Page 4-5, second paragraph:

The report indicates that "*recent studies and quarry proposals in this region have a **common scientific basis** with respect to potential quarry dewatering effects and the necessity of mitigation to appropriately protect the natural environment.*" More elaboration on what is meant by a "**common scientific basis**" would be helpful here, perhaps including some specific examples from the various studies.

Section 4.2, Page 4-5, second paragraph:

With respect to comments on mitigation measures in other quarries, please be more specific as to which of the listed properties have been approved for development, which are currently in use, and which are being considered as well as listing what mitigation measures are in place, how well they are working and how the hydrogeological settings of the properties in question are similar to the Resource Area 9A.

p4-10v) CVC still has an issue that intermittent reaches are not considered most sensitive to hydroperiod changes and that the overall rating overshadows this. Nevertheless the adjacent wetlands in this case may be a sufficient substitute.

p. 4-11, Monitoring Target for Sentinel Features - Vegetation plot or transect monitoring should be included and incorporate wetness indices from the Floristic Quality Assessment to monitor if there is a shift in vegetation community composition and quality.

p. 4-11, 2nd last paragraph - Issue of feature significance vs. sensitivity remains an issue that has been carried over from Part B report. Unevaluated features (i.e. wetlands) may be as sensitive to changes in groundwater levels as evaluated wetlands (i.e. Provincially Significant Wetlands).

p4-11 last bullet) There should be a fishery sentinel chosen to the north of the Resource Area 9-A.

4.3 USING SENTINEL FEATURES FOR PROTECTION

4.3.1 SENTINEL FEATURES

Section 4.3.1, page 4-8, first bullet

It was indicated that the effects from potential extraction activity via water related pathways are such that the effects will generally be greatest in closer proximity to the Resource Area. This is not necessarily true depending on the linkage of the groundwater system with the surface water through fracture connections. Deeper water bearing zones may be laterally connected to a surface water feature at distance, rather than in close proximity to the site.

Section 4.3.1, page 4-9:

As noted later in the Part C report, the Sentinel Features described in this section would need to be re-evaluated for their applicability to any future site-specific development application in the study area.

4.3.2 MONITORING TARGETS FOR SENTINEL FEATURES

With respect to establishing monitoring targets the authors provide reference to secondary indicators and parameters such as erosion (i.e. channel form), water chemistry and benthics. However, all of these indicators are all dependant upon water, and long term water quantity monitoring (including groundwater and surface water) monitoring needs to be established within the study area in addition to the parameters listed above.

p4-12 3rd dash) CVC does not necessarily agree that fish may be more variable than e.g. flows. This can differ site to site. In many cases fish can reflect and "smooth out" a variety of habitat variables measured.

p4-12 last bullet) Generic targets may reflect threshold values for fish such that even if climate change is mostly responsible for approaching an impact, development impacts may be less tolerated and the level of acceptance may change to something that seems "overly protective".

Section 4.3.1, page 4-12, second bullet

It states that water-based targets can generally be quantified and readily measured. It is also stated that the precise cause and effect relationship between a water-related function and a receptor is difficult to determine. Although water based targets can be generally quantified and readily measured, the cause and effect of changes to water levels can be difficult to determine. They will be even more difficult to determine if multiple extractions are occurring in the resource area. This would need to be addressed in the monitoring program.

p4-12 The approach to monitoring targets and how they will be set in the overall CAMP will need further discussion if the Adaptive Environmental Management concept is to be used. Locations as well as direction on locations for monitoring also need to be discussed. These are fundamental issues in need of resolution.

p4-141st dash) Here and elsewhere (4.6.4) one year of baseline monitoring is recommended. In some cases a minimum of 5 years has been promoted by CVC.

Section 4.3.2, page 4-14, first paragraph:

As noted later in the Part C report, there is a need to incorporate "background" monitoring locations in a monitoring program in order to help to differentiate between impacts caused by land use changes within the study area and impacts caused by broader causes such as climate change. It would be helpful to also note the importance of background monitoring locations in this section of the Part C report.

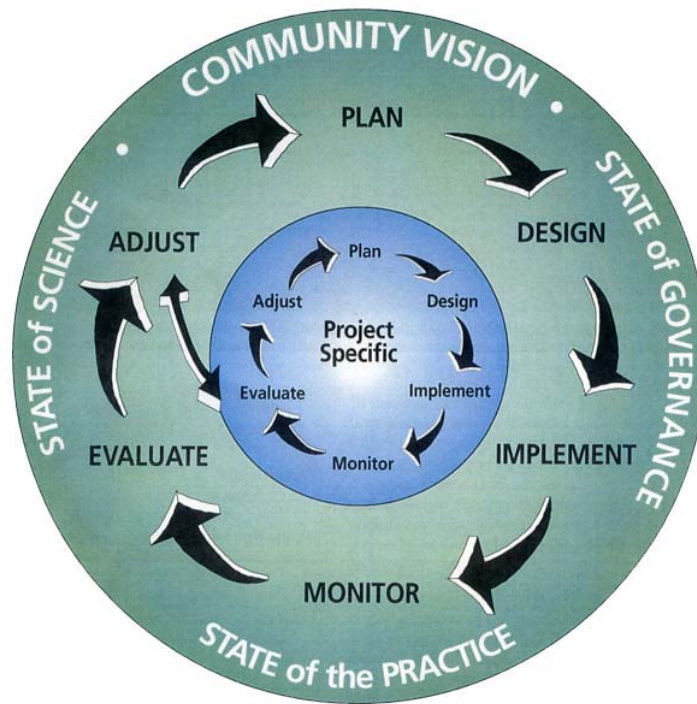
Section 4.3.2, page 4-14, third bullet

The development of a monitoring program using a minimum of one year of data will likely be insufficient to establish baseline conditions. Baseline conditions should be established for the entire Resource Area prior to commencement of any extraction activity. Once extraction commences, it will be difficult to determine what represents "baseline" conditions on properties adjacent to the active extraction areas.

4.4 COMPREHENSIVE ADAPTIVE MANAGEMENT PLAN (CAMP)

It is stated in this section that if the nature, extent and cause of changing conditions are not well-defined, the need for further technical study by CVC should be evaluated by the Town and CVC. If land-use changes are suspected to be a contributing factor, the associated land owner(s) should become involved in the study. If there is a negative environmental impact then the impact will be reviewed and the implementation of appropriate mitigation measures will be assessed.

The following illustration is taken from a manual entitled "Natural Channel Systems: Adaptive Management of Stream Corridors in Ontario". It serves to show the linkage between the community, institutions and the state of the science and practice to a document such as the CBSES and a site specific project. It would have been helpful to have discussions with the JDCL team and the agencies to discuss this approach and ensure that the concept of Adaptive Management can be successfully applied within the CBSES. We believe that discussions are warranted to correct this concern.



Although the approach appears reasonable “on paper” there are several concerns with implementation. It could be a daunting task for any party to continually review data, especially if there are multiple extraction sites and multiple operational activities occurring concurrently. The following questions are examples of what needs to be addressed in a more comprehensive manner: what will be the mechanism to bring the land owner(s) into the study; who will pay; will there be a dispute mechanism if a landowner disagrees; who decides if mitigation measures are required; and how long will this process take while the negative impact continues to occur?

4.4.1 RISK MANAGEMENT AND COMPREHENSIVE ADAPTIVE MANAGEMENT PLAN

4.4.2 CAMP COMPONENTS

Further discussion is warranted to resolve the above concerns.

p. 4-16, Provincial/Federal Legislation – Species At Risk and Endangered Species Acts should be added to list.

- The full references for the cited reports are missing (e.g. Integrated Watershed Monitoring Program Report (CVC, June 2001) Subwatershed 12 study (GLL, 1993)). The Reference section has been omitted from this report.
- Pg 4-21: Regarding CVC’s Integrated Watershed Monitoring Program, the authors should note that newer information is available from CVC’s 2003 IWMP report, i.e. more than 150 monitoring stations exist.

4.4.3 CAMP PROGRAM

Further discussion is warranted to resolve the above concerns.

4.4.4 RESPONSES TO CHANGING CONDITIONS OR ANTICIPATED LAND USE EFFECTS

Further discussion is warranted to resolve the above concerns.

4.4.5 FRAMEWORK FOR LINKING SITE-SPECIFIC STUDIES TO CAMP

Further discussion is warranted to resolve the above concerns.

4.5 LONG-TERM MONITORING

Page 4-21, second complete paragraph – Please note that CVC has specific data sharing requirements/considerations for the IWMP long term monitoring data and in fact any data that it collects. This paragraph should be re-worded to remove the words “be made readily available to the public” and replaced with “ should be accessible to the public/development proponents where CVC data sharing agreements and practices permit”

Generally, the importance and availability of ELC mapping data used in CVC’s Terrestrial monitoring of the Natural Heritage System using standard landscape metrics and targets (core habitat, connectivity, % forest, wetlands) needs to be promoted.

p4-22 ii) CVC has now integrated terrestrial and wetland health into its impact model.

Page 4-25, second complete paragraph – Riparian monitoring has not been set up by CVC yet. Please modify text to reflect this statement.

Page 4-25, second complete paragraph – Lichen monitoring has been removed from monitoring program until further assessment; therefore, please remove reference.

p4-29 iv) Although spawning surveys may be repeated, please state that piezometers may provide the best monitoring indicator in such critical habitats.

4.5.2 OPPORTUNITIES TO EXPAND CVC’S LONG-TERM MONITORING PROGRAM

We have an overall concern with the implications to CVC’s budget and longterm assessment of data as it relates to costs, decision making and implementation of the CBSES. Further discussion will be required to sort this out prior to resolving and accepting this portion of the CBSES.

Section 4.5.2, page 4-26:

It is possible that the test well located in the Terra Cotta Forest area could be incorporated into CVC’s IWMP and PGMN programs; however, until its status with respect to the Terra Cotta Conservation Area’s water supply has been finalized, incorporation of the well into any long term monitoring program would be premature.

Section 4.5.2, page 4-26:

CVC is currently undertaking a review of its PGMN wells with the intent of adjusting and/or expanding the distribution of monitoring wells within the Credit River watershed. Given that there could be major land use changes in the Study Area, additional monitoring wells would provide important background data to observe seasonal and long-term trends

Section 4.5.2, page 4-27:

CVC agrees that mini-piezometers are limited in that they may only be representative of localized conditions, and that the mini-piezometers must be continuously evaluated in order to ensure that they are functioning properly. CVC has employed mini-piezometers in wetland locations throughout the watershed over the past two years and has found them to be functioning properly over this period of time. It is CVC's opinion that mini-piezometers are appropriate monitoring tools for some investigations/studies. Mini-piezometers are found to work well in conjunction with a network of more classic-type monitoring wells, since many areas where mini-piezometers are used are either inaccessible to traditional drilling methods or are too sensitive to allow more intrusive drilling equipment. It is recognized however, that in some portions of the Study Area, it is difficult to install mini-piezometers given the shallow bedrock, and other types of installations may be necessary in these areas to obtain the appropriate data.

Section 4.5.2, page 4-27:

CVC has found spot baseflow measurements to be useful indicators of broad scale groundwater discharge in the watershed, and will continue to utilize this monitoring method in conjunction with groundwater level monitoring through the PGMN program. The limitations with respect to using baseflow data to determine recharge are noted.

- Prior to establishing any streamflow and/or climate monitoring stations a comprehensive review must be undertaken of the current network to identify potential locations where a need has identified to obtain additional data and to integrate it with other disciplines.
- Figure 4-6: It is unclear what the difference is between "CVC stations" and "IWMP stations".
- Pg 4-28: CVC's annual sampling of benthic invertebrates occurs during the summer, not spring.
- Pg 4-28 to 4-29: A recommended frequency and time of year for water chemistry sampling should be provided

4.6.1 SITE-SPECIFIC DEVELOPMENT REQUIREMENTS

We had anticipated that this section would be more fulsome. Further discussion is warranted to develop this section to provide clear direction to future site-specific applications recognizing the environmental conditions specific to Resource Area 9A (as determined in Parts A and B).

Please review the subwatershed studies that have been provided (as you had done for Parts A and B) to review examples of how clearer direction can be achieved.

Section 4.6.1, page 4-32, third bullet:

As noted elsewhere in the comments, it is important to incorporate a discussion of the duration of site development and rehabilitation for any proposed land use change because of the implications for long term management, mitigation, and maintenance.

Section 4.6.1, page 4-32:

The Part C report correctly notes that the specific applications would determine the level of detail required for the characterization of the site and surrounding area. Also, the report notes that supporting studies should provide sufficient information to establish the feasibility of proposed management and mitigation systems. CVC also agrees with this point, but again notes that it is important to consider the period of time over which the site would develop and transition to a rehabilitated state because that would have considerable influence on the determination of whether management/mitigation options were

feasible or not. For example, a site that would take a long time to develop would likely warrant simpler mitigation measures to facilitate long term maintenance and to reduce the likelihood of a failure during the period when active management is required.

The extent of the study area for site-specific investigations will also depend on the scale of the operation and operational methods employed. As previously indicated, any unmitigated extraction will result in large-scale impacts extending far beyond the site itself. In order to properly assess potential extraction impacts and mitigation measures a detailed characterization may need to extend to cover the entire Resource Area. How will it be determined how aerially extensive a site-specific characterization will be?

4.6.2 POTENTIAL RESOURCE MANAGEMENT AND MITIGATION APPROACHES AND TECHNIQUES

p4-33 iii) Please add that permit requirements often dictate monitoring requirements and triggers.

Section 4.6.2, page 4-34:

Again, the importance of the duration of development and rehabilitation has to be considered in selecting appropriate management/mitigations options.

Section 4.6.2, page 4-35, second paragraph:

References to other aggregate operations/applications were previously commented on in Section 4.2

Section 4.6.2, page 4-35, last paragraph:

The Part C report notes that "Planning should include consideration of...any existing or approved adjacent developments." This point should be expanded upon to provide some indication of how adjacent operations should be managed to ensure that one site's water management does not impact neighbouring operations by changing water levels.

Much of the literature regarding multiple extraction cells is related to gravel pits. Although the concepts are similar for rock quarrying, the implementation can be more onerous. Some discussion should be provided regarding the issues related to the proposed mitigation measures, and how they are dealt with at other sites.

Section 4.6.2, page 4-36, first paragraph:

The findings of the Part B study were that the development and rehabilitation of the Resource Area may take several decades or longer and this must be factored into the selection of appropriate water management options for the site. For example, the longer the time, the greater the chances of system failure, so simpler methods may be best of sites that will take long periods of time for development and rehabilitation.

Section 4.6.2, page 4-36, second paragraph:

Again, although simple mitigation "on paper" the logistics of moving around large volumes of water as part of mitigation plans could require mitigation in itself. Water balance assessments indicate there will be a water deficit during active extraction.

Section 4.6.2, page 4-37, last bullet:

Again, the duration of development and rehabilitation must be a consideration for the selection of water management options.

Section 4.6.2, page 4-38, Controlled Groundwater Inflow/Outflow:

Is there information in the references cited in this report that indicates for how long measures such as grout curtains can be effective, and how often they require maintenance?

Section 4.6.2, page 4-38, last bullet:

What are the implications to adjacent operations from maintaining higher water levels in lakes? Would the expectation be that adjacent aggregate operations would consult with one another about their water management and rehabilitation plans?

Section 4.6.2, page 4-40, first paragraph:

The potential benefits of water management are noted; however it should also be noted that ineffective water management could exacerbate impacts of climate change on water resources.

4.6.3 ADAPTIVE MANAGEMENT PLANS

Given that we have the concerns stated above for the CAMP, please refer to the illustration provided to see the connections that should be made to the AMP. A re-write of these sections is warranted following discussions between the agencies and the JDCL.

Section 4.6.3, Page 4-41:

The Part C report correctly indicates that the Adaptive Management Plan would be a very important component of the long term management of any development within the Resource Area. However, it should be noted that any AMP can only be as good as the characterization and understanding of the natural systems in and around the development. Only with a thorough understanding of the natural system would it be possible to effectively identify the causes of any observed impacts and to correctly identify the correct mitigative measure to address the impact.

4.6.4 SITE-SPECIFIC MONITORING TARGETS

Pg 4-43: One year of baseline data prior to development is generally not sufficient to characterize the existing condition for most parameters due to natural/climatic variability. Multi-year data collection will be required.

It should be cautioned in this section that DFO may be involved in setting targets at a site-specific level and that other Sentinel features or functions, even in Low Impact areas not selected could represent a potential HADD.

Responsibility for additional IWMP monitoring may not necessarily rely on CVC resources alone. CVC also needs to review internally, as an interdisciplinary team, to assess implications and adjust this program and distinguish from watershed trend to site specific impact type monitoring. Financial support will need to be discussed as part of this report.

Overall, there are insufficient references to sentinel features and monitoring representing intermittent habitats. Monitoring of these habitats are also problematic (at least from a fisheries perspective) given greater variability in biomass year to year. This needs to be addressed with either longer term sampling or simpler indicators such as species presence? Perhaps the focus would be better with amphibian monitoring in adjacent wetlands? Likewise habitat monitoring such as hydroperiod monitoring

may suffice but has not been discussed either. CVC and TRCA are presently researching headwater ecology that may be able to contribute and add science to the development of indicators to monitor.

4.7.1 STEWARDSHIP AND EDUCATION OPPORTUNITIES

Please document that CVC also offers landowner advice, design and funding for Stream Rehabilitation, Pond Naturalization, On-line Pond Mitigation or Removal, and Wetland Creation and Restoration.

MNR programs such as CFWIP should be noted. There are also active NGOs such as Trout Unlimited that also deliver local programs.

4.7.2 MANAGEMENT, RESTORATION AND ENHANCEMENT OPPORTUNITIES

Wetland creation techniques (side slopes, benches, plantings) should be noted, and further guidelines referenced, including CVC/TRCA methodology and mapping available, the Temperate Wetland Restoration Guidelines and DEM adopted by MNR. CVC will also be developing a Wetlands Restoration Strategy that can help direct efforts in this study area.

This study generally fails to address priority areas for restoration from a landscape perspective. CVC is developing a Natural Heritage System as per PPS with target lands for restoration that will be utilized in this study area in the future. Recommendations developed in the CBSSES plan would be integrated and refined.

It should be noted that there is an unpublished Stream Rehabilitation Strategy that will be reviewed as part of the CRFMP updates and would be applicable to this study area.

CVC has also completed a Draft Invasive Species Strategy that will be used in this study area.

p4-51 iii) Please state other opportunities for targeting stream flow enhancements can also be addressed by restoring and enhancing low flow channels (thalwegs) and the use of instream structures and woody material. Refuge/wetland pools may also be created especially as pond refuges are reduced.

p4-53 ii) Guidelines for mitigation and removal options for on-line ponds should be expanded (provide CVC Dam Package). Locations and descriptions of on-line ponds are good but criteria and prioritization of which ones or in which order should be discussed. Efforts to date have begun at the bottom end of Rogers and implementation plans on the pond complex within the Terra Cotta CA will begin in 2008.

4.8 POLICY CONFORMITY ASSESSMENT AND RECOMMENDATIONS

It is noted that a conformity review was not undertaken for the Provincial Policy Statement (PPS), particularly Sections 2.1 and 2.2 and Sections 3.1., although an analysis was provided for recent Provincial initiatives (Greenbelt Plan and Growth Plan). No analysis was made of CVC's policies (Watercourse and Valleyland Protection policies, Floodplain Management policies and policies on ESAs). These policies do provide direction on development affecting valley slopes, ESAs, hazardous areas, etc.

4.8.1 PROVINCIAL PLANS

Although it is recognized that the Niagara Escarpment Plan (NEP) is part of the Greenbelt Plan, given that the NEC is involved in the hearing process, it may be appropriate to indicate the boundaries of the NEP and how it may be affected by the proposal.

4.8.2 MUNICIPAL CONSTRAINTS MAPPING EXERCISE

There is a continuous message provided in the review of all Official Plans that CVC should be refining mapping at a future date. This refers to valley and stream corridors in the Peel OP (page 4-63) and the Caledon OP (page 4-68), the floodway and hazardous lands (page 4-70) and stream and valleylands (page 4-71) in the Wellington County OP and the regulatory floodplains (page 4-75) in the Halton OP. This message is also repeated in the Municipal Constraints Analysis report (Appendix P). These references should be stating that typically at the site specific scale, CVC will be reviewing floodplain studies provided by the applicant and/or staking features (wetlands, watercourses, top-of-bank,, ESA boundaries, if applicable, etc. in conjunction with the applicant's consultants and municipal staff.

It should be recognized that CVC is working with the Region to incorporate a new Natural Heritage System as part of the Official Plan update that is consistent with the Natural Heritage Reference Manual. The CRWMSU, Subwatershed Plans and the CRFMP will also be integrated.

In Appendix P regarding Natural Corridors in the Caledon Official Plan there is reference to a technical definition found in TRCA's policies. Although the reference may be found in the Caledon O.P., it would more appropriate to refer to only CVC's policies.

Also in Appendix P, regarding Natural Corridors in the Caledon O.P. and specifically with regard to Core Fishery Resource Areas, CVC appreciates the improved mapping of fishery resources completed by the consultant as an update that is consistent with the CRFMP used by CVC in plan input and review responsibilities. The mapping includes all fish habitat including contributing or indirect fish habitat but Appendix P states "not direct fish habitat", unknown or ephemeral were excluded from the CBSSES Core Fisheries. Such habitats still need to be recognized as potential "indirect fish habitat" as defined by DFO and could be described as non-core?

CVC agrees with the consultants that more detailed site investigations may be necessary and could utilize CVC Headwater Guidelines that would classify their functions as "simple or complex" contributing habitats. CVC supports the Results section in Appendix P.

4.8.4 NATURAL HERITAGE SYSTEM

Credit River Fisheries Management Plan

CVC appreciates the added detail to the mapping of existing fish communities accomplished in this study. Fish habitat potential mapping may require further studies (note that most sampling to date has been during dry years) and monitoring of riparian plantings and pond decommissioning. It is not appropriate to recommend changes to the Fish Community Managements Zones already designated for the study area given the presence of trout in the middle and lower regions. Management zones were designated to recognize both the potential for expanding coldwater habitat and to address contributing functions from all upstream areas to coldwater habitats. This is especially important to address the gaps of this study to address such downstream linkages (as noted on p4-82 iv) and cumulative impacts. As recognized (p4-82 v) the CRFMP Implementation Committee will review all mapping and revise the CRFMP accordingly.

p4-79 iii) Other management issues of note from the CRFMP that could be stated include education, enforcement of habitat regulations, new fishing opportunities (in rehabilitated quarries) and climate change issues.

p4-81 iv and v) CVC still has an issue the use of mixed cool communities reserved for the main river with the presence of rainbow and brown trout. Where these species exist in the study area tributaries, please state the potential for brook trout will be recognized with a cold water management designation.

4.8.5 CBSSES POLICIES

Although there is much discussion about a “clear and reasonable mechanism” in the Peel OP, it would not seem the appropriate section to have the discussion.

5 CLOSING/FUTURE WORK

Many of the significant comments made in Section 4 apply to this section as well. Insufficient direction is given to future work to ensure that the work carried out in Parts A and B can be utilized and implemented successful to ensure that the environmental features and functions are protected in the longterm. Reference to the Adaptive Management and its proper use is not referenced as the overall framework. Therefore this section lacks context and purpose for the CBSSES.