February 2009

JART REPORT
THE NELSON AGGREGATE CO.
BURLINGTON QUARRY

PREPARED BY

Joint
Agency
Review
Team

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Photos included within this report were taken during site visits by JART members Robin van de Lande and John Pisapio

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Executive Summary

1. Executive Summary

The writing of the Joint Agency Review Team (JART) Report, for the Nelson Aggregate Company Burlington Quarry, has been more than six months in the making.

This report summarizes the background work, analysis and findings of JART , from a technical perspective.

The intent of a JART is to inform all interested agencies and members of the public on technical considerations. As such, no recommendations or approvals regarding the applications are identified as part of this report.

At a macro level, some of JART's chief issues relate to the following:

- JART has noted that the application does not meet portions of the Niagara Escarpment Plan, Region of Halton, and City of Burlington Official Plans. However, policy conformity will be thoroughly addressed in subsequent agency planning reports.

- The proposed footprint as identified within the 2008 revised application would include extraction in a significant woodland and a provincially significant wetland.

- The Nelson review of the applications is limited to the property boundaries. The assessment of the applications must be based on the broader Mount Nemo Plateau in a landscape ecology context. The impacts on private wells must also be considered under the Mount Nemo Plateau context including the existing and proposed quarries.

- With respect to wells and hydrogeology, questions around lake filling, wetland protection, the impacts on private wells (water quality and quantity) remain.

- The applications suggest an extended timeline for rehabilitation of the existing quarry, in light of the fact that processing of materials from the proposed quarry will be carried out in the existing quarry. Questions regarding integration between the existing quarry and proposed quarry operations are outstanding.

- Detailed mitigative measures remain outstanding for species at risk.

- Commitment to the preparation of an Adaptive Management Plan and related legal agreements and associated securities, must be addressed.

To elaborate, the following list highlights some of JART's key findings:

4. Planning and Regulatory Matters

- Documents submitted by Nelson show a discrepancy in the number of hectares of land being re-designated to Mineral Resource Extraction Area. Nelson claims that the extraction area was revised to 51.6 ha. The amendment as written identifies 61 ha. Also noted is that the site plan submitted through the ARA process (January 11, 2008) shows an extraction area of 51.6 ha.

- The proposed amendments do not take into account the southwest corner PSW and significant woodland.

- The text changes that Nelson proposes for the ROP amendment are also inconsistent with wording normally used, do not reflect all the changes required, and should be modified to properly address the proposed changes. The appropriateness of the designations will be an issue at the Joint Board hearing.

- It is not clear to JART whether Nelson has consulted directly with First Nations groups with respect to the applications and/or findings on the site.

- During the course of review of the application, there have been several changes to the original applications by the applicant to attempt to address such issues as the discovery of the provincially threatened Jefferson Salamander on adjacent properties and the designation of some of the wetlands both on the subject and on adjacent properties as provincially significant.

- The term "provincially significant" in the MHBC report, when referring to mineral aggregate resources, is not recognized in either the Aggregate Resources Act or the Provincial Policy Statement.

- The northwest portion of the subject property proposed for re-designation to Mineral Resource Extraction Area should instead remain as Escarpment Rural Area since it contains a portion of the West Arm of the West Branch of the Mount Nemo Tributary and would provide more of a buffer to residences, including a historic home. Furthermore, those lands on the east, southeast and southwest portions of the property which contain provincially significant wetlands and woodlots, should be proposed for re-designation to Escarpment Natural Area.

- The MHBC report misstates the intent of the policies of the Escarpment Rural Area designation by implying that it has "an objective to provide for the designation of New Mineral Resource Extraction Areas by amendment to the Plan".

- The MHBC report states that the purpose of the NEP is respected because notwithstanding the proposed loss of a portion of the Niagara Escarpment, other areas designated Escarpment Natural and Protection would remain and that future rehabilitation of extracted areas would enhance the open landscape character. In fact, a continuous natural environment would not be maintained due to the proposed alteration of the Niagara Escarpment that would result from the proposed quarry and the re-created landscape following rehabilitation would not be the same as or even similar to the original landform.

- The MHBC report states that the NEP objective of maintaining and enhancing the quality and character of natural streams and water supplies will be respected as there will be no unacceptable impacts on streams or water supplies resulting from the proposed quarry. In fact, Nelson has not demonstrated to JART's satisfaction that there will be no unacceptable impacts on streams and water supplies.

- In evaluating an application to amend the NEP to a Mineral Resource Extraction Area designation, the impact on species must be assessed. The MHBC report references the Butternut trees on the site as part of the impact of the proposed quarry but there is no mention of impact on the habitat of the Jefferson salamander and for fish resulting from the potential impacts to the surface and groundwater regimes as outlined elsewhere in the JART report.

- The MHBC Report has become outdated in light of other new information that became known during the course of the JART review.

- JART concludes that the Nelson application does not adequately address the policies of the NEP.

- The MHBC Report incorrectly states that key natural heritage features will be mitigated, compensated and monitored to ensure no adverse effect, referencing PPS policies 2.3.1 and 2.3.2. These policies deal with protection from incompatible development and demonstration that there will be no negative impacts on the natural features or on the ecological functions. Nelson proposes to remove provincially significant wetlands in the southwest corner of the subject site. The proposed aggregate operation would also remove major portions of the significant woodland in the southwest corner and elsewhere on the property. This would be contrary to PPS policy 2.3.1. In addition, the removal of these features will disrupt the existing connections and linkages between the natural features present in the area, which is contrary to PPS policy 2.3.3.

- The MHBC Report states that quality and quantity of ground water and surface water and the function of sensitive ground water recharge/discharge areas, aquifers and headwaters will be protected or enhanced (2.4.1). Impacts to the quality and quantity of ground water and surface water are extremely difficult to determine and cannot be fully mitigated.

- JART does not agree with the assessment offered in the MHBC Report that the proposal conforms to the PPS documents (1997 and 2005).

- The settlement conditions for ROPA 25 require that the deferral of the definition of significant woodland must be addressed and resolved prior to a decision being made with respect to the application.

- Nelson does not recognize the status of the southwest wetland as being provincially significant and the woodland as being significant. However, the PSW meets the criteria for Greenlands A in the ROP while the significant woodland meets the criteria for Greenlands B.

- The text changes that Nelson proposes for the ROP Amendment are also inconsistent with wording normally used, do not reflect all the changes required, and should be modified to properly address the proposed changes. The appropriateness of the designations will be an issue at the Joint Board hearing.

- MHBC's policy analysis was based on the 1995 ROP and not the partially approved 2004 ROP. Its analysis only covers policies dealing with aggregates and does not discuss any other aspects. Aggregate policies must be considered equally with other policies dealing with such areas as natural heritage, agriculture, health, water resources and the economy.

- Some questions remain outstanding regarding the impact of the proposed quarry on the environment, water resources and health aspects. Therefore, conformity to the ROP is yet to be determined and will be further explored through the Region's Regional Official Plan Amendment process.

- The analysis by MHBC singles out an objective in the Burlington Official Plan that is "to provide for extraction of mineral aggregate resources through amendments to the Plan" (Part IV Section 2.3.1). Emphasis on this objective over others in the Official Plan seems to suggest that MHBC believes this objective takes precedence over others in the Plan. This is not correct.

5. Natural Heritage

- JART is of the opinion that there was insufficient breadth of study within the report completed (Stantec 2006). Therefore JART expanded the study area to include the whole of the Mount Nemo plateau. Nevertheless, there is remaining uncertainty about potential quarry impacts with respect to protection of the natural heritage system, including provincially significant wetlands, significant woodlands, species at risk habitat, off-site natural areas (e.g. Medad Valley), and flows to watercourses.

- JART has some concerns relating to the ELC done by Stantec. To begin, the size of some ELC communities was smaller than the standards set by the ELC manual. JART is of the opinion that some of these communities would more appropriately be described as inclusions within other, larger ELC communities.

- JART noted that the ELC datasheets used by Stantec were not complete. In particular, the soil descriptions were not filled out on the sheets and most communities described had less than 12, and as few as two, plant species listed.

- Owing to the central location on the Mount Nemo Plateau, both the proposed quarry and the existing quarry present challenges with respect to the protection of headwater wetlands and watercourses which originate on the plateau. Further, the connectivity of the natural features and functions across the plateau is a critical component of natural heritage systems planning. The proposed extraction footprint will compromise these features and linkages.

- JART believes the assessment of the quarry(s) ecological impacts on natural heritage must be evaluated within the context of the Mount Nemo Plateau and its associated natural heritage system.

- JART did not agree that the CUT1-8 (Cultural Thicket) community was appropriately named. JART suggests that a portion of this is a swamp thicket wetland (e.g. SWT2-13). JART also had similar concerns with the identification of CUT1-9 and CUP3-2a. JART believes a portion of which may also be swamp thicket wetlands.

- Much of the surrounding area has not been identified using ELC due to access issues.

- Nelson must demonstrate that no development or site alteration is proposed within the significant wetlands. Further, for the lands within 120 metres adjacent to the wetlands, it must be demonstrated that there will be no negative impact on the natural features or on the ecological functions for which the area has been identified.

- The 2008 extraction footprint, excludes the majority of the significant wetlands from extraction, however, the wetlands in the southwestern woodlot (wetlands #11 and #12) are proposed for extraction, contrary to the PPS. Nelson believes the southwest wetlands are not provincially significant. JART notes that MNR is wholly responsible for wetland evaluation and classification in Ontario

- Nelson has proposed a 30 metre buffer from the wetland boundary to the extraction limit as shown on the Site Plan. In order to adequately protect a wetland, buffers should be undisturbed and fully vegetated, however, this has not been proposed by Nelson in its applications nor its supporting documentation. The inadequacy of the buffers proposed is contrary to the PPS.

- Nelson has not properly demonstrated that the proposed extraction footprint will not have a negative impact on the significant woodlands or on the ecological functions provided by this woodland. Further, for the lands within 50 metres adjacent to the woodland, it must be demonstrated that there will be no negative impact on the natural features or on the ecological functions for which the area has been identified.

- The relatively high number of locally rare and provincially uncommon species indicates that the natural areas on the Nelson property are of local importance. With regard to the provincial wetlands evaluation, the high number of species contributes nearly 50 points to the wetland evaluation. Additionally, based on the number of significant species present, in combination with other criteria, the area may meet the Regional criteria for Environmentally Sensitive Areas.

- The PPS states that development and site alteration shall not be permitted in or adjacent to fish habitat except in accordance with provincial and federal requirements. Similarly, mitigation will be necessary in the East Arm to ensure that the downstream fish habitat is not impacted as a result of the quarry proposal. Other tributaries originating on the Mount Nemo Plateau could be affected by changes to the groundwater table as a result of quarry dewatering. This may impact the quantity and duration of flows to these tributaries.

- JART acknowledges that the list of mammals likely under-represents the actual numbers of mammal species present. There are likely a number of mice, voles, bats and other mammals present in the study area that have not been recorded. Records for the nearby Mount Nemo Life Science ANSI suggest that the uncommon (Ontario Rank S3) and Regionally Rare Eastern Pipistrelle (Bat) is found east of the study area. Specific studies for bats were not completed by Stantec on or around the proposed quarry.

- JART does not agree with the overall conclusions of the Stantec report regarding the impact to birds and bird habitat. Primarily JART is concerned with the statement that since other habitats exist in the regional area, removal of habitat on the Nelson property is somehow acceptable. This was not based on specific study of other properties or on offsite bird inventories. No such studies were completed as Stantec only completed breeding bird inventories on the proposed quarry property and in 2000, on the existing quarry lands. Additionally, because the extraction footprint was changed in 2008 to include the southwest woodland area, the conclusion by Stantec that the forest habitat would remain on the property and therefore there would be no impact to the area sensitive species, is no longer correct.

- The Stantec report does not reference species of conservation concern in its evaluation. JART notes that species of conservation concern such as the Scarlet Tanager and Pileated Woodpecker are not adequately addressed in the evaluation by Stantec. JART concludes that bird habitat, including that of several species of conservation concern, would be lost on the property as a result of the proposed quarry. Specific measures to mitigate or avoid this loss of birds and bird habitat have not been provided.

- Stantec has downplayed the significance of Jefferson Salamander saying "the southwest wetland pool does not necessarily constitute the significant habitat of" [Jefferson Salamander] and "the data shows in fact a very weak if any, population of Jefferson in the wetland that extends onto the Nelson property". JART does not agree with this statement and supports the MNR position that the property does provide Jefferson Salamander habitat and that this viable population requires protection from any impacts associated with the proposed quarry.

- Two species at risk have been documented on and/or adjacent to the Nelson property; Jefferson Salamander and Butternut.

6. Water Resources

- The water balance analysis does not include an assessment of the change in flows relative to pre-quarry "natural" conditions hence this is unknown at this time and the proposal cannot be evaluated relative to such conditions.

- Based on water balance calculations, including an assumption that 50% of the surplus water is used for lake filling, Golder Associates have advised that both quarries would be expected to be filled within 40 years following the end of quarry extraction activities. However, JART has not been provided with a detailed year-by-year calculation to support the time line estimates that have been presented.

- The potential impacts of climate change must be considered with respect to the proposal. It is necessary to examine the implications of climate change in addition to the historic variation in meteorologic parameters, because the change in climate would be beyond the historic values and trends. JART recommends that a water balance analysis be completed inclusive of both natural variability as well as the potential impact of climate change in order to meet the intent of the precautionary principle.

- The analysis for lake filling timelines does not specifically reference the current range of predicted impacts due to climate change. It is unclear whether the water balance calculations provide any type of contingency regarding the uncertainty of other water balance parameters and model assumptions beyond those noted in the "lower bound" scenario.

- Predictions of the potential impacts of the proposed quarry were updated to reflect the revised quarry footprint and staging of quarry development. However, no new data on private wells was presented relative to the 2004 report, and the update did not include any of the information collected during the 2005-2006 private well survey.

- The local drainage area contains provincially significant wetlands whose primary water supply is from capture of local runoff. The proposed quarry would alter the drainage areas to a number of these features.

- The changes to the average annual watercourse flows are based upon an assumption that during the lake filling period continued pumping from the existing quarry and proposed quarry will occur. However, at this time, a means to ensure that this assumption is implemented has not been confirmed.

- JART does not have the information to verify and/or accept the statements pertaining to the Permit to Take Water and well complaints. As well, in the peer review follow-up to the responses to the peer review comments, the peer reviewer recommended that Nelson provide a detailed discussion of whether historical operations have had any negative consequences for private wells.

- It should be noted that wells are predicted to be affected sufficiently by further extraction at the existing quarry that they will either be replaced or otherwise augmented by Nelson to meet the requirements of the Permit to Take Water of the existing quarry.

- The evaluation does not incorporate the most recent data available on private wells in the vicinity of the proposed quarry.

- Information as presented does not allow more specific evaluation on the part of JART of potential impacts to specific individual wells.

- The evaluation does not indicate whether a reduction of 10% at any of locations could result in the supply becoming inadequate for its intended purpose. The 1996 MOE Technical Guideline for Private Wells, Procedure D-5-5 indicates the required flows should be 450 litres per person per day and a minimum of 13.7 litres per minute pumping capability for normal domestic demands. Nelson has not indicated if any of the 123 existing wells experiencing the less than 10% impact, meet these standards and whether reduction in the water column height would cause them to not meet the standards.

- The evaluation does not address whether the private wells with predicted impacts of 10% or less would be subject to a change in water quality.

- At locations where impacts to wells are predicted to be of sufficient magnitude to require mitigation, it is not indicated whether it is feasible to deepen wells.

- The evaluation does not indicate whether all of the private wells are for domestic water supply, or whether some of the private wells are for other purposes, for example agricultural use and if so, is Nelson prepared to mitigate impacts to non-domestic well supplies. As well, it is not clear whether future well installation has been taken into consideration.

- JART has a lack of confidence that deepening of wells can be depended on as a universal remedy for either water quantity or quality.

- With respect to water quantity, it is Regional policy that urban services are not available to areas outside the urban boundary. MOE does not support long term water trucking. In light of this, the mitigative measures for impacted wells are somewhat limited and needs to be expanded by Nelson in a full scale mitigation program, as at this time JART is not aware of other proven remedies.

- The Nelson reports do make reference to water quality, however assurances on maintaining the existing quality have not been provided. A comprehensive mitigative program, with a focus on water quality, must be prepared prior to any potential approval of the applications.

- Nelson has predicted that some wells will be impacted by the proposed new quarry. Unless it is clearly demonstrated that these impacted wells will have appropriate mitigative measures, i.e. ensuring that these wells meet provincial standards, this is an unacceptable situation.

7. Karst

- JART's peer consultant advises that the level of understanding with respect to karst features is sufficient to proceed with the quarry applications, provided that the karst receives further consideration under the AMP.

8. Archaeology

- In a letter dated November 19, 2004, the Ministry of Culture, as per Section 48 (1) of the Ontario Heritage Act and Ontario Regulation 170/4, confirmed that they had no further concerns for the archaeological sites documented within the subject property. JART accepts the sign-off by the Ministry of Culture with respect to the archaeological investigation.

9. Agriculture

- JART acknowledges the sign-off of OMAFRA with respect to the loss of prime agricultural land, if the applications are approved but farm well impacts must be addressed in an Adaptive Management Plan.

10. Traffic

- In order to properly identify traffic patterns and volumes from the proposed quarry and their impact on local and Regional roads, and address idling and safety issues, an updated report should be submitted using 2008 data with actual traffic counts, prior to the commencement of the Joint Board Hearing.

- The Paradigm report touches on sight line issues related to the westbound approach of No. 2 Side Road at Guelph Line. This approach is not related to the truck route of Nelson Quarry and further, actual measurements were not completed in the field.

- Data is required on future traffic (background) and realistic quarry traffic over the life of the quarry plus during the period when fill is imported. Peak traffic that can be accommodated at the site should be confirmed. Further, data is required on traffic flow to/from and between the existing and proposed quarry sites, within the context of non-quarry traffic using No. 2 Side Road.

- Letters from Golder Associates Ltd. and Associated Engineering on behalf of Nelson indicate that a 20 metre wide excavation is possible through No. 2 Side Road with the road maintained by a bridge during operation of the existing and proposed new quarries. At this stage, JART has not received detailed information on the feasibility of developing the tunnel or bridge. The Site Plan for the existing quarry should be reviewed to determine if changes are required to link the two sites. Regardless of whether or not the bridge or tunnel is proposed, questions related to the stability of the rock pillar between the existing and proposed quarries will need to be addressed. JART also notes that other approvals may be required to permit the construction of a bridge if the quarry is approved (Class Environmental Assessment, agreement with the City of Burlington, amendment to the site plan etc).

- JART supports Nelson's invitation to the community to form an interactive Citizens Liaison Committee which could include discussion regarding road safety issues.

11. Noise, Air Quality and Blasting

- According to the March 25th, 2008 review by JART's peer reviewer, Nelson's noise study and updates adequately addressed appropriate MOE Guidelines and prediction methods and provides appropriate recommendations for acoustical mitigation. However, further recommendations state that the following should be included as conditions on an ARA Operational/Site Plan for enforcement through the MNR:
    - the applicant shall maintain compliance with MOE Noise Guidelines; and,
    - the applicant shall provide verification of compliance with those Guidelines through on-site noise monitoring and the preparation of acoustical audits.

- JART's peer reviewer has determined that the Air Quality Report and subsequent revisions/additions have properly identified and described key emission sources relative to best practices/standards and that a documented commitment by Nelson is required to implement Golder's recommendations and the more detailed BMP. It is recommended that a condition be included on the ARA Site/Operational Plan that specifically requires the implementation of a Dust Management Strategy as a BMP complete with specific triggers, record keeping, monitoring and actions by others.

- It is the opinion of JART's peer reviewer that the Golder analysis is sufficient to demonstrate that blasting in conformity with MOE guidelines can be conducted within the proposed new quarry. At times, Nelson would have to undertake certain precautions in its blasting procedures but this should not negatively impact the feasibility of extraction in the proposed quarry.

- JART's peer reviewer recommends that a condition be included on the ARA Licence Site Plan to require the implementation of the Dust Management Strategy complete with specific triggers, record keeping, continuous monitoring and actions by Nelson.

- It is understood that a blasting plan and details of the proposed monitoring and complaint procedures have been prepared. Reference to these documents should be placed in the notes to the operational plan.

- The matter of timing and frequency of the noise monitoring program and acoustical audits remains an issue to resolve. As well a question remains regarding the impacts of cumulative noise (i.e. the combined noise from existing and proposed operations).

- It is not clear to JART whether or not a Dust Management BMP will be required by the MNR as a condition of the ARA site/operational plan or through other means. This is an important element to the future enforcement of the BMP. JART would consider it appropriate to include a BMP as a condition through the ARA process. It is also not clear what Certificates of Approval will be required or amended by MOE. JART would consider it appropriate for Nelson to obtain a Certificate of Approval to include the BMP as a requirement

- JART and its peer reviewer recommends that a blasting plan and details dealing with monitoring and complaint resolution procedures for the proposed quarry should be prepared and included by the MNR in the notes to the ARA site/operational plan. JART understands this to be another matter under the jurisdiction of the MNR.

- JART also notes that the proposed extraction area for Phase 1 in the 2008 revised site plan (9.85 ha) vs. the original site plan Phase 1 (4.4 ha) is double in size. This in turn raises a question as to whether an updated blasting report should be prepared to reflect the revised figures.

- JART understands that Nelson may to some extent have an existing communication strategy. If it has not, to assist in keeping neighbours informed of quarry operations, Nelson could proactively enhance its communications plan by distributions outlining the blasting protocol; unscheduled dates/times of blasting events. Though internet connection and availability may prove difficult for some, the communication could be posted on the Nelson website and updated on a regular basis.

12. Rehabilitation Plan

- Although Nelson's stated goal of rehabilitation is for a net gain of environmental features on the site, JART believes the proposed new quarry footprint results in a deficit of environmental features. The proposed quarry would result in the loss of a number of features that will not be replaced by the proposed enhancements to the lands outside of the extraction area. Of particular note, the proposed extraction area includes the removal of a mature deciduous woodlot, which is part of a significant woodland, in the southwest corner of the subject property. The removal of this area will result in the loss of a large portion of the woodlot and Provincially Significant Grindstone Creek Headwaters Complex. As previously noted, the loss of the PSW and significant woodland is contrary to the PPS. It should also be restated that compensation or net gain, in relation to natural heritage features, are not supported by JART as a method to meet the objectives of the PPS.

- JART does not agree with the MHBC Planning report reference to the proposed quarry as an "interim land use". Given that extraction and subsequent rehabilitation of a quarry can take several decades, it could be considered a permanent land use (in the context of planning policy).

- The proposed rehabilitation plan specifically addresses connectivity between natural heritage features. Notwithstanding the stated intent within the proposed rehabilitation plan, what is proposed does not replace existing connectivity.

- JART has concerns relating to the use of lakes as appropriate quarry rehabilitation.

- The proposed rehabilitation plan also calls for experimental enhancement to certain areas that would not be affected by extraction. JART is of the opinion that this is neither necessary nor appropriate.

- Aspects of the current rehabilitation plan do not meet with current provincial standards. Of particular note, Nelson is proposing to leave vertical faces along the portions of the western and southern extraction boundaries.

- JART also notes that progressive rehabilitation of the existing quarry will be significantly delayed as a result of the aggregate being transported from the proposed quarry across to the existing quarry plant for processing. Final rehabilitation of the existing quarry would correspondingly be delayed for the proposed period of extraction, followed by an indeterminate rehabilitation period, which could be a number of decades, until the quarry is filled to form a lake.

- JART is of the opinion that the Nelson applications, along with the scientific studies detailing mitigation measures, need to be comprehensive and standalone from the AMP with respect to merits of the proposal. Therefore, Nelson may be confused about the intent of the AMP and that it could be seen as a mechanism for deferral of the evaluation of various engineering and mitigation measures until after an approval or that an AMP could be used to garner an approval through an engineered solution.

- A significant limitation of this document is the lack of precise and prescriptive wording required to define the implementation of mitigation of potential quarry effects. Notwithstanding these limitations, the Report on AMP could provide a starting point for the development of a complete AMP should the proposed quarry be approved.

- The Principles for an AMP identified within the JART report should provide the foundation for the Nelson AMP.

Overall Limitations

- One of the primary limitations is that the document lacks the precise and prescriptive wording required to implement mitigation of potential quarry effects. Specifically as a report which is intended to "…facilitate dialogue and planning regarding…" the Report on AMP is somewhat vague in its statements and does not read definitively enough to be considered a complete AMP.

- Wherever possible, triggers for actions and mitigation need to be specifically detailed. Any sections that identify possible actions to address unacceptable impacts from quarry operations need to be translated into definitive actions with appropriate triggers.

- While the Report on AMP identifies a number of mitigation actions that could be used to off-set impacts resulting from the loss of surface flow to the provincially significant wetlands, there does not appear to be a specific monitoring action and/or trigger to compel the implementation of these mitigation measures.

- The Report on AMP does not appear to meet its sixth stated principle which is to "…identify to the greatest degree possible a range of possible scenarios and technical problems that might reasonably be encountered in the future, based upon the available evidence and the need to embrace the precautionary principle…".

- The Report on AMP contends that the southwest woodlot wetlands should not be included as part of the provincially significant complex. JART rejects that the evaluation of the significance of a wetland is a matter for discussion within the context of an AMP.

Water Resources

- The Water Resources Report and Report on AMP provide an assumed scenario of a continued pumping rate from the existing and proposed quarries throughout the life of the project until the quarries ultimately fill to become lakes. There remains a question as to how this operation will be ensured over the life of the quarry. This needs to be addressed in terms of meeting Nelson's stated AMP objective to bear the costs and risks associated with the proposal (i.e. no private resident, public agency or environmental burden). It should also address both the required form of agreement or legislation to accomplish this, as well as the required securities to ensure that the public and agencies are not put at financial risk.

- The Water Resources Report and Report on AMP do not identify how the assumed/proposed flow rate (i.e. 50% of surplus during lake filling) relates to the natural conditions that would be anticipated in the absence of the quarry.

- It is appropriate to include in any AMP measures to address increased temperatures and variation in precipitation from climate change and any impacts this may have on the proposal. As noted in the Water Resources Section of the JART report, the potential impacts due to climate change have not been specifically addressed based on the available climate model predictions.

- The Report on AMP does not appear to provide for adequate monitoring to assess flow/water level conditions, and impacts that may result on the features, within the receiving tributaries and wetlands which are in close proximity to the proposed quarry. It is not clear how potential losses in flow or water levels in these areas would be detected and what mitigation strategy is available if impacts are noted.

- The Report on AMP outlines proposed groundwater "target levels" which would trigger various actions, mitigation and/or changes to quarry operations if unanticipated impacts were to occur. According to the Report on AMP, target levels are proposed to be established for each subsequent phase as extraction in the quarry proceeds. However, there is little detail in the Report on AMP as to how this is proposed to occur or how a formal approval process related to any necessary changes would be incorporated into the ARA site plan or AMP.

Private Wells

- The Report on AMP suggests that only category A and B wells (currently predicted to have impacts greater than 10% of water column height) would be subject to mitigation regardless of actual impacts that may occur. This leads to a number of potential concerns, including:
    - Are wells that are not predicted to be at risk, but where the actual impacts are greater than 10%, excluded from consideration for mitigation?
    - The 10% impact threshold does not include an assessment of whether this could affect the viability of the supply, or whether the supply is already being utilized to its available extent. This leads to the potential that some supplies that are currently marginal will be affected more severely.

- The 10% threshold does not address the reduction of storage/recharge and recharge time that may also affect a well operation.
- The proposed protocol for setting water level targets surrounding the quarry indicates that under dry conditions and/or climate change, water level targets may be reduced further based on correlation to background water levels. JART is concerned that this incremental change is proposed in addition to the 10% threshold impact, leading to a potentially larger overall impact and decreased resiliency of these wells to operate in the face of such climatic changes. The AMP Report suggests that the loss of flow is similar to a natural variation, however, it should be noted that the effect is additive (i.e. when natural variation occurs these areas will be incrementally affected by both the loss of contributing area and the natural variable conditions).

- Additional mitigation strategies only appear to be triggered if water levels decline beyond the predictions made by the model. JART recommends that it may be more appropriate to implement mitigation measures based on actual concerns/impacts as they arise.

Natural Heritage

- The Report on AMP also addresses a number of other issues such as a Butternut Management Strategy, Landscape and Ecosystem Rehabilitation Plan, Jefferson Salamander Egg Mass Surveys, etc. It is unclear why issues such as these are addressed in the Report on AMP, which principally deals with unanticipated changes to ground and surface water levels. It is recommended that sections unrelated to ground or surface water be removed from the AMP and that they be incorporated into the proposal in some other appropriate manner (e.g. ARA site plan) or removed where appropriate (e.g. on-going Jefferson Salamander egg mass surveys or other surveys in areas where the presence of a species at risk has been confirmed), as it is considered unnecessary and invasive.

- Notwithstanding this, the AMP should include a natural heritage component which addresses potential aquatic and wetland impacts related to changes in surface water and groundwater inputs with specific targets and requirements for mitigation.

Karst

- The most recent version of the Report on AMP for the proposed Quarry indicates that contingency grouting will be undertaken to address karst features. Grouting will be conducted along discrete sections of the bedrock mass to reduce groundwater inflows to the quarry. The presentation of the conceptual framework includes the recommendation that a "pilot grouting program be conducted early in the overall process to verify design assumptions and confirm performance expectations." In JART's opinion, this is a constructive recommendation that should be implemented formally in the final version of the AMP, if the quarry is approved.

- The January 2008 Report on AMP also notes the need to undertake further analysis of flow regimes in creeks below the Niagara Escarpment should groundwater level monitoring targets near the escarpment brow be exceeded. However, the Report on AMP only identifies Shoreacres, Tuck and Appleby Creeks as part of this analysis and does not provide any consideration for monitoring/analysis/mitigation of springs feeding the Provincially Significant Medad Valley ANSI.

Implementation of the AMP

- It is important that the AMP be included by reference on the Site Plan under the ARA in order to be enforceable. Implementation of an AMP may also require that a separate legal agreement be prepared to enforce the requirements of such an AMP. Any and all impacts of the proposed quarry must be addressed and borne by Nelson to ensure the public and agencies are not put at financial risk.

Timing of AMP Preparation

- JART recommends that the applications along with the scientific studies detailing mitigation measures, need to be comprehensive and standalone from the AMP with respect to merits of the proposal. However, JART would also advise that in the absence of a detailed AMP, including an implementation agreement to accompany the application, there remains insufficient information available for JART to reach any conclusions regarding how the impacts of the proposed new quarry could be appropriately mitigated.

The following report provides a review of the technical reports and other documents submitted by Nelson in support of its applications. JART and its peer reviewers' detailed findings, including differences of opinion with or the need for further information from Nelson, are outlined in the sections that follow.

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Introduction

2. Introduction

2.1 Overview and Purpose of Report

This report describes Nelson Aggregate Co.'s (Nelson) applications for a quarry in the Mount Nemo area of the City of Burlington and the technical reports that support the applications, as well as providing technical review comments from the agencies charged with evaluating the proposal.

This technical report has been prepared by a Joint Agency Review Team (JART) and summarizes the merits, completeness and issues raised by the members of JART over the course of the review of the applications.

2.2 The Joint Agency Review Team (JART)

The concept of a JART was first established through the adoption and approval by Halton Regional Council of the "Halton Consolidated – Streamlined Mineral Aggregate Review Protocol", on January 31, 2001. Updates to the Protocol were documented through Region of Halton Reports PPW135-04 (dated September 29, 2004) and PPW53-07 (dated March 7, 2007).

The purpose of the Protocol is to:

- facilitate the sharing of information and expertise among review agencies (i.e. local municipalities, conservation authorities, Niagara Escarpment Commission, Provincial Ministries etc.),
- to engage the public more effectively, and
- to improve decision-making and efficiency associated with aggregate applications.

The Protocol includes the establishment of a JART to ensure coordination among the many agencies that are involved in reviewing aggregate applications.

To ensure that the Nelson applications received a thorough review, a JART was formed with a Regional representative accepting the role as Chair.

2.3 JART Mandate and Members

The function of JART is to review, analyze and comment on the completeness of the submissions and JART members share their expertise to undertake a technical evaluation of the applicant's applications.

A JART does not make a recommendation on whether or not the applications should be approved, but rather informs the agencies with decision-making authority on technical considerations.

Once the collective work is complete, each JART member agency reviews the merits of their application on an independent basis, and in turn will consider JART's comments along with agency-specific considerations and public comments prior to making their decisions or taking a position. Each agency in turn makes a recommendation according to the specific mandates, regulations or legislation they are bound by. A copy of the work flow for JART is included as Appendix A.

For the Nelson applications a number of agency representatives have participated in the JART review. A listing of those involved is as follows:

Table 2.1 Core JART Membership

Agency	Current Members**	Past Members
City of Burlington	Robin van de Lande	John Conn
Halton Region	Rick Reitmeier	Helma Geerts David Nelson Nancy Mott-Allen
Niagara Escarpment Commission	David Johnston, Nancy Mott-Allen	
Conservation Halton	Brenda Axon Ray Guther	
Ministry of Natural Resources	Steven Strong John Pisapio	

** Coordinators of this Technical Report

Table 2.1 As Needed Input to JART Technical Analysis

Agency	Representatives
Halton Region	Sara Darker Nichole Mathews Carolyn DeLoyde Matt Krusto Jacinth Miller Rob Merritt
City of Burlington	Rick Lipsitt Kerry Davren
Niagara Escarpment Commission	Anne Marie Laurence
Conservation Halton	Robert Edmondson Kim Barrett Sherwin Watson-Leung Brenda Van Ryswyk
Ministry of Municipal Affairs and Housing	Darryl Lyons
Ministry of the Environment	Charles Wakefield Ellen Schmarje Camilo Martinez
Ministry of Natural Resources	David Webster Cathy Douglas Warren May Bohdan Kowalyk Emma Followes

In addition, JART received correspondence and input from the general public, Nelson representatives and a local residents' group called Protecting Escarpment Rural Land (PERL). PERL has engaged several consulting firms to assist in providing comments. All information submitted by PERL and its consultants has been reviewed by JART and incorporated as part of its analysis. One noted exception is the most recent information presented by PERL's hydrology expert Ray Blackport, specifically his report entitled "Comments on Golder Response (October 23, 2008) to the Blackport Hydrogeology Report (December 17, 2007)". This submission was received in late January 2009 and unfortunately time did not permit JART review. As such, individual agencies will take this report into consideration in the preparation of upcoming planning reports (refer to part 2.5 of this Section for an expanded description regarding the process for public input).

Some JART members also conducted field work and surveys. A number of site visits to the subject property were conducted to support JART with its interpretations and research for the JART report. JART members gathered data on site regarding natural heritage, karst, and hydrogeology.

Subcommittees were established to focus on particular areas of expertise in the areas of:Planning and Traffic; Hydrogeology; Natural Environment; and Noise, Dust and Blasting.

The area of Natural Environment was covered by a panel of agency representatives (Robin van de Lande, Brenda Axon, Anne Marie Laurence, Carolyn DeLoyde, and John Pisapio). They in turn drew on additional expertise within their agencies.

Planning, Agriculture and Traffic were also reviewed by municipal staff requested to assist JART. In the case of the Agricultural assessment, the Ministry of Agriculture, Food and Rural Affairs (OMAFRA) was contacted for input.

JART relied on the Ministry of Culture with respect to Archaeological matters.

JART hired the following peer review consultants within key disciplines to ensure the technical reviews were informed:

Water Resources	S.S. Papadopulos & Associates, Inc. Norbert W. Woerns Daryl W. Cowell & Associates Inc.
Noise, Air and Blasting	AMEC Earth & Environmental Howe Gastmeier Chapnik Limited (HGC Engineering)

The peer reviews were completed in an iterative manner that facilitated the identification of key issues. This approach was as follows:

1. review of technical reports submitted by Nelson and preparation of preliminary review comments
2. meetings between the peer reviewers, JART and Nelson's technical consultants to enable the exploration of issues and increase understanding
3. preparation by peer reviewers of the draft technical document reviews

4. subsequent review by peer reviewers of Nelson's technical consultants' responses to the draft peer reviews
5. finalization and issuance of the peer reviews

In October of 2004, the initial applications by Nelson were submitted (refer to Section 3 for a full description of the applications).

Since that time JART has met no less than 40 times to examine submitted materials, to determine issues and to reach agreement on the issues raised by the applications. As well, many hours of individual analysis have also been undertaken by all those participating in the JART process between formal meetings.

The formal approval process normally follows the informal, pre-consultation process. At this stage, JART's role winds down as each agency undertakes its own review of the submission, from the perspective of their respective policies, legislation, etc. Each approval process has its own program for notifying and involving the public, including a separate process should the applications be appealed. Appendix B identifies the separate approvals required.

2.4 JART Review Program

JART has relied on Nelson to provide the technical information required for a comprehensive review of the applications and Nelson has cooperated in responding to JART's requests. In turn, the review process has been thorough and continuous with the exceptions noted below.

A few interruptions over the course of the work program did result in impacts to the pace of review.

Information Flow

In general, the applicant has provided much of the required information in support of its submission. Exceptions, whereby it was determined that the work undertaken was either inadequate or lacking include:

- The initial submission was determined to be insufficient regarding site characterization and missing some related studies. It was necessary for Nelson to commission the collection of key data to be analyzed and reports prepared.
- Early presumptions such as assuming no karst features and no potential threats to endangered species created delays, as this work was not initiated until well into the process.
- Footprint changes through Site Plan resubmissions required revisiting some points a multiple number of times.
- The appeal of the application to the OMB in May of 2008 prematurely concluded the interaction between JART and Nelson due to legal restrictions, virtually closing the door on information exchange.

The Altus Group report entitled "The Market for Crushed Stone in the GTA West and Economic Benefits of the Proposed Nelson Burlington Quarry Extension", was submitted to JART in December 2008. This unsolicited report arrived during the final stages of preparing the JART technical report, and as of the printing of the report JART is not in a position to review and include comments.

Site Alteration and Butternut Tree Transplant - 2006

During a JART site visit in April of 2006, it was discovered that a site alteration to wetlands on the property and the transplanting of nationally and provincially endangered Butternut trees had been undertaken. (see Figures 2.1 and 2.2)

Following the discovery of the site alteration and tree transplanting, some members of JART were required to shift focus from the review of the application in order to conduct investigations under their various authorities. JART as a whole was not involved in the investigations, however JART did issue a letter to Nelson expressing its concerns.

This matter took some number of months to investigate and bring to a conclusion. Ultimately additional time was required by Nelson to address concerns regarding the impacts of the work that had taken place. As well, JART required additional time to consider the altered state of the site as the application review process continued on.

Figure 2.1 Site alteration – March 14, 2006

Figure 2.2 Exposed Rootmass of Transplanted Butternut – March 14 2006

Reports submitted "Without Prejudice"

In July of 2007 Nelson and its consultants submitted a number of reports and a new site plan to JART on a "*Without Prejudice*" basis. Without Prejudice is a legal term signifying that something is being done, proposed, or said without abandoning a claim, privilege, or right, and without implying an admission of liability. When used in a document or letter, these words mean that what follows cannot (a) be used as evidence in a court case, (b) be taken as the signatory's last word on the subject matter, and (c) be used as a precedence.

Based on legal advice JART did not become involved in a Without Prejudice review or discussion. Instead, clarification of the documents and their intent was sought from Nelson. This matter took a number of months to sort out and as a result JART's work decelerated during this period. In a correspondence dated November 2, 2007, Nelson confirmed the *without prejudice* characterization was withdrawn.

2.5 Public Participation and Information Sessions

To date, JART has hosted two public information meetings.

The intention of the first public information session held November 8, 2004, was to familiarize the public with both the JART process and the decision-making process, identify opportunities for public input, provide information on the Nelson applications and obtain input from the public.

The second public information session was held on September 21, 2005, to provide a mid-process update on JART's review of Nelson's proposal and obtain public input. Since JART requested considerable additional information from Nelson in a number of technical areas, JART findings were very preliminary.

As of the writing of this report, JART's final public information meeting has been scheduled for February 19th, 2009 to release the JART report.

Other non-JART sessions were scheduled with the intent to present information related to the Nelson applications and receive public input, including:

- A meeting with PERL April 28th 2005 – for the purposes of making a presentation regarding JART.
- Nelson attended a meeting of the Burlington Sustainable Development Committee in June 2008
- On February 12, 2008, Nelson conducted a public meeting to inform the public of changes made to its applications.
- Councillor John Taylor (Burlington Ward 3) held a Ward meeting on April 22, 2008 at which the Nelson applications were discussed. Halton Region staff gave a short presentation, followed by a question and answer period.
- Representatives from Nelson and PERL made presentations to Halton's Ecological and Environmental Advisory Committee (EEAC) on August 13, 2008.

In addition to the review and comments provided by JART during the review process, a number of members of the public and interested parties have also provided comments to JART as well as to Nelson directly. These comments and JART's responses as to how these issues have been addressed through the process to date are provided in Appendix C.

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The Application

3. The Nelson Applications

3.1 Location

The existing Nelson licensed operation is located on Part of Lots 1 and 2, Concessions 2 and 3, north of No. 2 Side Road, west of Guelph Line, City of Burlington in the Region of Halton.

The proposed new quarry is located on Part Lots 17 and 18, Concession 2, on the south side of No. 2 Side Road.

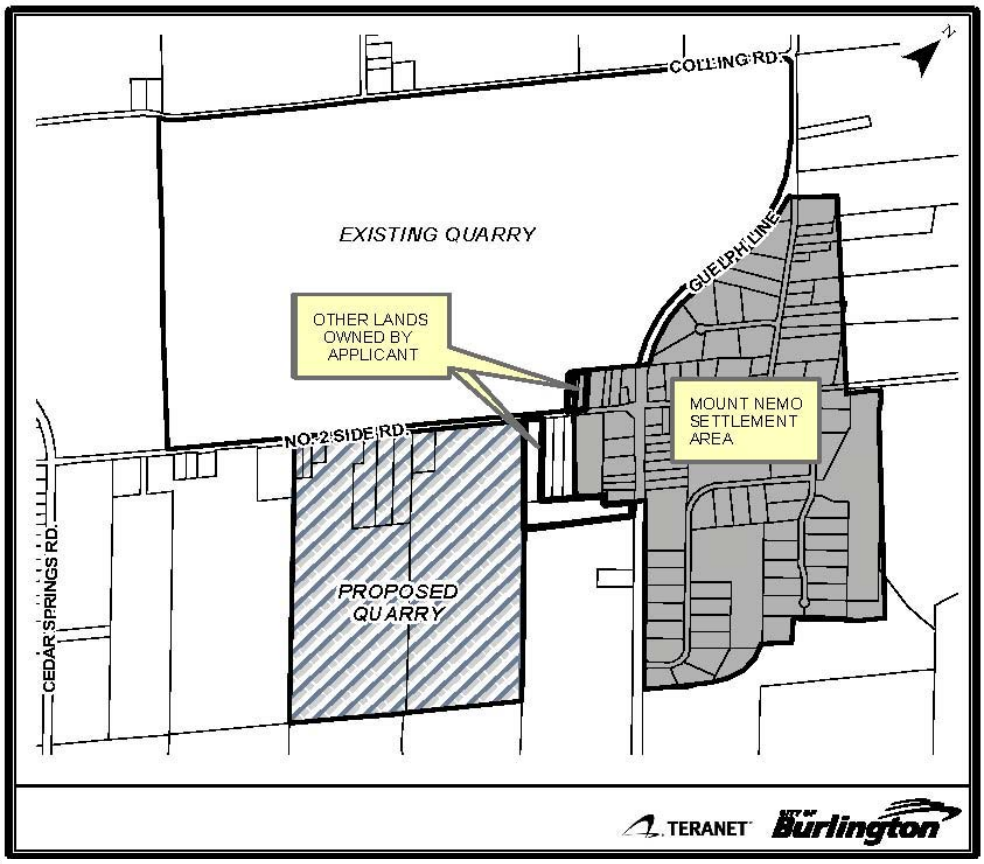

Figure 3.1 Location Map

3.2 Current Site Description

The existing quarry licenced area is 218.3 ha and has operated since 1953. Nelson assumed ownership in 1983. According to Nelson, almost 75 % of the aggregate currently produced at the quarry is used within the Region of Halton. The existing quarry resource is depleting but Nelson currently produces approximately 2 million tonnes of aggregate per year.

3.3 Surrounding Land Uses

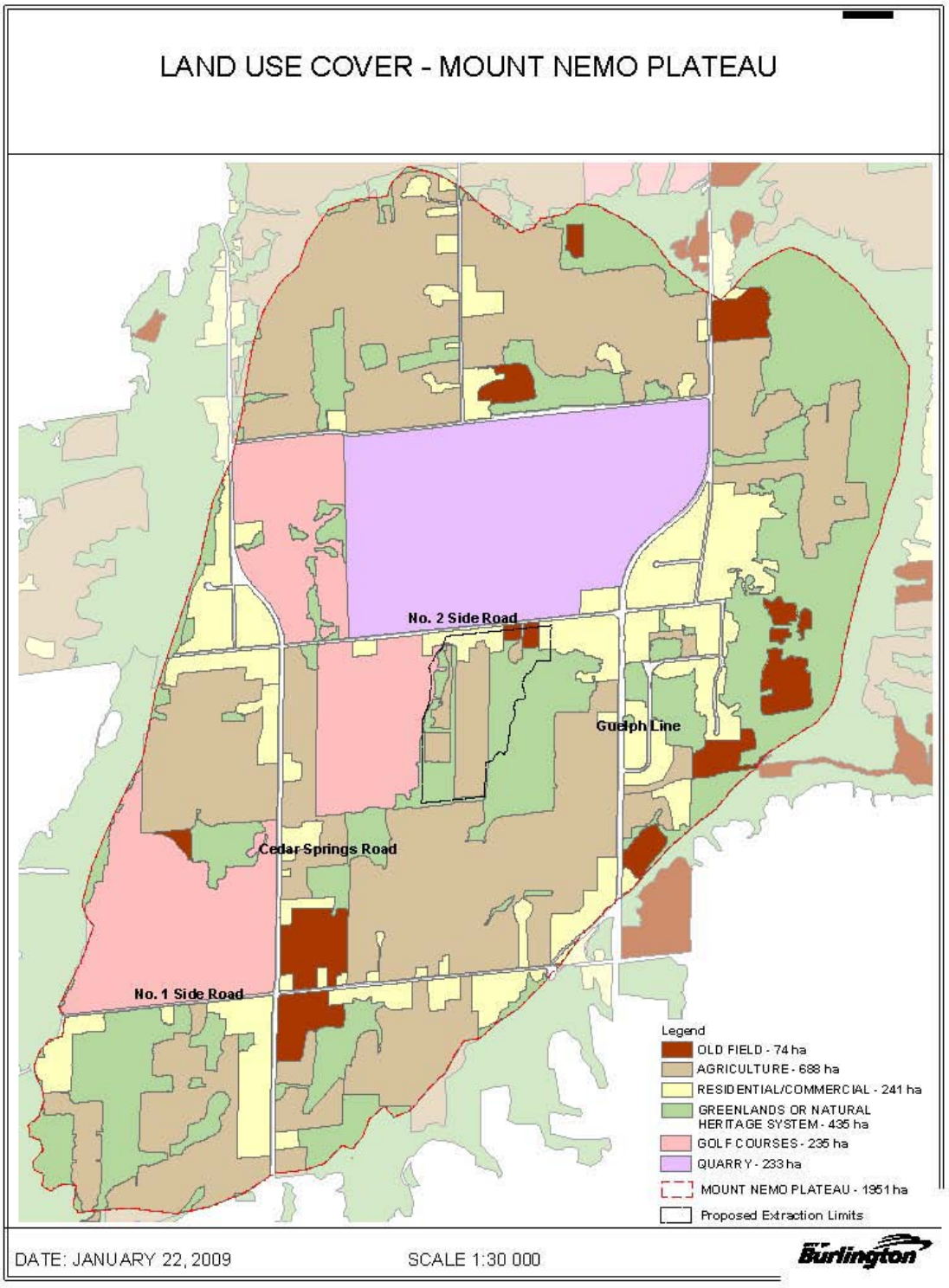

Figure 3.2 Land Use Cover – Mount Nemo Plateau

Surrounding uses within 2 km of the subject application lands are comprised of:

- Rural residences
- Agricultural operations
- Natural heritage features
- Woodlands
- An existing licensed quarry
- Golf courses/clubs/recreational uses
- Mount Nemo Conservation Area
- Mount Nemo settlement including residential, commercial and institutional uses
- The Bruce Trail
- Utilities, pipeline and transmission lines

3.4 History of the Application

Applications were received in October, 2004 to amend the Niagara Escarpment Plan (NEP), Halton Regional Official Plan, and the City of Burlington Official Plan; a Development Permit Application, and an application for a Class "A", Category 2 (Extraction Below Water Table) Quarry Licence, for the purposes of permitting the establishment of a licensed quarry operation.

Original Submission

The proposed extraction area (see Figure 3.3) included most of the property identified for Mineral Resource Extraction Area re-designation with the exception of the northwest corner, which was to be retained. The West Arm of the West Branch of the Mount Nemo Tributary meanders through this corner of the property in a northeast to southwest direction that eventually connects to the Grindstone Creek, and was proposed to be separated from the main extraction area by a 15 m buffer. In addition, the applicant was proposing a groundwater injection system (recharge) along a portion of the northwest corner and along the eastern boundary as a contingency to maintain water levels in adjacent wells and wetlands, and to provide for a base flow of water into the tributary.

First Revision

In May, 2006, the applicant modified the extraction area (see Figure 3.4) by deleting the woodland in the southwest corner and the wetlands in the south central portion of the property. There were other modifications being advanced, among them:

- a revised phasing plan that would allow for full-scale testing of the groundwater recharge system prior to implementation
- a revision to the noise barrier in the northwest corner
- a revision to the final rehabilitation plan to include backfilling the southeast corner so that water could be passively provided to the southern wetland on completion of extraction
- enhancements to amphibian habitat and shoreline wetlands
- new tree plantings to re-instate a continuous corridor connecting to woodlots by backfilling the proposed extracted area

Figure 3.3
Original Submission 82.3 ha

Figure 3.4
First Revision, 66.7 ha

Figure 3.5
Latest Revision, 51.6 ha

Second (and Latest) Revision

On its own initiative, the applicant, as recently as January, 2008, substantially revised the extraction footprint (see Figure 3.5) over both the original submission and first revision by proposing to remove from extraction the provincially significant wetlands on the east and southeast corner, but proposing to extract the woodland and provincially significant wetlands that had been excluded in 2006.

In addition, some other revisions Nelson proposes now include:

- Elimination of the groundwater recharge system;
- Implementation of a well water protection plan including a monitoring, response action, and restoration program;
- Provision of a 30 m buffer between the proposed extraction footprint and the majority of the provincially significant wetlands to the east and southeast;
- A landscape and ecosystem rehabilitation plan for the area to be excluded from extraction, including eventual designation as part of Regional Official Plan Greenlands System, additional native tree plantings and re-generation; and,
- A management strategy for the monitoring and maintenance of Butternut Trees (a provincially designated Species at Risk).

The revised submissions were instigated by the applicant and required full analysis in each instance. Nelson did not consult with JART on any of the resubmissions. The final review undertaken and completed by JART, and documented within this report, is on the basis of this most recent revision as Nelson's consultant confirmed that the latest revision constituted its application in a letter and email on December 23, 2008.

In addition to changes to the extraction footprint, changes in land designation with respect to wetlands were also identified. Copies of the Nelson proposed land use designation maps from MHBC Planning are included in the following Planning Section of this report.

3.5 Description of the Current Applications and Revised Site Plan

The location of the proposed new quarry is immediately across the road from its existing 218.3 ha licensed area (210 ha extraction area). The licensed area of the proposed new quarry is 82.3 ha while the extraction area is 51.6 ha.

If approved, the proposed new quarry would extend quarrying by 20 years using the same extraction rate as the current site. While Nelson is applying for an unrestricted tonnage limit, the company anticipates extracting an average of two million tonnes per year.

As with the existing quarry, extraction is proposed to be below the water table, thereby requiring a Class A licence under the *Aggregate Resources Act*. Extraction below the water table requires de-watering to allow the quarry floor to remain dry during excavation. As Nelson intends to process rock from the proposed quarry on the floor of the existing quarry, de-watering of both sites would continue until the proposed new quarry is depleted.

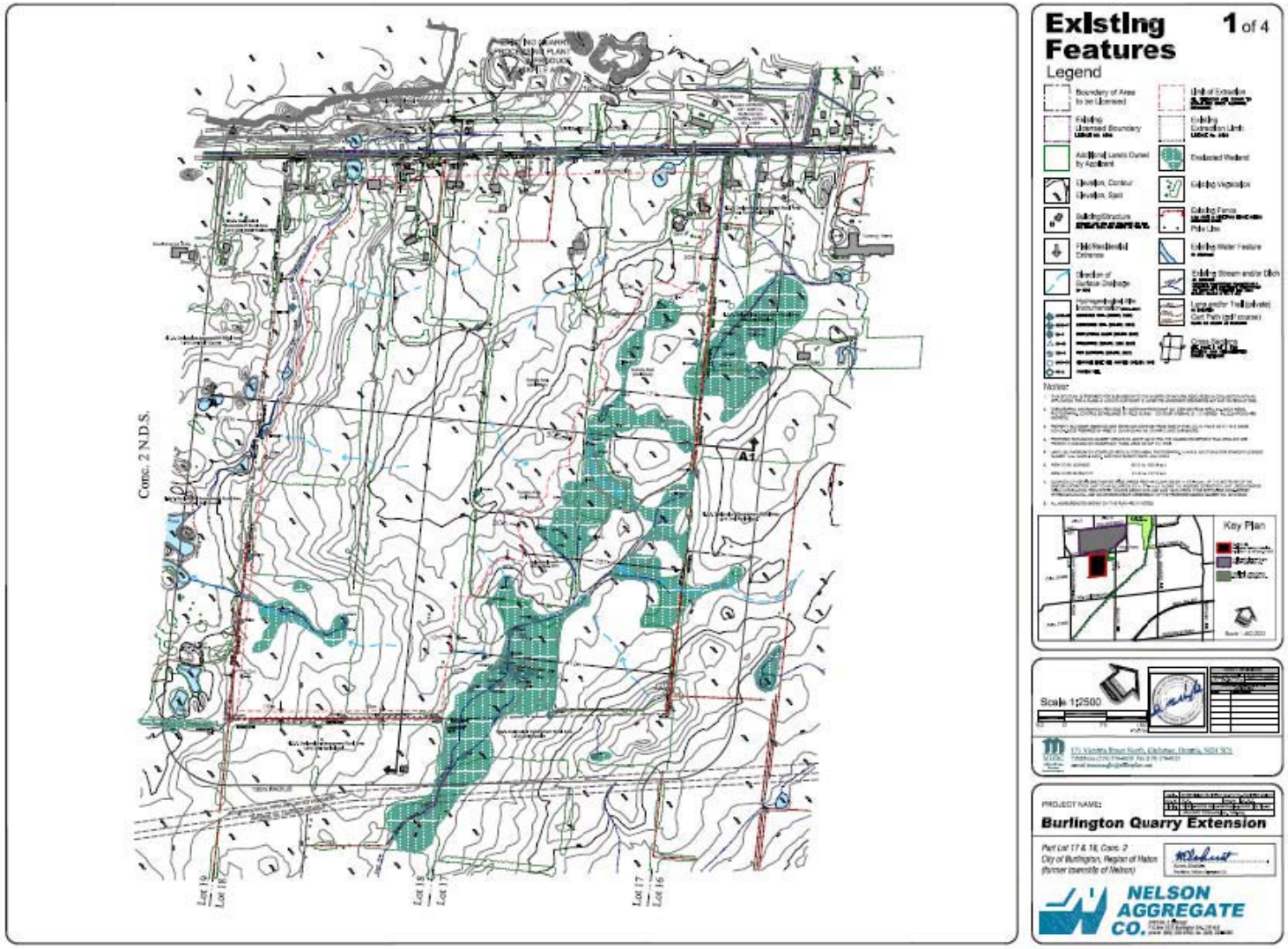

Figure 3.6 Existing Features (Source: January 2008 Nelson Second Revision)

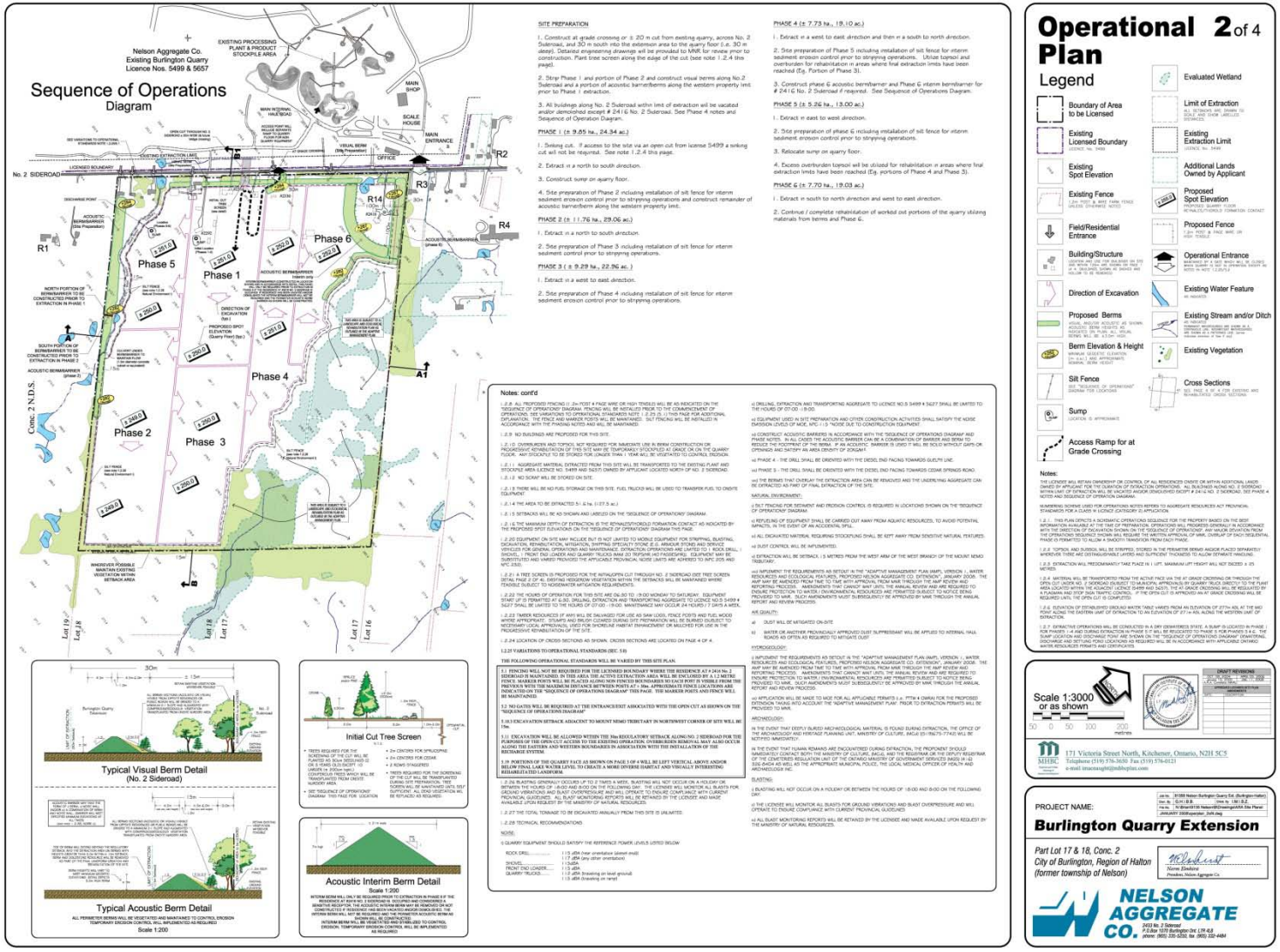

Figure 3.7 Operational Plan (Source: January 2008 Nelson Second Revision)

3.6 Supporting Studies

Nelson submitted applications and technical reports in support of the proposed quarry beginning in October 2004. These reports referenced an extraction area of 82.3 ha and were reviewed by JART and its peer reviewers.

A full listing of reports submitted by Nelson (including subsequent revisions), in support of its application has been incorporated as Appendix D.

In the JART process described previously, it was identified that other technical information was prepared, commissioned or collected by JART in order to assist in the review of this application. Specifically reports were prepared by JART members, peer reviewers and technical consultants retained by PERL. This complementary information has been summarized within Appendix E.

3.7 Approvals Required

To proceed with a new quarry, Nelson requires the following approvals:

Pursuant to The Niagara Escarpment Planning and Development Act

- Amendment to the Niagara Escarpment Plan
- Niagara Escarpment Development Permit

Pursuant to The Planning Act

- Amendment to Halton Region's Official Plan
- Amendment to the City of Burlington Official Plan

Pursuant to The Aggregate Resources Act

- Class A License under Category 2 – Quarry Below Water Provincial Standards
- Site Plan

Note: The workflow related to each of the parallel approval processes is outlined in Appendix B.

3.8 Rehabilitation Plan

The *Aggregate Resources Act* requires progressive rehabilitation as a condition of any pit or quarry license in Ontario. The proposed Nelson quarry would see extraction take place over six separate phases (see Figure 3.8).

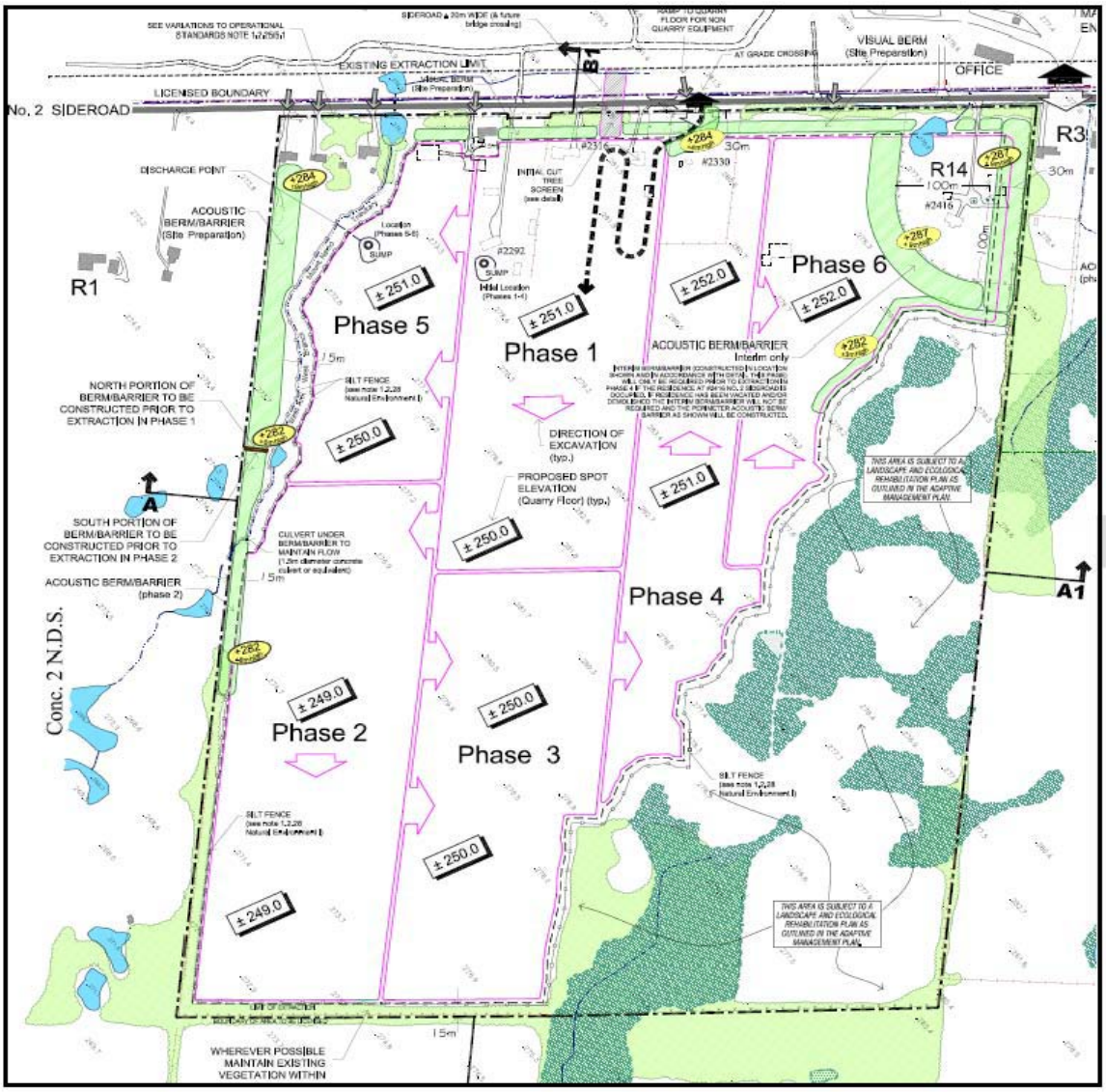

Figure 3.8 Phases of Extraction and Rehabilitation (Source: MHBC 2008)

Following each phase, the slopes would be graded and vegetation would be planted to secure and build soil layers. Rehabilitation therefore would begin during Phase 3 of extraction with the rehabilitation of the Phase 2 area. Following each successive phase the previous phase would be rehabilitated. As illustrated in Figure 3.9, the final rehabilitation is proposed to be a lake with some additional natural enhancement areas.

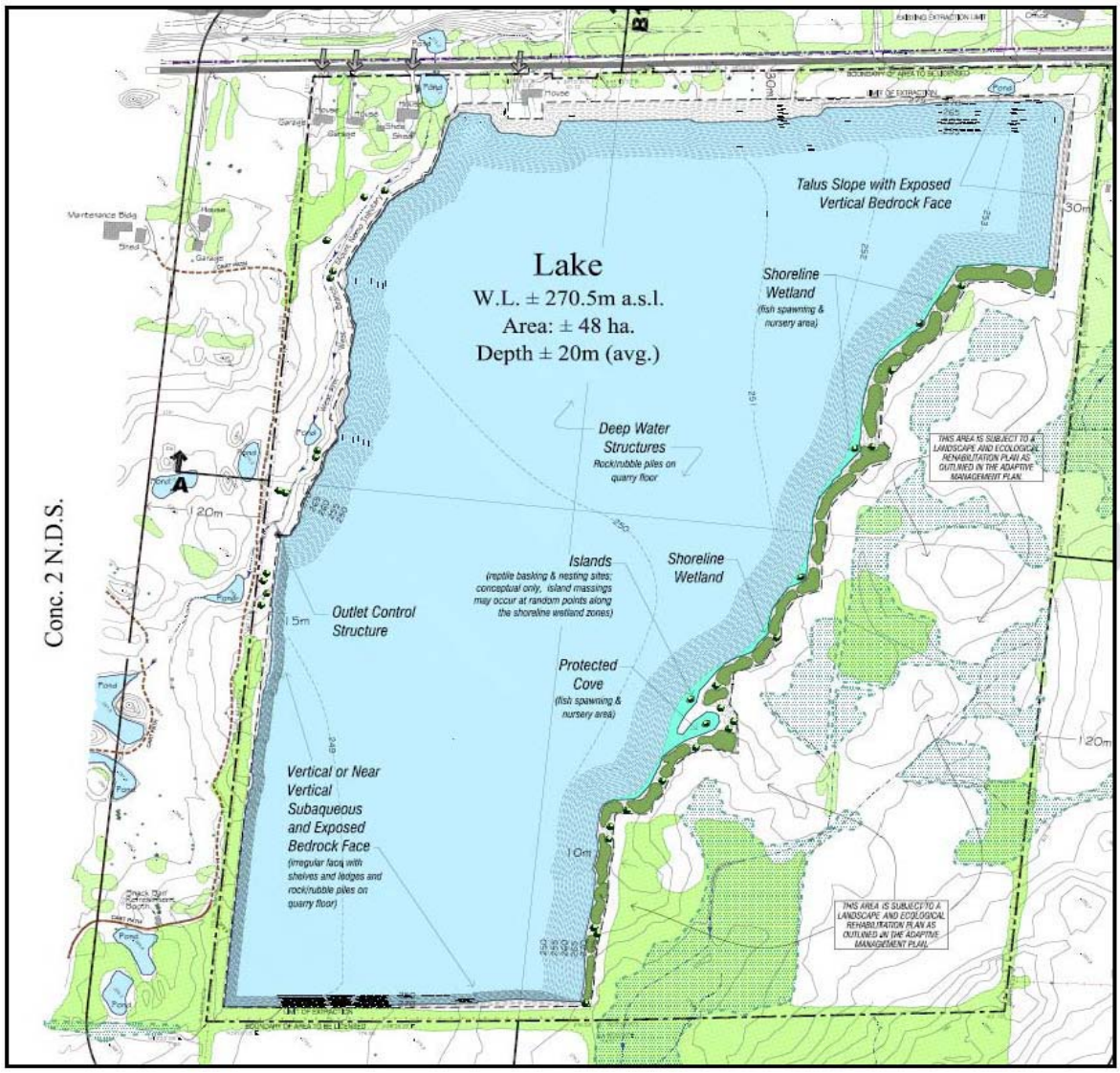

Figure 3.9 Proposed Final Rehabilitation (Source: MHBC 2008)

The Rehabilitation Plan (January 11, 2008) proposes that 48 ha of the 51.6 ha extraction area be rehabilitated to a lake. As also listed on the Plan, the possible after uses may include conservation and passive and low intensity recreation use. The Plan proposes that most enhancements included as part of the lake and its shoreline will occur to natural areas to the east although the steep shoreline to the west would be stepped to create habitat. On the eastern shore there would be wetlands, cove habitats and shoreline areas created formed of backfill material from the site. On the quarry floor deep water structure would be added to create submergent habitat.

In addition to the extraction area rehabilitation Nelson is proposing to enhance lands not being extracted to the east of the provincially significant wetlands. In these areas a pit-and-mound type restoration is proposed where a number of vernal (spring time) pools would be created amid shrubs and other natural plantings.

Planning & Regulatory

4. Planning and Regulatory Context

The applications are being reviewed pursuant to the following legislation and policies:

First Nations
Fisheries Act, R.S., 1985, c. F-14
Species at Risk Act, 2002, c. 29
Aggregate Resources Act, R.S.O. 1990, c. A.8
Niagara Escarpment Planning and Development Act, R.S.O. 1990, c.N.2
Niagara Escarpment Plan
Planning Act, R.S.O. 1990, c. P.13
Provincial Policy Statement
Ontario Heritage Act, R.S.O. 1990, c. O.18
The Endangered Species Act, S.O. 2007, c. 6
Region of Halton Official Plan
City of Burlington Official Plan

Note: Although the proposed extension area contains areas that are subject to Conservation Halton's Ontario Regulation 162/06, approvals under the *Conservation Authorities Act* are not required, as the *Conservation Authorities Act* specifically notes that such regulations do not apply to an activity approved under the *Aggregate Resources Act*.

4.1 First Nations

It is generally accepted practice as well as proper and advantageous, that meaningful consultation takes place between the applicant and First Nations groups regarding archaeological sites, among other things. From the point of view of a private sector developer, it is critical that an attempt be made to engage First Nations whether or not the Crown (Provincial or Federal) is involved.

It is not clear to JART whether Nelson consulted directly with First Nations groups with respect to the applications and/or findings on the site. Clarification regarding the interaction between Nelson and the First Nations groups needs to be in place prior to consideration of the applications by the respective Councils and NEC.

4.2 Fisheries Act

The *Fisheries Act* is a federal act enforced and managed by Fisheries and Oceans Canada (DFO). Section 35(1) of the *Fisheries Act* states that: "No person shall carry on any work or undertaking that results in the harmful alteration, disruption or destruction of fish habitat." However, Section 35(2) qualifies this prohibition, in that it allows for the authorization by the Minister of Fisheries and Oceans of the alteration, disruption or destruction of fish habitat (HADD). Operationally, decisions on whether subsection 35(2) authorizations are issued, are made by DFO.

Under the *Fisheries Act*, Fish Habitat is defined as "Spawning grounds and nursery, rearing, food supply and migration areas on which fish depend directly or indirectly in order to carry out their life processes".

Various portions of the Act are administered through partnerships with other organizations such as Conservation Authorities, Parks Canada and Environment Canada. Through a Level 2 agreement with DFO, Conservation Halton undertakes the administration of Section 35 (1) of the *Fisheries Act*. Conservation Halton is responsible for the review of applications to determine whether potential impacts to fish habitat can be mitigated. DFO approval is necessary for applications which would require authorization.

The *Fisheries Act* is independent of provincial and municipal government legislation.

4.3 The Aggregate Resources Act

The *Aggregate Resources Act (ARA)* regulates the extraction of aggregates (e.g. sand, gravel, clay, limestone, granite, etc.) on private land in areas designated under the Act and for all Crown land in Ontario. The *Aggregate Resources Act* is administered by the Ontario Ministry of Natural Resources.

The purposes of the *Aggregate Resources Act* are:

- to provide for the management of the aggregate resources of Ontario;
- to control and regulate aggregate operations on both Crown lands and private lands;
- to require the progressive and final rehabilitation of land from which aggregate has been excavated; and
- to minimize the adverse impact on the environment from aggregate operations.

In order to operate a pit or quarry on private lands designated under the Act, a license issued under the *Aggregate Resources Act*, is required.

The process for applications under the Act is laid out in the Aggregate Resources of Ontario, Provincial Standards. The Provincial Standards contain a set of standard application criteria for licence, aggregate permit and wayside permit applications. The *Aggregate Resources Act* application process is proponent-driven. The applicant is responsible for meeting all information requirements and undertaking public and agency notification as well as consultation.

At the conclusion of the license application process, in accordance with the *Aggregate Resources Act*, the Minister may grant, refuse or refer a licence application to the Ontario Municipal Board for a hearing. Under the *Consolidated Hearings Act*, the Environmental Assessment Board can also hold public hearings in conjunction with the Ontario Municipal Board. This occurs when a proposal requires more than one tribunal hearing under more than one of the acts set out in the schedule to the *Consolidated Hearings Act*.

If a licence is issued, every licensee is responsible for the day-to-day monitoring of their site to ensure that they are in compliance with the requirements of the *Aggregate Resources Act,* the regulations, the Aggregate Resources of Ontario Provincial Standards, the site plans and the conditions of their licence. Staff from the Ministry of Natural Resources administers the *Aggregate Resources Act* to ensure compliance with these requirements.

In the case of the Nelson application, the following represent the key dates in the *Aggregate Resources Act* processing;

- The application was deemed "complete" by MNR on January 10, 2005. (i.e. all necessary background documents and various other requirements outlined in the Aggregate Resources of Ontario Provincial Standards, Version 1.0 had been completed and were available for review);
- Written notice concerning this application was delivered to landowners within 120 metres of the proposed licensed boundary by May 17, 2006. The Notice of Application appeared in the local paper, the Burlington Post, on May 17, 2006. The posting of the Notice of Application in the local newspaper initiated the formal ARA review process;
- The Aggregate Resources of Ontario Provincial Standards allow for a period of up to two years from the public notification in the local newspaper to complete the requirements of the application process;
- The 45-day public Notification & Consultation required by the Provincial Standards took place between May 17, 2006 and June 30, 2006;
- On May 31, 2006, the EBR notice describing the undertaking (#IB06E2040) was posted on the Environmental Registry;
- A public information session was held by the applicant on June 7, 2006 at Conservation Halton's Administrative Centre;
- Pursuant to the Provincial Standards, public and agency written comments/objections were to be provided to the applicant and the MNR Aurora District Manager by June 30, 2006;
- On March 7, 2008, Nelson provided all objectors who commented within the initial 45 day commenting period with a final 20 day notification. This notification contained information on revisions made to the application, documentation of attempts to resolve issues, a summary of unresolved objections and recommendations for resolving these objections. The Provincial Standards requires individuals and organizations that wish to continue to object to submit a formal written objection during the 20 day notification period. The 20 day period for Nelson concluded on April 4, 2008 and a significant number of objections were received by the applicant and the MNR Aurora District Manager;
- On April 11, 2008, Nelson concluded the formal ARA application process by submitting the final Notification and Consultation Report to the MNR Aurora District office in accordance with Section 4.3.4 of the Provincial Standards;

Planning Report and Aggregate Resources Act Summary Statement, MacNaughton Hermsen Britton Clarkson, October 2004 (MHBC Planning Report)

Included in the documentation submitted in support of the proposal was a report entitled "Planning Report and Aggregate Resources Act Summary Statement (October 2004)" prepared by MHBC Planning. This report included an overview of the study area, the required legislative approvals, and policy considerations that need to be considered for this application including the Provincial Policy Statement, Niagara Escarpment Plan and applicable policy considerations in the Official Plans of the Region of Halton and the City of Burlington.

It should be noted that during the course of review of the application, there have been several changes to the original application by the applicant to attempt to address such issues as the discovery of the provincially threatened Jefferson Salamander on adjacent properties and the designation of some of the wetlands both on the subject and on adjacent properties as "Provincially Significant". This report, therefore, contains some information which has since been updated. In this regard, it should be reviewed in conjunction with more current information available on this proposal.

Notwithstanding the foregoing, the report makes reference to the material on site as a "provincially significant resource". JART notes that the term "provincially significant", when referring to mineral aggregate resources, is not recognized in either the *Aggregate Resources Act* or the Provincial Policy Statement. The current terminology used by the Ministry of Northern Development and Mines to describe bedrock resources that have less than 8 metres of overburden is "selected bedrock".

4.4 The Niagara Escarpment Planning and Development Act

The Niagara Escarpment Plan

The application lands are subject to the *Niagara Escarpment Planning and Development Act* (NEPDA) and the Niagara Escarpment Plan 2005 (NEP). The NEP is a Provincial land use plan. Its purpose, and that of the NEPDA, is "to provide for the maintenance of the Niagara Escarpment and land in its vicinity substantially as a continuous natural environment, and to ensure only such development occurs as is compatible with that natural environment". The NEP is a component of the Greenbelt Plan. The policies of the NEP are the policies of the Greenbelt Plan for the area covered by the NEP.

The objectives of the NEP and NEPDA, and the objectives to be sought in the consideration of this application to amend the Plan to change the designation of the subject lands are:

(a) to protect unique ecologic and historic areas;
(b) to maintain and enhance the quality and character of natural streams and water supplies;
(c) to provide adequate opportunities for outdoor recreation;
(d) to maintain and enhance the open landscape character of the Niagara Escarpment in so far as possible, by such means as compatible farming or forestry and by preserving the natural scenery;

(e) to ensure that all new development is compatible with the purpose of the Act;
(f) to provide for adequate public access to the Niagara Escarpment; and
(g) to support municipalities within the Niagara Escarpment Planning Area in their exercise of the planning functions conferred upon them by the *Planning Act*.

With respect to the relationship with policy statements issued under Section 3 of the *Planning Act*, Part 2.1 of the NEP states that the NEP shall be consistent with such policy statements but that it shall take precedence over the Provincial Policy Statement 2005 to the extent of any conflict.

Environmental Monitoring

The NEP recognizes the importance of environmental monitoring to assess the effectiveness of policies, decisions and practices in the Plan area to meet its purpose and objectives. This is achieved through the use of selected indicators in order to analyze the cumulative response of the environment to external influences including land use practice and changes in land use. Monitoring will be used when considering Plan Amendments.

Land Use Policies

The designation applied to the subject lands by the NEP is "Escarpment Rural Area" (see Figure 3.6). Lands within this designation are considered to be "an essential component of the Escarpment corridor", and "provide a buffer for the more ecologically sensitive areas of the Escarpment". The objectives of this designation are:

- "To maintain scenic values of lands in the vicinity of the Escarpment,
- To maintain the open landscape character by encouraging the conservation of the traditional cultural landscape and cultural heritage features,
- To encourage agriculture and forestry and to provide for compatible rural land uses,
- To provide a buffer for the more ecologically sensitive areas of the Escarpment,
- To provide for the designation of new Mineral Resource Extraction Areas which can be accommodated by an amendment to the Niagara Escarpment Plan."

The NEP criteria for the designation of lands as Escarpment Rural Area include the following:

1. "Minor Escarpment slopes and landforms.
2. Lands in the vicinity of the Escarpment necessary to provide an open landscape, and/or are of ecological importance to the environment of the Escarpment."

Permitted uses in the Escarpment Rural Area may include but are not limited to:

- Agricultural operations,
- Existing uses,
- Single dwellings,
- Forest, wildlife and fisheries management

- The Bruce Trail corridor including the pedestrian footpath,
- New licensed pit or quarries producing more than 20,000 tons annually subject to Part 1.9 (requiring an amendment to the NEP) and Part 2.11(Mineral aggregate resources) of the NEP

(For a full and complete listing, reference should be directed to Part 1.5 of the NEP)

Evaluation of an application for an amendment to the NEP to re-designate from an Escarpment Rural Area to a Mineral Resource Extraction Area includes the consideration of:

a) Protection of the natural and cultural environment, namely:
   i) Groundwater and surface water systems on a watershed basis:
   ii) Habitat of endangered (regulated), endangered (not regulated), rare, special concern and threatened species;
   iii) Adjacent Escarpment Protection and Escarpment Natural Areas;
   iv) Adjacent Rural natural features;
   v) Existing and optimum routes of the Bruce Trail;
   vi) Provincially significant wetlands;
   vii) Provincially significant ANSI's; and
   viii) Significant cultural heritage features.
b) Opportunities for achieving the objectives of Section 8 of the NEPDA through the final rehabilitation of the site;
c) Maintenance and enhancement of the quality and character of natural systems, water supplies, including fish habitat; and,
d) Capability of the land for agricultural uses and its potential for rehabilitation for agricultural uses.

In January 2008, Nelson revised its local, Regional and NEP Amendment applications both in terms of the proposed extraction area and the designations to be applied to the provincially significant wetlands on the east and southeast sides of its property that were to be unlicensed and not extracted. Relative to the NEP Amendment application, Nelson included a map showing the area to be re-designated Mineral Resource Extraction Area as including all of the subject property save and except for the east and southeast portion of the site containing the aforementioned wetlands (see Figure 4.1). It is JART's view that the northwest portion of the subject property proposed for re-designation should instead remain as Escarpment Rural Area since it contains a portion of the west branch of the Mount Nemo Tributary and would provide more of a buffer to residences, including a historic home. Furthermore, it is JART'S view that those lands on the east, southeast and southwest portions of the property which contain provincially significant wetlands and woodlots, should be proposed for re-designation to Escarpment Natural Area.

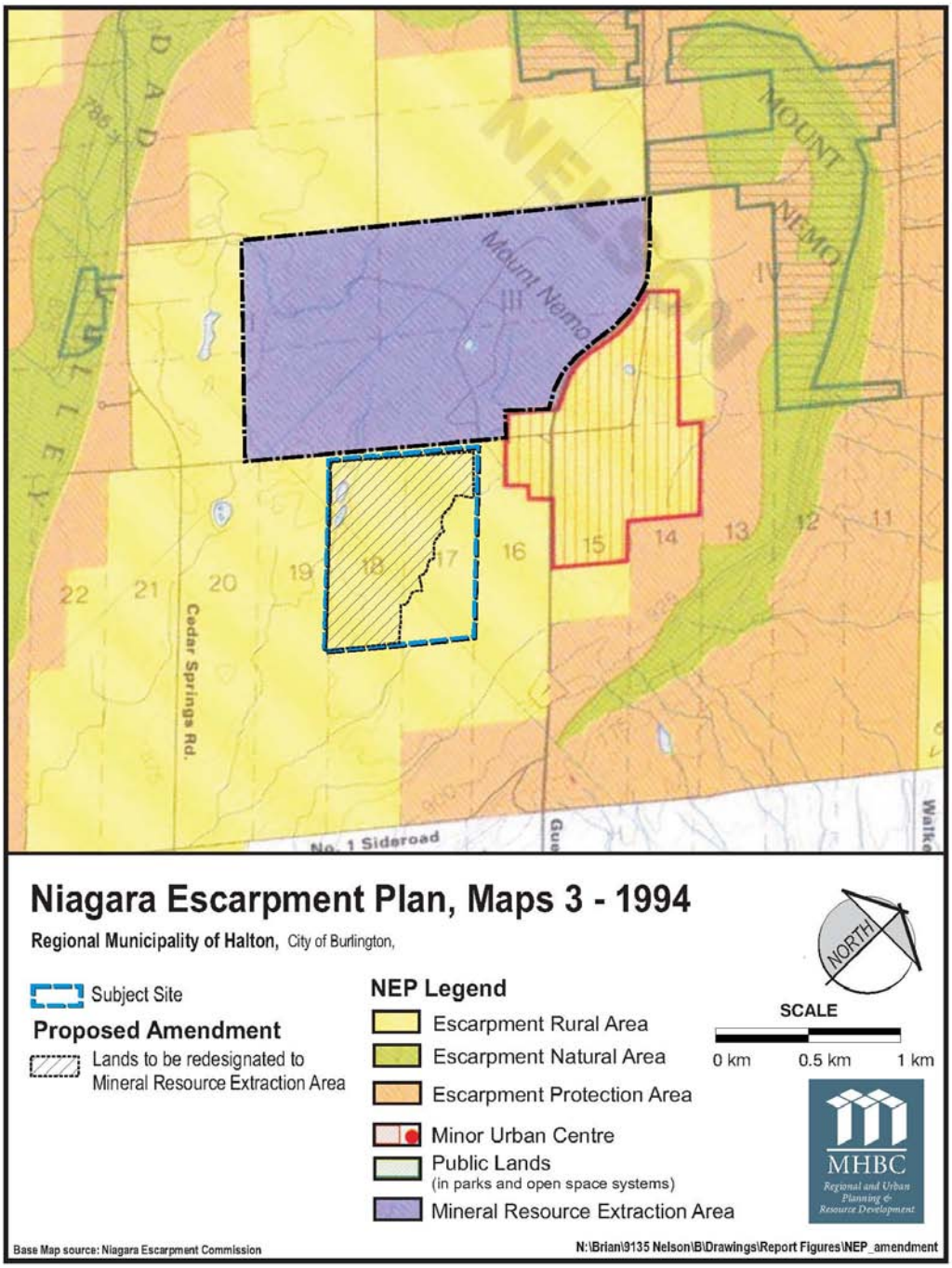

Figure 4.1 Niagara Escarpment Plan, Proposed Amendment (Source: MHBC Planning Report)

Development Criteria

A proposed use is reviewed against the applicable Development Criteria in the NEP to assist in determining whether it is ultimately to be permitted. The Development Criteria against which a Development Permit Application and a Niagara Escarpment Plan Amendment are assessed are found in Part 2 of the NEP. The development permit system was established under the NEPDA and its Regulations.

Part 2.6 of the NEP contains criteria for New Development Affecting Water Resources. The objective is to ensure that new development affecting streams, watercourses, lakes, wetlands, and groundwater systems will have minimum individual and cumulative effect on water quality and quantity, and on the Escarpment environment. This section also includes criteria for development as it relates to water quality and quantity. In Criteria 10 of Part 2.6, it states that development shall locate outside wetlands. Criteria 12 states that development adjacent to wetlands may be permitted only if it does not result in loss of wetland functions or contiguous wetland area. There are similar criteria provided for addressing impacts to fisheries and wooded areas. Part 2.8 dealing with wildlife habitat (rare, vulnerable, threatened and endangered plant and animal species) states that new development will not be permitted in identified habitat or endangered plant or animal species.

Part 2.11 of the NEP, entitled "Mineral aggregate resources", contains some direction with respect to the rehabilitation of pits and quarries. Slopes of 3:1 or 2:1 at a maximum are allowable but the proposed rehabilitation plan for the Nelson quarry shows vertical walls in some areas of the quarry. The NEP also requires progressive rehabilitation wherever possible. Since the existing and proposed Nelson quarries are to be linked potentially by way of a tunnel but also by keeping the existing processing plant in use to service the proposed quarry, this would delay opportunities for rehabilitation.

MHBC Planning Report

The MHBC Planning report addresses, among other matters, the conformity of the application with the NEP. JART has assessed the report and provides the following:

The MHBC report misstates the intent of the policies of the Escarpment Rural Area designation by implying that it has "an objective to provide for the designation of New Mineral Resource Extraction Areas by amendment to the Plan". [MHBC Report p. 32, 51] Many uses are permitted as of right in the Escarpment Rural Areas but a quarry can only be considered through an amendment process which includes the evaluation of the impact of the proposed use on the Escarpment as outlined above.

The MHBC report at pages 30 and 31 states that the purpose of the NEP is respected because notwithstanding the proposed loss of a portion of the Niagara Escarpment, other areas designated Escarpment Natural and Protection would remain and that future rehabilitation of extracted areas would enhance the open landscape character. In fact, a continuous natural environment would not be maintained due to the proposed alteration of the Niagara Escarpment that would result from the proposed quarry and the re-created landscape following rehabilitation would not be the same as or even similar to the original landform.

The MHBC report at page 31 and 38 states that the NEP objective of maintaining and enhancing the quality and character of natural streams and water supplies will be respected as there will be no unacceptable impacts on streams or water supplies resulting from the proposed quarry. In fact, Nelson has not demonstrated to JART's satisfaction that there will be no unacceptable impacts on streams and water supplies.

The MHBC report (page 36) justifies the proposed quarry extension by stating that "only 1 crushed stone and 3 sand and gravel licenses" have been issued since 1975. In fact, several licenses have been issued in Halton since 1975 and more applications are pending.

In evaluating an application to amend the NEP to a Mineral Resource Extraction Area designation, the impact on species must be assessed. The MHBC report, page 39 references the butternut trees on the site as part of the impact of the proposed quarry but there is no mention of impact on the habitat of the Jefferson salamander and for fish resulting from the potential impacts to the surface and groundwater regimes as outlined elsewhere in the JART report.

The MHBC Report has become outdated in light of other new information that became known during the course of the JART review. For example, on page 39 of the report, it states that the nearest Provincially significant wetland is 1.5 km from the site. A provincially significant wetland complex is now known to be found on the subject lands, based on the Ministry of Natural Resources wetland evaluation, and is proposed to be part of the extraction area in the southwest corner of the site.

Therefore, JART concludes that the Nelson application does not adequately address the policies of the NEP.

Biosphere Planning Issues

The general comments received from area residents and others in opposition to the proposal is that the Niagara Escarpment has been proclaimed as a World Biosphere Reserve, and no new or expanded quarry applications ought to be permitted in such an ecologically and biologically diverse area of the Province.

The approval of the Niagara Escarpment Plan (NEP) dates to June, 1985. The NEP serves as a policy framework of objectives and policies that strikes a balance between development, preservation, and public enjoyment of the resource.

The NEP contains three (3) principal land use classifications or designations: Escarpment Natural Area, Escarpment Protection Area, and Escarpment Rural Area. The designations are in descending order of environmental significance and importance with the Natural Area being the most significant.

The NEP describes the Escarpment Natural Area as containing *"Escarpment features which are in a relatively natural state and associated stream valleys, wetlands and forests which are relatively undisturbed."* It is also described as being the most significant natural and scenic areas of the Escarpment.

The Escarpment Protection Area is described as lands that are often more visually prominent than Natural Areas and contain lands that have been significantly modified by past land use activities, including agriculture. These areas also serve as a buffer to the more ecologically sensitive areas of the Escarpment and natural areas of Regional significance.

The Escarpment Rural Area serves a buffer function to the Protection Area and, in some cases, the Natural Area, and is largely made up of lands considered to be in the vicinity of the Escarpment.

There is a prohibition on pits and quarries in the Escarpment Natural and Protection Areas. They are not permitted by policy in either designation. However; there is no such policy prohibition against pits or quarries in the Rural Area. In fact, new or expanded pits and quarries that produce more than 20,000 tonnes (22,000 tons) of aggregate annually may be permitted in the Rural Area subject to other parts of the NEP being met and specifically requiring an amendment to the NEP. The amendment would change the designation to a "Mineral Resource Extraction Area".

On February 8, 1990, the Bureau of United Nations Educational, Scientific and Cultural organisation (UNESCO) Man and Biosphere (MAB) program approved the designation of the Niagara Escarpment as a Biosphere Reserve. The UNESCO designation recognizes the Niagara Escarpment as a natural ecosystem of international significance for its special environment and unique environmental plan (the NEP). A Biosphere Reserve strives to conserve the diversity of plants, animals and micro-organisms which make up the living "biosphere" (defined as land, water and atmosphere that support life) and maintain healthy natural systems while, at the same time, meeting the material needs and aspirations of an increasing number of people.

The Niagara Escarpment Biosphere Reserve reconciles conservation of natural resources with their sustainable use by permitting various land uses through the administration of the NEP. UNESCO credits the NEP for striking a balance between environmental conservation and development (human activity) and provides a standard against which the impact of human activity can be measured.

A Biosphere Reserve designation must also have one or more protected core areas that conserve significant ecological features.

In regards to the NEP, the protected "core" area consists of lands provided with the Escarpment Natural Area designation.

Moving away from the core area, the NEP applies the Escarpment Protection Area, Escarpment Rural Area, and four (4) other designations in the NEP, as "buffer" and "cooperation or transition" areas of a Biosphere Reserve.

The "buffer" area to the "core" is the Escarpment Protection Area and Escarpment Rural Area. Development and resource use is limited and, in regards to major aggregate extractive operations, can only be undertaken in the Escarpment Rural Area by means of an amendment to the NEP. JART takes note that on page 11 of the NEC copy of the Notice of Objector Response prepared by the applicant dated March 7, 2008, Nelson refers to the Escarpment Rural Area as being the equivalent of a Biosphere Reserve "transitional zone". This reference is incorrect.

The "cooperation or transition" area pertains to the four (4) other NEP designations (Minor Urban Centre, Urban Area, Escarpment Recreation Area and Mineral Resource Extraction Area). The transition area is the larger part of the Biosphere Reserve where people both live and work, using the natural resources of the area in a sustainable manner.

In closing, the NEP was clearly in place for almost 5 years before the Biosphere Reserve designation was awarded. UNESCO fully comprehended the NEP designations and the types of development activities that were permitted, in principle. The Niagara Escarpment met the tests for UNESCO designation as an international area of ecological and cultural significance. The Provincial NEP, its policies and objectives reconcile conservation of natural resources with their sustainable use and strives to attain a balanced relationship between basic society needs and nature to ensure a sustainable future.

UNESCO was aware that the Escarpment Rural Area designation may permit aggregate extraction operations subject to an amendment to the NEP, yet bestowed the designation on the Niagara Escarpment as a Biosphere Reserve. The fact that the Escarpment Rural Area may allow uses that are neither permitted in the Escarpment Natural or Protection Areas, including an aggregate operation, still aligns with the fundamentals of the Biosphere Reserve designation (to apply sound stewardship (and protection where necessary) to the use of resources in an area to support present and future generations.

The NEC considers the merits of an amendment to the NEP not on the basis of the principles of the UNESCO Biosphere Reserve but on the goals, objectives, policies and development criteria of the NEP.

4.5 Planning Act and Provincial Policy Statement 1997

The planning applications are being processed in accordance with the *Planning Act*. Accordingly, exercising any authority that affects a planning matter, the council of a municipality, a local board, a planning board, a minister of the Crown and a ministry, board, commission or agency of the government, including the Ontario Municipal Board, shall have regard for the relevant policies of the Provincial Policy Statement (PPS 1997) in accordance with Section 3 of the *Planning Act*. Staff must also consider the updated PPS 2005 in their examination of this application in a relevant, if not determinative, manner.

Provincial plans, such as those adopted under the *Niagara Escarpment Planning and Development Act,* which have been approved by the Lieutenant Governor in Council, will take precedence over policies in this statement where there is conflict.

The PPS is intended to be read in its entirety and all relevant policies should be taken into consideration when making decisions on applications.

The PPS 1997 in place at the time of the original applications submission, is intended to promote a policy led system, which recognises that there are complex relationships among environmental, economic and social factors in land use planning.

The preamble to the PPS 1997 states that the Province's resources – its agricultural land base, mineral aggregate resources, natural resources, natural heritage resources, water supply and cultural heritage resources – provide economic, environmental and social benefits. The wise use and protection of these resources over the long term is a key provincial interest. Equally, the Province has an interest in protecting the long term health and safety of the population, and the financial and economic well-being of the Province and municipalities.

Section II of the PPS, Principles, states that Ontario's long term economic prosperity, environmental health and social well being depend on:

1. Managing change and promoting efficient, cost-effective development and land use patterns which stimulate economic growth and protect the environment and public health;
2. Protecting resources for their economic use and/or environmental benefits; and,
3. Reducing the potential for public cost or risk to Ontario's residents by directing development away from areas where there is a risk to public health or safety or of property damage.

The *Planning Act* in place at the time of application submission requires Planning Authorities to "have regard to" PPS 1997 policies. Section 2.2.3 requires that as much of the mineral aggregate resources as is realistically possible be made available to supply needs as close to markets as possible. It indicates that operations and deposits should be protected from activities that would preclude or hinder expansion, continued use or potential future extraction. It requires rehabilitation and progressive rehabilitation where feasible. In prime agricultural areas, on prime land, extraction may be permitted provided that rehabilitation is carried out to substantially the same areas and same average soil quality. On prime agricultural lands, complete agricultural rehabilitation may not be required if there is a substantial quantity of mineral aggregate below the water table.

Of particular note in this application are policies associated with Natural Heritage and Aggregate Resources. The 1997 PPS indicates that development and site alteration will not be permitted in significant wetlands and significant portions of the habitat of endangered and threatened species (2.3.1.a). Section 2.3.1.b states that development and site alteration may be permitted in fish habitat, significant woodlands and significant wildlife habitat if it has been demonstrated that there will be no negative impacts on the natural features or the ecological functions for which the area is identified. Development and site alteration may be permitted on adjacent lands to 2.3.1 a and b if it has been demonstrated that there will be no negative impacts on the natural features or the ecological functions for which the area is identified (2.3.2). Further, the diversity of natural features in an area, and the natural connections between them should be maintained, and improved where possible (2.3.3).

In JART's review of the MHBC Report, October 2004, claims are made that "the mineral aggregate resource located within the proposed extension area is a provincially significant resource". JART notes that the term "provincially significant resource" is misleading and is not a recognized term used in the PPS when dealing with mineral aggregate resources.

The MHBC Report also incorrectly states that key natural heritage features will be mitigated, compensated and monitored to ensure no adverse effect, referencing PPS policies 2.3.1 and 2.3.2. These policies deal with protection from incompatible development and demonstration that there will be no negative impacts on the natural features or on the ecological functions. Nelson proposes to remove provincially significant wetlands in the southwest corner of the subject site. The proposed aggregate operation would also remove major portions of the significant woodland in the southwest corner and elsewhere on the property. This would be contrary to PPS policy 2.3.1. In addition, the removal of these features will disrupt the existing connections and linkages between the natural features present in the area, which is contrary to PPS policy 2.3.3.

The Report states that quality and quantity of ground water and surface water and the function of sensitive ground water recharge/discharge areas, aquifers and headwaters will be protected or enhanced (2.4.1). Impacts to the quality and quantity of ground water and surface water are extremely difficult to determine and cannot be fully mitigated.

4.6 Provincial Policy Statement 2005

The PPS 2005 was issued under Section 3 of the *Planning Act* and came into effect on March 1, 2005. While it contains many similar policies to the 1997 PPS, the 2005 PPS goes further in requiring planning decisions to be "consistent with" its policies rather than the "shall have regard to" as in the 1997 PPS. The new PPS also states that social and environmental impacts must be minimized (Part IV). Policy 2.1.2 is expanded, and states that the diversity and connectivity of natural features in an area, and the long-term ecological function and biodiversity of natural heritage systems, should be maintained, restored or, where possible, improved, recognizing linkages between and among natural heritage features and areas, surface water features and ground water features. This policy is now more inclusive, recognizing the need for a landscape approach to conservation. It does not permit development in significant woodlands, valleylands, wildlife habitat and areas of natural and scientific interest, unless it has been demonstrated that there will be no negative impacts on the natural features or functions (2.1.4). Development and site alteration are also not permitted in fish habitat except in accordance with provincial and federal requirements (2.1.5), or on lands adjacent to natural heritage features unless there will be no negative impacts on the natural features or functions (2.1.6). Planning authorities are also required to protect, improve or restore the quantity and quality of water (2.2). PPS 2005 also contains expanded policy directions related to mineral aggregate resources.

The PPS defines archaeological resources as including "artifacts, archaeological sites, and marine archaeological sites. The identification and evaluation of such resources are based upon archaeological fieldwork undertaken in accordance with the *Ontario Heritage Act*."

JART does not agree with the assessment offered in the MHBC Report that the proposal conforms to the PPS documents (1997 and 2005). Conformity will be dealt with in greater detail through the Regional Official Plan Amendment review process that follows.

4.7 Ontario Heritage Act

The identification of archaeological resources is based on archaeological assessment by a licensed professional archaeologist. Archaeological licensing and reporting are governed by the *Ontario Heritage Act* and its regulations. Licensed archaeologists must comply with Ministry of Culture standards and guidelines when carrying out and reporting on archaeological fieldwork. The *Ontario Heritage Act* prohibits anyone from disturbing an archaeological site without a licence.

Refer to Section 8, Archaeology, for an assessment of the archaeological resources found on the subject site.

4.8 Regional Policy Framework

Regional Official Plan (2004)

At the time of Nelson's application for the quarry extension, the Region was updating the Regional Official Plan (ROP). Parts of the ROP were adopted while some portions were under appeal. The 2004 ROP based on Amendment 25 (ROPA 25) (1995 Plan updated June 23, 2004) is therefore the plan being used to evaluate this application. However, for the portions of the ROP that were appealed, the previous plan applies (1995 ROP prior to Regional Council Adoption of ROPA 25, which is also dated June 2004). It should also be noted that, because ROPA 25 has since been adopted and approved (Halton Region Official Plan 2006), and Nelson submitted a revision to its application in 2008, Regional staff will interpret the policies in this document as relevant, adding the results to Regional comments on the application.

Portions of the 2004 plan have been deferred through a specific ROPA 25 settlement. Specifically, the definition of significant woodlands (Section 277) was deferred on May 3, 2006 in accordance with the ROPA 25 Minutes of Settlement dated April 23, 2006. This deferral (AMD25-D4) is specific to the Nelson application site and three other sites owned by others. The settlement conditions require that the deferral must be addressed and resolved prior to a decision being made with respect to the application.

As part of Nelson's revised application of January 2008, the extraction envelope was changed to exclude the provincially significant wetlands (PSW) and significant woodlands on the eastern portion of the site. These lands are proposed to be re-designated as Greenlands A and B in the ROP.

A PSW and significant woodland in the southwest corner were reinstated as part of the extraction area in the 2008 revision (they were removed from the extraction area in the 2006 revision). Nelson does not recognize the status of the wetland as being provincially significant and the woodland as being significant. However, the PSW meets the criteria for Greenlands A in the ROP while the significant woodland meets the criteria for Greenlands B.

In the January 2008 revision, Nelson proposed that the amendment to the ROP include mapping changes as follows:

- +/- 61 ha from Escarpment Rural Area to Mineral Resource Extraction Area;
- +/- 8 ha to Greenlands A from Greenlands B and Escarpment Rural Area; and
- +/- 13 ha to Greenlands B from Escarpment Rural Area.

Nelson's proposed mapping is noted below in Figure 4.2.

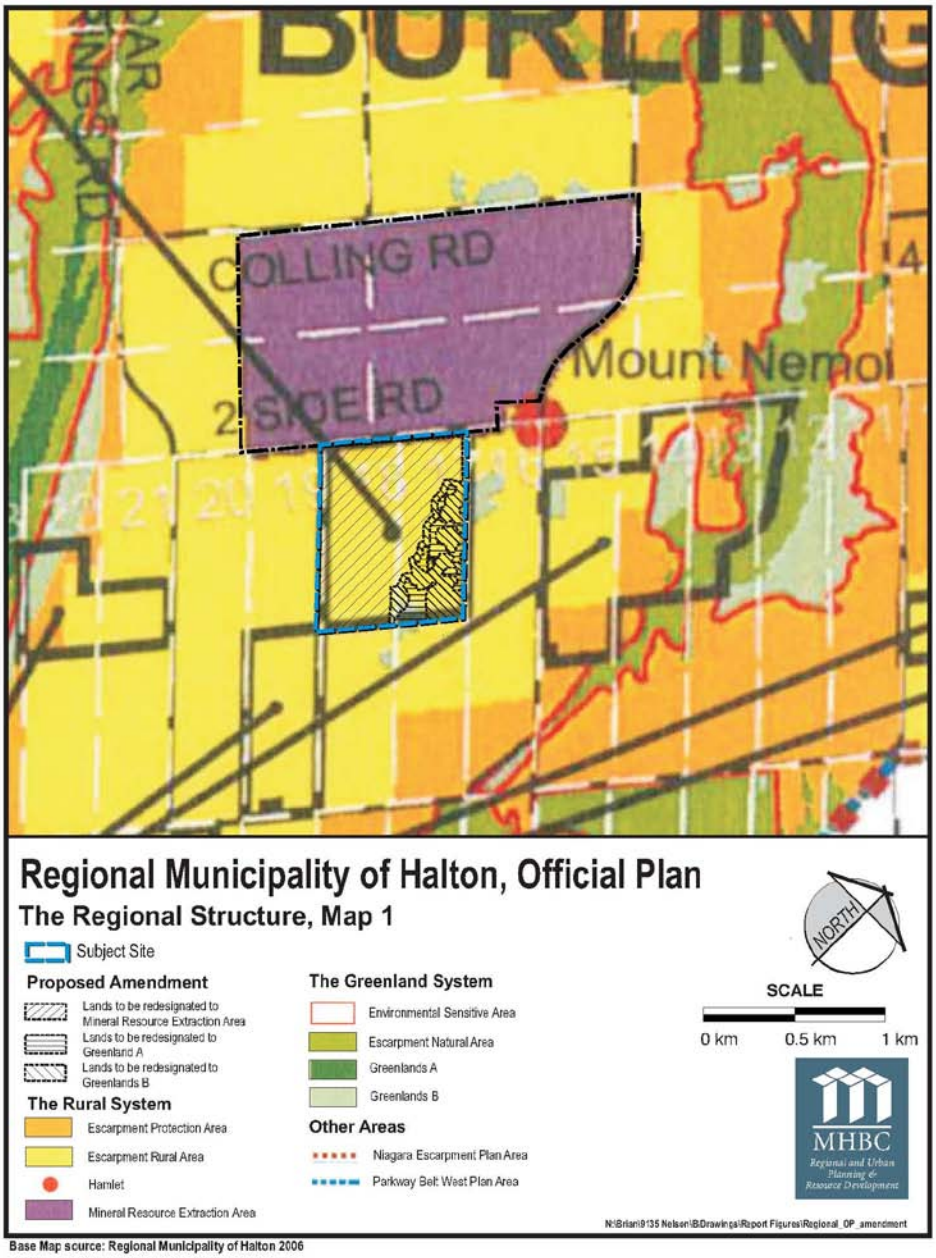

Figure 4.2 Region of Halton Official Plan, Proposed Amendment (Source: MHBC Planning Report)

It should also be noted that documents submitted by Nelson show a discrepancy in the number of hectares of land being redesignated to Mineral Resource Extraction Area. In the "Burlington Quarry Extension Status Update" dated February 2008 and the "Nelson Aggregate Co. Burlington Quarry Extension Response to Aggregate Resources Act Objectors" letter dated March 7, 2008, Nelson claims that the extraction area was revised to 51.6 ha. The above noted amendment claims 61 ha. Also noted is that the site plan submitted through the ARA process (January 11, 2008) shows an extraction area of 51.6 ha.

The above amendments do not take into account the southwest corner PSW and significant woodland. The proper map changes for Nelson's proposed amendment will be considered through the Regional Official Plan Amendment review process.

The text changes that Nelson proposes for the ROP amendment are also inconsistent with wording normally used, do not reflect all the changes required, and should be modified to properly address the proposed changes. The appropriateness of the designations will be an issue at the Joint Board hearing.

The Regional Official Plan is to be read in its entirety and all relevant goals, objectives and policies are to be taken into consideration when making decisions on applications.

Regional Official Plan (2006)

In section 25 of the 2006 plan, Halton's Vision no longer refers to the first class of permanent landforms as part of the Greenlands System but as landforms outside the settlement areas. It also broadened the scope of inclusion by substituting "Escarpment Natural Area" with "the Niagara Escarpment". The second class of permanent landforms now excludes "significant woodlots and forests", replacing them with "forested areas". These landforms are to be maintained in their current form and extent with no or as little displacement or encroachment as possible.

Section 107 removes the "future forecast demands" requirement and adds that those resources, as is realistically possible, be located as close to markets as possible. This is later addressed in section 110(8).

Section 110(4) requires that an Environmental Impact Assessment be conducted where extraction is proposed within or near any Greenlands.

Section 130(1)e) now includes Significant Woodlands as part of Greenlands B. An Environmental Impact Assessment to identify or refine the boundaries of Significant Woodlands is now required through Section 132(5).

MHBC Planning Report

The "Planning Report and Aggregate Resources Act Summary Statement" submitted by MHBC on behalf of Nelson in October 2004 includes references and opinion regarding policies in the Regional Official Plan (1995). In general, the policies referenced deal specifically with mineral resource extraction areas and the protection of mineral aggregate resources. As noted above, many other policies apply with respect to health, the economy and the environment which should be taken into account.

MHBC's policy analysis was based on the 1995 ROP and not the partially approved 2004 ROP. Its analysis only covers policies dealing with aggregates and does not discuss the other aspects as noted above. Aggregate policies must be considered equally with other policies dealing with such areas as natural heritage, agriculture, health, water resources and the economy.

The objectives of the Escarpment Rural Area include maintaining scenic values and open landscape, encouraging agriculture, providing a buffer for ecologically sensitive areas and providing for the designation of new Mineral Resource Extraction Areas which can be accommodated in accordance with the policies of this Plan. An objective of the Mineral Resource Extraction Area is to minimize the impact of mineral resource extraction operations on the Greenlands System.

In areas designated Greenlands, protection of landscape ecological functions need to be demonstrated. The removal of a PSW and significant woodland does not meet the policy objectives of the ROP or the PPS.

The application proposes to use the existing quarry to process materials from the proposed quarry. The final rehabilitation of the existing quarry therefore is not possible until at least the end of the life cycle of the proposed quarry. The ROP considers aggregate extraction to be an interim use. Therefore, every effort should be made to complete extraction at the existing quarry and proceed with final rehabilitation.

The report references three studies dealing with aggregate demand dated 1974, 1980 and 1992. An unsolicited report was submitted on December 3, 2008 for JART's review and is also in the process of being peer reviewed.

Some questions remain outstanding regarding the impact of the proposed quarry on the environment, water resources and health aspects. Therefore, conformity to the ROP is yet to be determined and will be further explored through the Region's Regional Official Plan Amendment process.

4.9 Local Policy Framework

The City of Burlington Official Plan

When an application for a quarry is received by the City the proposed land use is evaluated for conformity with the Official Plan and compatibility with nearby land uses. The municipal Official Plan is the key land use planning document in Burlington. The Official Plan describes the permitted land uses across a community and also provides for a vision of growth and development. Decisions made under the framework of an Official Plan are made by municipalities under the authority of the *Planning Act* and in accordance with an open, transparent public process. The following subsections provide a discussion of the policy framework for both the 1995 and 2006 Official Plans as well as the Zoning By-law. A concluding subsection attempts to clarify the policy framework.

Approved City of Burlington Official Plan (1995)

The 1995 approved City of Burlington Official Plan provides designations that describe what land uses are permitted on lands in the City. In Schedule C of the Official Plan the lands where Nelson has applied for a quarry are designated Agricultural Rural Area – Escarpment Plan Area Immediately to the east of the application area is the Mount Nemo Settlement Area. The Mount Nemo Settlement Area is a rural community composed of residential, commercial, open space, greenlands and institutional land uses. The existing Nelson Quarry, north of the proposed application area is designated Mineral Resource Extraction Area. The Burlington Official Plan only allows a quarry land use in areas designated as Mineral Resource Extraction Area. Therefore Nelson has applied for the Official Plan to be amended so that the land use designations in the map of Schedule C show its property as being a Mineral Resource Extraction Area. (see Figure 4.3)

The policy framework in the Burlington Official Plan provides general policies that apply to applications city-wide (Parts I and II), detailed policies that apply to specific areas (Parts III and IV) and, policies for the implementation of the Plan (Part V). The general sections of the Plan such as Parts I, II and V should be read in conjunction with the more specific principles, objectives and policies contained in other parts of the Plan. The following table provides a listing of the policy sections applying to the lands in and around the application area in the 1995 Burlington Official Plan.

Table 4.1. Burlington Official Plan Policy Sections applying to the Nelson Application

Designation	1995 Burlington Official Plan
All Designations	Preamble Part I Policy Framework Part II Functional Policies Part V Implementation Part VII Definitions
Agricultural Rural Area – Escarpment Plan Area Designation	Part IV – Land Use Policies Rural Planning Area Section 2.3 Agricultural Rural Area– Escarpment Plan Area
Mineral Resource Extraction Area Designation	Part IV – Land Use Policies Rural Planning Area Section 2.7 Mineral Resource Extraction Area Part VI – Schedules and Tables
[Mount Nemo] Rural Settlement Area Designation	Part IV – Land Use Policies Rural Planning Area Section 3.0 Rural Settlement Areas

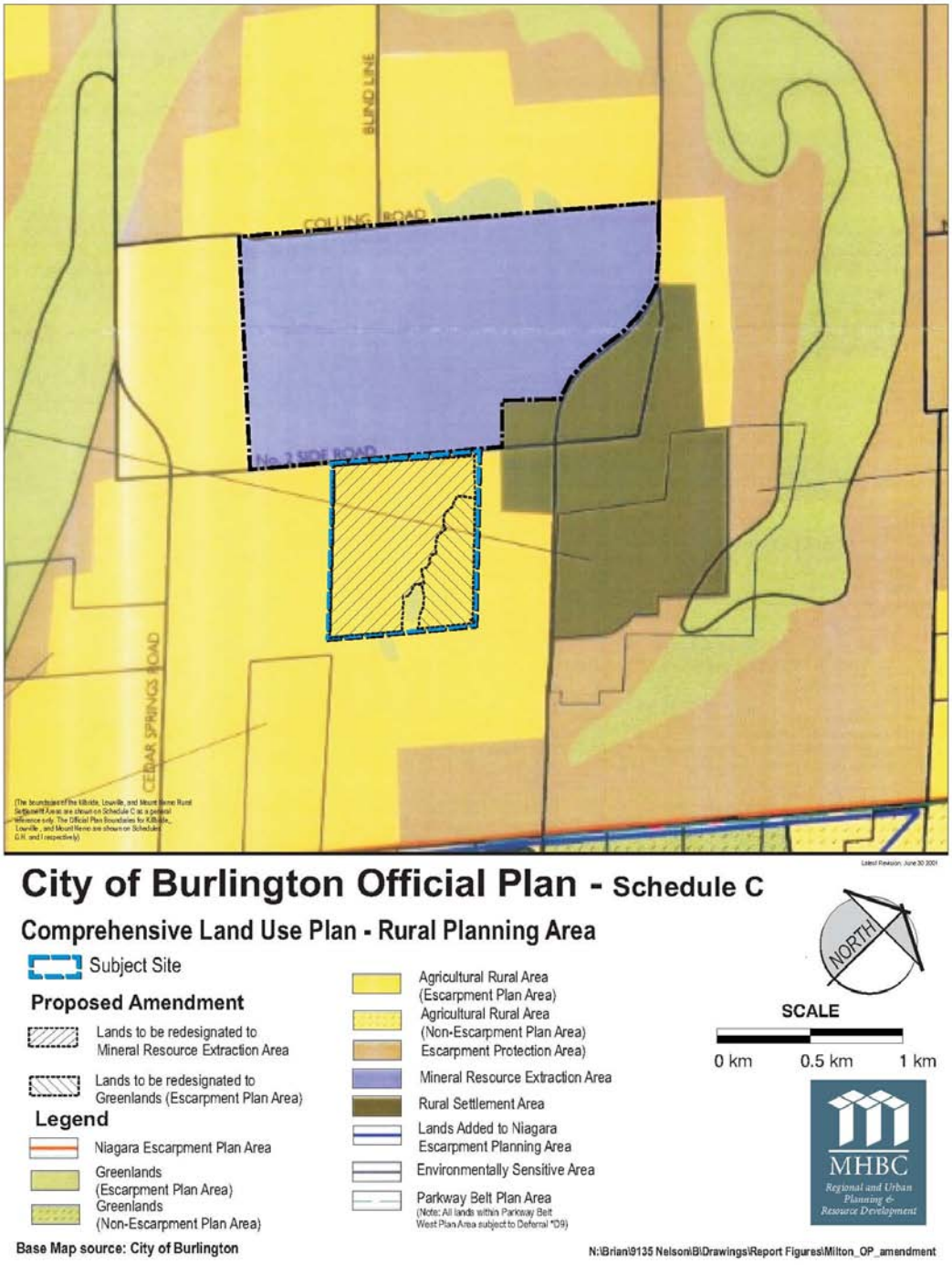

Figure 4.3 City of Burlington Official Plan, Proposed Amendment (Source: MHBC Planning Report)

The Adopted City of Burlington Official Plan (2006)

In October 2006 the City of Burlington Council adopted a new Official Plan through OPA 55 which was approved with modifications by the Region on January 4th, 2008. Portions of this new Official Plan have been referred to the Ontario Municipal Board.

The framework of the 2006 and 1995 Official Plans are very similar however the environment section was rewritten for the 2006 Plan and the name was changed to Sustainability and the Environment. The 2006 plan provides greater clarity regarding the City's interests in environmental protection and sustainable development. The following table provides a listing of the policies applying to the lands in and around the application area in the 2006 Burlington Official Plan.

Table 4.2. Burlington Official Plan Policy Sections applying to the Nelson Application

Designation	2006 Burlington Official Plan
All Designations	Preamble† Part I Policy Framework† Part II Functional Policies † (Aggregate Policies deferred) Part VI Implementation† Part VII Definitions†
Agricultural Rural Area – Escarpment Plan Area Designation	Part IV – Land Use Policies Rural Planning Area† Section 2.3 Agricultural Rural Area– Escarpment Plan Area
Mineral Resource Extraction Area Designation	Part IV – Land Use Policies Rural Planning Area† Section 2.7 Mineral Resource Extraction Area† Part VII Schedules and Tables
[Mount Nemo] Rural Settlement Area Designation	Part IV – Land Use Policies Rural Planning Area† Section 3.0 Rural Settlement Areas

Note: † indicates section where policies are under appeal by Nelson

Some sections of the 2006 Official Plan have been deferred or appealed. A key section that has been deferred from final approval by the Region of Halton is the aggregate policies. Because these policies have been deferred they are not considered in the review of the Nelson Aggregates application. The 2006 Official Plan has been appealed to the Ontario Municipal Board by a number of parties – including Nelson Aggregate. Nelson Aggregate appealed much of the text of the 2006 Official Plan (as noted in the above table). Among the many issues brought forward is the request by Nelson to include sections of the 2005 Provincial Policy Statement into the 2006 Official Plan. Because some of the appeals by Nelson and others have not been resolved, much of the plan is not considered to be in force. The city planning report will address the status of policies at the time it is presented to committee and council.

In the event that a settlement is reached the city planning report will discuss both the 1995 and 2006 policies that apply to the lands. The policies applicable to the application are the 1995 Official Plan however the 2006 Plan is also considered to be relevant but not determinative.

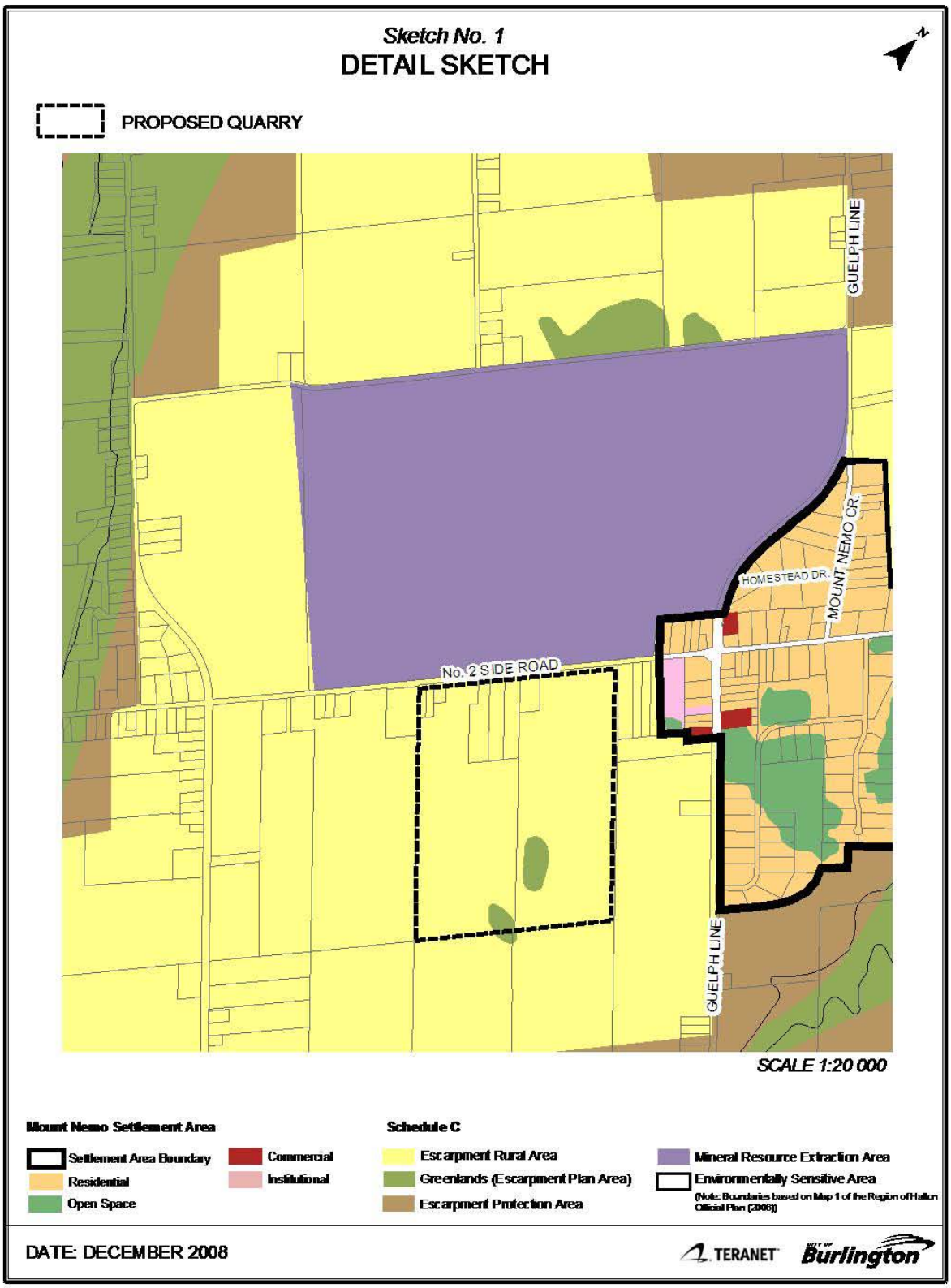

Figure 4.4 Mount Nemo Settlement Area

The City of Burlington Zoning By-Law

In June of 1975 the City of Burlington zoning provisions were replaced by the Niagara Escarpment Development Control Area Regulations. In the Niagara Escarpment Development Control area, the municipal zoning by-law is not legally in force or in effect. Instead, the Niagara Escarpment Commission regulates land use in the Development Control Area through its decision-making on Development Permit Applications. The applicant has therefore applied for a Development Permit for the subject lands.

MHBC Planning Report

The report by MHBC (October 2004, amended May 2006), and Nelson's response to JART key issues (January 2008) provides a brief analysis of Burlington Official Plan policies in support of the application.

The analysis by MHBC singles out an objective in the plan that is "*to provide for extraction of mineral aggregate resources through amendments to the Plan*" (Part IV Section 2.3.1). Emphasis on this objective over others in the Official Plan seems to suggest that MHBC believes this objective takes precedence over others in the Plan. This is not correct.

The Burlington Official Plan (1996) contains many principles, objectives and policies to promote the city's vision for sustainable development in the rural area. These principles, objectives and policies should be reviewed in concert with each other and not in isolation. For instance, key general principles in the rural planning area (Part IV section 2.1.1) that apply to this application include:

b) The present and future use of productive agricultural lands in the Rural Planning Area for farming shall be given priority through the policies of the Plan.
c) Development on Rural Lands shall be self-sustaining in terms of well water supply and sewage disposal.
d) Significant natural and cultural heritage features and landscapes shall be preserved and protected.
e) The importance of wetland areas shall be recognized, with policies that restrict the alteration of the physical and/or biological features present.
g) Agricultural lands shall be protected.

The MHBC report overlooks these and other principles, objectives and policies in the plan that are relevant to consideration of the application. JART is not able to conclude therefore that the application adequately addresses, or is in conformity with the Burlington Official Plan.

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Natural Heritage

5. Natural Heritage

5.1 Introduction to Natural Heritage

Natural Heritage refers to the diversity of life forms including flora and fauna that exists as a legacy today. Natural Heritage recognizes that the natural environment and natural resources of today are inherited from the past and environmental impacts will be inherited by future generations. Within this section of the report JART has endeavoured to bring together much of the information that exists or has been newly collected to accurately characterize the natural heritage that exists within the area that may be affected by the quarry proposal.

The applications for amendment to the Burlington and Halton Official Plans and the Niagara Escarpment Plan, as well as an *Aggregate Resources Act* licence, necessitated the preparation of background bio-physical report(s) by the applicant. Nelson engaged the firms of Stantec and Savanta to complete biophysical inventory and analysis work on its behalf. Stantec and Savanta reported on the ecological features of the lands proposed for the quarry and the potential negative impacts of the proposed land use including the following studies:

- Summary of Natural Heritage Features - Extension Lands (August 2004)
- Level II Natural Environment Technical Report (May, 2006), and
- Natural Environment – Site Characterization Addendum (September, 2006)

In addition to the work completed by Nelson's team, it has been necessary for JART to supplement the Nelson information. Additional information was collected by JART agency representatives and also ecological consultants on behalf of PERL, through field investigations both on-site and on adjacent lands. While Stantec and Savanta have confined much of its analysis to the area proposed for a new quarry, JART has found it necessary to broaden the scope of the analysis to include much of the area in and around the Mount Nemo Plateau.

5.2 Physiographic and Ecological Setting of the Mount Nemo Plateau

The study area for the review of the application has been identified by JART as the Mount Nemo Plateau (see Figure 5.1). The boundaries of the plateau are generally defined by the Medad Valley to the west, Mount Nemo to the east, and the Escarpment Brow to the south and north. The proposed quarry is found in the centre of the Mount Nemo Plateau.

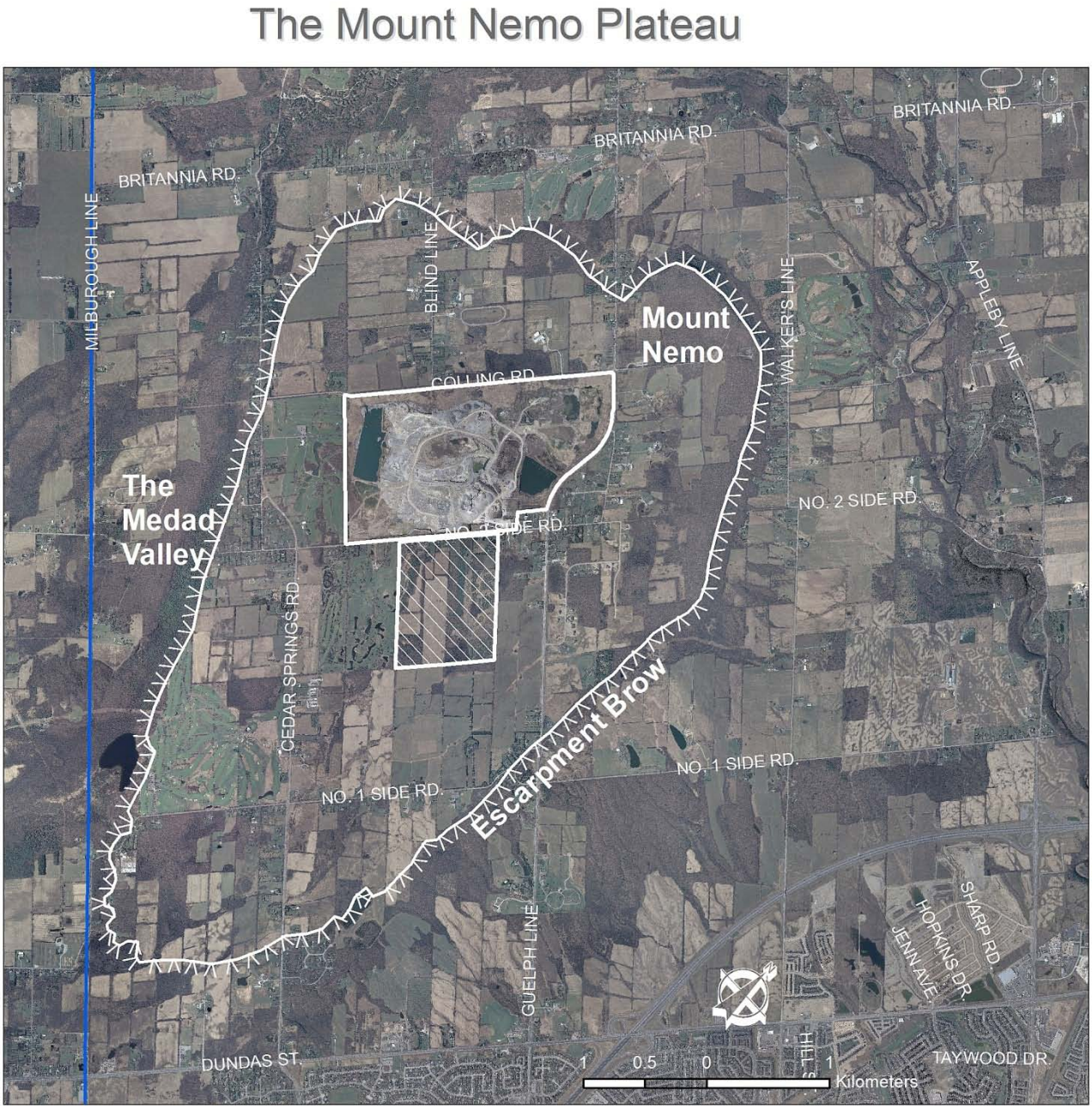

Figure 5.1 The Mount Nemo Plateau

From the physiographic perspective, the Mount Nemo Plateau and the area of the application are comprised of a flattened dome shaped landform. The Mount Nemo Plateau is the highest point of land in the vicinity and forms the headwaters of a number of creek systems, including Mount Nemo Tributary West and East Branches (Grindstone Creek) and tributaries to Shoreacres Creek, Tuck Creek, Willoughby Creek (Bronte Creek) and Lowville Creek (Bronte Creek). It is typified, like many headwaters, by shallow drainage systems and associated wetlands. Owing to the central location on the Mount Nemo Plateau, both the proposed quarry and the existing quarry present challenges with respect to the protection of headwater wetlands and watercourses which originate on the plateau. Further, the connectivity of the natural features and functions across the plateau is a critical component of natural heritage systems planning. The proposed extraction footprint will compromise these features and linkages, contrary to the PPS.

The Mount Nemo Plateau and proposed quarry area are located in the transition zone between two major forest regions: the Eastern Deciduous Forest (or Carolinian Zone), and the Great Lakes - St. Lawrence Forest. Being in this transition zone means that the plants and wildlife include many species that are at or near the northern or southern limits of their geographic range. Consequently, there is also a high degree of biodiversity present and a number of rare species. Later sections of this report detail information relating to the species of flora and fauna that have been documented and the habitats where they are found.

The proposed quarry contains a section of the Grindstone Creek Headwaters Provincially Significant Wetland Complex. Elsewhere on the Mount Nemo Plateau, there are Environmentally Sensitive Areas (ESA), provincially designated Areas of Natural and Scientific Interest (ANSI), designated wetlands, and Escarpment Natural Area (see figure 5.2). The relationship between the quarries (existing and proposed) and these natural areas is inextricably linked. It is for this reason that JART believes the assessment of the quarry(s) ecological impacts on natural heritage must be evaluated within the context of the Mount Nemo Plateau and its associated natural heritage system.

JART is of the opinion that there was insufficient breadth of study within the study completed (Stantec 2006). Therefore JART expanded the study area to include the whole of the plateau. Nevertheless, there is remaining uncertainty about potential quarry impacts with respect to protection of the natural heritage system, including provincially significant wetlands, significant woodlands, species at risk habitat, off-site natural areas (eg. Medad Valley), and flows to watercourses.

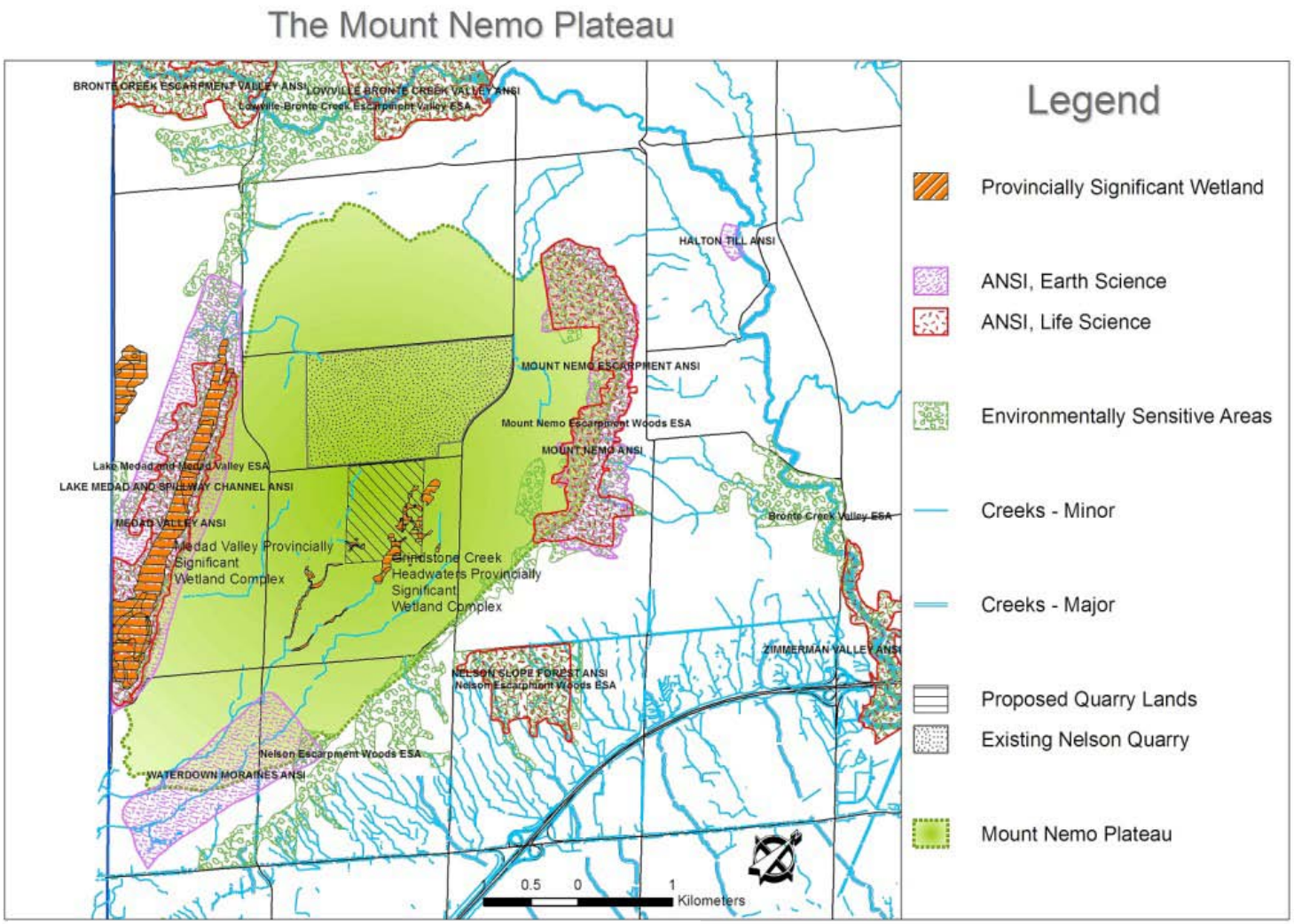

Figure 5.2 PSW's, ESA's and ANSI's of the Mount Nemo Plateau

5.3 Plants and Plant Communities

Individual plant species tend to specialize in specific habitats such that groups of similarly adapted plants (such as wetland plants) are found together. Assemblages of similarly adapted plants are called c*ommunities*. Plant communities tend to be closely aligned with the soil, water and climatic conditions that are found in an area – much more so than individual plant species. Plant communities therefore tell ecologists a great deal about the soil, water, temperature and other factors in a natural area. Wildlife such as birds, amphibians and mammals also tend to specialize their habitat requirements to particular plant communities.

Plant Communities and Ecological Land Classification

In 1998, the province of Ontario introduced a standard technique for plant community investigation and description – Ecological Land Classification[1],[2]. Ecological Land Classification (ELC) has become a vital tool for land use planning involving natural areas. The technique is a structured set of questions with respect to water, soil and plants species that yields a standardized name for the plant community.

The importance of using a standardized technique and naming of plant communities is that it ensures that ecologists and planners know clearly what is being described and thus know, just by the name, the vegetation and environmental characteristics of the area being discussed. JART has used plant communities and the delineation of plant communities, using ELC, as the research method for its review of natural heritage associated with the application.

Very early in the process for reviewing the Nelson application the JART team requested that Nelson complete an ELC analysis of the study area. Stantec, acting on behalf of Nelson prepared an ELC analysis of much of the subject lands. The results of this analysis are shown in map format in Figure 5.3. JART has some concerns relating to the ELC.

To begin, the size of some ELC communities was smaller than the standards set by the ELC manual. For instance a number of the communities were less than 0.5 hectares in size. In general, communities this small are described as inclusions within in a larger ELC community using the methodology. This is particularly the case when looking at the marsh wetlands (MAM's) and cultural thickets (CUT's). JART was of the opinion therefore that some of these communities would more appropriately be described as inclusions within other, larger ELC communities.

JART was concerned that the datasheets used by Stantec were not complete. In particular, the soil descriptions were not filled out on the sheets and most communities described had less than 12, and as few as two, plant species listed. The soil work was not submitted by Stantec until late 2005.

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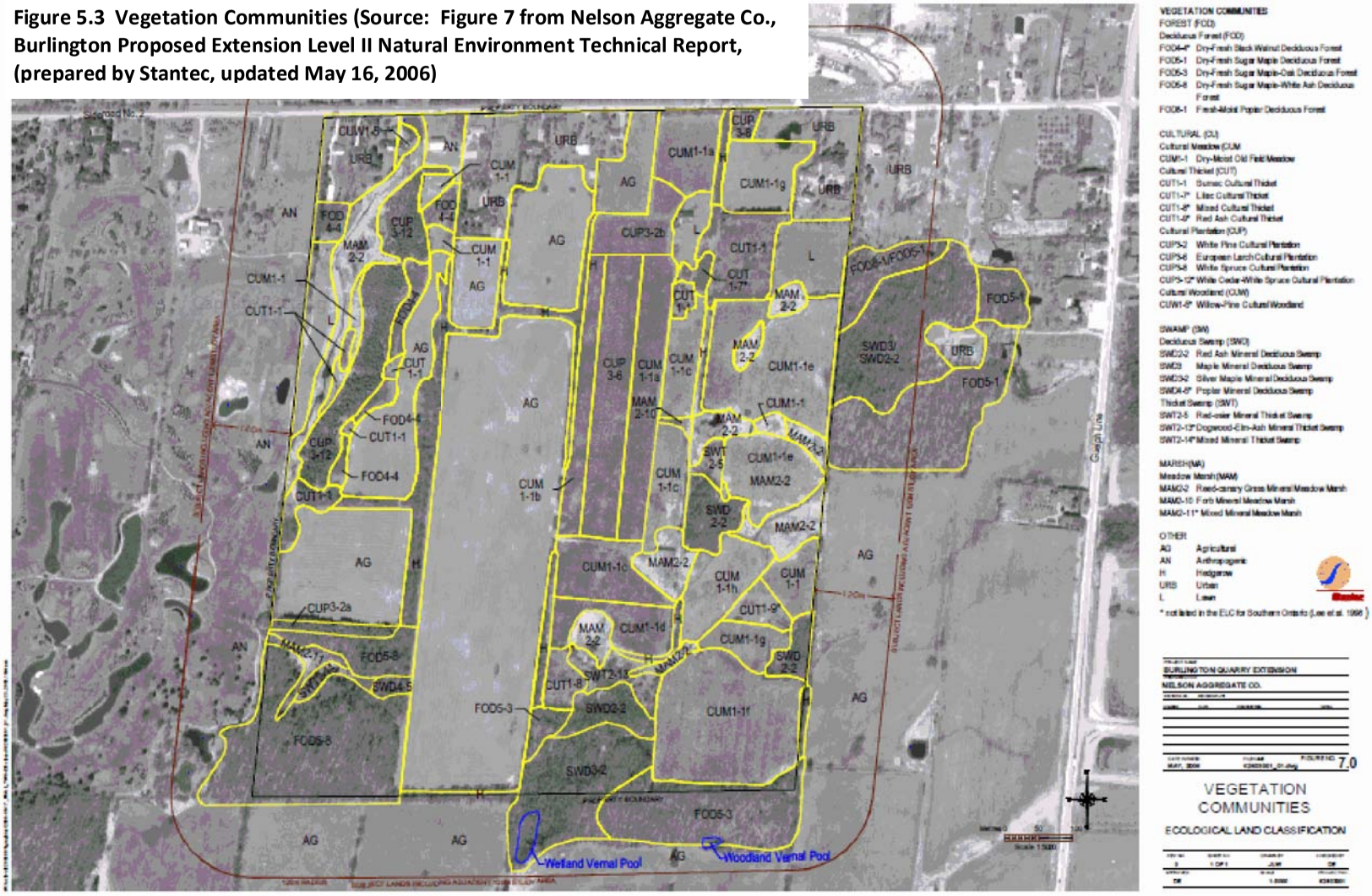
[1] Lee et al. 1998. Ecological Land Classification for Southern Ontario: First Approximation and Its Application. Ontario Ministry of Natural Resources, South Central Science Section, Science Development and Transfer Branch. SCSS Field Guide FG-02.

[2] Refer to http://nhic.mnr.gov.on.ca/nhic_.cfm the website for the MNR's Natural Heritage Information Centre

JART did not agree that the CUT1-8 (Cultural Thicket) community was appropriately named. JART suggests that a portion of this is a swamp thicket wetland (e.g. SWT2-13). JART also had similar concerns with the identification of CUT1-9 and CUP3-2a. JART believes a portion of which may also be swamp thicket wetlands.

Due to property access issues (Nelson's consultants were not allowed on the adjoining lands), areas such as the Camisle Golf Course and the farmlands directly south and east of the proposed quarry were not subject to ELC investigation. Stantec was not able to rectify this concern and therefore much of the surrounding area has not been studied using ELC.

Figure 5.3 Vegetation Communities (Source: Figure 7 from Nelson Aggregate Co., Burlington Proposed Extension Level II Natural Environment Technical Report, (prepared by Stantec, updated May 16, 2006)



Community Classification: Ecological Land Classification and Wetland Evaluation

Although ELC is used for ecological analysis, it is not the basis for all plant community delineation. Within wetlands, the Ontario Wetlands Evaluation System is used to identify and assess wetlands. The Ontario Wetlands Evaluation System uses an entirely different naming system for wetlands.

On the Nelson property and surrounding area, the Ministry of Natural Resources has completed an assessment and mapping of wetlands using the Ontario Wetlands Evaluation System. The results of this assessment and mapping can be found in the Wetlands and Wetland Evaluation section of this report. This community mapping covers a larger geographic area than the ELC mapping.

It is important to note that the wetland boundaries provided by the Ministry of Natural Resources are more accurate than the ELC community boundaries. By design, ELC is concerned with the general characteristics of a plant community rather than the characteristics at the edge of a plant community. For example, some communities such as woodlands have a patchy distribution and change gradually from one community to the next. The wetland evaluation methodology however, provides specific criteria to be used for the delineation of wetland boundaries. Therefore the boundaries originating from the wetland evaluation methodology are considered to be more precise.

Wetlands and Wetland Evaluation

A series of wetlands exist on the Nelson property which form part of the Provincially Significant Grindstone Creek Headwaters Wetland Complex (MNR 2007). The wetland complex includes two wetland areas which were previously identified as part of the locally significant Mount Nemo Wetland Complex. This wetland complex was originally evaluated in 1984, with a desktop update completed in 1998 by MNR. The remaining wetlands on the Nelson property were previously unevaluated. In 2006, Natural Resource Solutions Inc. (NRS), on behalf of PERL, completed a wetlands evaluation (using the prescribed Ontario Wetlands Evaluation System methodology) of all wetlands on the Nelson property and adjacent lands, and submitted its evaluation to MNR for its consideration.

Based on the previous evaluations and the updated information produced by NRS, MNR conducted its own evaluation of the wetland complex using the Ontario Wetlands Evaluation System, Southern Manual. MNR concluded that the Grindstone Creek Headwaters Wetland Complex is provincially significant. MNR is the final authority for wetland classifications in Ontario.

The complex contains 15 wetlands which make up a total area of 17.6 ha (see Figure 5.4). They consist of 53% swamps and 47% marshes, and include 24 wetland vegetation communities. The wetland complex lies within three headwater tributaries of Grindstone Creek and a headwater tributary of Bronte Creek.

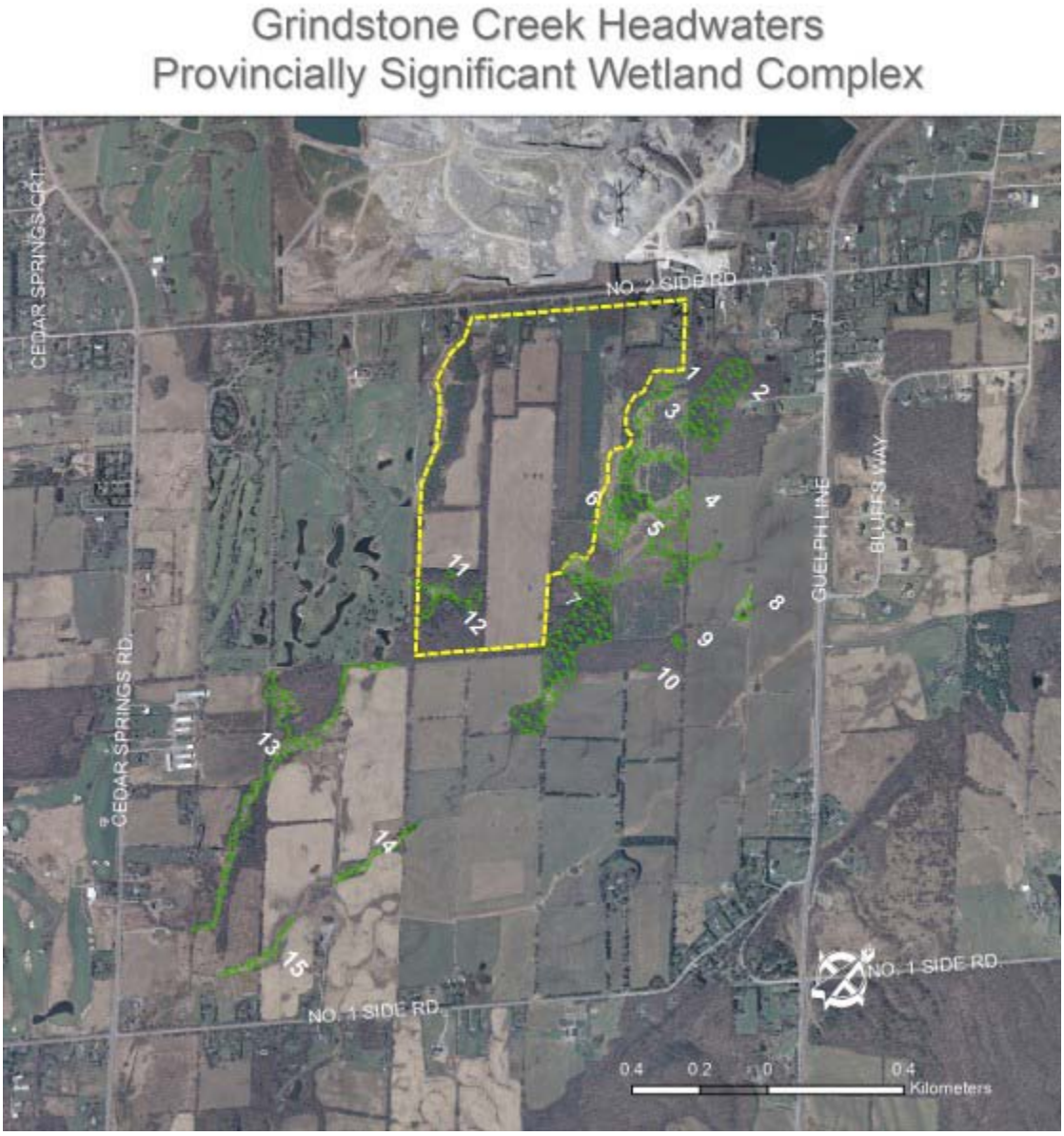


Figure 5.4 Provincially Significant Wetlands

MNR identified that this wetland complex serves a number of important ecological functions, including the following:

- Water storage function that regulates the hydro-period, flow rate and thermal condition in the wetlands;
- In conjunction with the surrounding natural landscape, serves as a local north-south corridor between larger forested areas. At the broader landscape level, serves as a southwest-northeast corridor for wildlife movement across the top of the Mount Nemo plateau;
- Provides connections between the Medad Valley ANSI, the Provincially Significant Lake Medad Valley Wetland Complex and the Mount Nemo Escarpment ANSI;
- Supports five significant species including a breeding population of the nationally and provincially threatened Jefferson Salamander, the provincially endangered Butternut tree and three locally rare plant species;
- Provides breeding habitat for amphibian populations including Jefferson Salamander, Spotted Salamander, Spring Peeper, Wood Frog, Gray Treefrog, Bullfrog, Green Frog, Leopard Frog, American Toad and Eastern Newt. Wood Duck breeds in the wetland swamps;
- In conjunction with the surrounding upland forests, provides habitat for area sensitive forest birds, including Wood Duck, Pileated Woodpecker and Ovenbird;

Section 2.3.1(a) of PPS (1997) states that "Development and site alteration will not be permitted in: significant wetlands south and east of the Canadian Shield." Further, Section 2.3.2 of the PPS (1997) states that "Development and site alteration may be permitted on adjacent lands to a) and b) if it has been demonstrated that there will be no negative impacts on the natural features or on the ecological functions for which the area is identified." The Natural Heritage Reference Manual (NHRM) (MNR 1999) is a technical guide for interpreting Section 2.3 – Natural Heritage of the PPS. The NHRM recommends that lands within 120 metres of a significant wetland be considered as adjacent lands.

Therefore Nelson must demonstrate that no development or site alteration is proposed within the significant wetlands. Further, for the lands within 120 metres adjacent to the wetlands, it must be demonstrated that there will be no negative impact on the natural features or on the ecological functions for which the area has been identified.

The initial extraction footprint (2004) proposed to extract all of the significant wetlands on the Nelson property. In 2006, the footprint was revised to exclude a portion of swamp on the southern property boundary. The 2008 extraction footprint, excludes the majority of the significant wetlands from extraction, however, the wetlands in the southwestern woodlot (wetlands #11 and #12) are proposed for extraction, contrary to the PPS.

Nelson has proposed a 30 metre buffer from the wetland boundary to the extraction limit as shown on the Site Plan (Operational Plan 2 of 4). However, according to Cross Sections 4 of 4, a trail/path and swale are proposed within this area between the limit of extraction and the wetland boundary. In order to adequately protect a wetland, buffers should be undisturbed and fully vegetated, however, this has not been proposed by Nelson in its application nor its supporting documentation.

Although Nelson proposes a 30 metre buffer for the majority of wetlands on the eastern half of the property, the catchment area for two of the wetlands, which extends into the extraction footprint, will be significantly reduced and may impact the functioning of these wetlands, contrary to the PPS. The report entitled "Golder Associates Ltd, October 2007, Monthly Water Balances for Individual Wetland Areas", evaluated not only the reduction in flow contribution resulting from the reduction in catchment area, but also the effects of storage and evapotranspiration within each wetland. The report indicates that the general effect of the flow reduction is an earlier drying of the wetland during the spring/summer and a delayed filling in the early fall. Further, Nelson has proposed a reduction in the 30 metre buffer along portions of the boundary of wetland #7. Adjacent to the wetlands on the property to the south, the buffer has been reduced to approximately 17 metres, and at the northwestern lobe of wetland #7, extraction is proposed right up to the edge of the wetland boundary, as delineated by MNR, with no buffer provided. The inadequacy of the buffers proposed is contrary to the PPS.

Woodlands

The forested portions of the Nelson property and adjacent lands are shown on Figure 5.5 and consist of native and plantation communities. The total woodland area is approximately 64.2 ha in size, of which approximately 44.5 ha occurs on the Nelson property.

A maple-white ash deciduous forest is located in the southwestern corner of the property and extends to the west on to adjacent properties and to another forested patch to the east. This portion of the woodland contains two wetlands which make up part of the Provincially Significant Grindstone Creek Headwaters Wetland Complex and a headwater creek, associated with the West Arm of the West Branch of the Mount Nemo Tributary, which originates in the forest. A hybrid maple deciduous swamp and a sugar maple-oak deciduous forest straddle the southern property boundary and extend between the Nelson property and the private lands to the south. Two other forested wetlands (0.73ha and 0.5ha) occur on the eastern half of the property and are dominated by Green Ash. The East Arm of the West Branch of the Mount Nemo Tributary originates as a headwater creek in the forested lands on the eastern half of the Nelson property.

The majority of the eastern half of the Nelson property has been replanted in conifer (White Pine, Red Pine, White Cedar, European Larch, Norway Spruce) and some hardwood plantations. At the request of the former landowner, Conservation Halton arranged for the site to be planted by a private contractor in April 1998. A total of 57,650 trees were planted on the property. The purpose of the plantings, as identified by the owner, was reforestation for wildlife habitat and environmental protection. The trees were three years old when planted. As a result of the planting, the former landowner was eligible for a tax reduction through the Managed Forests Tax Incentive Program based on a total forested area of 38.9 ha which includes the plantations, wetlands and deciduous forest. This initiative represents the largest single planting project undertaken by Conservation Halton on a private property. This reforestation project provided buffering for the Grindstone Creek Headwaters Wetland Complex, and enhanced the connectivity of natural features across the Mount Nemo Plateau, restoring connections between Mount Nemo and the Medad Valley.

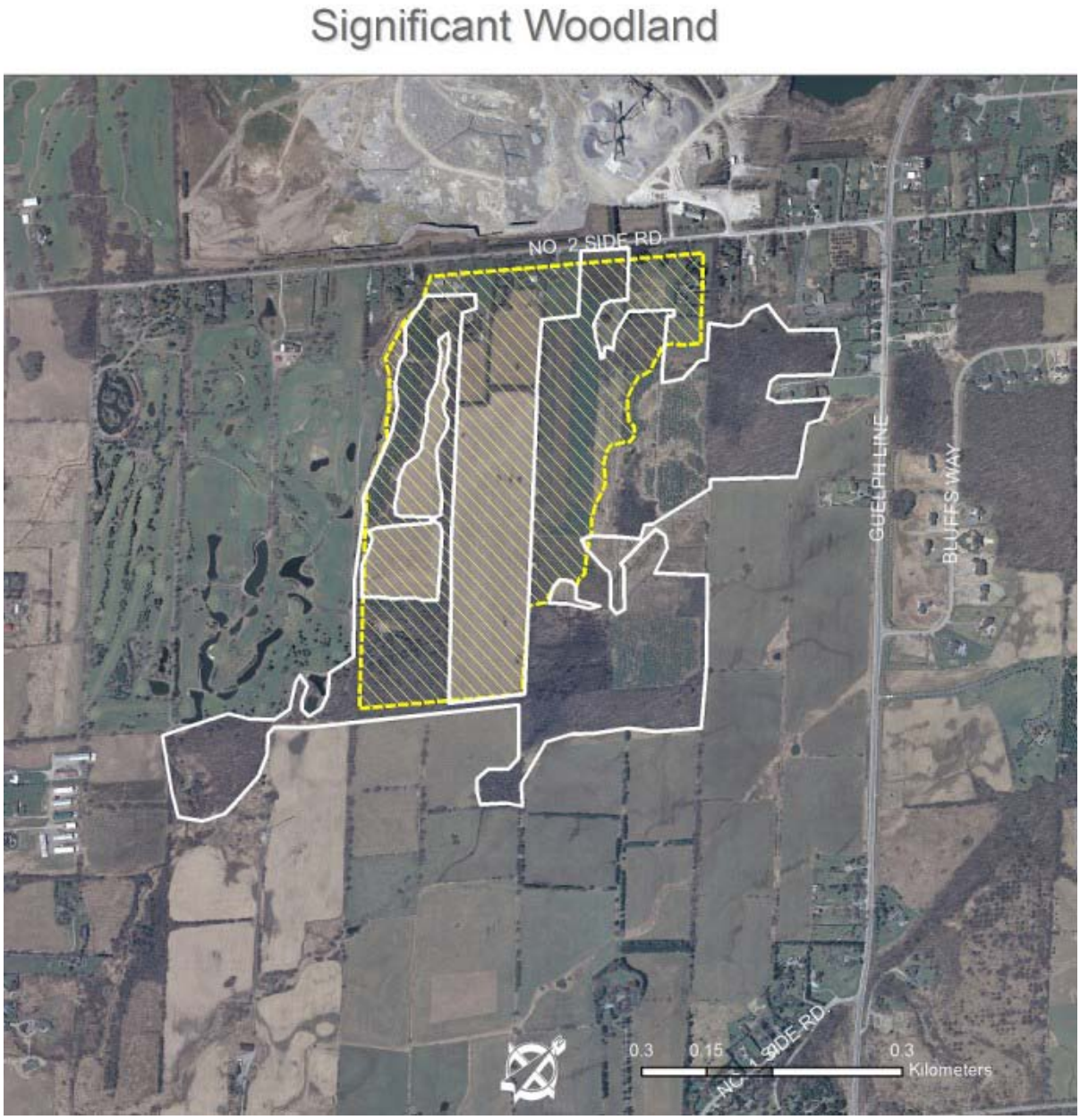


Figure 5.5 Significant Woodland and Proposed Extraction (hatched)

In addition, a White Cedar and White Spruce plantation is located along the length of the Mount Nemo Tributary West Branch on the western half of the Nelson property.

The NHRM states that:

> "The identification and evaluation of significant woodlands is a planning authority responsibility. Approaches to compiling and assessing woodland information will vary depending on the resources of the planning authority, availability of information, development pressures and the nature and extent of the woodlands present in the planning authority."

As the planning authority, the Region of Halton has established policy and criteria for identifying Significant Woodlands within the Regional Official Plan (ROPA 25). Policy 132(2) of the Regional Official Plan states that "it is the policy of the Region to consider all woodlands greater than 0.5 ha in size as being important natural heritage features and candidates for assessment as Significant Woodlands". Significant Woodlands are included as Greenlands B in the Regional Official Plan.

Based on the definition of a Significant Woodland as set out in the Regional Official Plan (Policy 277) the forested lands on the Nelson property meet at least one criterion for designation as a significant woodland, based on a size greater than 10 ha and being located within 50 metres of a headwater creek. As part of the ROPA 25 appeals, Policy 277 has been deferred on appeal by Nelson in conjunction with two other aggregate producers, Dufferin Aggregates and the Ontario Stone, Sand and Gravel Association, on a site specific basis related solely to its properties.

Section 2.3.1(b) of the PPS (1997) states that "Development and site alteration may be permitted in: significant woodlands south and east of the Canadian Shield, if it has been demonstrated that there will be no negative impacts on the natural features or the ecological functions for which the area is identified." Further, Section 2.3.2 of the PPS (1997) states that "Development and site alteration may be permitted on adjacent lands to a) and b) if it has been demonstrated that there will be no negative impacts on the natural features or on the ecological functions for which the area is identified." The NHRM recommends that lands within 50 metres of a significant woodland be considered as adjacent lands.

Therefore, Nelson must demonstrate that the proposed extraction footprint will not have a negative impact on the significant woodlands or on the ecological functions provided by this woodland. Further, for the lands within 50 metres adjacent to the woodland, it must be demonstrated that there will be no negative impact on the natural features or on the ecological functions for which the area has been identified.

The initial extraction footprint in 2004 (see Figure 3.3) proposed to extract the entire property with the exception of stream in the northwest corner of the property. This would have resulted in the loss of all of the significant woodland occurring on the property. The extraction footprint in 2006 (see Figure 3.4) excluded two portions of woodland on the property. These woodlands are located along the southern property boundary; the majority of the southwestern woodlot and the swamp bordering the property to the south. The extraction footprint was again revised in 2008 (see Figure 3.5). The final footprint proposed by Nelson, if approved, would result in the loss of the entire southwestern section of the significant woodland and approximately 24.4 ha of other portions of the significant woodland, contrary to the Provincial Policy Statement.

Significant Plant Species

The inventory and assessment by Stantec, JART and others have yielded a number of plant species that are significant regionally, provincially or nationally. Species that are nationally or provincially rare have special consideration in the *Species at Risk Act* and the *Endangered Species Act,* respectively, and are discussed later in this section under Species at Risk. Regionally significant species are not afforded particular protection from development in municipal or provincial policy but are nevertheless important overall in the designation of significant wetlands, Areas of Natural and Scientific Interest, the Escarpment Natural Area and Environmentally Sensitive Areas.

A list of Regionally Significant Species occurring in Halton[3] and the provincial natural heritage database designates species as uncommon or regionally uncommon (S4 rank). With these lists as the basis, 18 plant species of regional significance have been identified in and around the proposed quarry. The following table provides a list of each regionally significant species.

Table 5.1 Regionally Significant Species

Common Name *(Plant Species)*	Source	S Rank (Provincial)	Halton Rank (Regional)
Black Walnut (*Juglans nigra*)	Stantec	S4	Common
Common Evening Primrose (*Oenothera biennis*)	Stantec	S4	R1
Doubtful False Pimpernel (*Lindernia dubia var. dubia*)	Stantec	S4	Rare
Five-leaved Virginia Creeper (*Parthenocissus quiquefolia*)	Stantec	S4	Rare
Grass-leaved Arrowhead (*Sagittaria graminea var. graminea*)	Stantec	S4	Rare: unrecorded
Greenish Sedge (*Carex viridula ssp. viridula*)	Stantec	S4	Rare
Hairy Honeysuckle (*Lonicera hirsuta*)	Stantec	S4	Rare
Herbaceous Carrion Flower (*Smilax herbacea*)	Stantec	S4	Common
Moonseed (*Menispermum canadense*)	Stantec	S4	Common
Ninebark (*Physocarpus opulifolius*)	Stantec	S4	Rare
Purple Cress (*Cardamine douglasii*)	JART	S4	Uncommon
Red Pine (*Pinus resinosa*)	Stantec	S4	Rare
Rough Avens (*Geum laciniatum*)	Stantec	S4	Common
Silky Dogwood (*Cornus amomum*)	JART	S4	Common
Small-headed Rush (*Juncus brachyecephalus*)	Stantec	S4	Rare
Tall Manna Grass (*Glyceria grandis*)	Stantec	S4	Common
Tuckerman's Sedge (*Carex tuckermanii*)	Stantec	S4	Uncommon
Wood Reed Grass (*Cinna arundinacea*)	Stantec	S4	Common

[3] W. Crins, et al 2006, The Flora of Halton Region, in Halton Natural Areas Inventory Volume 2.

The relatively high number of regionally rare and provincially uncommon species indicates that the natural areas on the Nelson property are of regional importance. With regard to the provincial wetlands evaluation, the high number of species contributes nearly 50 points to the wetland evaluation. Additionally, based on the number of significant species present, in combination with other criteria, the area may meet the Regional criteria for designation as an Environmentally Sensitive Area.

5.4 Fish and Wildlife

Fish

Fish are described in the "Nelson Aggregate Co., Burlington Proposed Extension, Level II Natural Environment Technical Report, Revised May 16, 2006" (Stantec 2006).

The lands associated with the proposed Nelson quarry are within the Grindstone Creek and Bronte Creek watersheds. These creeks and other tributaries originating on the Mount Nemo Plateau are shown on Figure 5.6. The majority of the site drains to the West Branch of the Mount Nemo Tributary, which is a tributary of Grindstone Creek. The northeastern corner of the property drains to Bronte Creek. The West Arm of Mount Nemo Tributary West Branch is one of two tributaries present on the proposed quarry property. A portion of its flows originates as pumped discharge from the south central sump of the existing quarry. It is pumped on an intermittent basis to this tributary.

The tributary morphology is characterized as a slow run, with occasional shallow pools. It flows through a defined low flow channel which becomes braided through a meadow marsh. There are two small on-line ponds. One is located 180 metres north of the golf course property boundary and is 0.5-0.7 metres in depth and 15 metres long by 7-8 metres in width. The second pond is located 60 metres upstream of the golf course and is 15 cm in depth and 4 metres in width. Riparian vegetation along the watercourse consists of Reed Canary Grass and cattail with Jewelweed and purple loosestrife also present. Sparse dogwood and willow shrubs are also present. The substrate is characterized by silty deposits through the slow flowing areas and gravels in the areas of swift flow.

Sampling conducted by Stantec (2006) of this tributary encountered 7 Brook Stickleback in 2000 and one Pumpkinseed Sunfish in 2003. As a result of the presence of fish, this tributary is considered to be fish habitat, and therefore subject to the *Fisheries Act,* administered by Fisheries and Oceans Canada (DFO).

The East Arm of the Mount Nemo Tributary originates on the eastern half of the property and connects the wetlands of the provincially significant wetland complex. It exits the property in the wetland forest community on the southern property boundary. It is intermittent and considered by Stantec to be contributing to fish habitat downstream. Green Sunfish and other fish species have been found in a downstream pond south of the Nelson property. This tributary provides energy and some flow contribution to the downstream fisheries found in the Grindstone Creek. Although a karst feature along this tributary creates a barrier to fish passage upstream directly on to the subject lands, under the *Fisheries Act* this tributary would still be considered as fish habitat, since it contributes to downstream habitat.

A number of other tributaries originate on the Mount Nemo Plateau, including tributaries to Shoreacres Creek, Tuck Creek, Willoughby Creek (Bronte Creek), Lowville Creek (Bronte Creek), and the Mount Nemo Tributary East Branch (Grindstone Creek).

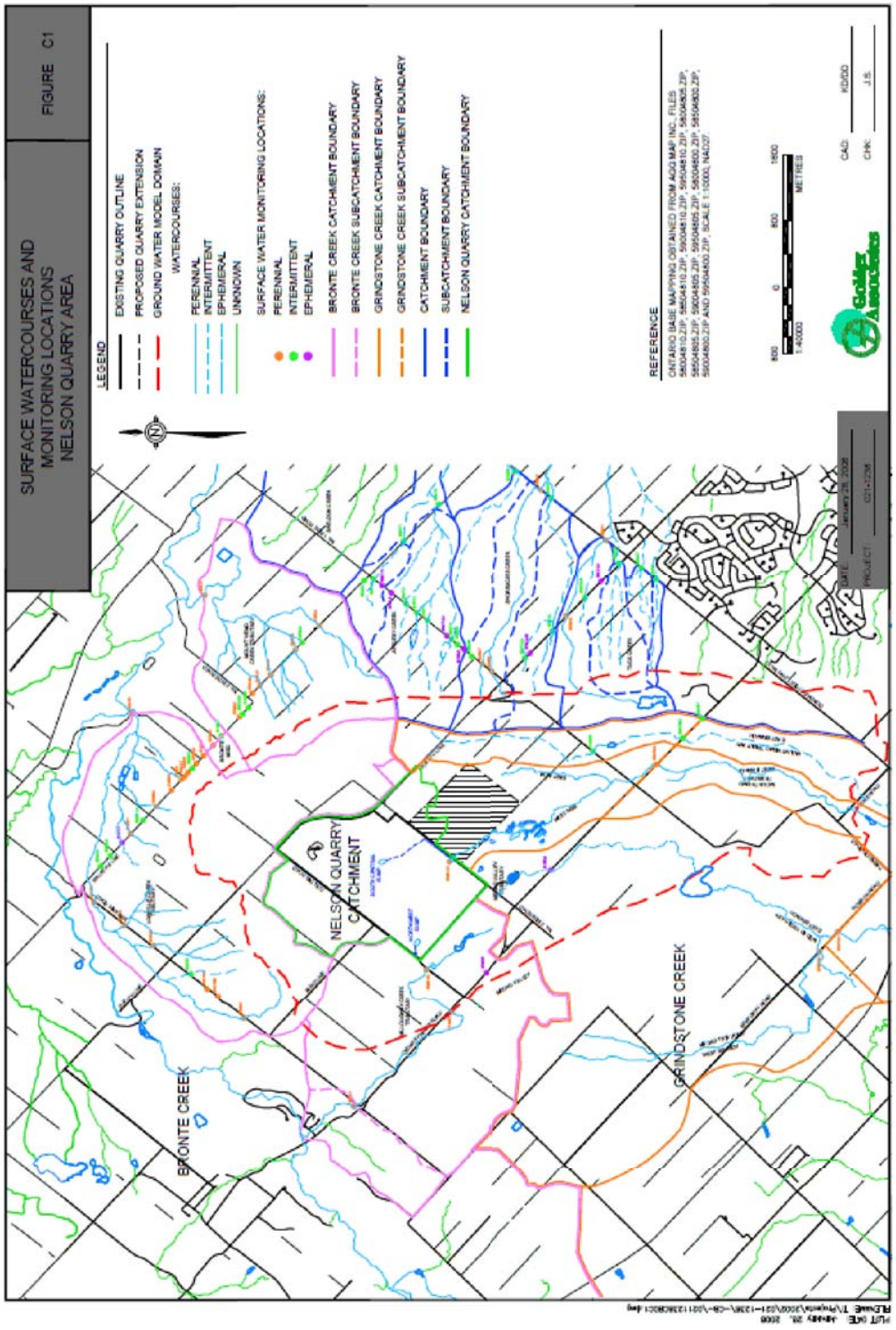


Figure 5.6 Surface Watercourses and Monitoring Locations , Nelson Quarry Area (Source: Figure C1 Water Resources Impact Assessment , Golder Associates, 2008)

As noted within the Stantec (2006) report, there are two main impacts from this application that could affect the aquatic resources as a result of aggregate extraction:

"1) A change in contributing surface waters (e.g. surface catchment area removed by extraction, altered pumping regime from quarry dewatering), and
2) Altered ground water table associated with drawdown and/or with mounding associated with extraction and post-extraction scenarios."

As part of the aggregate application, Nelson has proposed to vary the MNR Operational Standards by reducing the setback from the West Arm of Mount Nemo Tributary West Branch from the required 30 metres to 15 metres. Further, Nelson is proposing to eliminate flows to this tributary altogether, following completion of extraction of the existing quarry.

Nelson is proposing to rehabilitate the proposed quarry into a lake feature which would ultimately passively discharge into this tributary in the vicinity of the golf course property boundary. As a result, flows to the upstream portion of the tributary would be limited to runoff only. Unless pumping is continued while the proposed quarry is filling, this tributary and its fisheries could be seriously impacted. Section 35 of the *Fisheries Act* prohibits harmful alteration, disruption or destruction (HADD) of fish habitat without authorization from the Minister of Fisheries and Oceans Canada.

Further the PPS states that development and site alteration shall not be permitted in or adjacent to fish habitat except in accordance with provincial and federal requirements. Similarly, mitigation will be necessary in the East Arm to ensure that the downstream fish habitat is not impacted as a result of the quarry proposal. Other tributaries originating on the Mount Nemo Plateau could be affected by changes to the groundwater table as a result of quarry dewatering. This may impact the quantity and duration of flows to these tributaries.

Should Nelson's proposal result in a HADD, authorization from DFO will be required. Further, the mitigation program would have to ensure continued pumping to the West Arm during operation and rehabilitation of the proposed quarry. As well, potential East Arm mitigation and monitoring of stream flows would be required in order to protect fish habitat. This is further discussed in the Adaptive Management Plan (AMP) Section of this report.

Mammals

JART required a complete inventory of bio-physical information as part of the ecological evaluation of the proposed Nelson quarry. As part of the complete inventory incidental observations of mammals were completed by Stantec (2006). In total seven mammal species were observed on the subject property: Coyote, Eastern Cottontail, Eastern Chipmunk, Grey Squirrel, Red Squirrel, Raccoon, and White-tailed Deer.

On the lands adjacent to the subject property, Natural Resource Solutions, on behalf of PERL, completed an investigation yielding several additional species, which included Mink, Opossum, and Red Fox. Each of the ten mammals species are considered common in Halton Region and in Ontario with populations that are widespread and secure.

JART acknowledges that the list likely under-represents the actual numbers of mammal species present. There are likely a number of mice, voles, bats and other mammals present in the study area that have not been recorded. Records for the nearby Mount Nemo Life Science ANSI suggest that the uncommon (Ontario Rank S3) and Regionally Rare Eastern Pipistrelle (Bat) is found east of the study area. Specific studies for bats were not completed by Stantec on or around the proposed quarry.

Insects

The assessment of terrestrial insects has been limited to the Orders of Lepidotera (Moths and Butterflies) and Odonata (dragonflies and damselflies). Lepidoptera and Odonata are well studied in Ontario and are thus the only insect groups typically studied in an environmental impact assessment. In 2006, Stantec (accompanied on one occasion by a Conservation Halton ecologist) conducted a survey of both insect Orders on the proposed quarry property. The assessment yielded 21 dragonfly and damselfly species and 22 butterfly and moth species. None of the dragonfly or damselfly species are considered uncommon or rare in Ontario; nine are considered regionally rare or regionally uncommon[4]:

Table 5.2 Regionally Rare/Uncommon Dragonflies and Damselflies

Regionally Rare	Regionally Uncommon
Spotted Spreadwing	Lyre-tipped Spreadwing
Common Spreadwing	Violet Dancer
Powdered Dancer	Band-winged Meadowhawk
Fragile Forktail	
Skimming Bluet	
Wandering Glider	

The key habitat of the significant dragonflies and damselflies on the proposed quarry property are the various shallow marsh habitats. The greatest diversity was found in the marshes at the west side of the property associated with the creek marsh areas.

All butterfly and moth species are considered common in Halton Region[5] from a provincial perspective, however, several butterfly species require discussion.

The Monarch butterfly is a species that is in decline throughout North America. In Ontario, the population is thought to be secure, however, the greatest threat to the Monarch occurs to the over wintering generation which spends several months in plateau forest in Mexico. Deforestation in their over wintering woodlands has caused severe harm to the population such that its global rank is now *Common* rather than *Very Common* and the species is considered of Special Concern nationally and provincially.

[4] Carl Rothfels. 2006. The Dragonflies and Damselflies of Halton Region, in Halton Natural Areas Inventory Volume 2.

[5] Alan Wormington. 2006. The Butterflies of Halton Region: A preliminary list, in Halton Natural Areas Inventory Volume 2.

The perspective of JART is consistent with the provincial management objectives: the Monarch larval food plant milkweed should be kept where possible on the site and where possible the native wildflower habitat should be enhanced. The Nelson property is not thought to contain any areas utilized as a migratory stopover by the Monarch.

The Giant Swallowtail was identified on the subject property by Stantec ecologists in 2006. The Giant Swallowtail is a species that is thought to be at risk in Ontario, however, the province has not issued special conservation or management measures. This butterfly is at the northern extent of its range in Ontario. In Burlington, the caterpillars feed primarily on the Common Hoptree (*Ptelea trifoliate*) and Prickly Ash (*Zanthoxylum americanum*). Neither of these foodplants have been found in or around the proposed quarry area. JART therefore does not believe that special consideration for this species is necessary.

A species of special concern, the West Virginia White Butterfly caterpillar feeds on Toothwort (*Dentaria diphylla*). Toothwort, a small spring ephemeral, is common in the upland woodlands at the south edge of the Nelson property. Stantec therefore examined the woodlands on the Nelson property for this significant butterfly. The ecologists did not find any individuals on the property. JART has therefore concluded that, although suitable habitat appears to be present, the West Virginia White Butterfly is not a species of management concern in this application.

Birds

Birds, and breeding birds in particular, are very good indicators of ecosystem health and biodiversity. There are many advantages to the study of birds including; that they are very well studied, generally easily identified, breed with high degree habitat fidelity and they are very widespread. In Ontario, more is known about the distribution and life histories of birds than any other wildlife. This is largely due to the work of scientists and volunteers who have accurately mapped the distribution of birds in the province[6],[7]. Birds are an important facet of ecological impact study for the proposed quarry.

Stantec prepared a breeding bird summary for a portion of the proposed quarry lands in 2000 and 2003. Based on JART comments, additional breeding bird evaluations were done in June 2006 with the assistance of an ecologist from Conservation Halton. Based on the earlier inventories, the work completed in 2006, and incidental observations, 64 different bird species were found on the subject property. This number of bird species is somewhat low for a property of this size (e.g. there are no owls listed).

None of the 64 birds species identified on the site are considered globally, nationally or provincially significant. A number, however, are of conservation concern.[8] These include: Scarlet Tanager, Pileated Woodpecker and Black-billed Cuckoo. The Stantec report does not reference species of conservation concern in its evaluation.

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[6] Atlas of Breeding Birds Ontario 2nd Edition. 2007. Cadman et al. Bird Studies Canada.

[7] See also: W.D. McIlveen., 2006, The Birds of Halton Region, Ontario. in Halton Natural Areas Inventory Volume2

[8] Couturier, A. 1999. Conservation Priorities for the Birds of Southern Ontario. Bird Studies Canada Report, 17pp (plus appendices).

Stantec in 2006 concluded that although a number of area sensitive forest species were found to be breeding on the site they would be "afforded on-site protection given that the majority of the forested areas on-site have been excluded from the extraction footprint. Additionally, Stantec concluded that bird species were well represented in other habitat areas in the regional area and therefore would not be impacted by the proposal.

JART does not agree with the overall conclusions of the Stantec report regarding the impact to birds and bird habitat. Primarily JART is concerned with the statement that since other habitats exist in the regional area, removal of habitat on the Nelson property is somehow acceptable. This was not based on specific study of other properties or on offsite bird inventories. No such studies were completed as Stantec only completed breeding bird inventories on the proposed quarry property and in 2000, on the existing quarry lands. Additionally, because the extraction footprint was changed in 2008 to include the southwest woodland area, the conclusion by Stantec that the forest habitat would remain on the property and therefore there would be no impact to the area sensitive species, is no longer correct.

JART notes that species of conservation concern such as the Scarlet Tanager and Pileated Woodpecker are not adequately addressed in the evaluation by Stantec. JART concludes that bird habitat, including that of several species of conservation concern, would be lost on the property as a result of the proposed quarry. Specific measures to mitigate or avoid this loss of birds and bird habitat have not been provided.

Herptiles (Amphibians and Reptiles)

Herptiles are a group of wildlife composed of amphibians and reptiles. In general, herptiles are acknowledged to be sensitive indicators of environmental stress and thus useful in the context of environmental impact assessment. JART required a survey of herptiles as part of the background ecological work necessary to review the quarry application.

Although the amphibians and reptiles are grouped together in the study of herpetology, the two groups are inventoried in a very different manner. In Ontario, reptiles are mostly represented by turtles and snakes. Both are surveyed by finding areas where they bask in the sun. In the case of snakes these are generally rocky outcrops. In the case of turtles these are logs and other areas within pond wetlands. Amphibians are studied in a different manner altogether. They are inventoried in the spring either during their migration to wetlands (in the case of salamanders and newts) or through calling surveys in the case of frogs and toads. As is the case with any ecological survey, any incidental observations of herptiles are also noted. Generally these three forms of inventory will result in a complete inventory of herptiles.

It was necessary for Stantec to study herptiles over a number of years since initial surveys either did not conform to accepted sampling protocols or because there was a need for extra work to corroborate historical records.

Only a single reptile species, Garter Snake, has been noted in the inventory. Garter Snakes are very common in southern Ontario and aside from protection of wintering hibernacula, no management or protection measures are generally necessary for this species. Stantec also completed a special study to try to find the Eastern Hognose Snake on the property. This species, which is endangered, was found in the vicinity historically (1930's), however, it was not found by Stantec.

Table 5.3 Inventory of Herptiles

Common Name	Scientific Name
Spotted Salamander	*Ambystoma maculatum*
American Toad	*Bufo americanus*
Tetraploid Gray Treefrog	*Hyla versicolor*
Spring Peeper	*Pseudacris crucifer*
Northern Green Frog	*Rana clamitans*
Wood Frog	*Rana sylvatica*
Northern Leopard Frog	*Rana pipiens*

Of the seven species inventoried by Stantec, (Table 5.3) none are considered rare nationally or provincially. Spotted Salamander, however, is considered uncommon in Halton Region[9]. The egg masses of Spotted Salamander were noted during a JART visit to the property in a wetland abutting the woodland area at the northeast corner of the Nelson property (see Figure 5.7). Prior to this observation by JART, there were no records of Spotted Salamander in Burlington.

Figure 5.7 Egg masses of Spotted Salamander, May 2006

[9] Robert Curry in Halton Natural Areas Inventory, volume 2, 2006, The Herpetofauna of Halton Region, Ontario,

The nationally and provincially threatened Jefferson Salamander has been noted by the MNR and Natural Resource Solutions (the ecological consultant of PERL) as breeding just south of the Nelson property. Jefferson Salamander has been recorded in a number of locations in Halton, however, it is considered a Species at Risk under federal and provincial legislation. The Jefferson Salamanders breed in two woodland pools associated with the upland deciduous forest and wetland that extend onto the Nelson Property.

Stantec, in a letter to JART, January 24, 2006, downplayed the significance of Jefferson Salamander saying "the southwest wetland pool does not necessarily constitute the significant habitat of" [Jefferson Salamander] and "the data shows in fact a very weak if any, population of Jefferson in the wetland that extends onto the Nelson property". JART does not agree with this statement and supports the MNR position that the property does provide Jefferson Salamander habitat and that this viable population requires protection from any impacts associated with the proposed quarry.

The species and habitat of Jefferson Salamander is further discussed below.

5.5 Species at Risk

Two species at risk (SAR) have been documented on and/or adjacent to the Nelson property; Jefferson Salamander and Butternut. Jefferson Salamander (*Ambystoma jeffersonianum*) is listed as a threatened species in Ontario and Butternut (*Juglans cinerea*) as endangered. Both receive habitat protection under the Provincial Policy Statement (1997 and 2005) and the *Endangered Species Act* (2007).

The initial natural heritage inventory reports submitted by Stantec in 2004 did not document Jefferson Salamander on the Nelson property or on the adjacent lands. In April 2005, a population of Jefferson Salamanders was documented by MNR in the southern portion of the woodland area directly adjacent to the Nelson property. MNR subsequently determined that the two wetlands used for breeding and the adjacent forest (including the abutting property to the south and the portion of the wetland and woodland on Nelson's property) are the habitat of Jefferson Salamander and are to be protected as directed by the PPS 1997. Nelson, JART and property owners were informed of this by MNR in a letter dated August 25, 2005. In 2007, these two wetlands (see Figure 5.4) were additionally included as part of the Provincially Significant Grindstone Creek Headwaters Wetland Complex designated by MNR. Additional identification of Jefferson Salamander habitat may be determined by MNR pursuant to the *Endangered Species Act* 2007.

The current extraction footprint proposed by Nelson excludes the central woodland on the southern property boundary, the two Jefferson breeding wetlands and the connecting wetlands extending to the north along the east side of the Nelson property - collectively referred to as the eastern wetlands. Nelson must ensure that the proposed extraction does not alter or adversely impact the hydrology and habitat functions of the eastern wetlands, including the Jefferson Salamander breeding habitat, but have yet to do so to JART's satisfaction.

In 2004 Stantec identified several Butternut trees on the Nelson property. During a site visit in 2005, JART representatives documented that three Butternut trees had been removed by Nelson from the original extraction area and transplanted to another location on the property. It was also documented that the trees had not been transplanted properly. MNR then directed Nelson to remove the trees to a more appropriate location and to ensure that they were planted properly. As of summer 2008, two of the three trees appear to have died.

A total of thirteen Butternuts have been encountered on the Nelson Property of which nine lie within the proposed extraction area. Nelson proposes to transplant four of the smaller stems to the south central woodland or some other suitable location on the property. A Butternut management strategy is outlined in the Nelson Report on Adaptive Management Plan.

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Water Resources

6. Water Resources

6.1 Overview

The proposed new quarry is located in the headwaters area of Grindstone Creek. The drainage area of the proposed quarry contributes to a number of separate catchments which discharge into three primary directions; northerly to the existing quarry, south easterly to the East Arm of the Mount Nemo Tributary (West Branch) , and westerly to the West Arm of the Mount Nemo Tributary (West Branch). (see Figure 5.6 in Section 5)

The East and West Arms of the Mount Nemo Tributary (West Branch) in the vicinity of the quarry also contain a number of wetlands which are fed by surface water from the subject lands. (see Figure 6.1)

The proposed quarry would involve extraction of aggregate below the water table, which will affect the groundwater and surface water regimes. Specifically, during the quarry operations phase if unmitigated, quarry activities would result in capture of groundwater (i.e. capture zone) and lowering of groundwater levels some distance outward from the quarry (i.e. zone of influence) as well as capture of surface water runoff that would have previously contributed to watercourses downstream of the quarry.

During the operational life of a quarry, much of the captured water is discharged to the surrounding area at particular discharge points. Often this results in increased streamflow (over natural conditions); however, often the flow is delivered to the stream shortly following precipitation events to maintain dry conditions within the quarry. After quarry operations, where a lake is proposed as the end use, the quarry would begin to fill with water from the captured surface water and groundwater, at this time discharge downstream from the discharge location may be reduced or eliminated depending upon the proposed operating regime and regulatory requirements of the approval authorities. For the proposed Nelson Quarry, once filling is complete, a lake is proposed to be established within the quarry and gravity discharge from the lake is anticipated. The final water surface elevation of the lake will be controlled by the elevation of the lowest height of land surrounding the quarry; this location is also the location where gravity based discharge can occur.

To address these water resource issues relating to the various phases of the quarry operation, Nelson and its consultants have prepared studies to evaluate the potential impacts of the proposed quarry. These studies have been completed in the context of the original quarry proposal, studies to address issues raised by the public and JART, and the revised quarry extraction plan which was proposed in January 2008.

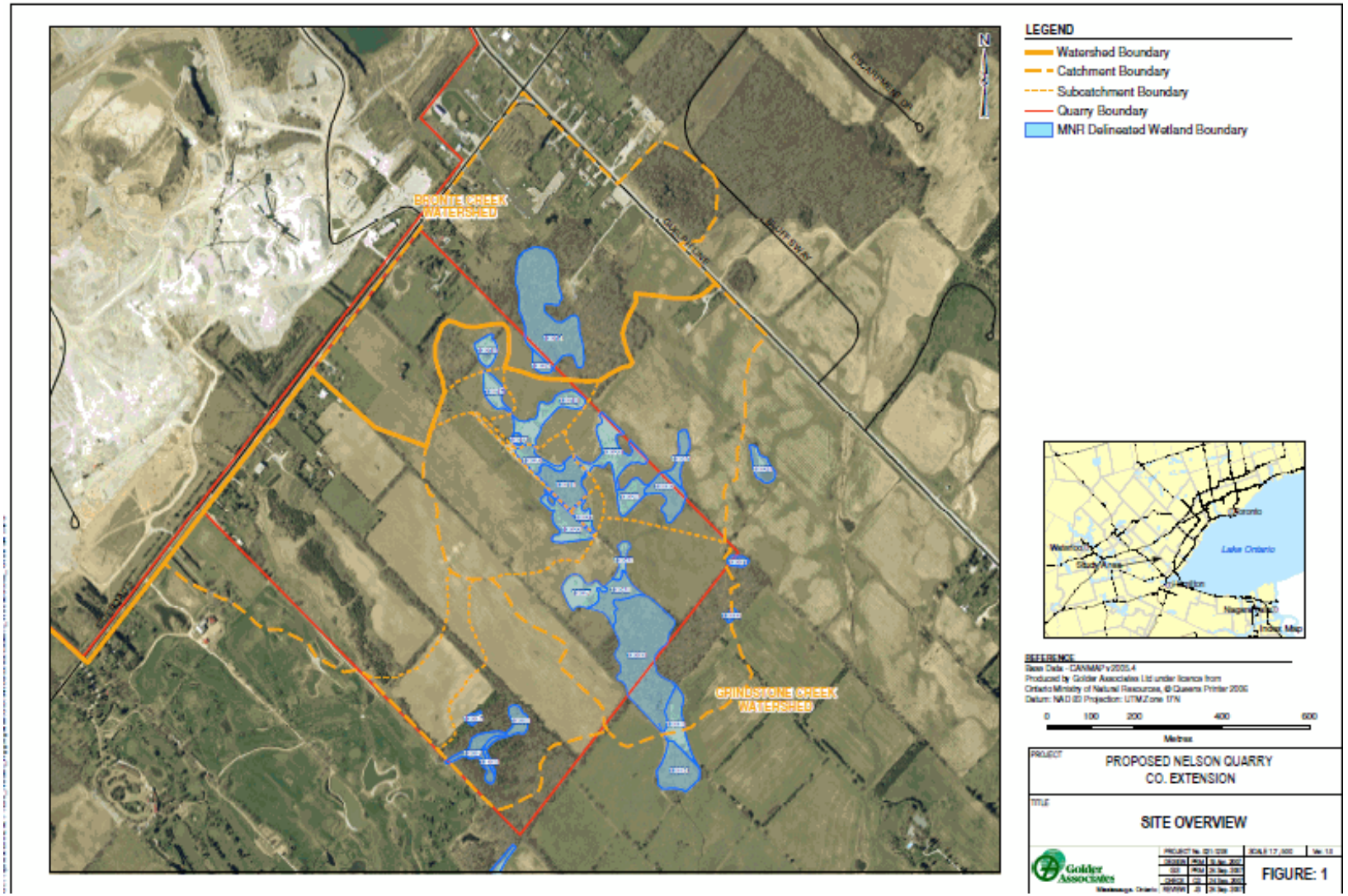


Figure 6.1 Site Overview (Source: Figure1 – Report on Monthly Water Balances for Individual Wetland Areas, Golder Associates Ltd., September 2007)

As noted in the preceding sections, during the period since the original proposal was filed there have been on-going discussions and review of proposals that ultimately have led to Nelson filing documents which outline a revised extraction footprint, as well as a revised plan to address impacts from the proposed quarry.

The following sections outline each of the water resource-related issues such as surface water flows, wetlands, water balance and private wells that have been characterized and potential impacts that may occur due to the proposed quarry. These sections also outline any outstanding issues that JART has identified. It should be noted that many of the specific measures to address and/or mitigate the identified impacts are described within the section of this report entitled Adaptive Management Plan (AMP).

6.2 Surface Water

Drainage in the vicinity of the existing and proposed quarries contributes to a number of watersheds. The existing quarry is located within the headwaters of both Bronte and Grindstone Creeks. Currently discharge from the existing quarry is split between these two watersheds, with approximately 55% of the annual discharge from the existing quarry being discharged to the Bronte Creek and 45% to the Grindstone Creek watersheds. During the operation of the quarry this flow split is planned to continue; however, at the conclusion of quarry operations, Nelson is proposing to terminate discharge from the existing quarry to the Grindstone Creek outlet (which would otherwise require pumping in order to continue). Nelson anticipates that flows from the existing quarry would discharge via gravity from the quarry lake into the Bronte Creek watershed once the quarry lake has filled with water.

The proposed quarry lands are located within the Grindstone Creek watershed. This proposed quarry area contains a number of tributaries of Grindstone Creek. Since the quarry would capture surface water runoff from these various tributary drainage areas and discharge from the proposed quarry is confined to a single location, the proposed quarry would change the amount of flow that is delivered to each of these tributaries.

The local drainage area contains provincially significant wetlands whose primary water supply is from capture of local runoff. The proposed quarry would alter the drainage areas to a number of these features. This was raised as an issue by JART in 2007. Golder Associates completed an assessment of the potential impacts that the reduction in drainage area would have[10]. The conclusions of this report suggest:

- The water table remains below the ground surface for all areas (except the southern wetland);
- The overburden soils in the area of the extension are primarily fine grained (low permeability); and
- Groundwater represents a small input to the wetlands (i.e. less than 3% annually) and upward seepage is insignificant.

[10] *Golder Associates, September 2007, Report on Monthly Water Budgets for individual wetland areas*

The report evaluated not only the reduction in flow contribution but also the effects of storage and evapotranspiration within each wetland. The report indicates that the general effect of the flow reduction is an earlier drying of the wetland during the spring/summer and a delayed filling in the early fall. The potential impacts of this effect have been addressed within the Natural Heritage section of this report.

6.3 Water Balance

Golder Associates has completed a water balance and assessment of surface water flows for the proposed quarry (ref. Attachments B and C - Addendum Report on Water Resources Impact Assessment & Contingency Design Update, Golder Associates January 2008). In addition to those analyses, Golder Associates also developed water balance analyses for the local wetland areas as noted in the preceding section.

The water balance is based upon an estimated long-term average precipitation of about 910 mm per year. Infiltration has been estimated to be approximately 170 mm/year and evapotranspiration rates of 560 mm/year for typical land areas adjacent to the proposed quarry. Evapotranspiration rates for bare quarry rock have been estimated to be 300 mm/year and evaporation from lake areas is estimated to be 650 mm/year.

The water balance analysis was developed for the existing and proposed quarry drainage areas and included results for each subcatchment area affected by the extension. The analysis also included evaluation of the water balance for each phase of quarrying and various stages of rehabilitation. The phasing of extraction in the proposed quarry lands could occur over a period of approximately 14-16 years. Six Phases of extraction have been identified and assessed within the water balance calculations.

The water balance calculations also provided an assessment of the annual flow volume differences that would be anticipated to occur at various points in the receiving watercourses. These differences in annual volume are provided in Table 6.1 below and the locations are illustrated on Figure 5.6 in Section 5.

Table 6.1 Summary of Differences in Average Annual Flows

Changes to Average Annual Watercourse Flows Source - Table C.7c, Golder Associates Addendum Report 2008				
Location	Change in Annual flow Volume (%)			
	Existing	All phases of Extension	During Lake filling (Rehab 50% flooded)	Completed Rehabilitation conditions (Rehab 100% flooded)
Bronte Creek Willoughby Creek at Colling Road	N/A	-6%	-48%	5%
Bronte Creek Willoughby Creek at Britannia Road	N/A	-2%	-11%	4%
Grindstone Mount Nemo West Branch (West Arm) @ No 2. Sideroad	N/A	-12%	-100%	-100%
Grindstone Mount Nemo West Branch (West Arm) @ Extension Quarry West Boundary	N/A	49%	-83%	-67%
Grindstone Mount Nemo West Branch (East Arm) @ Harmer Pond	N/A	-21%	-21%	-21%
Grindstone Mount Nemo West Branch (West and East Arm)	N/A	18%	-59%	-44%
Grindstone Medad Tributary @ Robson Rd.	N/A	-1%	0%	1%
Grindstone Mount Nemo East Branch	N/A	0%	0%	0%

The preceding results are based upon an assumption that during the lake filling period continued pumping from the existing quarry and proposed quarry will occur. However, at this time, a means to ensure that this assumption is implemented has not been confirmed.

The water balance analysis does not include an assessment of the change in flows relative to pre-quarry "natural" conditions; hence, this is unknown and the proposal cannot be evaluated relative to such conditions.

Based on water balance calculations, including an assumption that 50% of the surplus water is used for lake filling, Golder Associates has advised that both quarries would be expected to be filled within 40 years following the end of quarry extraction activities. However, JART has not been provided with a detailed year-by-year calculation to support the time line estimates that have been presented.

It should be also noted that for projects which are implemented over a long time period, there is potential that the implementation timelines for such projects may be affected by natural variability in precipitation, temperature and other meteorological parameters. Hence, it is important to consider not only the historic mean values, but also historic high and low trends in these parameters to ensure that the range in estimated timeframes is understood.

Nelson's consultants have therefore also completed a water balance based on a "Lower Bound" scenario. Under this scenario, precipitation has been reduced by approximately 7% and various evapotranspiration rates have been increased by 5-16% to represent the lower bounds that Golder has estimated for these parameters. This scenario has been suggested by Golder to simulate conditions of higher evapotranspiration and reduced rainfall similar to the some of the generally expected impacts of climate changes. Under the lower bound conditions the lake filling is projected to increase by 12 years to 52 years.

JART has received advice through discussion with an Environment Canada Senior Climate Scientist that assessment of the natural variability in meteorologic parameters is appropriate. An independent assessment may be accomplished by examining the meteorologic record and considering the 30-year high and 30-year low ranges in precipitation values. JART has undertaken a comparison of the 30-year trends for precipitation for Toronto Ontario for the period of 1850-2002 (data provided by MNR). The results of the this analysis indicate that the thirty year average low trend in precipitation (i.e. 772 mm/year for the period of 1929-1959, as compared to a mean annual precipitation of 813 mm/yr for the full period of record a difference of 5%) correlates well to the 7% reduction in precipitation values used in the lower bound case. Therefore the potential range of filling times provided by the lower bound scenario would appear to be a reasonable estimate of the impact of a 30-year low period in precipitation. Refer to Figure 6.2 on the following page for the long term precipitation data.

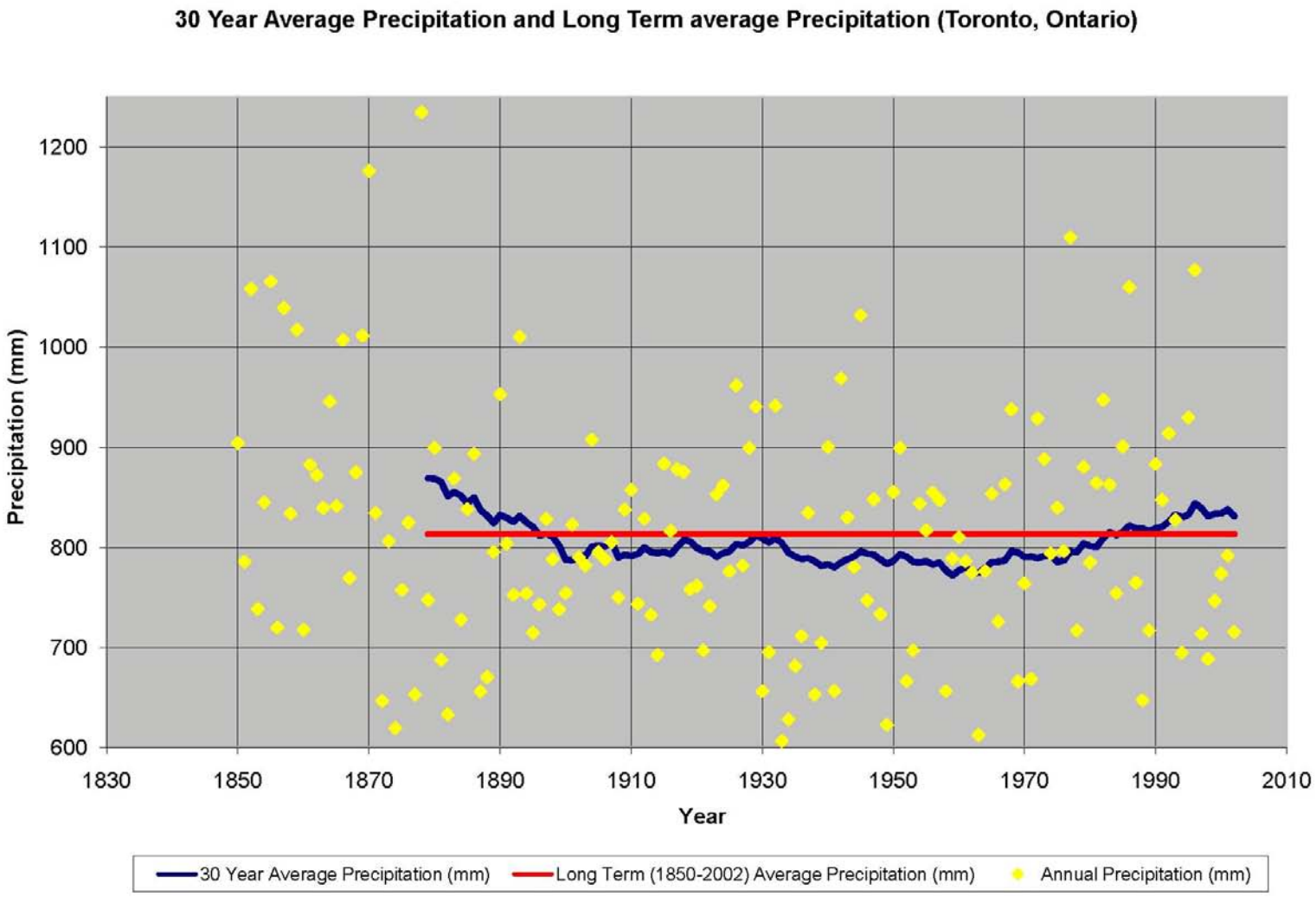


Figure 6.2 Long Term Precipitation Data

JART has also requested from Nelson that the potential impacts of climate change also be considered with respect to the proposal. It is necessary to examine the implications of climate change in addition to the historic variation in meteorologic parameters, because the change in climate may be beyond the historic values and trends. The informal response to this request merely use existing records to infer what might happen in the future. JART recommends that a water balance analysis be completed inclusive of both natural variability as well as the potential impact of climate change to meet the intent of the precautionary principle referenced in the previous Section.

Golder Associates has presented its "lower bound" scenario to provide insight into the potential changes in lake filling timelines that may be expected based upon this set of assumptions. While this analysis is generally helpful in understanding the potential changes in the lake filling timeline under the presented scenario and may well address the potential fore natural variability, it has not specifically referenced or addressed the current range of predicted impacts due to climate change as outlined in the currently available climate models. It is also unclear whether the water balance calculations provide any type of contingency regarding the uncertainty of the other water balance parameters and model assumptions, beyond those noted in the "lower bound" scenario.

6.4 Impacts to Private Wells

The development of the existing Nelson Quarry has affected private wells in its vicinity, and it is predicted by Nelson's consultant that the proposed quarry will extend the effects. The evaluation of conditions at private wells and predictions of potential effects is therefore an important element of the evaluation of the proposed quarry. (see Figure 6.3)

A review of private well conditions is presented in Appendix G of the Golder Associates October 2004 report. Key findings from this review are summarized below:

- In 1985-1986, Golder Associates undertook a review of groundwater conditions in the vicinity of the existing quarry. The review indicated that the quarry had interfered with water wells in the past, and identified wells that would be at risk due to expansion of the existing quarry;
- In 1989, Golder Associates conducted follow-up evaluations. The results of the 1989 evaluation indicated that all wells located within 220 m should not experience a change in risk category. It was recommended that no deepening of the existing quarry be considered within 200 m of private wells;
- A mail-in survey of private wells in the vicinity of the proposed quarry was undertaken. A total of 85 surveys were delivered, and 22 surveys were completed; and
- Hydrographs were presented for 9 private wells, for the period of January 1987 through December 2003. Long-term declining trends are indicated in 4 of the 9 wells.

The peer review of the 2004 report, undertaken by S.S. Papadopulos & Associates, commented on the limited information provided on private wells. In particular, the peer review suggested that the 2004 report was missing a detailed discussion of historical impacts of the existing quarry on private wells. For example, no summary was presented of well interference complaints and responses.

The Nelson responses to the peer review comments dated September 23, 2005 included the following additional information:

- The Permit-To-Take-Water for the existing quarry that is administered by the Ministry of Environment does not have any site-specific requirements regarding well interference. It also does not require groundwater and surface water monitoring programs; (Note: JART does not have a copy of the Permit to confirm this statement);
- Nelson has historically addressed well interference issues associated with the existing quarry by deepening wells or adding cisterns to the affected properties. There have not been a large number of complaints associated with the existing quarry, and Nelson has addressed them; and
- The proposed quarry will require mitigation to protect surrounding wells, and a comprehensive groundwater monitoring program is proposed to be in place to assess any effects on wells as the quarry expands.

It was also indicated in the responses to the peer review that a detailed well survey within 1 km of the site would be conducted as part of the groundwater monitoring program in the Adaptive Management Plan (AMP).

While Nelson has provided the above responses, JART does not have the information to verify and/or accept the statements pertaining to the Permit to Take Water and well complaints. In the peer review follow-up to the responses to the peer review comments it was recommended that Nelson provide a detailed discussion of whether historical operations have had any negative consequences for private wells[11].

In the peer review of the report "Additional Hydrogeologic Field Studies at the Proposed Nelson Quarry Co. Extension" (Golder Associates, April 13, 2006), the recommendation that Nelson provide a historical review of claims of impacts arising from the existing operations was re-iterated. As a starting point, it was recommended that a compilation be prepared of complaints received and the remedial measures taken[12].

[11] Letter from S.S. Papadopulos & Associates, Inc. to Helma Geerts, November 3, 2005: Section 1, Comments #8 and #10

[12] Letter from S.S. Papadopulos & Associates, Inc. to Helma Geerts, May 17, 2006

In response to the peer review recommendations, Golder Associates prepared a summary of private well complaints near the existing Nelson quarry [13].

The summary included the following information:

- Nelson Aggregate Co. acquired the quarry in 1983. Historical information prior to 1983 is limited;
- Approximately 16 to 23 wells were deepened between 1979 and 1981, as the quarry advanced into the southeast corner. A cistern was installed in one of the wells in 1999;
- In 2003, three homes on the south side of No. 2 Side Road reported a loss of water in their wells. An investigation by Golder Associates indicated that the wells had been affected by quarry operations and cisterns were installed. Nelson subsequently acquired the properties; and
- Complaints received in February 2004, October 2005, December 2005, and March 2006 were found to be due to mechanical or operating problems, and not quarry impacts.

Nelson conducted a survey of private wells in December 2005 and June 2006. Information was collected by Tom Palko, Nelson Property Manager, and observed on behalf of JART by Norbert Woerns. The only information on the well survey is a letter that Mr. Woerns transmitted to Mr. Palko on June 6, 2006 (copied to Helma Geerts, Region of Halton, former chair of JART). Key aspects of the survey included:

- 45 residences were visited;
- Information was provided on the private wells at all 45 residences; and
- Water levels in the wells and the UTM coordinates were recorded at 30 of the residences.

Golder Associates presented an updated evaluation of the potential effects of the completion of the existing quarry and development of the proposed quarry on private wells in Section 4.1.2 of Version 1 of the draft "Report on an Adaptive Management Plan" (January 2008).

It should be noted that 6 wells are predicted to be affected sufficiently by further extraction at the existing quarry that they will either be replaced or otherwise augmented by Nelson to meet the requirements of the Permit to Take Water of the existing quarry. These wells are located close to the intersection of Guelph Line and No. 2 Side Road. (see Figure 6.4)

[13] Response to Peer Review Comments on Additional Hydrogeologic Field Studies at the Proposed Nelson Quarry Extension, August 17, 2006, Appendix E

Figure 6.3 Private Well Locations and Water Column Height at Full Extraction of Existing Quarry (Source: Figures 4.1 Version 1 of the draft *Report on an Adaptive Management Plan,* January 2008).

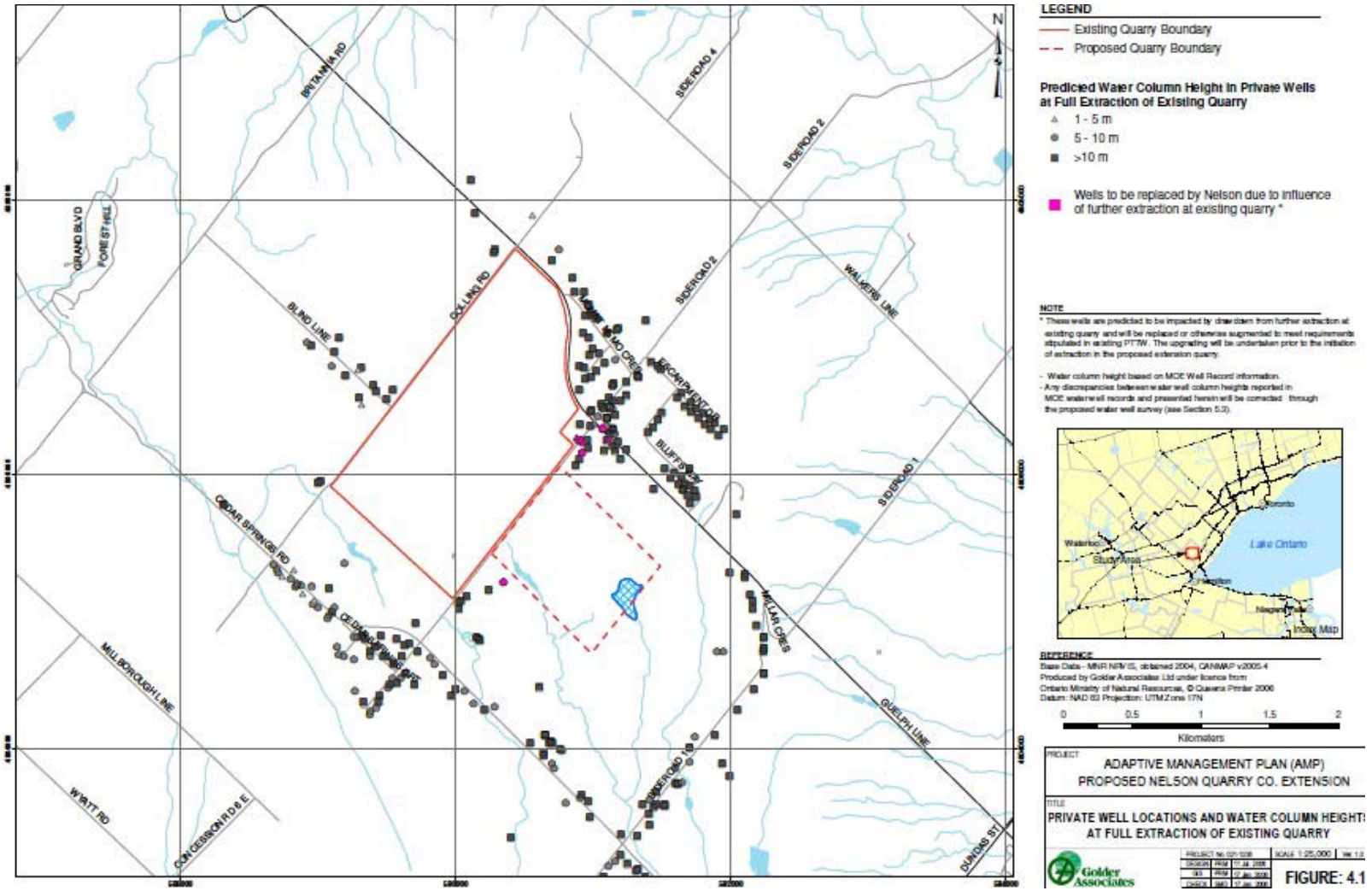
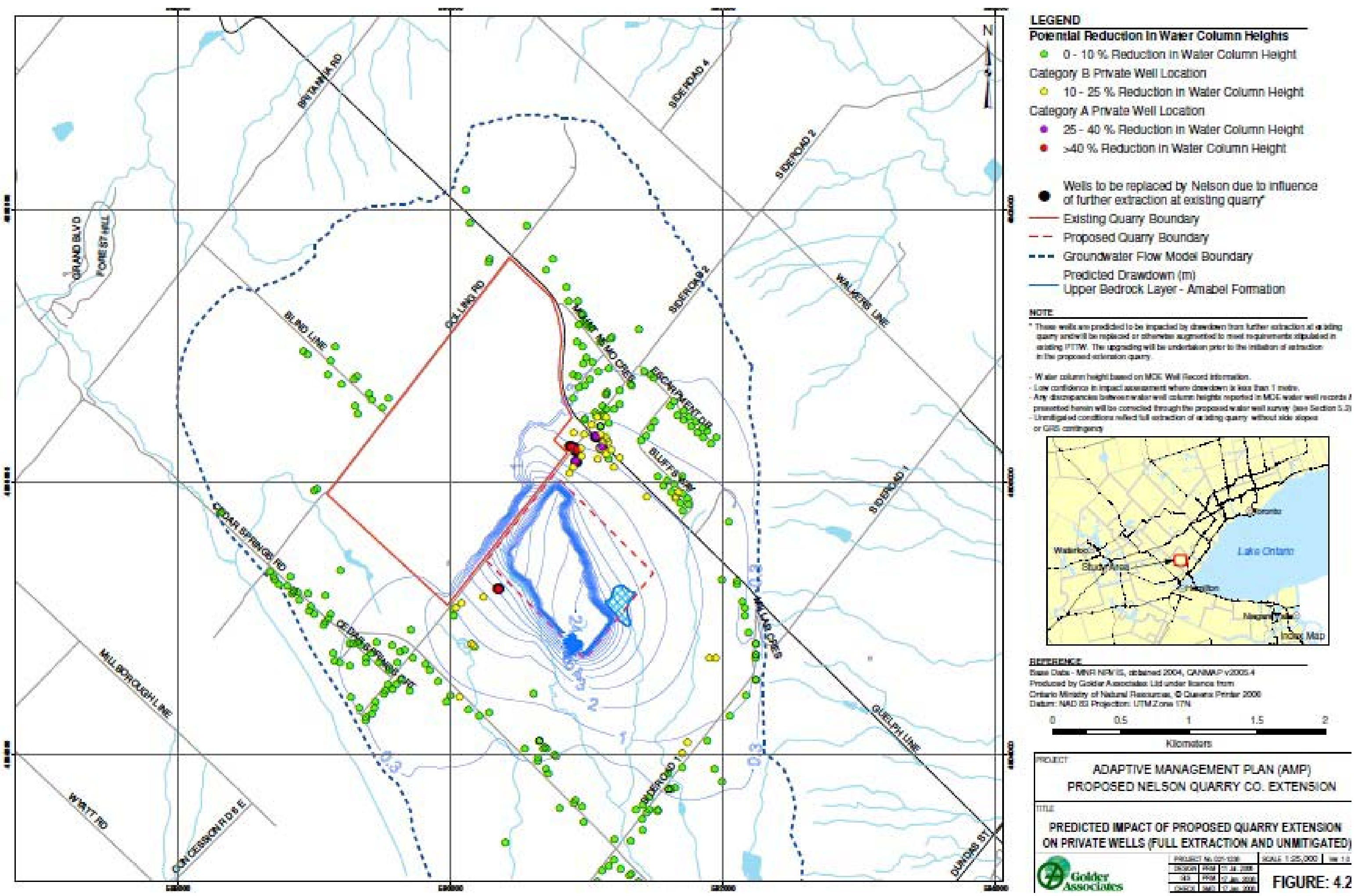


Figure 6.4 Predicted Impact of Proposed Quarry Extension on Private Wells (Full Extraction and Unmitigated)
(Source: Figures 4.2 Version 1 of the draft *Report on an Adaptive Management Plan,* January 2008)



Predictions of the potential impacts of the proposed quarry were updated to reflect the revised quarry footprint and staging of quarry development. However, no new data on private wells were presented relative to the 2004 report, and the update did not include any of the information collected during the 2005-2006 private well survey.

The results of the updated evaluation of the potential effects on private wells were presented in terms of relative changes in the water column heights in the wells. The predicted change in the water column at each location was expressed as a percentage of the water column for full extraction of the existing quarry (as opposed to current conditions). For similar magnitudes of predicted water level declines, lower relative impacts are reported for deeper wells with longer water columns than for shallow wells.

Predicted impacts on private wells from the proposed quarry were grouped into four levels. The results of the assessment were presented on Table A-3 of Attachment A of the "Addendum Report on Water Resources Impact Assessment & Contingency Design Update" (Golder Associates, January 2008). The results are reproduced on Table 6.2.

Table 6.2 Impacts on Private Wells

Potential reduction in water column height (%)	Number of wells affected under full extraction of the proposed quarry (no mitigation)
< 10	**123**
10 – 25	**99**
25 – 40	**58**
> 40	**6**
TOTAL	**286**

The 2008 Addendum Report also indicated that private wells that would have greater than 25% relative reduction of the water column height would be augmented by Nelson under the current water well response program.

It should be noted that the new quarry would extend the operational life of the existing quarry, thereby postponing the filling and rehabilitation which in turn could delay the recovery of the local water table adjacent to the existing quarry and related effects on private wells.

JART recognizes the distinction between capture zone and zone of influence. A capture zone is the projection onto the ground surface of the volume through which water travels on its way to a discharge feature (e.g. a well, quarry, stream). In the case of the existing quarry it represents the area through which groundwater travels on its way to the quarry. In contrast, the zone of influence is the area that experiences a decline in water levels caused by quarry operations. In an area in which there is a decline in water levels the groundwater may still discharge to the quarry. Generally the zone of influence is of greater relevance. It will always be larger than the capture zone. Unfortunately Golder does not have an estimate of the zone of influence for the existing quarry as the water levels before quarrying began in the 1950's are unknown. The map included on the following page identifies the capture zone of the existing quarry and zone of influence for the proposed quarry, in relationship to the locations of existing private wells. (see Figure 6.5)

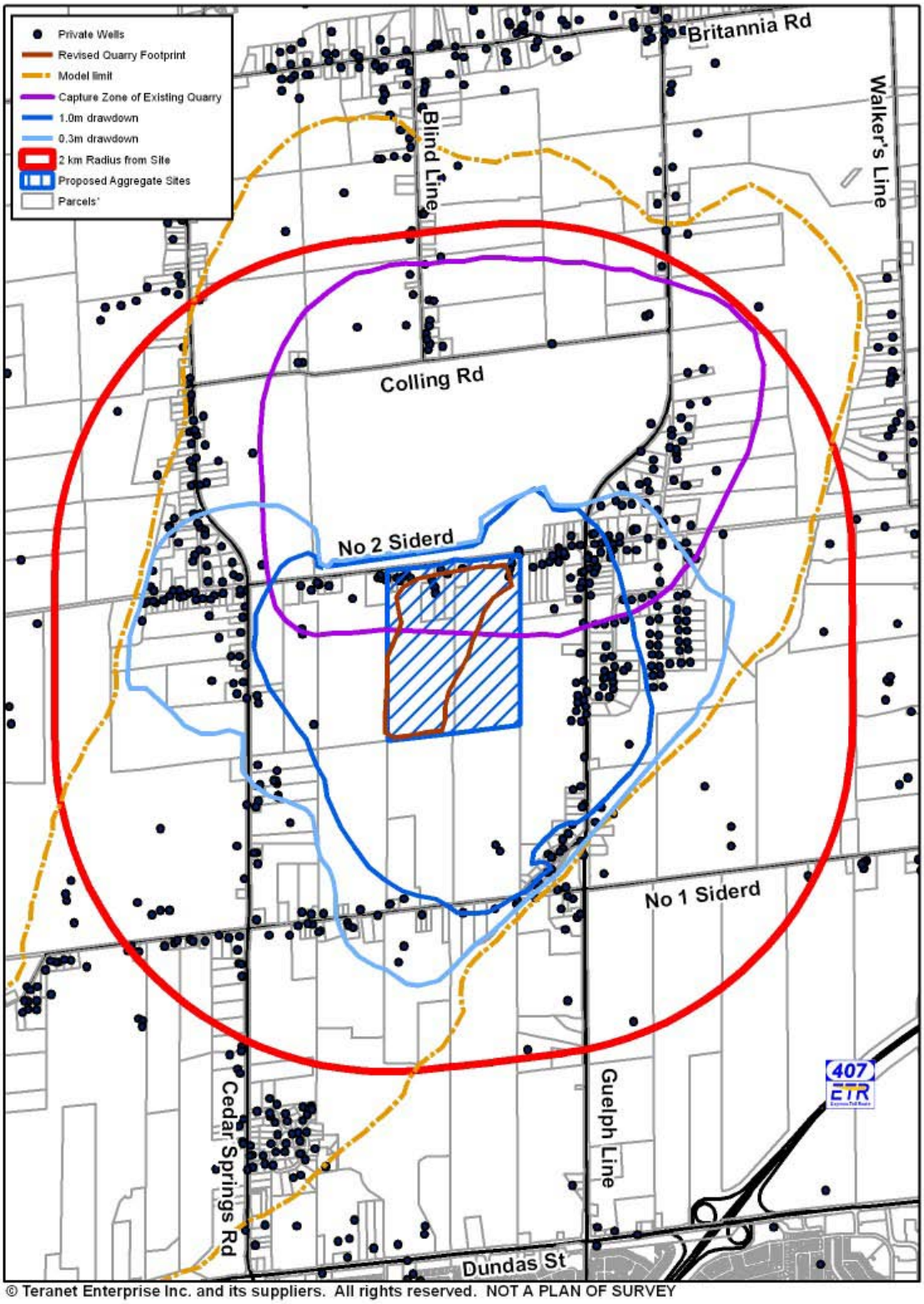


Figure 6.5 Capture Zone of Existing Quarry and Zone of Influence of the Proposed Quarry in Relationship to the Locations of Existing Private Wells

JART has identified the following issues rising from the updated evaluation of potential impacts to private wells:

- The evaluation does not incorporate the most recent data available on private wells in the vicinity of the proposed quarry.
- Information as presented does not allow more specific evaluation on the part of JART of potential impacts to specific individual wells.
- The evaluation does not indicate whether a reduction of 10% at any of locations could result in the supply becoming inadequate for its intended purpose. The 1996 MOE Technical Guideline for Private Wells, Procedure D-5-5 indicates the required flows should be 450 litres per person per day and a minimum of 13.7 litres per minute pumping capability for normal domestic demands. Nelson has not indicated if any of the 123 existing wells experiencing the less than 10% impact, meet these standards and whether reduction in the water column height would cause them to not meet the standards.
- The evaluation does not address whether the private wells with predicted impacts of 10% or less would be subject to a change in water quality.
- At locations where impacts are predicted to be of sufficient magnitude to require mitigation, it is not indicated whether it is feasible to deepen wells;
- The evaluation does not indicate whether all of the private wells are for domestic water supply, or whether some of the private wells are for other purposes, for example agricultural use. The evaluation does not indicate whether Nelson is prepared to mitigate impacts to non-domestic well supplies. As well, it is not clear whether future well installation has been taken into consideration.
- In general, JART has a lack of confidence that deepening of wells can be depended on as a universal remedy for either water quantity or quality.
- With respect to water quantity, it is Regional policy that urban services are not available to areas outside the urban boundary. MOE does not support long-term water trucking. In light of this, the mitigative measures for affected wells are somewhat limited and need to be expanded by Nelson in a full scale mitigation program, as at this time JART is not aware of other proven remedies.
- The Nelson reports do make reference to water quality; however, assurances on maintaining the existing quality have not been provided. A comprehensive mitigative program, with a focus on water quality, must be prepared prior to any potential approval of the applications.
- Nelson has predicted that some wells will be affected by the proposed new quarry. Unless it is clearly demonstrated that these impacted wells will have appropriate mitigative measures, i.e. ensuring that these wells meet provincial standards, this is an unacceptable situation.

The points of concern identified within this Section are significant. The number of wells in this area is comparable to a local community such as Kilbride and well impacts cannot be taken lightly. Further discussion regarding Water Resources, in particular potential impacts on private wells, is included in the AMP section of this report.

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Karst Assessment

7. Karst Assessment

In undertaking hydrogeological studies in carbonate rocks, the presence and nature of karst must be evaluated to fully characterize groundwater flow regimes. This characterization is essential to support reliable predictions of potential impacts of proposed developments.

The original hydrogeological assessment of the proposed extension included only a limited assessment of karst (Golder Associates, October 2004). In response to comments from JART and its consultants, including karst expert Daryl Cowell (Daryl W. Cowell and Associates Inc.), significant additional investigations were conducted.

The conclusion derived from the applicant's additional investigations is that karst features are present adjacent to the lands of the proposed new quarry, but that the presence of these features will not affect significantly the impacts that the proposed new quarry would have on water resources in the area, particularly given proposed mitigation and monitoring measures.

This summary has been prepared to provide an overview of the main findings from the karst peer review and assessment. A listing of reports related to karst is included in Appendix E.

Hydrogeological and Water Resources Assessment of the Proposed New Quarry (Golder Associates, October 2004)

A limited assessment of karst features at the proposed new quarry was reported in Golder Associates (2004). Details of the karst assessment were presented in Appendix A, Section A5.0. Geophysical testing was conducted around the east, south and west sides of the proposed extension to assess the potential presence of significant karst [electrical resistivity imaging]. Two areas of low resistivity were noted. The results of follow-up investigations, including borehole observations, indicated that significant karst is not present at new quarry property boundary. Hydrogeological investigations indicated that the upper bedrock is generally more permeable due to solution weathering. Observation of the face of the existing quarry has indicated minor solution weathering, but no significant karst features. During the examination of the existing quarry, shallow karst features were noted on the quarry floor but were not observed on the quarry walls.

The results of the assessment suggested that karst features may not be significant at the site (Page 7 of the main report).

Hydrogeologic Peer Review (S.S. Papadopulos & Associates, Inc., Norbert Woerns and Daryl W. Cowell & Associates, Inc., May 2005)

As part of the peer review team, Mr. Cowell prepared a review of the karst characterization and concluded that the potential for karst development had not been investigated or interpreted adequately. In particular, the peer review recommended that focus be directed towards characterizing the connection between the quarry and significant recharge/discharge areas that may indicate localized increases in the hydraulic conductivity of the Amabel Formation that may be related to dissolution process.

Golder Associates (2005) provided detailed and comprehensive responses to the peer review comments on the karst assessment. They recognized that karst-like features could be encountered in the proposed new quarry during extraction. They further indicated that the potential presence of karst would need to continue to be assessed if the proposed new quarry proceeds, and that an Adaptive Management Plan (AMP) would be developed to mitigate the impacts of any unanticipated karstic conditions.

It was the opinion of Mr. Cowell that the AMP could address issues arising with respect to quarry operations, but additional characterization was required to address the potential impacts to regional water resources.

Following the initial peer review, Nelson engaged a karst expert, Dr. Stephen Worthington. A site visit was conducted on March 15, 2006, during which members of JART toured the proposed new quarry lands with representatives from Nelson and its consultants, including Dr. Worthington.

Following this site visit, Mr. Cowell prepared a report in which he outlined the field studies and ongoing monitoring that should be undertaken to address fully any outstanding karst issues.[14]

Karst Investigations at the Proposed New Quarry (S.R.H. Worthington, April 13, 2006)

Dr. Worthington conducted an extensive field investigation to address the potential effects of karst formation in the Amabel Formation. These investigations included:

- Examination of the walls of the existing quarry;
- Tracer testing between wells and from a sinking stream to nearby springs;
- Survey of karst features on and around the extension lands;
- Survey of springs in Medad Valley; and
- Measurement of water levels at a spring to confirm a postulated sink-to-spring connection.

The results from the investigations are summarized briefly below:

- Examination of the walls of the existing quarry confirmed that there is preferential flow in the Amabel Formation along channels, and that there are many such channels. The apertures of these channels are likely to be predominantly in the millimetre range.
- A sink-to-spring feature was observed along the East Arm of the West Branch of Mount Nemo tributary. With the exception of this feature, Dr. Worthington indicated that there is a "notable absence of surface karst features in or adjacent to the extension area".

[14] D. Cowell, 2006, Report on the *Karst Site Visit, Nelson Aggregates Proposed South Quarry Extension*).

- Water level recording at a spring along Cedar Springs Road confirmed a karstic connection to a sinking stream located west of the existing quarry (tributary of Willoughby Creek) that was fed by water pumped from the quarry sump; furthermore water chemistry suggested that the sinkholes were also connected to a second spring in the Medad Valley.
- Dr. Worthington indicated that the presence of a large number of springs along Medad Valley suggested the flow in the Mount Nemo plateau is organized into a substantial number of small karstic groundwater basins of varying sizes. Based on his review of water level data, he suggested that no major conduit is present in the extension area.
- The results of tracer testing conducted in conjunction with the repeat pumping test at PW-1 indicated efficient connections between the pumping well and five of six injection locations.
- Fluorescent dye was injected into the sinking stream on the East Arm of the West Branch of Mount Nemo tributary. The dye discharged to springs 162 m away, with a travel time of about 2 hours. Dr. Worthington noted that there were several sinkpoints and springs, and that flow between them was likely to be through several conduits in the shallow weathered bedrock.

Based on the results of the investigations, Dr. Worthington concluded that flow in the bedrock in the extension lands is predominantly through small solutionally-enlarged fractures or channels that have apertures in the millimetre to centimetre range. He also concluded that conduits greater than 10 cm in size are more likely to be found close to the margins of the Mount Nemo plateau, rather than its center where the proposed new quarry lands are located.

Peer Review of Karst Investigations at the Proposed New Quarry (Daryl W. Cowell & Associates, Inc., May 2006)

Mr. Cowell indicated that he found the karst investigations conducted by Dr. Worthington to be of high technical competence and that many of the conclusions were supported by the results obtained. However, he noted some reservations relating to the extent of ground and air photo surveys in the area outside of the proposed new quarry and questioned the conclusions relating to potential impacts due to groundwater drawdown beyond the proposed new quarry lands on springs located in the Medad Valley. Mr. Cowell also identified the need to monitor flow in selected springs feeding the Medad Valley during quarry operation and rehabilitation.

In response to the peer review comments, Dr. Worthington indicated that access constrained the extent of ground surveys. Access was granted to certain properties, but not other adjacent properties. For the sites where ground access was not available, the significance of karst features was assessed from air photos. Dr. Worthington concluded that any karst conduits along the West Arm of the West Branch of the Mount Nemo tributary are "almost certainly" located in the uppermost bedrock. No major karst features were noted away from the creeks.

In his response to the peer review comments, Dr. Worthington also noted that monitoring of the largest springs in Medad Valley for basic chemistry and flow will be carried out as part of the AMP. This monitoring will serve to identify any significant creek-bed losses.

Dr. Worthington has concluded that based on his investigations at the site and his knowledge of the area, karstic features on the proposed new quarry lands will not affect significantly the proposed quarry plan and mitigation proposals that are being developed[15]. All karst conduits found to date at the proposed quarry site are small in size.

Mr. Cowell has confirmed that the level of understanding with respect to karst features is sufficient to proceed with the quarry applications, "provided the karst receives further consideration under the AMP".[16]

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[15] S. Worthington, Response to comments on karst by Daryl Cowell and Helma Geerts, E-mail to S. McFarland, Golder Associates, October 7, 2006

[16] Daryl W. Cowell & Associates, Inc., 2006: Worthington Peer Review Response on Karst Investigations at the Proposed Nelson Quarry Co. Extension, Transmitted via e-mail to Helma Geerts, Regional Municipality of Halton, September 6, 2006

Archaeology

8. Archaeology

The *Planning Act* states that any agency carrying out their responsibilities under this Act shall have regard to matters of provincial interest including the conservation of features of significant architectural, cultural, historical, archaeological or scientific interest (Part I, 2.(d)).

As a condition of approval for development or site alteration of areas of archaeological potential, a municipality or approval authority will require a proponent to undertake an archaeological assessment. There are four stages of archaeological fieldwork, moving from identification of areas of archaeological potential and archaeological resources to assessment of their significance. The final stage is mitigation of significant archaeological resources.

While archaeological resources contribute to the record of Ontario's past, to be "significant" they must be "valued for the important contribution they make to our understanding of the history of a place, an event or a people" (PPS, 2005). The Ministry of Culture's Standards and Guidelines for Consultant Archaeologists uses the term "heritage value", as found in the *Ontario Heritage Act*, to express similar concepts. The level of significance of an archaeological resource may influence how it is to be mitigated from development and site alteration, either by removal and documentation or preservation on site.

The Ministry of Culture reviewed the reports prepared by Archaeologix Inc. for Nelson, for Stages 1, 2, 3 and 4 assessment of the subject property including:

- Archaeological Assessment (Stages 1, 2 & 3) Nelson Aggregates Quarry Expansion, August 2003.
- Archaeological Assessment (Stage 4) Nelson Aggregates Quarry Expansion, August 2004.

Stages 1-3 reports noted that five as yet undocumented archaeological sites were identified on the subject parcel. A Stage 3 assessment was recommended for three of those sites (Locations 1, 2 and 4) to further evaluate their significance and information potential. The Stage 3 testing resulted in the recovery of pre-contact Aboriginal cultural material which warranted a Stage 4 investigation.

The Stage 4 assessment of Location 1 resulted in the documentation of a historic Neutral period cabin site, circa 1600-1650 A.D. The Neutrals, an Iroquoian group, occupied the Niagara Peninsula as far north as Milton, as far west as Brantford and across the Niagara River into New York state. The Neutrals were also a confederacy of between eight and eleven tribes with a total population of as many as 40,000 people, living in as many as 30 villages plus some hamlets (reference the Ontario Archaeological Society – www.ontarioarchaeology.on.ca/summary/contact.htm).

The Stage 4 assessment of Location 2 resulted in the documentation of another small aboriginal cabin site or small hamlet. The artifacts recovered suggested an occupation during the same historic Neutral period as Location 1. The Stage 4 assessment of Location 4 resulted in the documentation of a small area of Aboriginal activity dated to the same historic Neutral period.

The reports outlined the mitigation process and concluded that there was no longer a planning concern with respect to the site. The Ministry of Culture concurred with that assessment.

In a letter dated November 19, 2004, the Ministry of Culture, as per Section 48 (1) of the *Ontario Heritage Act* and Ontario Regulation 170/4, confirmed that they had no further concerns for the archaeological sites documented within the subject property.

JART accepts the sign-off by the Ministry of Culture with respect to the archaeological investigation.

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Agriculture

9. Agriculture

A portion of the proposed new quarry property is actively farmed. The soil types on the subject property are primarily Canada Land Inventory classes 1A and 1B (As noted on Regional Map "Soils of Halton County") . The property itself and surrounding properties are considered prime agricultural land. There are a number of active farms around the proposed quarry site which have been in operation for many decades.

As noted in the "Planning Report and Aggregate Resources Act Summary Statement"(October 2004) submitted by MHBC on Nelson's behalf, the subject area contains a substantial quantity of high quality aggregate below the water table and rehabilitation back to agriculture is unfeasible. The PPS notes that, in prime agricultural areas, on prime agricultural land, extraction of mineral aggregate resources is permitted as an interim use provided that rehabilitation of the site will be carried out. Complete agricultural rehabilitation is not required due to the amount of aggregate below the water table (PPS 2005 Section 2.5.4.1)

An Agricultural Impact Assessment (AIA) is required by Halton Region, as per Regional Official Plan Policy 101(2)e): "Require the proponent of any non-farm land use that is permitted by specific *policies of* this Plan but has a potential impact on adjacent *agricultural operations to* carry out an Agricultural Impact Assessment (AIA), based on guidelines adopted by Regional Council."

It was not part of the original application but, in response to JART's request, an AIA was submitted by Nelson entitled "Burlington Quarry Extension Agricultural Impact Assessment – MHBC Planning" in support of its application. The AIA was reviewed and comments dated September 26th, 2006 were prepared by Region of Halton staff, with input from City of Burlington and Niagara Escarpment Commission staff, as well as the Halton Agricultural Advisory Committee (HAAC).

Following review of the AIA and HAAC sub-committee visit to the proposed quarry site, HAAC advised Regional Council that in its opinion, the AIA properly characterizes agriculture in the area, including livestock operations. However, they expressed concern over the loss of excellent agricultural land and impact on local wells. On this basis, HAAC recommended against approval of the quarry to Regional Council.

Nelson's AIA and response to comments on the AIA collectively meet JART's requirements. The Ministry of Agriculture, Food and Rural Affairs (OMAFRA) has no further comments or concerns regarding the approval of the application. OMAFRA also notes that there may be planning concerns or interests of other agencies that should be regarded, in addition to any municipal planning considerations. Comments from OMAFRA are noted within a letter dated December 1, 2008.

Items relating to water resources have been considered as part of the review of the Water Resources and Adaptive Management Plan sections of this report. It is unclear as to whether farm wells are being considered for mitigation in the Nelson analysis.

JART acknowledges the sign-off of OMAFRA with respect to the loss of prime agricultural land, if the applications are approved but farm well impacts must be addressed in an Adaptive Management Plan.

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Traffic

10. Traffic

Traffic Impact Study

The Traffic Impact Study for the Nelson applications was prepared by Paradigm Transportation Solutions Ltd., dated December 2004 and updated June 2005. Traffic issues were reviewed by Regional and City of Burlington staff dealing with Guelph Line (Regional Road 1) and No. 2 Side Road respectively.

Traffic – Link between Existing and Proposed Quarries

Nelson is proposing to extract aggregate on the south side of No. 2 Side Road, and then transport it to the existing quarry on the north side of No. 2 Side Road for processing and stockpiling. The haul route proposed for the new quarry would remain the same as that of the existing route and is noted on the following "Haul Route Map"

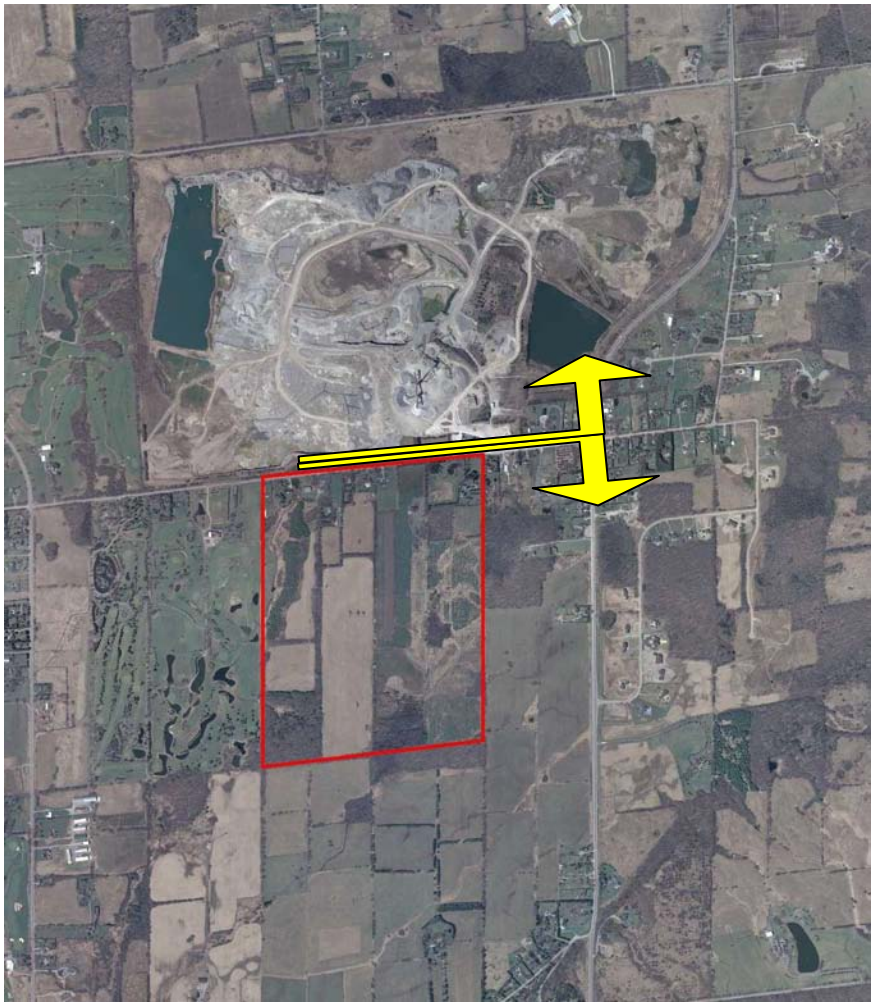

Figure 10.1 Existing and Proposed Quarry Haul Routes

Aggregate haul trucks will also enter and exit the existing quarry off No. 2 Side Road. The crossing between the existing and proposed quarry site is proposed to be at-grade, approximately 390 metres to the west of the existing quarry's truck entrance, with a flagman regulating traffic in/out of the quarries. The expected crossing volume on No. 2 Side Road was not given and should be provided by Nelson.

The numbers of trucks that will be using Guelph Line in conjunction with the proposed quarry would remain close to the same as existing levels according to Nelson. Guelph Line is a Regional road and, therefore, was built to accommodate truck traffic. The Region of Halton was reconstructed Guelph Line in 2002 just north of Dundas Street (Regional Road 5) to improve the approaching sight lines through a knoll reduction. The existing southbound sight lines approaching the Dundas Street intersection are at least 400 metres and are considered more than adequate based on provincial standards (Transportation Association of Canada (TAC)). In addition, Guelph Line has been adequately maintained and is not in need of any major repairs or upgrades.

Letters from Golder Associates Ltd. and Associated Engineering on behalf of Nelson indicate that a 20 metre wide excavation is possible through No. 2 Side Road with the road maintained by a bridge during operation of the existing and proposed new quarries. At this stage, JART has not received detailed information on the feasibility of developing the tunnel or bridge. The Site Plan for the existing quarry should be reviewed to determine if changes are required to link the two sites. Regardless of whether or not the bridge or tunnel is proposed, questions related to the stability of the rock pillar between the existing and proposed quarries will need to be addressed. JART also notes that other approvals may be required to permit the construction of a bridge if the quarry is approved (Class Environmental Assessment, agreement with the City of Burlington, amendment to the site plan etc).

Existing Traffic Counts, Future Traffic Numbers

JART requested actual traffic count data for the existing quarry. In response to this request, Nelson indicated that actual numbers were provided in the Paradigm report. However, Section 2.2 suggests that the numbers in the report are interpolations (as indicated by phrasing such as "estimated" and "typically") rather than actual counts.

Nelson has further stated that for the 12 month period commencing Feb. 2003, there were 79,682 trucks served, but a breakdown of this number is not provided. In terms of future traffic projections, Nelson has indicated that quarry traffic volume will remain unchanged due to the fact that production capability of the processing plant limits quarry traffic. However, as the proposal includes an unlimited tonnage condition and importation of fill for rehabilitation, traffic could be expected to increase.

JART reiterates its requirement for actual counts rather than estimates or summaries. Raw data should be included in an addendum so that traffic flows can be better understood. Data is required on future traffic (background) and realistic quarry traffic over the life of the quarry plus during the period when fill is imported. Peak traffic that can be accommodated at the site should be confirmed. Further, data is required on traffic flow to/from and between the existing and proposed quarry sites, within the context of non-quarry traffic using No. 2 Side Road.

Truck Idling

Residents have expressed concerns that trucks arrive at or near the existing quarry prior to its 6:00 a.m. opening and remain idling until they can enter the site (on the shoulder of Guelph Line or 2 Side Road). Idling concerns include both nuisance impacts (noise and dust) and air emissions. The applicant must develop mitigation (e.g. staging area) to control the idling of trucks, and describe this in an addendum to the traffic report.

All on-site truck movements should also be factored into the noise and dust studies and mitigation plans.

Safety Issues

Numerous comments have been received from members of the public regarding existing truck safety issues. As well, concerns raised by citizens, as noted in Appendix C, living in the area pertaining to the proposed new quarry include:

- Stopping distances for large trucks
- Damage to roads caused by trucks
- Excessive speeds by trucks
- Idling/standing/stopping

The Region continuously examines the potential for safety improvements on Guelph Line. JART has been provided with Regional accident data and it cannot be determined that these statistics differ from other Regional roads.

While JART understands that Nelson is not wholly responsible for the safe driving practices of those not within its employ, nonetheless there is a corporate obligation for Nelson to make assurances as to how truck safety improvements could be addressed. JART's expectations would include a commitment by Nelson to monitoring and enforcing safe driving practices for Nelson employees and those truck operators engaged through contract.

For example, Nelson's offer to form a Community Liaison Committee could incorporate ongoing discussions regarding truck traffic safety as part of its mandate. JART supports Nelson's invitation to the community to form such an interactive Committee. The committee's expertise could be augmented with representation by the Region of Halton Traffic Operations and Safety Analyst as well as the Halton Regional Police Service.

Through this dialogue, communication strategies could also be developed to remind the community of their obligation to report traffic infractions when witnessed directly. Excessive speeding is a law enforcement issue. The Region will ask for Police comments in this regard through the Regional Official Plan Amendment process. The Idling By-law in place is administered by City of Burlington and reminders on infraction reporting could be circulated throughout the community.

As well, Nelson could undertake to review it's contractual arrangements with outsourced truck operators to identify that unsafe driving practices will result in a default of their contract (as is currently the practice with some other aggregate firms).

Revised Study

The Paradigm report touches on sight line issues related to the westbound approach of No. 2 Side Road at Guelph Line. This approach is not related to the truck route of Nelson Quarry and further, actual measurements were not completed in the field to substantiate such a statement.

The relationship with "trips" vs "inbound and outbound" trucks must be clearly defined in the traffic study. Both are referenced in the traffic study and it is misleading and confusing to the end result of how many trucks are inbound and outbound per day, per month and per year.

The study needs more detail in regards to the amount of future truck traffic (background) which will occur and the specific overall increase to the area roads and intersections.

Subsequent to the preparation of the Paradigm report, the City of Burlington prohibited truck traffic on Cedar Springs Road. Therefore the traffic impact study needs to be updated to reflect this change based on actual traffic counts.

In order to properly identify traffic patterns and volumes from the proposed quarry and their impact on local and Regional roads, and address idling and safety issues, an updated report should be submitted using 2008 data with actual traffic counts, prior to the commencement of the Joint Board Hearing.

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Noise, Air Quality & Blasting

11. Noise, Air Quality and Blasting

11.1 Noise

Aercoustics Engineering Ltd. (AEL) submitted a noise impact study on behalf of Nelson on May 31, 2004. Updated versions were submitted in August of 2005, May 2006, and January 2008. The purpose of the study and updates was to provide noise control recommendations that will satisfy the Ministry of the Environment (MOE) Noise Guidelines (NPC-205 and NPC-232). The former are guidelines for sound level limits for stationary sources in Class 1 & 2 areas (Urban) and the latter is for a Class 3 area (Rural). All documents were peer-reviewed on behalf of JART by Howe Gastmeier Chapnik Limited (HGC Engineering).

The adjacent lands to the proposed quarry include several residences and the Mount Nemo Nursing Home, as well a new residential subdivision to the east and northeast in the Mount Nemo settlement area. According to AEL, all are within the acoustic zone of influence of the proposed quarry.

The AEL 2004 study and updates established sound level limits for noise produced by the proposed quarry at the nearby residential receptors[17] based on the applicable MOE Noise Guidelines. Next, noise measurements were performed for the proposed quarry on these receptors and, where the predicted levels exceeded the guidelines, noise control measures were recommended by Nelson to bring them into compliance with the guidelines. Site operations including rock drilling, blasting, extraction and material transportation for processing at the existing quarry across the road were addressed by the study and updates.[18]

[17] Receptors R1 through to R7 were located in the closest proximity to both the existing quarry and proposed quarry along both sides of No. 2 Side Road east of the Guelph Line and along both sides of the Guelph Line to the south limit of the new residential subdivision. Receptors R8 through to R11 were located further south and then west along the north side of No. 1 Side Road. Receptors R12 and 13 were located along the east side of Cedar Springs Road about midway between No. 1 and No. 2 Side Roads. An additional receptor (R-14) was added on the site of the proposed quarry in the northeast corner in the 2005 update.

[18] For the purposes of the study, AEL made some assumptions, including that the same type/number of equipment will be used in the proposed quarry operation as is currently used in the existing quarry; there will be no increase in construction equipment but only a re-distribution of the same equipment to the south side of the road; haul routes will remain the same; and, truck traffic volume will not change significantly over current volumes. Noise impact calculations were based on established prediction methods.

AEL stated that ambient noise for residences on and close to No. 2 Side Road is dominated by man-made sound and include the existing quarry operations and traffic on No. 2 Side Road, Guelph Line and Cedar Springs Road. With the exception of Receptors R9 – 11, all receptors were noted as having background noise dominated by man-made sound. Applicable MOE sound level limits were considered to be those as defined by NPC-205. Sound level limits for Receptors R9 – 11 were defined by NPC-232. The MOE indicated[19] that new and existing sources of noise at the quarry should be considered in terms of their overall combined noise impacts, rather than treating the existing sources as part of the background sound levels.

AEL recommends that noise mitigation measures including the use of earth berms, acoustic fences, or a combination, should be incorporated by Nelson in the proposed quarry operation. Acoustic barriers, at various heights and lengths, may be constructed as part of the phasing of the quarry operations as needed. Equipment used in site preparation and other construction activities should also be required to satisfy the noise emissions levels of NPC-115, which is a Guideline relative to the use of construction equipment. Rock drilling should be limited to daytime hours between 7:00 a.m. and 7:00 p.m. These measures, if incorporated, are predicted to satisfy the applicable MOE sound level limits for the closest receptors (i.e. those exposed to man-made sound).

According to the March 25th, 2008 review by HGC Engineering, the AEL noise study and updates adequately addressed appropriate MOE Guidelines and prediction methods and provides appropriate recommendations for acoustical mitigation. However; HGC Engineering further recommends that the following should be included as conditions on an ARA Operational/Site Plan for enforcement through the MNR:

- the applicant shall maintain compliance with MOE Noise Guidelines; and,
- the applicant shall provide verification of compliance with those Guidelines through on-site noise monitoring and the preparation of acoustical audits.

Nelson has proposed to include AEL's acoustical recommendations on the revised ARA Site Plan dated January 11, 2008. JART also understands that the MNR would be willing to include the HGC Engineering recommendations as conditions on the ARA site plan. The matter of timing and frequency of the monitoring program and acoustical audits remains an issue to resolve. As well a question remains regarding the impacts of cumulative noise (i.e. the combined noise from existing and proposed operations).

11.2 Air Quality

A Technical report dealing with air quality entitled "Air Quality Assessment of the Nelson Quarry Co, Burlington Quarry Expansion", March 21st 2005 prepared by Golder Associates Ltd. (Golder) for Nelson identified, described and made recommendations on emission sources relative to best practices/standards. JART had the report peer-reviewed by AMEC Earth and Environmental.

[19] E-mail from Ian Greason, MOE, to Bill Gastmeier, HGC Engineering, dated November 2, 2006

Where appropriate, Golder proposed certain practices that Nelson should consider adopting to improve air quality as part of its existing operation. JART notes that Nelson has implemented some dust suppressant measures. For example, it has installed a truck washing station on the existing quarry site that cleans the truck tires as it leaves the site. It also has commissioned the use of a water tanker truck to wash down No. 2 Side Road from the quarry entrance to the Guelph Line.

There is little documentation, other than the Nelson September 20, 2006 response to AMEC, that commits Nelson to pro-active dust control. Nelson points out that visual monitoring of dust emissions provides the most effective and timely means of detection and treatment. However, AMEC advises that there are other proactive techniques that could also be considered such as Nelson monitoring weather conditions and adapting for and adjusting activities/mitigation accordingly in advance of an extreme weather event. A mitigation plan must address winter conditions when cold, dry and windy weather makes it impractical to administer the use of water as a traditional dust control suppressant. These details would be essential to a Best Management Practice (BMP), but to this point, JART is unaware whether an actual BMP has been prepared.

A "Dust Management Strategy" has been prepared by Golder for Nelson with best practices identified together with associated operational recommendations. While the recommendations are, for the most part, supported by the peer reviewer, they have not been consolidated into a specific BMP that can be used as an on-site operations manual. A plan to implement this strategy has not been adequately documented which, presumably, would include specific triggers, reporting requirements, monitoring and actions by operators in consultation with the Ministry of Natural Resources and the Ministry of the Environment (MOE) to address all potential conditions. JART understands that this matter is under the jurisdiction of both the MNR and MOE. It is desirable that an overall BMP strategy be included as a condition on the site/operational plan by the MNR or that the MNR could take key components of a strategy and the development of a BMP as conditions of the site plan approval. MOE, through either amending existing Certificates of Approval or through new Certificates of Approval, would require a BMP. When the plan is implemented, including continuous monitoring and other improvements as the proposed quarry proceeds, dust levels generated by both the existing and proposed quarry operations should not exceed provincial air quality criteria.

AMEC has determined that the Air Quality Report and subsequent revisions/additions have properly identified and described key emission sources relative to best practices/standards. AMEC has not indicated to JART that there is any additional information to be required in order to complete the peer review, other than a documented commitment by Nelson to implement Golder's recommendations and the more detailed BMP. AMEC recommends that a condition be included on the ARA Site/Operational Plan that specifically requires the implementation of a Dust Management Strategy as a BMP complete with specific triggers, record keeping, monitoring and actions by others and that this also be done as part of an MOE Certificate of Approval.

It is not clear to JART whether or not a BMP will be required by the MNR as a condition of the ARA site/operational plan or through other means. This is an important element to the future enforcement of the BMP. JART would consider it appropriate to include a BMP as a condition through the ARA process. It is also not clear what Certificates of Approval will be required or amended by MOE. JART would consider it appropriate for Nelson to obtain a Certificate of Approval to include the BMP as a requirement

11.3 Blasting

Golder Associates Ltd. (Golder) prepared on behalf of Nelson a "Blasting Impact Assessment, Proposed Nelson Aggregate, Nelson Quarry Expansion" dated September, 2004, and a supplemental letter dated December 13, 2004. JART had the document and letter peer-reviewed by Howe Gastmeier Chapnik Limited (HGC Engineering) who also discussed additional technical particulars with the author of the Golder report, Marcus V. van Bers.

Golder identified, and provided an interpretation on, the Ministry of the Environment's (MOE) Guideline NPC-119 that deals with ground-borne vibration and air-borne noise from blasting activities. In addition, the report addressed the likely impact of proposed quarry blasting on structures and water wells based on appropriate standards and procedures referenced by the U.S. Bureau of Mines.

Golder provided a description of the blasting procedures currently being undertaken by Nelson at its existing quarry, and provided calculations and analysis for ground-borne vibration and air-borne noise levels for the proposed quarry based on the monitoring at the existing quarry. These calculations and analysis, which are acknowledged by Golder to be subject to variations due to site-specific conditions, were assessed by the JART peer reviewer.

Golder concludes with the following statement, "The results indicate that the majority of the proposed extension may be excavated using the blast parameters used in the existing quarry."

HGC Engineering is of the opinion that Golder correctly and adequately identified and interpreted the requirements of MOE Guideline NPC-119. HGC Engineering is also of the view that the analysis and calculations generated by Golder appear to be appropriate and consistent with recognized standards.

As to the conclusion reached by Golder, HGC Engineering agrees to a certain extent, although in the existing quarry Nelson uses explosive weights per delay up to 279 kg, which exceeds the maximum explosive loads prescribed by Golder in Table 2 (138 kg for blasting point 300 metres from a residence). As the nearest residence has been identified as being 290 metres from the proposed Phase 1 excavation, Nelson will have to pay careful attention to its blasting procedures in certain areas of the proposed quarry. HGC Engineering and Golder agree that this will not affect the overall feasibility of the proposed quarry.

Golder, in the Executive Summary of its report, pointed out that Nelson could make adjustments such as "reducing the borehole diameter, reducing the bench height, and reducing the explosive weight per delay period." Through the MNR, JART understands that this can be implemented through the ARA site/operational plan as Section 3.10 of the Provincial Standards requires that all blast events must be monitored by the quarry operator, and Section 3.12 requires that a record be kept of all blast events.

It is the opinion of HGC Engineering that the Golder analysis is sufficient to demonstrate that blasting in conformity with MOE guidelines can be conducted within the proposed new quarry. At times, Nelson would have to undertake certain precautions in blasting procedures but this should not negatively impact the feasibility of extraction in the proposed quarry.

JART and the peer reviewer understand that a blasting plan and a protocol for the monitoring and complaint procedures have been prepared for the existing quarry, and that these are currently being reviewed by the MNR. If the protocol is accepted and put into practice, JART and its peer reviewer recommends that a blasting plan and details dealing with monitoring and complaint resolution procedures for the proposed quarry should be prepared and included by the MNR in the notes to the ARA site/operational plan. JART understands this to be another matter under the jurisdiction of the MNR.

JART acknowledges that residents already experience sound and vibration from blast events associated with the existing quarry. JART also acknowledges that noise and vibration from blasting events to be associated with the proposed quarry will be audible and perceptible even if the blasting levels are within the MOE criteria. Since blasting is of relatively short duration, the annoyance would not normally be prolonged.

JART understands that Nelson may to some extent have an existing communication strategy. To assist in keeping neighbours informed, Nelson could proactively enhance its communications plan by distributions outlining the blasting protocol; unscheduled dates/times of blasting events. Though internet connection and availability may prove difficult for some, the communication could be posted on the Nelson website and updated on a regular basis. If it has not, Nelson could consider putting this into practice although it is recognized that this may not be a condition of the licence.

JART also notes that the proposed extraction area for Phase 1 in the 2008 revised site plan (9.85 ha) vs the original site plan Phase 1 (4.4 ha) is double in size. This in turn raises a question as to whether an updated report should be prepared to reflect the revised figures.

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Rehabilitation Plan

12. Rehabilitation Plan

In accordance with the *Aggregate Resources Act* (ARA) and the Provincial Policy Statement (PPS), Nelson is required to undertake both progressive and final rehabilitation of the existing quarry. If the proposed new quarry is approved, specific requirements will be outlined in the ARA Site plan and will form one of Nelson's legal requirements under the ARA.

Although Nelson's stated goal of rehabilitation is a net gain of environmental features on the site, JART believes the proposed new quarry footprint results in a deficit of environmental features. The proposed quarry would result in the loss of a number of features that will not be replaced by the proposed enhancements to the lands outside of the extraction area. Of particular note, the proposed extraction area includes the removal of a mature deciduous woodlot, which is part of a significant woodland, in the southwest corner of the subject property. The removal of this area will result in the loss of a large portion of the woodlot and Provincially Significant Grindstone Creek Headwaters Complex. As previously noted, the loss of the PSW and significant woodland is contrary to the PPS. It should also be restated that compensation or net gain, in relation to natural heritage features, are not supported by JART as a method to meet the objectives of the PPS.

JART does not agree with the MHBC Planning report reference to the proposed quarry as an "interim land use". Given that extraction and subsequent rehabilitation of a quarry can take several decades, it could be considered a permanent land use (in the context of planning policy). This opinion has also been expressed by the Environmental Commissioner of Ontario in the November 2007 report entitled "Reconciling Our Priorities". The proposed rehabilitation plan specifically addresses connectivity between natural heritage features. Despite the intent within the proposed rehabilitation plan, what is proposed does not replace existing connectivity.

JART has concerns relating to the use of lakes as appropriate quarry rehabilitation:

- The proposed final rehabilitation plan includes a large, deep lake (+/- 48ha in size, +/- 20m in depth). Deep lakes of this nature are not naturally found on the Niagara Escarpment.
- A lake of this depth will most likely be oligotrophic typified by low nutrient levels and would not allow the establishment of natural systems more typical to the Niagara Escarpment (e.g. wetlands, shallow lakes).
- Given that this type of environment is not typical of the Niagara Escarpment, a deep lake is not considered a gain for the area because of the removal of a long established habitat and ecosystem.
- The rehabilitation plan provides for few shallow protective areas along the shoreline and there are limited opportunities for the establishment of ecosystems more typical of the Niagara Escarpment (e.g. wetlands, shallow lakes).

Notwithstanding, JART recognizes that the range of passive final rehabilitation options for a below-water table quarry on the Niagara Escarpment are limited. Given that the quarry floor will ultimately be submerged, other rehabilitation options (e.g. forest or wetland creation, open space) would potentially require on-going active quarry management (e.g. dewatering) of the site. However, JART continues to express a preference for passive final site rehabilitation. JART recommends that if the applications are approved, that Nelson consider including additional shallow water areas, shoreline wetlands, etc. to the final rehabilitation plan in order to improve the overall ecological function of the rehabilitated quarry. Opportunities to create more varied shorelines should also be explored to create a more natural lake feature and avoid the predominantly "square" appearance of the proposed final rehabilitation plan.

The proposed rehabilitation plan also calls for experimental enhancement to certain areas that would not be affected by extraction. JART is of the opinion that this is neither necessary nor appropriate in that this would contribute to potential site disturbance when creating pit and mound topography which could cause impact to the provincially significant wetlands, woodlands and habitat of Species at Risk (SAR). In this regard, JART believes it is preferable that less invasive improvements (e.g. nodal planting of native species) be considered as an alternative.

Aspects of the current rehabilitation plan do not meet with current provincial standards. Of particular note, Nelson is proposing to leave vertical faces along the portions of the western and southern extraction boundaries. The Aggregate Resources of Ontario Provincial Standards require that final rehabilitation side slopes should be a minimum of 2:1 (rise/run). While the Standards do provide opportunities for variance from this standard on a case by case basis, it is not clear if a variance is appropriate in this circumstance due to possible safety concerns that would exist prior to the filling of the lake and the limited ecological functionality of these vertical faces once the lake is full.

JART also notes that progressive rehabilitation of the existing quarry will be significantly delayed as a result of the aggregate being transported from the proposed quarry across to the existing quarry plant for processing. Final rehabilitation of the existing quarry would correspondingly be delayed for the proposed period of extraction, followed by an indeterminate rehabilitation period, which could be a number of decades, until the quarry is filled to form a lake.

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Adaptive Management Plan

AMP

13. Adaptive Management Plan (AMP)

13.1 Introduction

A bedrock quarry, particularly one that is large and below the water table such as the Nelson Quarry, involves complexities associated with not only day to day operations, but also with changes in surface and groundwater regimes and their impacts on the downstream habitats both during operation and in the years until rehabilitation is completed. In addition, JART understands that the climate of the Southern Ontario is not static, climate change is occurring and will continue in the future with unknown effects. While the particular suite of issues relating to the construction, operation and rehabilitation of a quarry by Nelson can be characterized to a certain degree from the experience of the existing quarry and through scientific study of the conditions of the site, it is understood that unforeseen effects may reasonably be anticipated to arise in the future. It is therefore important to ensure that these unknown factors can be addressed in the long term thereby ensuring that possible mitigation strategies adapt to changing conditions.

Most aggregate operations are subject to a large number of site plan conditions[20]. These conditions normally include responsibilities by the operator to monitor the potential negative impacts of a quarry. More recently however uncertainty in a quarry operation has been addressed through an additional site plan condition that requires the compliance with an Adaptive Management Plan (AMP). Most recently, the Hanson (Tansley) shale quarry north of Highway 407 in the City of Burlington and the Dufferin quarry in the Towns of Milton and Halton Hills have each utilized detailed AMPs. The AMPs have been accompanied by agreements between proponents and agencies to conduct ongoing monitoring, mitigation and reporting. An AMP is a useful contemporary tool for dealing with the uncertainties inherent in a complex operation such as a quarry as a means to ensure that the operation and mitigation responses are adaptive to unanticipated conditions. An AMP is, therefore, considered to be a best management practice in the operation of a quarry in Ontario.

The use of AMPs arose because of the need to ensure that aggregate operations, along with their inherent complexities and long project duration, suitably address the requirements of Provincial and municipal interests such as those detailed in the Provincial Policy Statement (PPS) and other applicable legislation.

An AMP should be developed as a layer of additional protection which identifies a range of possible impacts (not necessarily anticipated) that may occur from aggregate extraction. The AMP should not be an attempt to absolve the proponent of the primary responsibility for designing and operating a quarry in such a manner that the impacts are suitably addressed while meeting all applicable regulatory standards. However, quarry proposals can cause impacts well beyond the limits of the site, and because of the complexities inherent in them, it is difficult to conclude with a high level of confidence as to how impacts will be addressed in the absence of a detailed AMP and its associated implementation mechanism/agreement.

[20] A site plan agreement under the *Aggregate Resources Act* should not be confused with a Section 41 agreement under the *Planning Act* which often is also referred to as a site plan.

13.2 Legislative Context of Adaptive Management Plans

Although an AMP is not mandated by any legislation it has been implemented in some recent *Aggregate Resources Act* (ARA) licence applications and has been endorsed by local and regional municipalities, the MNR, Conservation Authorities and Joint Board decisions. Therefore while it is not currently identified as a requirement in the *ARA* or the *Planning Act*, its inclusion in the recent applications suggests that it is appropriate both to the review and eventual decision making on such applications.

As the implementation mechanism of an AMP has not been formally established in law, it is important that the AMP be included by reference on the Site Plan under the ARA in order to be enforceable under the Act. Implementation of an AMP may also require that a separate legal agreement be made to accompany the technical components of such an AMP.

In recent years, AMPs have been developed for the following quarries in the Greater Toronto Area.

- Dufferin Aggregates' "Milton Quarry" extension in the Town of Milton, approved by Joint Board in 2005, approved by the Provincial Cabinet in 2006
- Hanson Brick's "Tansley Quarry" in the City of Burlington, approved in 2007

These historic AMPs have set the basis for the need for an AMP in the case of the Nelson applications.

The aforementioned AMPs dealt with such subject matters as the protection of natural features, groundwater quality and quantity and water wells. Also included were details regarding:

- features to be protected
- target setting and monitoring requirements
- mitigation/contingencies should unanticipated impacts occur and
- a requirement to undertake regular, periodic reviews of the AMP throughout the life of the operation, and
- alteration to the project if required, should unanticipated impacts arise

In the case of the Milton Quarry and Tansley Quarry, arrangements for financial securities have also been made in the event the proponent fails to meet its obligations for any reason.

Therefore in the review and evaluation process of an application, the development of an AMP should follow the evaluation of baseline/characterization studies and evaluation of the proposed mitigation strategies.

It is JART's expectation that an AMP would accompany a complete and scientifically sound proposal which would include details of the anticipated mitigation measures. The Nelson AMP would have to be based on a thorough knowledge of the site and the areas around the site. This is essential to acquire confidence in the potential feasibility of mitigation. It is through this understanding that the breadth of uncertainty and potential risk can be understood prior to making a decision on new quarry applications. This is a bottom up approach rather than a top down approach. Confidence cannot be attained in the absence of detailed understanding.

Within the context of JART meetings, JART considered how engineered mitigation can have an influence on planning recommendations. JART is of the opinion that the Nelson applications, along with the scientific studies detailing mitigation measures, need to be comprehensive and standalone from the AMP with respect to merits of the proposal. Therefore, Nelson may be confused about the intent of the AMP and that it could be seen as a mechanism for deferral of the evaluation of various engineering and mitigation measures until after an approval or that an AMP could be used to garner an approval through an engineered solution.

13.3 Recommended Principles for an Adaptive Management Plan

In addition to those design principles identified by Nelson (listed on page 122), JART has prepared a number of principles and considerations that may be used to formulate an AMP:

- The AMP should identify the features and functions (e.g. wetlands, groundwater levels) and meaningful observation data relative to each, that are to be addressed, to ensure that the observed data are evaluated relative to effects on these features and functions.
- The AMP should include an appropriate monitoring regime for these features and functions, to detect impacts before they become acute.
- The AMP should include a series of mitigation and/or contingency methods specific to the sensitive feature/functions should impacts from the quarry be greater than anticipated.
- Actions within the AMP should be based on the establishment of measurable "triggers" or thresholds where predetermined responses will be initiated to address impacts.
- The AMP should include a commitment to cease extraction if mitigation/contingencies are unsuccessful in addressing impacts attributed to the quarrying.
- The AMP should include periodic review, update and refinement (as necessary), as more data is collected and details become known about the actual observed effects of quarrying.
- The AMP/Agreement must be backed by securities posted by the property owner to protect the public agencies and agencies from financial liability for performance of the mitigation requirements over the long term, in the event the owner fails to do so.
- Monitoring of effects should be based on adequate baseline monitoring.
- Methods of monitoring should be quantitative and repeatable following accepted techniques.

- The commitments outlined in the AMP are binding on the operator and must be linked to a regulatory mechanism.
- Mitigation that requires active management and/or intervention in perpetuity should be avoided.
- Monitoring, analysis and mitigation completed under the AMP should be based upon measures that have been demonstrated to be effective on a site specific basis.
- Changes to the AMP should require the consent of all parties to the AMP/Agreement and any applicable regulatory authorities.
- Monitoring and reporting must be continuous throughout the life cycle of the quarry (including rehabilitation and lake filling).

13.4 Nelson Proposal – Report on Adaptive Management Plan (Report on AMP)

Nelson has proposed to develop an AMP as part of its applications for the proposed quarry.

In support of the proposed quarry Golder Associates Ltd in conjunction with Stantec Consulting Ltd. in association with Savanta Inc., has prepared documents entitled;

1) "Draft Report on Adaptive Management Plan for local Private Wells (Version 1), Proposed Nelson Aggregate Co. Extension, Burlington, Ontario", May 10 2006
2) "Report on Adaptive Management Plan Version 1 – Water Resources and Ecological Features Proposed Nelson Aggregate Co. Extension, Burlington, Ontario", March 2007
3) "Report on Adaptive Management Plan Version 1 – Water Resources and Ecological Features Proposed Nelson Aggregate Co. Extension, Burlington, Ontario", January 2008

For the purposes of this Section, only the most recent document, relating to the final resubmission, has been utilized.

This report is intended to:

"…facilitate dialogue and planning regarding:

- Potential effects associated with the application;
- Triggers and management action development;
- Monitoring plan recommendations; and
- Management system implementation to ensure appropriate response to triggers."

A significant limitation of this document is the lack of precise and prescriptive wording required to define the implementation of mitigation of potential quarry effects. Notwithstanding these limitations, the Report on AMP could provide a starting point for the development of a complete AMP should the proposed quarry be approved.

The Report on AMP indicates that the Nelson AMP could include a number of key components including:

- Receptor identification and prediction of potential impacts
- Monitoring plan
- Thresholds, triggers and management action development
- Management system

The Report on AMP indicates that Nelson is now proposing the following design principles as they relate to water resources, which are in part based on discussions with JART:

- "Nelson is to bear the costs and risks associated with the proposed quarry (i.e. no private resident, public agency or environmental burden).
- Reliance on communal, trucked-in or municipal water is to be avoided as a mitigation measure to address impacts associated with the proposed extension.
- Any potentially substantive adverse impacts to the groundwater system, and subsequently to any related surface water and/or ecological receptor, as a result of extraction are to be avoided until mitigation techniques are proven to be feasible and dependable.
- Effectiveness of the groundwater recharge system (GRS) must be demonstrated at the proposed extension site or at the adjacent existing quarry site.
- Effectiveness of ecological mitigation and enhancement measures should be demonstrated at early stages of the quarry development to optimize the success of these measures (e.g. vernal pool creation).
- The AMP must identify, to the greatest degree possible, a range of possible scenarios and technical problems that might reasonably be encountered in the future, based on the evidence available and the need to embrace the precautionary principle. Commitments to actions for each of the scenarios should reflect best management practices;
- Long term mitigation should be passive to the extent possible, without the need for on-going intervention.
- The AMP must address how on-going, proactive monitoring and data collection will be conducted, reported and administered."

Based upon the foregoing design principles, the Report on AMP provides a number of proposed measures relating to water resource issues:

- Pre-extraction activities

  - augmentation of 8 shallow wells likely to be impacted by the existing quarry and/or proposed quarry
  - demonstrate feasibility and effectiveness of groundwater recharge system (GRS) and grouting which are proposed as contingency measures
  - installation of 27 additional on-site monitoring wells and 3 off-site monitoring wells

- Extraction phases and required mitigation

  - On-going monitoring and technical evaluations
  - Construction of buttresses along quarry extension faces to limit incoming seepage
  - Implementation of contingency measures such as the GRS only if long term monitoring demonstrates impacts have the potential to become greater than anticipated by the modeling

- Post extraction phases and required mitigation

  - Install engineered earth embankment to block the rock cut passage under No.2 Side Road
  - Continue to pump water to receiving surface water systems from the existing quarry and proposed extension sumps at an assumed rate of 50% of the surplus water
  - Continue to operate the GRS (if required) until lakes are filled.

13.5 JART Review of Nelson's Report on AMP

JART has reviewed the Report on AMP, and makes the following observations:

Overall Limitations

- One of the primary limitations is that the document lacks the precise and prescriptive wording required to implement mitigation of potential quarry effects. Specifically as a report which is intended to "…facilitate dialogue and planning regarding…" the Report on AMP is somewhat vague in its statements and does not read definitively enough to be considered a complete AMP.
- Wherever possible, triggers for actions and mitigation need to be specifically detailed. Any sections that identify possible actions to address unacceptable impacts from quarry operations need to be translated into definitive actions with appropriate triggers.
- While the Report on AMP identifies a number of mitigation actions that could be used to off-set impacts resulting from the loss of surface flow to the provincially significant wetlands, there does not appear to be a specific monitoring action and/or trigger to compel the implementation of these mitigation measures.
- The Report on AMP does not appear to meet its sixth stated principle which is to "…identify to the greatest degree possible a range of possible scenarios and technical problems that might reasonably be encountered in the future, based upon the available evidence and the need to embrace the precautionary principle…". The Report on AMP defers much of the development of the specific mitigation measures to the future and therefore does not appear to meet the "greatest degree possible" design principle. By way of example:

- The demonstration of feasibility and effectiveness of the GRS is proposed to be deferred to the later stages of the proposed extension (i.e. proposed to be demonstrated during the extraction phase of the project).
- The red zone represents a failure of implemented mitigation measures to adequately restore water levels or the operation of private wells. Page 35 of the Report on AMP suggests that alternative mitigation measures will be developed, once Nelson has created a red zone which appears to be quite late in the process since in a red zone well mitigation has failed.

The Report on AMP contends that the southwest woodlot wetlands should not be included as part of the provincially significant complex. JART rejects that the evaluation of the significance of a wetland is a matter for discussion within the context of an AMP. Further MNR is wholly responsible for wetland evaluation and classification in Ontario.

Water Resources

- The Water Resources Report and Report on AMP provide an assumed scenario of a continued pumping rate from the existing and proposed quarries throughout the life of the project until the quarries ultimately fill to become lakes. There remains a question as to how this operation will be ensured over the life of the quarry. It is questioned as to what specific implementation mechanism (i.e. agreement, legislation etc). will be utilized to ensure long-term operation/pumping to downstream systems and implementation of the Mitigation Strategy and AMP (including possible Groundwater Recharge systems etc). This needs to be addressed in terms of meeting Nelson's stated AMP objective to bear the costs and risks associated with the proposal (i.e. no private resident, public agency or environmental burden). It should also address both the required form of agreement or legislation to accomplish this, as well as the required securities to ensure that the public and agencies are not put at financial risk.
- The Water Resources Report and Report on AMP do not identify how the assumed/proposed flow rate (i.e. 50% of surplus during lake filling) relates to the natural conditions that would be anticipated in the absence of the quarry. JART has requested that Nelson assess this condition in order to better understand the proposal in the context of riparian objectives. Specifically, JART has recommended that this be used as a benchmark when evaluating the proposed discharge from the quarry.
- Climate change is a source of much uncertainty. Changes in atmospheric temperature and precipitation will occur. There is some uncertainty however regarding the magnitude of increase in temperature in Southern Ontario and what effect this will have on precipitation. It is appropriate to include in any AMP measures to address increased temperatures and variation in precipitation and any impacts this may have on the proposal. As noted in the Water Resources Section of the JART report, the potential impacts due to climate change have not been specifically addressed based on the available climate model predictions.

- The Report on AMP does not appear to provide for adequate monitoring to assess flow/water level conditions,and impacts that may result on the features, within the receiving tributaries and wetlands which are in close proximity to the proposed quarry. It is not clear how potential losses in flow or water levels in these areas would be detected and what mitigation strategy is available if impacts are noted.
- The Report on AMP outlines proposed groundwater "target levels" which would trigger various actions, mitigation and/or changes to quarry operations if unanticipated impacts were to occur. The targets for the initial phase of extraction, as outlined in the Report on AMP, appear to be established based on recent historical water levels (from years 2003-2005) and predicted impacts from the quarry (i.e. 2 metres below average seasonal values for these years). According to the Report on AMP, target levels are proposed to be established for each subsequent phase as extraction in the quarry proceeds. However, there is little detail in the Report on AMP as to how this is proposed to occur or how a formal approval process related to any necessary changes would be incorporated into the ARA site plan or AMP.

Private Wells

- The Report on AMP suggests that only category A and B wells (currently predicted to have impacts greater than 10% of water column height) would be subject to mitigation regardless of actual impacts that may occur. This leads to a number of potential concerns, including:

  - Are wells that are not predicted to be at risk, but where the actual impacts are greater than 10%, excluded from consideration for mitigation?
  - The 10% impact threshold does not include an assessment of whether this could affect the viability of the supply, or whether the supply is already being utilized to its available extent. This leads to the potential that some supplies that are currently marginal will be affected more severely.
  - The 10% threshold does not address the reduction of storage/recharge and recharge time that may also affect a well operation.
  - The proposed protocol for setting water level targets surrounding the quarry indicates that under dry conditions and/or climate change, water level targets may be reduced further based on correlation to background water levels. JART is concerned that this incremental change is proposed in addition to the 10% threshold impact, leading to a potentially larger overall impact and decreased resiliency of these wells to operate in the face of such climatic changes. The AMP Report suggests that the loss of flow is similar to a natural variation, however, it should be noted that the effect is additive (i.e. when natural variation occurs these areas will be incrementally affected by both the loss of contributing area and the natural variable conditions).

- There are statements in the Report on AMP that suggest that the monitoring wells would be relocated further from the quarry as the quarry progresses. It is not clear what effect this would have on establishing target levels as quarrying progresses.
- The additional mitigation strategies only appear to be triggered if water levels decline beyond the predictions made by the model. JART recommends that it may be more appropriate to implement mitigation measures based on actual concerns/impacts as they arise (i.e. there appears to be a potential scenario for impacts that are within the predicted conditions but may prove to be problematic – yet mitigation appears only to be available where the impact predictions are exceeded) as well as when impacts exceed the stated threshold from the Report on AMP.

Natural Heritage

- The Report on AMP also addresses a number of other issues such as a Butternut Management Strategy, Landscape and Ecosystem Rehabilitation Plan, Jefferson Salamander Egg Mass Surveys, etc. It is unclear why issues such as these are addressed in the Report on AMP, which principally deals with unanticipated changes to ground and surface water levels. It is recommended that sections unrelated to ground or surface water be removed from the AMP and that they be incorporated into the proposal in some other appropriate manner (e.g. ARA site plan) or removed where appropriate (e.g. on-going Jefferson Salamander egg mass surveys or other surveys in areas where the presence of a species at risk has been confirmed), as it is considered unnecessary and invasive.

- Notwithstanding this, the AMP should include a natural heritage component which addresses potential aquatic and wetland impacts related to changes in surface water and groundwater inputs with specific targets and requirements for mitigation.

Karst

- The most recent version of the Report on AMP for the proposed Quarry indicates that contingency grouting will be undertaken to address karst features. Specifically, the need for grouting is proposed to be assessed during the drilling program for on-site monitoring wells. Grouting will be conducted along discrete sections of the bedrock mass to reduce groundwater inflows to the quarry. A conceptual framework for cut-off grouting is included as Attachment E of the report on *Water Resources Impact Assessment & Contingency Design Updates* (Golder Associates, January 2008). The presentation of the conceptual framework includes the recommendation that a "pilot grouting program be conducted early in the overall process to verify design assumptions and confirm performance expectations." In JART's opinion, this is a constructive recommendation that should be implemented formally in the final version of the AMP, if the quarry is approved.

- The January 2008 Report on AMP also notes the need to undertake further analysis of flow regimes in creeks below the Niagara Escarpment should groundwater level monitoring targets near the escarpment brow.be exceeded. However, the Report on AMP only identifies Shoreacres, Tuck and Appleby Creeks as part of this analysis and does not provide any consideration for monitoring/analysis/mitigation of springs feeding the Provincially Significant Medad Valley ANSI as was agreed by Dr. Worthington in correspondence dated August 25, 2006 and October 7, 2006. (see Section 8)

13.6 Implementation of the AMP

It is important that the AMP be included by reference on the Site Plan under the ARA in order to be enforceable. Implementation of an AMP may also require that a separate legal agreement be prepared to enforce the requirements of such an AMP.

Any and all impacts of the proposed quarry must be addressed and borne by Nelson to ensure the public and agencies are not put at financial risk.

13.7 Timing of AMP Preparation

JART recommends that the applications along with the scientific studies detailing mitigation measures, need to be comprehensive and standalone from the AMP with respect to merits of the proposal. However, JART would also advise that in the absence of a detailed AMP, including an implementation agreement to accompany the application, there remains insufficient information available for JART to reach any conclusions regarding how the impacts of the proposed new quarry could be appropriately mitigated.

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In Conclusion

14. In Conclusion

After considerable effort, JART has completed its technical review of the Nelson applications as revised January, 2008.

Every attempt has been made to ensure a thorough and comprehensive analysis. The results have been carefully documented within this report and a number of major issues have been identified and which need to be addressed. For a detailed accounting of the issues, please refer to the Executive Summary section of this report.

JART wishes to thank all those who have participated; who have provided input; and, who have assisted in the preparation of this report. The information exchange has been a valuable exercise.

The member representatives on JART will now be turning its attention to a fulsome participation on the Nelson applications at the upcoming Joint Board Hearing.

In light of the completion of the JART technical report, staff of the member agencies that comprised the JART will be commencing its work in preparation for reports on the merits of the applications to be considered by respective Councils, Boards and Commissions. Interested parties and other participants should refer from time to time to the City of Burlington, Region of Halton, Conservation Halton, and Niagara Escarpment Commission websites for updates.

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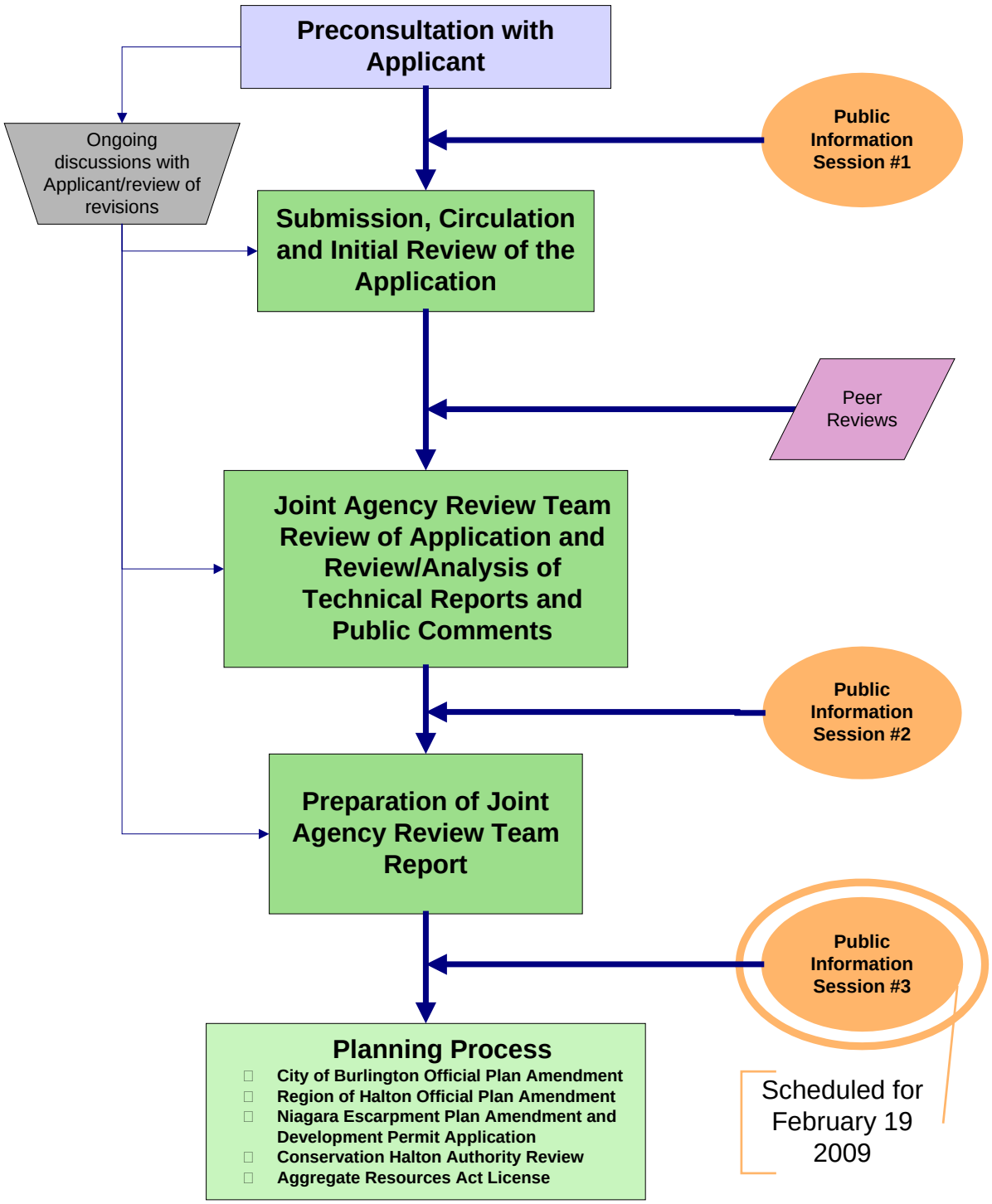
APPENDIX A

Joint Agency Review Team Workflow

Joint Agency Review Team (JART) Workflow

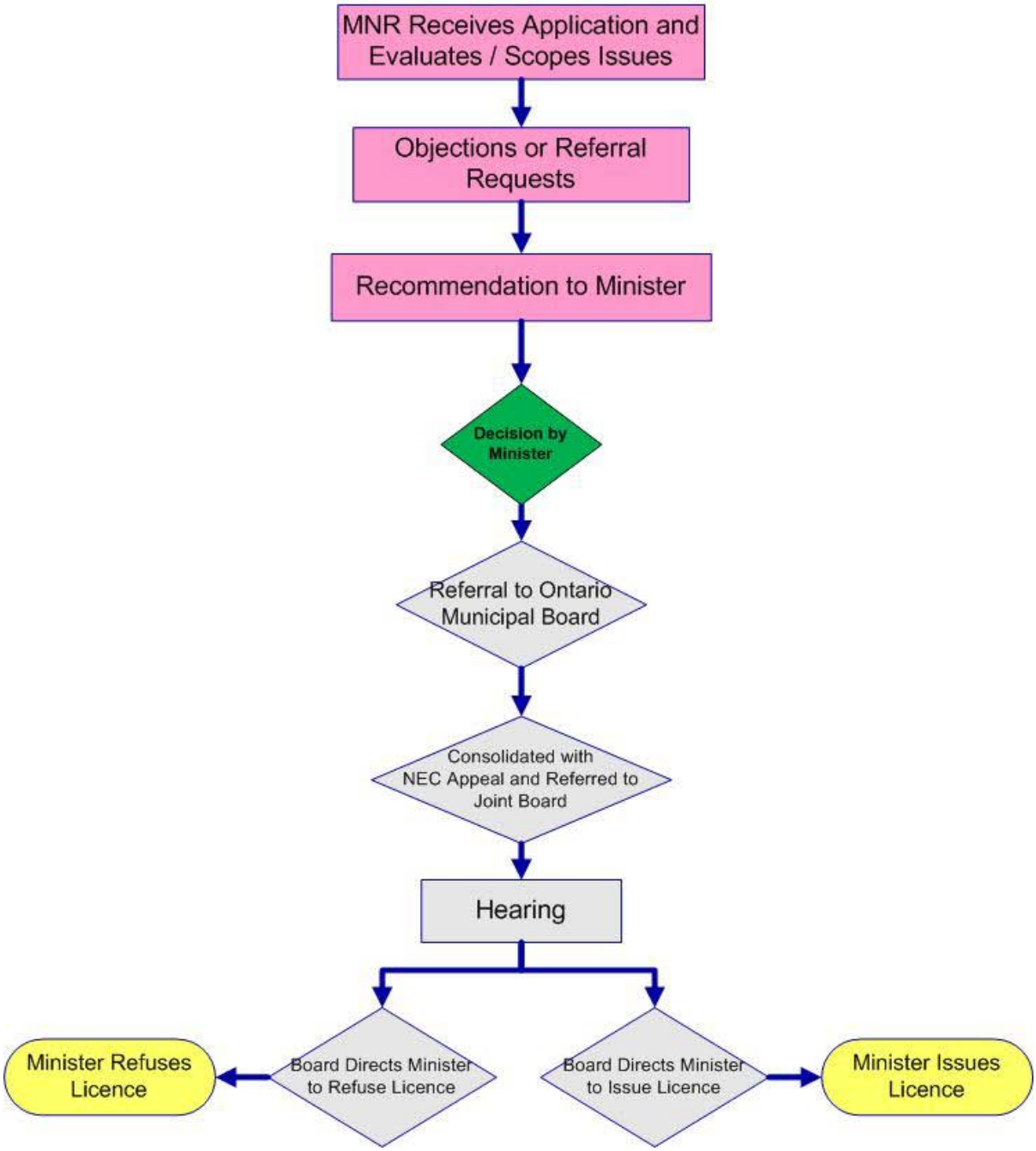


APPENDIX B

Parallel Review Processes

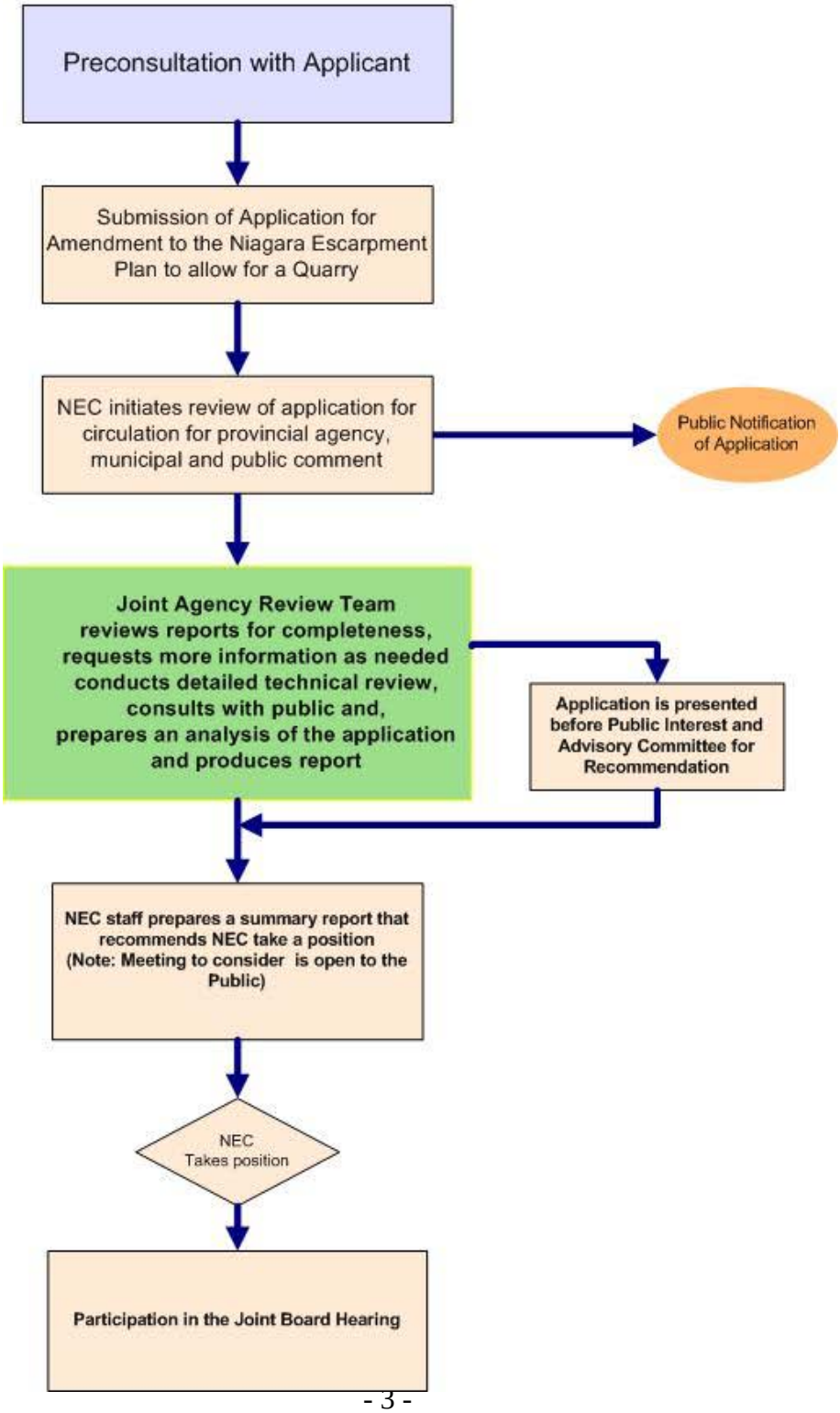
Aggregate Resources Act Process

(for the purposes of the Nelson Application)

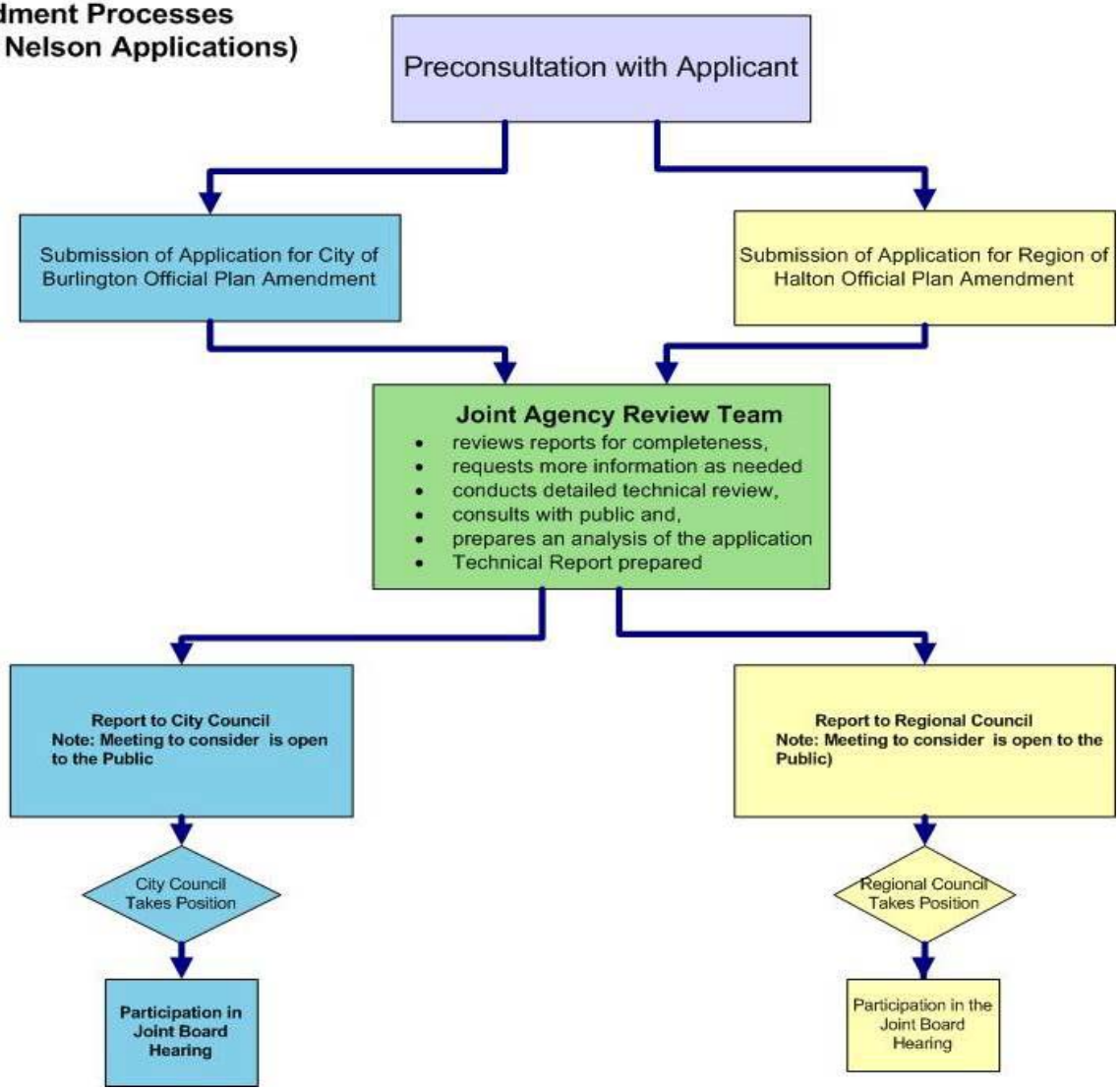


Niagara Escarpment Commission Process

(for the purposes of the Nelson Application)



Region of Halton and City of Burlington
Official Plan Amendment Processes
(for the purposes of the Nelson Applications)



APPENDIX C

Resident Comments, Questions and Responses by Key Topic

Preamble

Extensive comments and feedback has been received from the Public regarding the Nelson applications. Letters, emails, phone calls and Public Information Centre comments have all been noted.

As no doubt the reader will note, a number of common themes developed in the assessment of the public comments. There are repeated comments and questions around areas such as;

- Water
- Natural Environment
- Noise, Air Quality
- Blasting
- Traffic
- Existing Quarry
- Rehabilitation
- UNESCO Biosphere Reserve
- JART Process

This record of information has been carefully reviewed and taken into consideration in the JART analysis, and in the preparation of this report. As well, this information has been distributed to all members of JART and will be incorporated in the subsequent City, Region, Conservation Halton and Niagara Escarpment Commission reports to their respective Councils, Boards and Commissions.

JART very much appreciates the interest and time taken by residents to provide their input during the review processes.

A listing of public comments and related JART responses is herein summarized. While specific responses to questions raised are not noted in all instances, JART provides assurance that all comments have been thoroughly examined.

Source	Topic	Comment	JART Response
P1	Water	I am very much against the expansion of the existing quarry. Traffic issues, blasting and preservation of water and wildlife are my reasons for objection.	JART notes your concerns
P3	Water	Water concerns Quality and quantity	JART notes your concerns
P4	Water	Problems with well – will be a major concern	JART notes your concerns
P6	Water	I am close enough to the proposed expansion that Nelson say they will drop my water level by one meter. If we have a dry summer my shallow well could run dry.	Concern noted, the applicant has been requested to address potential impacts on wells as a primary element of their proposal. Evaluation of such measures to mitigate these impacts is part of the on-going review process by the JART committee, including how any risks can mitigated and ensuring that continuous scientific monitoring and adaptive management takes place.
P7	Water	Matters needing address: Water quality/quantity to neighbouring houses and not so neighbouring houses must be guaranteed. Potentially affected households should not bear onus to proof of affect.	Concern noted, JART's evaluation will include the required monitoring and mitigation program to ensure that impact mitigation will be responsive and based upon sound monitoring principles.
P12	Water	We rely on a well to operate our home. I am aware of families who have already been uprooted because the operation of the quarry destroyed the water supply to their homes. What guarantee do we have that this expansion won't further upset our sensitive water table. Where is the hydrogeologists report?	The hydrogeologic reports can be viewed at the Region of Halton or City of Burlington municipal offices. While there are no absolute guarantees that the project will not further impact the water table and your well, the applicant has proposed to address potential impacts on wells as an element of their proposal. Evaluation of such measures to mitigate these impacts is part of the on-going review process by the JART committee, including how any risks can be mitigated and ensuring that continuous scientific monitoring and adaptive management takes place.

Source	Topic	Comment	JART Response
P15	Water	**Impact on water table** **Water table depletion** There are numerous golf courses, farms, residences and other businesses who rely on the water table for their supply. Any new incursion into the table will have un-predictable results. Efforts to mitigate these, and promises made by the quarry developers to rectify any depletion situation are meaningless if it cannot be proven to be directly related. Past experience of others in similar situations has shown that there is a direct co-relationship between quarrying activities and water table depletion. There is also a lot of evidence that these concerns are frequently addressed with temporary solutions that do not hold the owners accountable in future years. Quarrying operations are finite concerns, when the resource dries up, so does the money. The result is that the organization can no longer support its promise to redress water table concerns. I for one will not accept anything but a permanent solution of any depletion impacts.	The water table in the vicinity of the study area is dynamic and would vary seasonally as well in response to various water uses. It is recognized that there are many users of water in the area including the existing homes in the areas as well as the existing quarry which had commenced operations some 50 year ago. JART and its peer reviewers are working under the principle that water supply to residents needs to be protected over the long term including the entire life of the proposed project including the ultimate rehabilitated condition and measures to ensure that mitigation will be sustained over the long term. JART also recognizes that relying upon perpetual active measures such as pumping is not the preferred principle of mitigation. It should be noted that decisions relating to water are in part also based on a hydrogeologic and water balance models – these models describe how and where the water in the vicinity originates and where it travels, as well as the quantity of water involved in the various pathways. Due to the complexity of the bedrock hydrogeology in the area, detailed studies and scientific rigour have been applied to describe possible impacts and how they can be mitigated. JART is reviewing all this information in order to provide decision makers with an informed recommendation.
	Water	**Water table quality** Any new incursion into the water table exposes water flowing through once undisturbed aquifers to new sources of contamination. We simple do not know what all those potential	The subject property has been the subject of a Phase 1 Environmental Site Assessment. This audit did not show that there has been any evidence of

Source	Topic	Comment	JART Response
		sources are. Whether these are at the same levels as they were in the past – such as the levels of air pollution that existed when the original quarry was opened or if they are substantially more concentrated. We also do not know if there are areas of contaminated soil in the immediate vicinity that could come into contact with our water table and pollute local wells. **Water table diversion** When the water table is cut into, the flow can be diverted in unpredictable ways. This in itself can result in several negative impacts on the environment, water quality and depletion. Cutting into the water table can result in flow direction changes, positive and negative flow volume changes, flow restrictions and flow stagnation. These conditions could lead to the possibility of dormant contaminants being released into the main flow. This could bring new contamination to existing wells, rejuvenate dormant wells, deplete existing wells or even over fill them. In addition, water pumped from the quarrying operation depending on its quality and path of flow could have impacts on surrounding ecosystems. For example, over flowing existing streams – thereby causing erosion of banks and siltation impacting among other things, spawning habitat. The reverse could also be true – drawing from the water table could deplete the flow at source resulting in low water conditions and inherent habitat degradation. Finally, the issue of contaminants introduced by the quarrying operation itself or via water entering existing watersheds through its path from the quarry to existing streams. These variables are virtually impossible to predict – even with extensive study. Where will liability rest if environmental or human health issues surface during or after the operational life of the quarrying operation. Water entering existing watersheds through its path from the quarry to existing streams. These variables are virtually impossible to predict – even with extensive study. Where will liability rest if environmental or human health issues surface during or after the operational life of the quarrying operation.	contamination on the property. Discharge water leaving the quarry must typically meet provincial guidelines for quality, as well as ensuring that the quantity of water is not adversely affected. This water is required to be tested regularly. Generally monitoring frequency is detailed in the adaptive management plan. JART is reviewing this document and will endeavour to ensure that water quality is /can be maintained.
P19	Water	First of all I and some of my neighbours have had problems which we believe were caused by activities at Nelson Aggregate Co. on #2	Concern noted, JART committee will seek clarification as to possible

Source	Topic	Comment	JART Response
		Sideroad. One of the neighbours, for the past few years has had their water causing yellow stains on porcelain fixtures, we on the other hand who are within 150 metres of their well are just now starting to see this problem in a minor way. Another of our neighbours whose well is within 50 metres of our well had their well water flow stop in late September/early October. They phoned Nelson Aggregate Co. and shortly after their water flow was resumed. Our well flow did not stop during this period. With the proposed expansion of Nelson Aggregate Co. to the south side of #2 Sideroad and their plan to quarry 20-30 metres below the water table level, I believe this event will initiate a series of predictable and unpredictable problems. Earlier I tried to give you local examples of the unpredictability of water transport and shock waves in fractured limestone. Let me give you another example which will demonstrate one of my concerns. During the late 1950's or early 1960's the army base in Kingston started to do some blasting and as a result several farms within 2-3 km of the base had their well water contaminated with E coli (At this time I was working as a medical bacteriologist in Kingston). The farmers sued, and after dye studies it was found that the army sewage lagoon, due to fracturing of the limestone by the blasting, leaked and the leaking sewage eventually found its way into the farm wells. I suspect that the above is common all over the world where rock can fracture easily. This leads to my main concerns and they are that (1) we may see our water supply being disrupted or stopped and (2) that our water table may be contaminated by bacteria (E coli, Campylobacter, Salmonella and the like) and chemicals (nitrogen compounds, nitrates, nitrites, sulphur compounds, sulphides and sulphates and pesticides herbicides. I realize that Nelson Aggregates and their consultants will swear and guarantee on a stack of bibles that these events will never happen. We all know there can never be such a guarantee. If, for some political reason permission is given to Nelson Aggregates to proceed with its expansion venture, may I suggest the following safeguard for local well owners. First prior to initiating any work that Nelson Aggregate pay to have all wells within 2-3 km of their site	causes of such occurrences and consideration of these within the current proposal. JART cannot speak to the resolution of individual complaints about the existing operation on water quality. However, JART is doing its best to ensure that what is proposed does not harm existing wells. The Region of Halton currently offers free well testing. Bottles can be picked up at Conservation Halton's offices on Britannia Road. Well monitoring is a consideration in the JART report JART cannot address matters of private litigation

Source	Topic	Comment	JART Response
		tested for E. coli, total coliforms, total heterotrophic bacterial densities, all nitrogen and sulphur compound levels as well as herbicide and pesticide and organic levels and flow rates, to establish baseline levels. Then whenever a well owner believes their well has been impacted by Nelson Aggregate activities, they can at Nelson Aggregate's cost have their well waters retested.	
P19 cont'd	Water	And finally, if Nelson Aggregates is given permission to proceed, and we land owners find our well water quality deteriorated, who do we sue? I would like a response from your office on this point. We must know who is the responsible body. Could you please address this point before your next meeting on this subject?	
P26	Water	Area of influence for water, as commissioned in studies by Nelson is too small. water recharge system in north-east corner • is this proven technology? • I don't believe it will work	The modelled area of study has included all areas that are anticipated to be affected. In addition, contingency measures have been proposed to address areas where impact may be anticipated. Along with this the applicant has proposed to adopt a monitoring program to evaluate effectiveness and address concerns. JART will evaluate these proposed measures.
P29	Water	Water – there is grave concern as the affect on water tables and well contamination. No matter what is determined by hydrogeology studies, I can attest to the fact that current water situations in the area are already demonstrating the ill affects of environmental pollution and low water tables. My well is testing extremely high in Total Dissolved Solids that make filtration and contamination very difficult to manage. Water is becoming by far one of the most valuable commodities of the 21st century. To allow a situation such as the quarry expansion to tip the scales on such a life source is incomprehensible, given that the residents of this community have no viable alternatives. Many of us have already spent a great deal of time and money in the process of providing useable water resources to our homes. Consideration must be given to which parties	Concern noted, JART will include potential changes in water quality in its evaluation of this proposal The JART committee does not directly address how various provincial licences and permits are administered however the concern is noted and we advise that JART will endeavour to address concerns in a holistic manner. JART is greatly interested in any potential impact to wells in the community. The submitted report dealing with pumping by Nelson addresses the old and the proposed quarries.

Source	Topic	Comment	JART Response
		will take on the responsibility of the tragic but very real possibility that water resources will be compromised by this expansion. The proponents application asks that the existing site continue for the purposes of processing the new proposed quarry's aggregate for the next 20+ years, thus making the current site an integral part of Nelson's proposed ongoing operations. Therefore, JART and the MNR must ensure that the issuance of any license forms a new, all encompassing license, for other operations, which are NOT mutually exclusive of each other.	
P29 cont'd	Water	Existing license to take water: After some research, it was discovered that the proponent has absolutely no restrictions or conditions with regard to this matter. This indicated that there is no "watchful eye" on how the proponent is operating and effectively, they have been left to do as they please. Does JART not have the responsibility of ensuring that the proposal in question protects source water for the community's wells Would it not be reasonable to explore exactly what is going on within the boundaries of the existing pit and determine how much water is actually being taken, where it is going and how it is being reintegrated into the water tables, the concerns being contamination? In addition, I bring particular attention to Nelson's unrestricted rights to take water and question the rehabilitation requirements that are long overdue.	It should be noted that there may be some differences in the conditions of approval that have been historically granted vs. current requirements. The member agencies of JART are greatly interested in any potential impact to wells in the community. Therefore comprehensive studies to support any application have been required. Where issues related to the existing operation are relevant to the proposal, JART has requested such information be provided. For instance, one of the submitted reports dealing with pumping by Nelson addresses both the existing and the proposed quarries.
P35	Water	Can you please fax me the circulation for this file. I seem to have misplaced them. On behalf of (name provided) I wish to express our concern about the potential impacts on ground water especially as it relates to the blasting that may result in negative impacts to the aquifer. Anything you can do to alleviate our concerns would be appreciated.	Concern noted.
P50	Water	They said in the Spring that we would lose at least a metre of water level in our well. It is only 40 feet deep!	Concern noted, Please note that the proponent has included a mitigation plan to address well impacts, and JART has included

Source	Topic	Comment	JART Response
			potential changes in water quantity in its on-going evaluation of this proposal.
P51	Water	No doubt, JART has received lots of detailed reports and plans documenting this area and the proposed quarry from the technical perspective but I would like to put a human face on the area. I am writing this message on behalf of my mother and father, NAMES PROVIDED, owners of property (approximately 60 hectares in ADDRESS PROVIDED) directly adjacent to the proposed New Quarry. They have lived there since their marriage in 1950 (existing quarry started 1953) and both grew up about 1 mile away as well as several generations before them. They have developed their land and are ardent conservationists. They have planted thousands of trees and dug several ponds to conserve and store water. We are strongly against the quarry receiving their required amendments and license to extract dolostone from the 82 hectare site immediately to the east of our property. For many years now my parents have experienced insufficient water for domestic purposes in their bedrock water well. As the existing quarry neared its southwest extent along the north side of No. 2 Side Road, I have witnessed my mother progressively experiencing more pronounced water quality and water quantity problems. Recently, after years of lowering water levels the well at their barn is now completely dry. These wells are closest to the existing quarry operations. It is evident that other local businesses as well as private homeowners are becoming increasingly concerned about the potential for the lack of water resources in this area. In 2001, for example, a neighbouring golf course to the north, Burlington Springs (in operation for several decades also) applied for and was granted approval to excavate several irrigation ponds for the purpose of collection and storage of runoff for irrigation purposes. My parents and neighbours have had their bedrock water wells deepened. The dewatering caused by the existing quarry operations in the area is adversely impacting both private and business interests. If the Nelson Aggregate Co. is permitted to start another new quarry south of the No. 2 Side Road, further deterioration of the	JART has been established to streamline the technical review process. Each individual municipality and the Niagara Escarpment Commission have their own applications processes that will follow after the JART report is done. Decisions will be made by the City of Burlington, Region of Halton and the Niagara Escarpment Commission based on the review by JART. This concern is noted, JART has advised the applicant that addressing these types of potential impacts is a primary requirement.

Source	Topic	Comment	JART Response
		Amabel aquifer will result from its blasting and extraction. This will increase disruption of business, quality of life and result in depressed property values because of lack of water resources and further structural damage to buildings.	
P51 cont'd	Water	No doubt, JART was formed to streamline the approval process but it does nothing to reconcile the competing interests and issues between industries and homeowners involved. How can the wells that supply water to the clubhouse further south and adjacent to the proposed new quarry sustain more water taking? This aquifer is disappearing! JART is embarking on a process that may approve a mine in a predominately residential area with many golf courses – across the road (Guelph Line) are estate homes and the proposed quarry is between two environmentally significant areas (Medad Valley and Mount Nemo). How can the City of Burlington reconcile the conflict between restricting these homeowners from using well water to fill pools but at the same time allowing the removal of the aquifer altogether by an aggregate company? Will these landowners get a deduction on their property taxes due to declining property values and water problems? Groundwater is a very valuable resource too and all too often society's desire for more roads undervalues groundwater and values only the rock that contains the groundwater. In the 1930's, many years ago test water wells were drilled in the high yield Amabel formation in this area for the, then Town of Burlington, to test it as a possible water source for the town. Before JART considers "writing off" this neighbourhood to a "mining zone", for that is what JART is doing if the new quarry goes ahead because no one will want to live beside a quarry with unreliable water and immediately adjacent landowners will be forced to sell to an aggregate company. So in effect the license may be for only 82 hectares now but after that (the Amabel is probably of sufficient thickness in adjacent properties to continue expansion). What is stopping the company from further applications to expand. JART is setting the course and the future of this area by this initial step if you allow further mining. This area has had its fair share of industrial activity. For over	Concern is noted, however it should be noted that the planning process does not preclude the possibility of future applications for other lands in the area.

Source	Topic	Comment	JART Response
		50 years the neighbours of the existing quarry have co-existed as best as they can, now it is time for them to enjoy their rural property without fear of deteriorating property value and loss of drinking water. Do the owners of the aggregate company live beside their quarries? The rehabilitation concept of a lake is rather fanciful, how long will it take to reach this level and where is the water going to come from and how can it be used with such steep walls? My father had to go through a lot of approvals to dig a few small ponds to raise fish and now a quarry could take the rock and water. What was the Niagara Escarpment protecting against for all those years only to have it mined?	Concern noted. Lake filling is calculated to take several decades. Water would be from precipitation and runoff.
P51 cont'd	Water	As for mitigating measures, I cannot comment for I have not completely read all of the available reports, but will be providing comments soon. Deepening water wells even further below the Amabel Formation may not be a viable option because the underlying formations my be more shaley and yield poor water quality.	
P54	Water	Please begin proceedings to monitor our well to establish the baseline.	Noted, this request will be included as necessary within the data collection program.
P55	Water	Our home's water system is well based. Continued quarry blasting and digging has resulted in, severe water shortages that hamper and halt daily household activities.	Concern noted.
P61	Water	The lowering of the water table by approximately a meter along Cedar Springs Road due to de-watering activities on the west side of the proposed quarry expansion (Ref.: Nelson Aggregate hydrology study presentation boards) is a matter of considerable concern to us as adjacent properties on both sides have been forced to drill new wells (4420 and 4386 Cedar Springs Road). I am concerned that I may be faced with a similar expenditure as a Nelson Aggregate presentation revealed that no water re-injection from de-watering activities was being planned for the west side of the proposed quarry expansion (i.e. Cedar Springs side), although this is planned for the east side (i.e. Guelph Line side).	Concerns noted.
P62	Water	My two wells are less than 35 feet deep as are the two barns wells on the agriculture property	Your comments are noted and it is the proponent's responsibility

Source	Topic	Comment	JART Response
		next door (ADDRESS PROVIDED) which I believe you already know because the farmer next door told me he had attended a meeting regarding the quarry expansion and how it would effect his (animal) agriculture farm/business; He basically told me that you were well aware of what the quarry would do to these shallow wells and that he couldn't expect to be compensated for it …Just like the behaviour I witnessed as I sat at the meeting in Kilbride, where I got a chance to see the neighbours of Nelson quarry speak up. None of them have received compensation – they had NOBODY to complain to – Nelson is accountable to nobody – there are no conditions – they have had chart blanc since 1983 (and for the last 50 years). Many of you were at that Kilbride meeting… Were NONE of you even listening to the people??? Now JART – the MNR want to give Nelson Quarry another permit with zero conditions to compensate the neighbours for known problems that exist today and WILL happen in the new permit area. Everyone in Council to JART to the MNR who will grant the permit, should be fully aware that the present problems with Nelson are in fact the Future problems… Where do any of you get off – granting Nelson Quarry the right to take our water away – crack the walls and do other damage without having to compensate us???? Seems that since you don't feel the need to put 'conditions' that would protect the business and residents in the area on the permit, then the people must be given the recourse of compensation from the town-region-province.. And, what kind of farce are all of you pulling by limiting the 'area' of concern so that id does not include those on the other side of number 1 side road??? (as I heard them say at the meeting in Kilbride). I have been through this process on 2 other occasions – there is no doubt in my mind that the MNR will give the permit… That can't be	to address potential impacts as part of their proposal. The JART committee, on behalf of the member agencies that are members of the JART committee will evaluate the proposed project with the objective of ensuring that all concerns have been considered and addressed. JART involves the technical review of the application. Any decision would be made, publicly, before City and Regional Councils and at the Niagara Escarpment Commission. The license decision will ultimately be made by the Minister of Natural Resources. The area of study has been broadened to include 1 km and beyond the proposed quarry extraction area. As stated earlier, any decision would be made by City and Regional Councils and the Niagara Escarpment Commission. All reports are available at the City, Region and Niagara Escarpment Commission in addition they can be downloaded on the Region's and the applicants website.

Source	Topic	Comment	JART Response
		avoided…	
P62 cont'd	Water	I want the quarry to drill me a well in excess of 200 ft like that of my neighbour to my south. I don't want the same treatment as the neighbour directly across from the present quarry has gotten for decades of 'delivered' water!!! I have extensive gardens – I have UNLIMITED water today..I want that on record along with the names of everyone from Council – NEC – JART – MNR who will get a copy of this along with the well reports. Decide what you will – my only concern is that none of you will ever be able to say that they had no knowledge of the shallow wells in the area or the 'concerns' of those with the wells nor had ever heard any of the concerns of the residents in the area. I simply want the names of the people who make this decision to be a matter of public record. Thank you for your time in this matter,	
P70	Water	**Water Supply** – Experts in hydrogeology have expressed their concerns that the current water source on Mt Nemo is already stressed beyond sustainable levels from large-scale water users, in particular the existing quarry. The proposed additional water taking for a new quarry would push parts of the groundwater system over the edge into collapse, with many wells and springs streams, wetlands and ponds drying out. I object to such a huge proportion of the water balance being taken by a single user. I object to theoretical/unproven mitigation measures that run in perpetuity – they are unacceptable. I object to further exposure of the groundwater in the area to potential chemical and bacteriological contamination from automotive chemicals, diesel fuel, the runoff from asphalt production and road/dust/blasting agent chemicals and the effluent of nearby farming/golf course operations and associated runoff.	Thank you for your comments.
P1	Natural Environment	I am very much against the expansion of the existing quarry. Traffic issues, blasting and preservation of water and wildlife are my reasons for objection.	Comment regarding wildlife is noted. Nelson has attempted to protect a portion of the natural features on the property. However, some natural areas and the wildlife habitat provided will still be affected.
P4	Natural	Our concerns are	Comment noted.

Source	Topic	Comment	JART Response
	Environment	Devastation of the land.	
P12	Natural Environment	Our family and friends enjoy hiking and cross country skiing in many areas around North Burlington. The presence of Nelson Aggregates Co. has destroyed a huge area already. Why should the people of the city of Burlington agree to further devastation of this environmentally sensitive area? Where will our children's children play? The job of The Niagara Escarpment Commission should be to protect these lands from development. Progress is not always measured in dollars. Our family will work hard to save the beautiful countryside we have grown to love and enjoy. The proposed expansion land just north of us in Lot 17 has 60,000 trees planted as I noted last night. These were planted 10 years ago by the Halton Conservation Authority. Knowing as we do that trees are so important to the health of a community how can we even contemplate bulldozing them to make way for a quarry.	Comments noted. It should be noted that the property is not located within a designated ESA. The Niagara Escarpment Plan makes allowance for a significant number of land uses in the Escarpment Rural Area, including aggregate extraction through amendment to the Plan. It is acknowledged that a large area has been replanted; a substantial portion of which is located within the proposed quarry footprint.
P13	Natural Environment	The Grindstone creek has two tributaries crossing our farm. One of these tributaries begins in the west corner of our bush. The people at Nelson Quarry have already destroyed the serenity of the bush by cutting trees and installing pipes or wells. We have lived here over thirty years and want this to be a green, peaceful, place for at least seven generations. A quarry expansion will destroy that. There is also a regionally significant wetland in the north half of lot 16. Bill 27, The Greenbelt Protection Act by the Ontario Government is an attempt to improve our quality of life by reducing air pollution, enhancing water source protection, containing urban sprawl, reversing the fragmentation of natural areas, and retaining the uniqueness of The Niagara Escarpment. The encroachment of the Nelson Quarry into the Escarpment Rural Area defeats the stated purposes of the Greenbelt Protection Act. We are so fortunate to be stewards of this scenic, special land. I invite you to come and visit me so that you will see first hand the effect that the expansion of the Nelson Quarry would have on this part of the Niagara Escarpment neighbourhood.	Comments noted. It is agreed that there are disturbances associated with a quarry operation which can affect the surrounding natural areas and wildlife. Part of JART's role will be to assess these impacts. The wetlands, including the wetland in the north half of lot 16, have been evaluated by MNR and have been designated as a provincially significant wetland complex. The Greenbelt Plan includes the lands within the Niagara Escarpment Plan area. Section 2.2 of the Greenbelt Plan recognizes that the requirements of the NEP, established under the *Niagara Escarpment Planning and Development Act*, continue to apply and the Protected Countryside policies do not apply with the exception of section 3.3 (parkland, open

Source	Topic	Comment	JART Response
		Noise pollution-crushing equipment, blasting, trucks-interrupts sleep, tranquility-quality of life impacts, deters some wild life (which is averse to noise) from inhabiting our area or causes it to re-locate to less suitable areas.	space and trails). The Niagara Escarpment Plan may permit new or expanded quarries to locate in areas designated as Escarpment Rural Area subject to a plan amendment. JART will be considering the MOE guidelines for noise.
P15	Natural Environment	Wildlife corridors-wildlife passage between green zones disrupted.	Comment noted. The proposed footprint excludes the natural features on the eastern portion of the Nelson property. Other wildlife connections would be disrupted or lost.
P16	Natural Environment	It would appear that over the years of operation of existing quarries on the Escarpment that a valuable resource has been, and continues to be, squandered. One of the most valuable uses of Limestone is that of producing cement. Cement cannot be produced from other types of rock. To continue to quarry Limestone as in the past and use it for ballast, backfill etc. is squandering this valuable resource. These other uses that Limestone is presently being used for could be replaced by other aggregates. For example, the enormous Granite rock piles around the former Marmora Mine site could be crushed and transported, by rail, to Toronto and area, then transported to site by truck. This would clean up some abandoned sites, provide some employment, in areas other than the GTA and improve out environment. There exist many other sources of potential aggregate material around abandoned mine sites such as tailings, slag etc. Yes, it would be more expensive, however a cost has never been established for destroying an area such as the Escarpment. For example, what has been the cost for destroying an area such as the Escarpment. For example, what has been the cost for destroying farm land in the GTA and thus importing our food supply? The argument that the Escarpment material is close to the end use and therefore is in keeping with the Koyoto Protocol is false and misleading. If society becomes serious about protecting the environment etc. then we should	Comment noted. Long term conservation and recycling of aggregates has been raised by the Environment Commissioner as a matter requiring further action. Policy 2.2.3.1 of the Provincial Policy Statement recommends as much of the mineral aggregate resources as realistically possible will be made available to supply mineral resource needs, as close to markets as possible.

Source	Topic	Comment	JART Response
		remove our heads from the sand and begin to look at the large picture. I believe that if we started to implement quarry projects for the betterment of ALL of society we would not require massive expansions of quarries on "protected" areas such as the Escarpment.	
P18	Natural Environment	If the proposed new highway from Fort Erie to Toronto goes ahead, it will further destroy green areas of Burlington. I suspect Nelson wants to supply the stone for this new highway too? This expansion goes against the "spirit" of the new liberal policy of protecting green areas of Burlington & Ontario.	Comment noted. Nelson supplies aggregate for projects located close to their quarry including road construction (e.g. Highway 407).
P27	Natural Environment	We are strongly opposed to the expansion of Nelson Quarry. Its already heavy negative impact on the surrounding environment and community will reach intolerable levels. This is contrary to the present local and provincial governments' initiatives to consciously and aggressively protect the Niagara Escarpment and halt development in the newly designated Green Belt. The numerous negative impacts would surely soar. The devastation of 280 additional acres of sensitive environment and habitat in a biosphere unique in the world, according to UNESCO, on top of 600 acres already destroyed permanently, is intolerable Nelson Aggregate has enjoyed over 50 years of unobstructed access to limestone at this site, putting heavy stress on the environment and surrounding extensive semi-rural community. It was granted access in the 1950's when environmental and community issues were not considered with the extensive knowledge and scrutiny that we exercise today. We need to use today's higher standards and stricter guidelines when considering an extension to their enterprise. The company has at least another 7 years of production on its present location without expanding. They knew that the almost 60 years of financial gain was finite when they entered into the deal. There was no guarantee for a continuum. Under the new reality of environmental protection and quality of life for the local community, please give Nelson Aggregate notice that expansion is rejected. This will give them plenty of time to plan relocation to the least environmentally sensitive	Comment noted. Both the Niagara Escarpment Plan and the Greenbelt Plan may permit aggregate extraction subject to NE Plan amendment and all other applicable legislation, regulations and municipal official plan policies and by-laws. The UNESCO designation recognizes the natural features and ecological importance of the escarpment and endorses the Niagara Escarpment Plan. While the designation of World Biosphere Reserve gives the Niagara Escarpment special recognition, it does not necessarily preclude quarry applications. Comments noted. Nelson is required to meet contemporary standards in place at the time of their application but decision makers are also guided by more recent policies which are considered relevant if not determinative.

Source	Topic	Comment	JART Response
		and community disruptive site. If society expects individual citizens to make sacrifices and take responsible actions for the sake of the environment, then high profile companies should also be expected to do so. The decision of government agencies in this and other applications for quarries in the region will resonate in the consciousness of the public. Will the government be true to its values or only pay lip service to it? No person or organization should be exempt from the ideals we need to uphold in connection with the environment – too much is at stake! A final note - 60,000 trees planted in 1993 by the Halton Conservation Authority will be destroyed by expansion of the quarry.	It is acknowledged that a large area has been replanted; a substantial portion of which is located within the proposed quarry footprint.
P30	Natural Environment	I am writing to convince you that by not granting approval to the Nelson Quarry expansion license the City of Burlington is making a decision which is in the greater long term public interest. It is also the right decision to make for the non human species including the deer, coyote, fox, porcupine and countless others who live on this land. I have spent many days in my youth and more recently on an around this proposed expansion area and I can tell you first hang that it is a thriving natural habitat. As you will know from reading the vegetation assessments the close to 400 vascular species on this land are 70% native. Contrary to the assessment, the mature wood lots on site are connected by sufficient corridors to facilitate animal movement and health. I have photographic evidence of animal trails, tracks and scar in areas that the assessment claims are not large enough to be corridors. In fact they are essential corridors and sufficiently sized to provide cover to wildlife. According to Burlington's Official Plan " Greenlands which include important creeks, wetlands, woodlots, wildlife habitat have restricted land use and land owners are encouraged to keep them in their natural state. Development is not permitted in wetlands." Part of the regionally significant Mt.Nemo wetlands complex falls within the subject lands. The East and West Arm tributaries would be destroyed if this approval is granted. The City of Burlington needs to direct its	Comment noted. The proposed footprint would result in the loss of a 4.9 ha woodlot and wetland in the southwest corner of the property. The footprint excludes the natural features on the eastern portion of the property. Other wildlife connections would be disrupted or lost. Comment noted. The proposed footprint results in the loss of a woodland, plantation and two wetland units which have been designated by MNR as part of the provincially significant wetland complex. The wetlands have been evaluated by MNR and have been designated as a provincially significant wetland complex. The tributaries have been excluded from the revised proposal.

Source	Topic	Comment	JART Response
		planning towards protection and reverence for important and valuable natural space. There are no substitutes for the original ecosystems that are present here and any placating concepts of rehabilitation do not come close to replacement or replication. Beyond the land in question is the precedent that would be set. Escarpment rural lands, prime agricultural soils and buffer zones are under threat. When the original Nelson Quarry was created in the 1950's things were different. The Niagara Escarpment has not yet been recognized as a United Nations World Biosphere understanding of global warming and the inherent value of natural ecosystems was not common knowledge. Today the natural capital of this area is recognized. Today the science and our own collective experience dictates that we maintain what is remaining for our health, the health of other animals and the particularly vulnerable species such as the Butternut tree and the Jefferson Salamander that share this densely populated area. Please actively contribute to the health of Burlingtonians and the wildlife within the city's northern borders. Do not grant approval to have this land destroyed.	Comments noted. JART concurs that the proposed landscape and ecosystem rehabilitation plan does not replicate or replace the original ecosystem. Comments noted. Each application is evaluated on its own merits.
P33	Natural Environment	I strongly object to the Nelson Aggregate's application for a new quarry on the Rural Lands of the Niagara Escarpment. I have lived on the south half of Lot 17 for 35 years and have been a farmer all my life. We have never applied for lots because this is number one farmland as is the new site proposed for the quarry. We have extensive wetlands on the north end of our farm abutting the proposed quarry property. This proposed site also has very significant wetlands, including springs which all flow into tributaries of the Grindstone Creek. Also, one of the previous owners set out a managed forest, under the auspices of Halton Conservation Authority, of some 60000 trees which are now 11 or 12 years old and are 18-20 feet tall. On this land and our land there is significant wildlife including deer, fox, coyotes, ducks and many bird species. Some of the bird species are at risk as are some of the tree species, ie butternut.	In the revised extraction footprint, Nelson has excluded the provincially significant wetlands along the eastern boundary of the property; however, two other wetlands would be lost. It is acknowledged that a large area has been replanted; a substantial portion of which is located within the proposed quarry footprint. Nelson acknowledges that nine Butternut trees will be impacted by the extraction.

Source	Topic	Comment	JART Response
		My greatest concern is the wetlands. If the quarry is allowed to dry up their wetlands, they will also dry up our wetlands. This would be completely unfair and perhaps illegal. This would, as well, dry up the tributaries of the Grindstone Creek	Nelson has proposed a 30 metre buffer adjacent to the majority of wetlands on the site. Part of JART's review will be to examine the potential impacts of Nelson's proposal on the on-site and off-site wetlands and watercourses.
P36	Natural Environment	The area where they are proposing to put the new quarry is on land designated Escarpment Rural under the Niagara Escarpment Plan. This land is meant to be a buffer for the Escarpment Protected and Escarpment Natural land. If we allow a new quarry in this buffer area it will degrade these core Escarpment Protected and Escarpment Natural lands. It will leave the Niagara Escarpment more fragmented putting even more strain on an already strained ecosystem. The City of Burlington is almost completely developed. Do we want to see what little undeveloped land we have left, ruined by unabated development. If we don't do our part to protect land in Burlington, who can we count on to protect land.	Comment noted. The Niagara Escarpment Plan may permit aggregate extraction in the Escarpment Rural Area subject to Niagara Escarpment Plan amendment and all other applicable legislation, regulations and municipal official plan policies and by-laws. Comment noted. Burlington has set urban and settlement area boundaries. Aggregate extraction is only permitted by amendment to the Burlington Official Plan.
P37	Natural Environment	My main reasons for my concern are for the environment and health of our community. When an area like the escarpment is situated on a United Nations World Biosphere Reserve, protected by the Niagara Escarpment Plan and surrounded by provincially significant Areas of Natural Scientific Interest (ANSI), it makes no sense to approve such a destructive activity as limestone mining.	The Niagara Escarpment Plan may permit aggregate extraction subject to Niagara Escarpment Plan amendment and all other applicable legislation, regulations and municipal official plan policies and by-laws. The UNESCO designation recognizes the natural features and ecological importance of the escarpment and endorses the Niagara Escarpment Plan. While the designation of World Biosphere Reserve gives the Niagara Escarpment special recognition, it does not necessarily preclude quarry applications.
P39	Natural Environment	Other neighbours who are researching the proposed site have identified many reasons to seriously consider denying this application, including the existence of endangered or threatened species in the area, including species of amphibians, reptiles and tree species and ongoing concerns about water and air quality.	The endangered Butternut occurs on the Nelson property. Nelson has identified that nine trees occur within the proposed footprint of the quarry. Jefferson salamander occurs within the provincially significant wetland on the property immediately to the south of the proposal. JART is

Source	Topic	Comment	JART Response
			not aware of any endangered or threatened species of reptile occurring on the Nelson property. Nelson will be held to provincial standards for air and water quality.
P40	Natural Environment	I am writing in opposition to the proposed amendment to the Niagara Escarpment Plan Ph 105304 (Nelson Aggregate). The land in question is ecologically sensitive and the proposed quarry would seriously disrupt both the wetlands, home to presently endangered species, and the woodlands, home to the endangered butternut tree. It also threatens to disrupt the headwaters of two tributaries of Grindstone Creek. As the Niagara Escarpment has been designated an UNESCO World Biosphere Reserve, to disturb it for a quarry seems unconscionable. When no one is left to mourn, When we are sure that the butternut trees have gone, And only dust rises from the north bluff; When we cannot go back to our promises, Because we have lost what it is there to save, And when all the life has left our waterways; When the landscape bares the scars Of our greed and disregard And when there is nothing left to take, The price of the limestone will be nothing compared to the cost of our mistakes. Please say “NO!” to Nelson Aggregate and keep our promise to the land we are meant to protect! I have done my part to help, please do yours.	Comments noted. The proposed footprint results in the loss of a woodland, plantation and two wetland units which have been designated by MNR as part of the provincially significant wetland complex. The endangered Butternut occurs on the Nelson property. Nelson has identified that nine trees occur within the proposed footprint of the quarry. Jefferson salamander occurs within the provincially significant wetland on the property immediately to the south of the proposal. The UNESCO designation recognizes the natural features and ecological importance of the escarpment and endorses the Niagara Escarpment Plan. While the designation of World Biosphere Reserve gives the Niagara Escarpment special recognition, it does not necessarily preclude quarry applications.
P41	Natural Environment	As a Burlington resident, my family and I enjoy walks along the Bruce Trail all year round. Any development that threatens the beauty of the Escarpment, like the proposed expansion of the Nelson Aggregate quarry, concerns me deeply. The escarpment plays a vital role as a habitat for plant and animal life including threatened species like butternut trees and the Jefferson Salamander. In addition the proposed development threatens to disrupt the headwaters of two tributaries of the Grindstone Creek.	Comments noted. The endangered Butternut occurs on the Nelson property. Nelson has identified that nine trees occur within the proposed footprint of the quarry. Nelson has revised the footprint for the proposed quarry to exclude the two Grindstone Creek tributaries. Nelson proposes a 15m setback from the western watercourse.

Source	Topic	Comment	JART Response
		A humans, we bear an enormous responsibility. While we look for ways to improve our lives through development, we must respect all that nature provides us and we must use its resources responsibly. Please use your position to preserve what we have and to avoid future regret that is sure to accompany any destruction of the Escarpment.	
P43	Natural Environment	I oppose the application for a new quarry by Nelson Aggregate. I oppose the quarry for the following reasons: 1. The property is situated in a United Nations World Biosphere Reserve. 2. The property has the 3rd highest ranking of environmental protection under the Niagara Escarpment Plan. 3. The property is surrounded by Areas of Natural and Scientific Interest (ANSI) 4. It is the home of the nationally endangered Butternut tree. 5. The property is the habitat for the Nationally Threatened Jefferson Salamander.	Comments noted. The UNESCO designation recognizes the natural features and ecological importance of the escarpment and endorses the Niagara Escarpment Plan. While the designation of World Biosphere Reserve gives the Niagara Escarpment special recognition, it does not necessarily preclude quarry applications. The property is designated as Escarpment Rural Area in the Niagara Escarpment Plan. This designation may permit new aggregate extraction subject to a NE Plan amendment and all other applicable legislation, regulations and municipal official plan policies and by-laws. The Medad Valley ANSI (provincial) is located approximately 750 m west of the proposed quarry, Mount Nemo Escarpment ANSI (provincial) is located east of the proposed quarry, and Nelson Slope Forest ANSI (regional) is located southeast of the proposal. The endangered Butternut occurs on the Nelson property. Nelson has identified that nine trees occur within the proposed footprint of the quarry.

Source	Topic	Comment	JART Response
		6. This property contains the headwaters of two tributaries of the regionally significant Grindstone Creek.	Jefferson salamander has not been found in the proposed extraction area but is known to occur within the provincially significant wetland on the property immediately to the south of the proposal. Nelson has revised the footprint for the proposed quarry to exclude the two Grindstone Creek tributaries. Nelson proposes a 15m setback from the western watercourse.
P44	Natural Environment	I find it interesting that the City of Burlington is so proud of its waterfront park while the Niagara Escarpment portion of the City is required to suffer an enormous open pit mine. This is the largest environmental disaster in the City so why are you and your fellow councillors not opposing it. I normally do not get involved in politics but I strongly feel that the quarry expansion is bad for the City and its citizens. If you allow this blight on the landscape to proceed, how do you think you will be able to stop development north of the 407 into the rural area. It's time to draw a line in the sand and protect the rural part of Burlington. Perhaps you should look at the satellite map section of north Burlington on Google and see the size of the disaster that has already been created.	Comments noted.
P45	Natural Environment	The Coalition on the Niagara Escarpment (CONE) is pleased to provide comments on the above-noted proposed Niagara Escarpment Plan Amendment for an 82.3-hectare expansion of the Nelson Aggregate Company quarry on Mount Nemo in the City of Burlington. **I Introduction** CONE, founded in 1978, now has 32 member organizations – both province-wide environmental organizations and local community groups along the Escarpment. We have worked consistently for the protection of the Escarpment from inappropriate development. We support the Niagara Escarpment Plan. We have had a long history of involvement in Escarpment aggregate matters. Most recently, jointly with our	Comments noted.

Source	Topic	Comment	JART Response
P45 cont'd		member group Protect Our Water and Environmental Resources (POWER), we were a party at the Joint Board hearing regarding proposed Niagara Escarpment Plan Amendment 135 to expand Dufferin Aggregates' Milton Quarry – the only party at the hearing that opposed the amendment. On June 29, 2005, CONE and POWER filed an application with the Lieutenant Governor in Council pursuant to the Consolidated Hearings Act requesting that the Ontario Cabinet rescind the June 8, 2005 decision of the Joint Board, which approved the quarry expansion application with conditions, and that Cabinet substitute for it a decision rejecting the Dufferin Aggregates application. One of the very few policies in the Niagara Escarpment Plan (NEP) that CONE does not support is the provision, through Plan Amendment, for the possibility of new or expanded aggregate operations in the Escarpment Rural Area designation. CONE has a long-held policy position that the NEP Area should not be considered as a long-term source of aggregate supply and for that reason, that new or expanded aggregate licenses should not be approved. CONE takes this position because, in our view, new of expanded aggregate licenses offend the purpose and objectives of the Niagara Escarpment Planning and Development Act (NEPDA) and the NEP. **II Processing of Proposed NEP Amendment 153** Notwithstanding CONE's position on aggregate extraction in the NEP Area noted above, CONE agrees that proposed Amendment 153 should continue to be processed. Although our position is that proposed Amendment 153 is not in the public interest pursuant to section 6 of the NEPDA, we do recognize that the NEP contemplates the possibility of expansion to aggregate licenses in the Escarpment Rural Area designation, where the Nelson Aggregate Company expansion would take place. **III Rationale for Opposition to Proposed NEP Amendment 153** A number of issues are covered in the February 17, 2005 Initial Staff Report that cumulatively contribute to CONE's position of opposition to the proposed Amendment and re-confirm our	Comments noted.

Source	Topic	Comment	JART Response
P45 cont'd		position on aggregate extraction in the NEP Area noted above. (a) Inconsistency with Purpose and Objectives of the NEPDA and the NEP: The proposed quarry expansion offends the purpose of the NEPDA and the NEP, to maintain the Niagara Escarpment and land in its vicinity "substantially as a continuous natural environment". CONE's position is that the proposed quarry expansion does not meet these tests. The continuous natural environment of the Plan Area is already severely compromised by the existing quarry, established long before approval of the NEP. CONE sees no justification for further fragmenting the Escarpment's natural corridor by expanding the Nelson Aggregate Company quarry. The proposed Amendment in CONE's view, also offends Objective 4 of the NEP (objective 8d of the NEPDA) that seeks to "maintain and enhance the open landscape character of the Niagara Escarpment…". About 90 percent of the aggregate in the proposed expansion area is below the water table and the proposed expansion would involve quarrying for about 20 years. Together, these two facts mean that natural habitats and farmlands – the "open landscape" of the Escarpment countryside – would be destroyed for a lengthy period of time and cannot necessarily be re-created through site rehabilitation after extraction. It is impossible to argue that "key natural heritage features will be mitigated, compensated and monitored to ensure no adverse effects…" (page 22, Initial Staff Report) when 73.2 hectares of natural habitats and productive agricultural lands – the extent of the proposed extraction area – will be destroyed. (b) Quarry Expansion Not an "Interim" Land Use: The applicant takes the position that the proposed quarry expansion is an "interim land use" (page 22, Initial Staff Report). A quarry expansion that involves 20 years of extraction and many additional years, indeed decades, of site rehabilitation, is not an interim land use. The Canadian Oxford Dictionary defines "interim" as "temporary" or "provisional". No reasonable person can consider the removal of natural habitats and farmlands for well over 20 years to be an "interim" destruction of the Niagara Escarpment's natural environment.	Comments noted. The wetlands have been evaluated by MNR and have been designated as a provincially significant wetland complex. In the revised extraction footprint, Nelson has excluded the provincially significant wetlands along the eastern boundary of the property; however, two other

Source	Topic	Comment	JART Response
P45 cont'd		This perspective on the notion of interim land use re-confirms CONE's position that the proposed Amendment offends the purpose and objectives of the NEPDA and the NEP. (c) Destruction of Specific Natural Features Contrary to Provincial and Federal Interests: (i) Aggregate extraction proposed in the Regionally Significant Wetland Complex at the southerly end of the expansion area, which would destroy that portion of the wetland complex and negatively affect the portions of the wetland complex on the adjacent property, offends the provincial interest in protection of wetlands. The argument that the wetlands do not contain habitat or rare, vulnerable, threatened or endangered species is not at all compelling because through the Provincial Policy Statement (PPS), the Province has clearly stated its interest in the protection of wetlands, in and or themselves, from development. The PPS contemplates that not only Provincially Significant Wetlands but also others such as Regionally Significant Wetlands may be protected from development in that the Implementation and Interpretation section of the PPS states that PPS policies represent minimum standards and that planning authorities can go beyond these minimum standards under some conditions. The Halton Regional Official Plan has gone beyond the minimum standards of the PPS by including the Regionally Significant Wetland Complex in the "Greenlands B" designation, which does not permit aggregate extraction (page 5, Initial Staff Report). (ii) The endangered Butternut trees found in the southwesterly portion of the expansion area would be destroyed by the proposed quarrying. Although this tree species is not yet regulated under the provincially Endangered Species Act, it is recognized federally as endangered by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and the federal Species at Risk Act protects endangered and threatened species identified by COSEWIC. CONE is pleased that the matter of the proposed destruction of the Butternut trees will be the subject of further review through the JART process, since an analogous situation involving the Jefferson Salamander, identified as threatened under the federal Species at Risk Act, in the Dufferin Aggregates application	wetlands will be lost. The endangered Butternut occurs on the Nelson property. Nelson has identified that nine trees occur within the proposed footprint of the quarry. Comments noted.

Source	Topic	Comment	JART Response
P45 cont'd		(Plan Amendment 135) led to the applicant agreeing not to extract aggregate under the wetlands that form part of the habitat of this species. (d) Public Need, Lack of Evaluation of Alternative Supply, and Lack of Evaluation of Demand Management: As the Initial Staff Report notes, "the NEC has continually and consistently included public need as an important matter to be examined for all NEP amendments…" (page 11). CONE takes the position that it is impossible for public need to have been established as part of the justification for this Amendment if, as noted on page 27, the applicant has not indicated whether it has assessed any other available aggregate areas outside the NEP Area and has not included an evaluation of why these areas cannot be used. CONE concurs with the statement on page 27 that "the environmental principles of the NEPDA and the NEP suggest that the NEP Area should not be viewed as a mineral reserve in isolation from other areas having the same resources that, it utilized, would have less impact on the continuous natural environment of the NEP Area".	
P46	Natural Environment	I am writing to you on behalf of Ontario Nature-Federation of Ontario Naturalists to ask the Niagara Escarpment Commission not to support the proposed Niagara Escarpment Plan Amendment for a 82.3-hectare expansion of the Nelson Aggregate Company quarry on Mount Nemo in the City of Burlington. Ontario Nature has been protecting and restoring nature through research, education and conservation action since 1931. Ontario Nature champions woodlands, wetlands and wildlife, and preserves essential habitat through its own system of nature reserves. It is a non-profit, charitable organization representing 25,000 members and over 140 member groups across the province, connecting individuals and communities to nature. Ontario Nature has long worked to protect the Niagara Escarpment from inappropriate development and is supportive of the Niagara Escarpment Plan (NEP). Ontario Nature is also a landowner within the NEP and wants to ensure that the conservation purpose and objectives of the Plan are adhered to. We have had concerns about the impacts of aggregate extraction on the Escarpment for many years.	Comments noted.

Source	Topic	Comment	JART Response
		Ontario Nature feels that ecosystem-based land use planning is required across all of southern Ontario to conserve biodiversity and protect human health (for more information on Ontario Nature's *Southern Ontario Greenway Strategy* please visit www.ontarionature.org). The NEP is a good working example of smart land use planning. As such, it should not be a primary source of aggregate supply and new or expanded aggregate licenses should not be permitted. Ontario Nature does not support amending the NEP from the designation of Escarpment Rural Area to Mineral Resource Extraction Area. Both the NEP and the Greenway call for a contiguous network of cores and corridors and protected farmland across all of southern Ontario. Ontario Nature believes that the existing quarry already compromises this fundamental premise of the NEP and that extensive rehabilitation efforts, long promised by the Nelson Aggregate Company, need to commence. The proposed quarry expansion would only serve to further reduce the Escarpment's continuous natural corridor, while also destroying natural habitat and productive agricultural land. Ontario Nature has worked hard to ensure wetlands are protected through the Provincial Policy Statement (PPS). The Nelson Aggregate Company proposal would heavily impact part of a Regionally Significant Wetland Complex at the southern end of the proposed expansion area. The impacts would be felt throughout the wetland complex on the adjacent property, going against the intent of the PPS to protect wetlands. Also, the Halton Regional Official Plan includes the wetland complex in its "Greenlands B" designation which does not permit aggregate extraction. In addition to the impacts on the wetland complex, the proposed quarry expansion puts at risk the endangered butternut trees in the southern portion of the proposed expansion area. The trees are recognized endangered by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and protected under the federal *Species at Risk Act*. Ontario Nature supports the JART team further investigating the impacts to these endangered trees.	The wetlands have been evaluated by MNR and have been designated as a provincially significant wetland complex. In the revised extraction footprint, Nelson has excluded the provincially significant wetlands along the eastern boundary of the property; however, two other wetlands will be lost. The endangered Butternut occurs on the Nelson property. Nelson has identified that nine trees occur within the proposed footprint of the quarry.

Source	Topic	Comment	JART Response
P47	Natural Environment	1. Lake Ontario Waterkeeper strongly opposes amending the Niagara Escarpment Plan to permit the establishment of a licensed quarry. Reasons for this opposition are as follows: 2. Opening up new areas on the Niagara Escarpment for mineral resource extraction undermines the very purpose of the Niagara Escarpment Plan: "To provide for the maintenance of the Niagara Escarpment and land in its vicinity substantially as a continuous natural environment, and to ensure only such development occurs as is compatible with that natural environment." 3. Creating new quarry land on the Escarpment is also contrary to the objectives of the Niagara Escarpment Plan. New quarry land will not protect unique ecologic and historic areas. New quarry land will not maintain or enhance the quality and character of natural streams and water supplies. New quarry land would not provide opportunities for outdoor recreation. New quarry land will not maintain or enhance the open landscape character of the Niagara Escarpment or preserve the natural scenery. New quarry land will not create public areas or facilitate public access to the Niagara Escarpment. 4. Waterkeeper is particularly concerned that the Niagara Escarpment Plan may be amended in order to serve the desires of industry rather than the interests of the Escarpment. This is in clear contradiction to Objective 5, which is, "To ensure that all new development is compatible with the purpose of the Plan". Clearly, industry should conform to the goals of the Plan, and not vice versa. 5. Waterkeeper's interpretation of the Niagara Escarpment Plan is consistent with other provincial and federal environmental initiatives. For example, source water and greenbelt protection strategies clearly recognize the importance of protecting the Escarpment and the dangers of allowing development pressures to eclipse sound environmental planning. 6. Furthermore, there is no evidence whatsoever to suggest that the protections of the Niagara Escarpment Plan or complementary federal and provincial programs should be	Comments noted.

Source	Topic	Comment	JART Response
		abandoned in order to accommodate a new quarry on the Niagara Escarpment. 7. Waterkeeper notes that the EBR posting itself lacks critical information: There is no justification for expanding quarrying activities. There is no analysis of alternative supplies. Finally, there is no discussion about the potential environmental impacts resulting from increased quarrying activities in the region. 8. The EBR posting does make reference to a "rehabilitation" plan. Waterkeeper respectfully suggests that "rehabilitation" amounts to little more than false charity. No wetlands constructed in the future can compensate for the dramatic, lengthy disruption to the natural ecosystem that the quarry activities would bring today. 9. In light of the facts outlined above, Waterkeeper asks that approval to amend the Niagara Escarpment Plan not be granted. 10. In making this request, Waterkeeper supports the submission of other community and environmental organizations who are opposing the expansion of quarrying activities on the Niagara Escarpment.	
P60	Natural Environment	I am aware that you are the senior Planner for RMH. I just recently found out that some precious escarpment land in North Burlington is likely to be turned into a quarry. I am writing you this letter in hopes that you will hear me as a member of the community who doesn't want out natural rural escarpment land to disappear. We need to stop building and bring nature back to the way it was when it's gone. We need to protect endangered and threatened animal and plant species, safeguard rural water tables, wells, creeks and wetlands and preserve and enhance quality of life of the Niagara Escarpment area. Thanks for hearing my concerns. Please help put a stop to this!	Comments noted.
P64	Natural Environment	As for nature, I moved to Lowville and paid premium price for this land because of Mount Nemo, The Bruce Trail, and the Lowville Park. This area is well known for its natural beauty and wild animals. Just the other night as I was driving home from downtown Burlington, I came across six deer crossing the road at Britannia just west of Guelph Line. We need to preserve this wildlife so close to the city – yet	Comments noted.

Source	Topic	Comment	JART Response
		far enough away to seem like "up north". Please respect this area as one last place where construction has not yet ruined the natural beauty and solitude.	
P68	Natural Environment	As I write this, I'm actually sitting at Mount Nemo watching a roost of Turkey Vultures circle in the air not 20 feet away from me. As a photographer I've studied this particular group since their return in March, and this year's young are about to emerge from a small cave at the base of the cliff. I'm surrounded by cedars a thousand years old and a diversity of wildlife I could go on for pages listing. The wildlife here is oblivious to the threat against its longevity and certainly has no control over its future. It can't protect itself against urban or industrial expansion… only we can. We and we alone are responsible for its protection or its destruction. Coincidentally, as I write I hear the blasting from the operation in Milton on the far side of Hilton Falls Conservation area. I know it's not from the Nemo quarry, otherwise I would have felt the shaking in the ground. My view is that of the GTA, and even on a clear day (unlike today) there is a predominant haze which only goes away a few days a month. It didn't used to be like this. I was a camper as a kid, and then a counsellor at Camp Buredaca in Lowville from the ages of 6 to 19. We would go on creek hikes and try to catch crayfish. Now all you come out with is a putrid stench from all the pollutants and toxins. It's unsafe to be in. While I don't attribute the demise of our watershed and these natural areas solely on quarrying, the point is this degradation has occurred only over the last 25 years. It's a continuing process which has been going on for longer, but we are now at that point where we can't put it off any longer.	Comments noted.
P70	Natural Environment	**Destruction of the Natural Environment** – The proposed site is home to many valuable natural features, including woodlands and wetlands that are home to several threatened species, including the Jefferson Salamander (as confirmed by the MNR). Over 60,000 trees were planted 12 years ago as a managed forest	Concern noted. It is acknowledged that a large portion of the property has been reforested; a substantial portion of which is located within the proposed quarry footprint.

Source	Topic	Comment	JART Response
		on the property. These trees clean our air and water thereby helping ensure the safety of the water and air in the Halton region. Halton's tree cover is already below that which is considered optimal by the conservation authority – these trees are not only critical habitat for threatened species, the human population depends on them as well. We CANNOT afford the loss of this many more trees in our region. I object to further degradation of water and air quality in Halton and further destruction of the natural environment. I object to the deliberate destruction of habitat and killing of species at risk.	
P3	Noise/Air Quality	Noise Pollution • Machines run all night • Vehicles very loud • Street cleaners are very loud! • The blasting itself is loud Health hazards • Very dusty, poor air quality • Is lime being put into our air and water? • The silt collects on window sills, in our pool etc.	Nelson has changed quarry operations to improve dust control as indicated at the recent ARA open house. Further complaints should be addressed to Nelson and MNR. Crushing plant is to be moved to floor of quarry and berms are proposed around the expansion lands.
P4	Noise/Air Quality	Our concerns are Noise Level Excessive amount of dust	Crushing plant is to be moved to floor of quarry and berms are proposed around the expansion lands. Nelson has changed quarry operations to improve dust control as indicated at the recent ARA open house. Further complaints should be addressed to Nelson and MNR.
P7	Noise/Air Quality	Matters needing addressing What happens after use and affect occurs after the fact due to excessive evaporation and air pollution?	
P11	Noise/Air Quality	It will take a long time to read through all the technical studies but I have read the report on Air Quality. In my opinion it is not an accurate report and I would like to strongly suggest it be done again by a different company not hired by Nelson Aggregate.	The Air Quality report has been peer reviewed.
P12	Noise/Air Quality	The Medad Valley separates our home from the present location of Nelson Aggregates Co. Even with that geographical separation our mornings start not with the sound of birds	Hours of operation are addressed through ARA licensing -Site Plan

Source	Topic	Comment	JART Response
		singing in the trees but, with truck reverse horns working in the quarry. That noise starts between 0530 and 0545 hrs.	
P15	Noise/Air Quality	Impact on Air Quality – truck traffic and dust – trucks output more pollution per km traveled. Who/how will trucks be monitored for emissions compliance? Dust particles impact on human respiratory health and building maintenance-cleanliness. Light pollution levels-operational lighting obliterates night sky views impeding study of celestial objects and impacting quality of life. These are not simply aesthetic concerns. Clear skies contribute in a very meaningful way to the economy of the immediate region. Many star-gazers and observatories exist in our immediate neighbourhood. The people drawn to our area bring un-quantified economic benefit. The recent lunar eclipse brought a group of 30 plus to Kilbride park to observe. Noise pollution – crushing equipment, blasting, trucks – interrupts sleep, tranquility – quality of life impacts, deters some wild life (which is averse to noise) from inhabiting our area or causes it to re-locate to less suitable areas.	Crushing plant is to be moved to floor of quarry and berms are proposed around the expansion lands. Blasting issues were addressed by Peer Review.
P22	Noise/Air Quality	The drivers of the quarry trucks seem to be the worst on the highway, esp. Guelph Line. - Excessive speeds and extreme tailgating. - Extreme noise and air pollution	Speed violations should be reported to Halton Police as truck drivers are independent operators.
P23	Noise/Air Quality	We looked forward to the day when Nelson quarry was scheduled to close. The noise, dust, traffic, are ten times worse than when we moved out here 30 years ago.	Nelson has changed quarry operations to improve dust control as indicated at the recent ARA open house. Further complaints should be addressed to Nelson and MNR.
P24	Noise/Air Quality	I am writing in regard to the Air Quality study that Nelson Aggregate supplied for the quarry expansion application that they have applied for. I have read the report and I have doubts on how accurate it may be. Nelson Aggregate has a dust monitor located on the southeast corner of the quarry property. The machine measure whatever dirt goes through the monitor. Does the monitor work seven days a week and can it be shut off at any time? Does it measure the duct when the wind blows in all direction? Does it measure the limestone dust	

Source	Topic	Comment	JART Response
		that the truck traffic brings out of the quarry onto the road every day? Is the monitor located at the best spot for Nelson Aggregate or for the neighbours? Would it not be better to have unbiased parties such as the Ministry of Environment monitor the dust at the expense of Nelson Aggregate? Golder Associates was retained by Nelson to prepare an Air Quality assessment for the existing quarry and the expansion property. Nelson supplied the data from their dust monitor for the study to be done. Golder Associates was not hired to monitor dust but to write up the Air Quality report based on information provided by the quarry. They would then factor in the environmental variables as best they could considering they were not at Nelson Aggregate. Is that good enough? In the past I have made phone calls to the Quarry with complaints of the limestone dust blowing across our property coating garages, lawn chairs, patios, vehicles etc. I have also spoken to the Ministry of Natural Resources and they have said that as long as Nelson Quarry stays within the guidelines of their permit there is nothing they can do. They also informed my that they would have to see the limestone dust leaving the piles and blowing off the property for themselves before they could contact the Ministry of Environment and have the dust monitored. I have some concerns regarding this because the Ministry of Natural Resources would have to plan there visit spontaneously while taking into consideration many factors. For instance, is it a windy day? Have we had recent rain or is it raining at the present time? Is the quarry operating at the company's normal quality of operations? It was suggested that I contact the quarry operating at the company's normal quality of operations? It was suggested that I contact the quarry with my complaints and they will try to work with me. After 20 years of living on #2 Side Road, along with my experience with Nelson Aggregate I know this suggestion will not work. In regard to the road watering on #2 Side Road, the road is watered down, eventually dries and then we are left with a lot of limestone dust. It is very thick along the edge of the paved shoulder. You would never be able to walk along the side of the road without getting covered in dust. Golder Associates indicated	Dust can be an issue. Actions to mitigate dust are required.

Source	Topic	Comment	JART Response
		that there is the possibility of nuisance dust that could reduce visibility at times but they do not see it as a problem to people's health. How can this be accurate when the dust could be thick enough to reduce visibility? I would like to see another air quality test done thoroughly and accurately before the application process continues. It could be done easily by setting up a dust monitor on #2 Side Road near the Guelph Line and somewhere else on the quarry property where the limestone dust is not being wet down in front of the monitor.	
P27	Noise/Air Quality	The high decibel noise of constant gravel truck convoys is a real irritant to the numerous residents especially as they gear up or down for the climb or decent of the escarpment at 100+kph. (The traffic fine warnings are not working !) The increase in dust in the air due to excavation and processing further pollutes the air they are forced to breathe. The constant noise of heavy industry at the site is a further irritant	Speed violations should be reported to Halton Police as truck drivers are independent operators. Dust can be an issue. Actions to mitigate dust are required.
P30	Noise/Air Quality	This area is particularly valuable not only as prime agricultural land (as roughly half of it is) but as a carbon sink to help offset dangerous levels of air pollution created in the densely populated areas to the south. Conservation Halton will tell you that of their largest reforestation projects is on this land. 60,000 trees which are not approximately 10 feet in height, are living here and contributing positively to the air quality. They, along with the magnificent mature deciduous species are crucial purifiers of the water systems and are in the area.	Concern noted. It is acknowledged that a large portion of the property has been reforested; a substantial portion of which is located within the proposed quarry footprint. Carbon sequestration is recognized as one of the benefits of reforestation.
P32	Noise/Air Quality	There is a large amount of dust that is created by the quarry due to the blasting truck traffic and processing of stone.	Nelson has changed quarry operations to improve dust control as indicated at the recent ARA open house. Further complaints should be addressed to Nelson and MNR.
P34	Noise/Air Quality	The monitoring of the blasting and traffic (dust/noise) impacts is totally reactive and proactive monitoring by Nelson has been non-existent. What proactive measures does Nelson AC propose to put in place? What are the official requirements and feed	Nelson has changed quarry operations to improve dust control as indicated at the recent ARA open house. Further complaints should be addressed to Nelson and MNR.

Source	Topic	Comment	JART Response
		back processes to ensure that the public "Quality of Life" is guaranteed not to diminish.	New truck washing facility being installed. Traffic infractions to be reported to Halton Police. The public can provide further input at next PIC, public meeting and any meeting of local or Regional Council.
P37	Noise/Air Quality	Other neighbours who are researching the proposed site have identified many reasons to seriously consider denying this application, including the existence of endangered or threatened species in the area, including species of amphibians, reptiles and tree species and ongoing concerns about water and air quality.	All of these issues were assessed in the Nelson studies and JART and its peer review consultants will assess the impact of the application on all these issues and document the findings in the JART report.
P55	Noise/Air Quality	Dust produced by the blasting, digging and processing has coated our home and gardens. The dust on the windows is extremely difficult and time consuming to clean on a regular basis. The dust is so pervasive at times that we do not even open the windows.	Nelson has changed quarry operations to improve dust control as indicated at the recent ARA open house. Further complaints should be addressed to Nelson and MNR.
P57	Noise/Air Quality	I applaud your efforts to stop the destruction of the escarpment for the benefit of corporate profit I live 200 meters from the Nelson Quarry and have endured the wrath of a corporate polluter who left unchecked is completely out of control. I have complained numerous times, including in person at the office of the Quarry. No one at the Quarry even listens to me, much let alone attempts to correct the problem. Their cavalier attitude leads me to the belief that they already have all our local politicians in their pocket. The front of my house is the staging area where trucks leaving the Quarry stop to complete their paperwork before continuing down Guelph Line to the highway. If I ever forget to keep my windows closed tightly, even for a few hours, the entire inside of my house is filled with dirt emanating from the dust storm that trails these industrial vehicles. I park my sports car inside my garage for protection from the gravel missiles that continually shower my driveway. However I do not have garage space for my other vehicles which I must wash two or three time weekly. I must wash the windows of my house weekly also. I am currently replacing the liner in my backyard swimming pool which has been ravaged by the high volume of grit and	Nelson has changed quarry operations to improve dust control as indicated at the recent ARA open house. Further complaints should be addressed to Nelson and MNR.

Source	Topic	Comment	JART Response
		dirt that is bombarding my property. Once I received a phone message from councillor Taylor basically defending the Quarry and advising me that trucks were abiding by the by-laws and not stopping on Guelph Line. Ironically while I was listening to his excuses for the Quarry I was looking out my front window at a Nelson's transport truck idling in front of my house. Needless to say I never returned his call. I have no desire to speak with the friends of Nelson Aggregate who have so readily betrayed their neighbours. I am afraid we will lose this battle and our neighbour will be sacrificed for the sake of Nelson Aggregate. We need to turn our attention to ridding our community of those city politicians and bureaucrats that not only allowed our homes to be destroyed but are actually considering plans to worsen the situation. We need a new mayor and a new city council that represents the people of Burlington. If anyone doubts the merits of my complaints, just drive by my house and witness the river of mineral waste that runs down my driveway daily.	Members of City and Region Council will take all public input into consideration when making a decision on this application.
P1	Blasting	I am very much against the expansion of the existing quarry. Traffic issues, blasting and preservation of water and wildlife are my reasons for objection.	
P3	Blasting	Structural damage to my home Blasting and vibration concerns - They blast almost everyday now The blasts are getting stronger every week. I'm <u>sure</u> they go over regulation levels	The Aggregate Resource Act Provincial Standards require, as a condition of any new licence, that all blasts be monitored for vibration and blast overpressure and that each operator will ensure compliance with current provincial guidelines. Further, these standards require that monitoring reports be retained and made available the Ministry of Natural Resources, upon request. JART will be recommending that maximum vibration and noise levels related to blasting be identified on the Aggregate Resources Act site plans. Further, Nelson has been requested to establish fixed monitoring stations, in appropriate locations, in order to

Source	Topic	Comment	JART Response
			monitor each blast. Nelson has developed a series of documents in support of this application and has a developed Blasting/Seismograph Protocol and placed it on the company website for review. JART will be reviewing this information as part of its review of the application and are seeking to ensure appropriate controls are included in the ARA site plan."
P4	Blasting	Our concerns are Presently we experience vibrations which has caused cracks in wells, flooring, from blasting which will get worse with the expansion	
P7	Blasting	Matters needing addressing Effects of blasting on homes, health of residents	
P10	Blasting	What will happen to the Mount Nemo Long Term Facility? How can the staff and residents cope with the blasting? I live in Lowville and feel some of the Blasting – the house trembles, the blasting sound is very loud.	
P13	Blasting	There are 9,500 holes and counting in Ontario where blasting is occurring. Surely with recycling, reducing need by not building roads but encouraging transit, railways and breaking our provinces addiction to gravel will reduce the need for aggregate. My address is the south half of Lot 17 NDS and the proposed expansion of the Nelson Quarry is the north half of Lo7 17 NDS. I live on a farm with barns and outbuildings that over the years have had their foundations damaged by the blasting from the Nelson Quarry. Our century old house has the plaster cracked by the blasting from the Nelson Quarry. Our century old house has the plaster cracked in numerous places after the blasting. After a very severe blast in the early 1980's the management paid us a lump sum of money to repair the damage. Since then they have not accepted any blame for damage. With expansion the damage will be even greater. Thank you for the phone call yesterday. I am bringing you these pictures today as a picture, as we know, is worth a thousand words. There are a couple of thing that I want to point out.	

Source	Topic	Comment	JART Response
		The first is that the cracks in the ceiling in the house and in the garage that is attached to the house are in an addition that was built in the 1960s. In other words the cracks are not appearing because the house is so old. We have always has a good drainage system from the house and a good roof. The second is that in the universal declaration of human rights passed in 1948 article 12 states: "No one shall be subjected to arbitrary interference with their privacy, family, home or correspondence. Nor to attacks upon their honour and reputation Everyone has the right to the protection if the law against such interferences or attacks." The blasts from the Nelson Quarry every Tuesday and Thursday rattle the windows and shake the buildings. The cracks appear and the barn stone crumbles. This to me is an interference as is the noise. To allow expansion will only compound the interference.	
P15	Blasting	Seismic/vibration property damage-blasting damage to homes and buildings due to vibration. Cracks in foundations, plaster walls, chimneys and fireplaces, brick work, driveways, patio's etc.	
P17	Blasting	What departments check records of Nelson Quarry re strength of blasting - how often?	
P19	Blasting	On April 11, 1996, between 2-3 PM our house received a shock that shook the whole house (similar to earthquake, which I have experienced several times in Chile) and shortly after we noticed one of our bay windows was cracked. We phoned Councillor Taylor and Nelson Aggregate to complain. Nelson Aggregate sent staff to review damage , placed some probes in the ground to check future vibrations and concluded that our window was cracked because we had thrown something into it. Of course their own contractors did the reviewing and of course they did nothing wrong. Eventually we replaced the window for about $280, much cheaper than trying to sue. At the time of the vibration that hit our house neither of our close neighbours noted anything unusual. The point from the above suggests that limestone fractures in non-specific ways and has different effects within similar areas.	

Source	Topic	Comment	JART Response
P21	Blasting	As most of the homes within the blasting area of the above concern are built on bedrock, we all vibrate each time they blast, which they do at least twice a week and often more. I feel, and I am sure all the other resident feel, that we should be granted relief – 50 years of this is surely enough. Going on past experience, however, "Government" always supports "Business" at the expense of property owners. Therefore, if their application is approved, severe restrictions should be placed upon their operations. The following would be appropriate. They should be required to build a completely new facility on the proposed NEW quarry site and totally demolish their out-of-date fifty year old facility. The vibration and shockwave from their blasting is too much. Whatever level they are allowed at the present time should be reduced substantially. They should also be restricted to two blasts per week and no more!	
P27	Blasting	Lastly, the homes in the area have been devalued, not only by the above conditions, but physically. The strong blasting on a regular basis rattles dished and shakes the whole structure. This is equivalent to a strong earthquake several times a week. The results, from personal experience, are a heavily cracked basement floor, walls and ceilings, as well as windows that won't shut properly because of shifting! Expansion of the quarry will result in more extensive damage to any buildings south of the site. We are not unique in our 23 years of experience within this industry with no compensation!	
P28	Blasting	As almost all of the homes within the blasting-affected area of this Company's operations are built on bedrock, we all vibrate each time they blast, which they do at least twice a week and often more. I feel, and I am sure all other residents within four km (or more) of the quarry feel, that it is more than time we were granted relief. Fifty years of being repeatedly blasted should surely be enough.	
P29	Blasting	Blasting – when I purchased my home, there were several cracks in the walls and ceilings as a result of the blasting, despite the fact that I'm approximately two km's away from the quarry.	

Source	Topic	Comment	JART Response
		I had all such damage repaired when I remodelled and painted, prior to moving in. I have heard over and over again that Nelson refuses to compensate anyone for their damaged property and ultimately refuses to accept responsibility for the fact that property's, over time, have been damaged by the aggressive blasting. Anyone living in the area can attest to the ground shaking aftershock of a blast. This type of movement in the earth affects foundations and structures, particularly over long periods of time. Not unlike the points I have made about the water situation, who is going to be held accountable for the erosion of the resident's assets when this damage progressively continues on into the future? A small claims action should be initiated by residents now, to make a point to the quarry that it is accountable for affecting our homes and lives each and every day.	
P32	Blasting	Blasting at the current quarry site is causing our entire house to shake. Our home which we built 3 ½ hears ago, is located on the south side of No. 2 Side Road, east of Guelph Line. The shaking is so severe that dishes in our china cabinet move and rattle. There is also a loud rumbling. The noise combined with the shaking is like experiencing a mild earthquake. Not only are these tremors disruptive but they have also caused damage to our home. We have noticed cracks in our ceramic tiles, grout, basement floor, outside walls and porch. The intensity of the blasting began increasing approximately one year after we moved in. We have complained to Nelson quarry and spoken with the quarry manager Mr. Tom Pelko. Mr. Pelko visited our property and explained that they have moved the blasting south, closer to No. 2 Side Road, which is why the blasting is having a greater impact on our property. Our house is built on solid rock, as are many homes in the area; this also contributes to the intensity of the tremors. We suggested that perhaps a reduced amount of explosives could be used to prevent any further damage to our home that the blasting is causing. Mr. Pelko reply was that the quarry is within government guidelines. We feel this demonstrates the quarries complete disregard	

Source	Topic	Comment	JART Response
		for the impact its presence has on the surrounding area. My wife and I are opposed to the Nelson Aggregate Company's application for several reasons: 1. The tremors resulting from the blasting are causing damage to our home. We have put our life savings into our home and we do not feel that the Nelson Aggregate Co. has the right to cause it damage. 2. The tremors that we are experiencing will increase in intensity if the quarry begins blasting on the south side of No. 2 Side Road. We anticipate that this will result in more powerful tremors and an increase in damage to the property. 3. The blasting is causing environmental damage to the treasured Niagara Escarpment. We ask that the application made by the Nelson Aggregate Co. to open a new quarry on the south side of No. 2 Side Road be rejected. We hope that our elected government will protect the interests of everyone and not just those of large corporations with money and expensive lawyers. If you allow this project to expand it would be a tragedy for our environment, the Niagara Escarpment and the City of Burlington. We hope we have elected a Government with conscience for preserving our natural treasures and the rights of its citizens. We strongly urge the City of Burlington, the Ontario government and any other agencies responsible for granting permits for mining and blasting in residential areas to reject the Nelson Aggregate Companies application.	
P33	Blasting	We have lived for 35 years with the blasting of the quarry shaking all of our buildings. The buildings all have major cracks in them. This is unconscionable. Now they wish to open a quarry much closer. They would destroy our quality of life as well as the ecology of the escarpment. Please give my heartfelt concerns your favourable consideration. Thank you.	

Source	Topic	Comment	JART Response
		The monitoring of the blasting and traffic (dust/noise) impacts is totally reactive and proactive monitoring by Nelson has been non-existent. What proactive measures does Nelson AC propose to put in place? The current blast monitoring by Nelson on property owners' properties does not meet recommended standards – apathy seems to be endemic in process.	
P34	Blasting	We have recently relocated to Burlington from Oakville and live on #1 Side Road, west of the Guelph Line. In view of the Nelson Quarry Proposed Expansion and the blasting that could take place if the proposed expansion goes ahead I want to inform you that I am going to request Nelson Aggregates that a condition survey together with some tell-tale monitors be installed in the lower portion of my home which is in contact with the rock. Due to the nature of the rock in this area it is impossible to guarantee that future blasting on the potential expansion site will not have some affect on my property and other properties around here. Therefore, until the existing condition is compared to the final condition, there is no way of controlling or comparing the effects of future blasting.	
P37	Blasting	As residents of Britannia Rd., we have tolerated the existing quarry since moving in in 1985. We were looking forward to the end of blasting, trucks and negative effects on local water tables. We now find out that, not only are the rehabilitation commitments by Nelson sadly lacking (letting the pit fill up with water) but that now even that minimal level of rehabilitation may be delayed for another 20 years.	
P50	Blasting	Over 50 years is enough blasting and aggravation! It sounds like a bomb going off. Shut them down and make them rehabilitate the site now.	
P54	Blasting	We have foundation cracks – I suspect blasting as the cause.	

Source	Topic	Comment	JART Response
		We will be seeking guarantees/compensation for any well/property damage. A fund should be set up (levy on quarry) for future compensation.	
P55	Blasting	The blasting at this site creates a tremendous amount of noise and severe tremors that have, at times, caused physical damage to our home.	
P61	Blasting	We are long-term residents of Cedar Springs Road, have owned he property for over 35 years and object to the expansion of the Nelson Aggregate Company quarry due to the economic hardship that this will cause us. The main issues are deterioration of the foundation of our barn caused by blasting at the quarry, risk of house brickwork cracking and the lowering of the water table, predicted to be one meter along Cedar Springs Road by Nelson Aggregate studies. Our large barn (40ft. x80ft. x40ft tall), built the beginning of the last century, rests directly on an outcrop of the same bedrock being blasted by Nelson Aggregate Company. It is in good condition except for the cemented stone foundation, which has deteriorated badly from the effects of vibration transmitted by the underlying bedrock from blasting at the quarry. The most severe damage is illustrated in Photos 2 and 3. Our house has fared better with only a couple of cracks in the brickwork, shown in Photo 3. There is less damage to the bring cladding of the house because of the vibration-damping effect of approximately two meters of earth overburden between the base of the house foundation and bedrock, which transmits the blast vibration from the quarry (like a telephone wire). We are concerned, however, as the proposed expansion of the quarry will bring the blasting operations closer and that our house might suffer damage similar to the house on the adjacent property owned by the [name, address and phone number provided]. The back part of their house foundation rests directly on bedrock and all of their brick walls have cracked at the joints between the mortar and the bricks! An example of the effect on our neighbourhood from blasting at the quarry may be found in the	

Source	Topic	Comment	JART Response
		VME Association (Oakville consultant) June 1989 report. This was commissioned by Nelson Aggregate Ltd.: *Ground Vibration and Impact Noise Study Quarry Blasting Operations, Mt. Nemo, Burlington – File No: 573/89/10.* It indicated that the NPC Guideline vibration limit of 12.5 mm/sec. peak particle velocity was exceeded on May 12, 1989 when blasting was carried out on the south wall of the quarry (i.e. in the general direction of Cedar Springs Road). Ground vibration levels measured by different blasts were 10.7, 11.7, 13.1 and 17.4 near 4460 Cedar Springs Road and 5.3, 4.7, 8.0 and 9.6 near 4420 Cedar Springs Road (i.e. name provided property). These measurements were obtained, however, with blast monitors positioned at the ground surface, a considerable distance above bedrock, and their effect on foundations on or near bedrock is understated due to the vibration-dampening effect of the earth overburden. VME Associates thereafter recommended coupling the geophones "…to a structural component such as a concrete floor…". All or more of the above vibration readings may have exceeded the above 12.5 vibration limit had they, for example been placed on the bedrock near our barn's foundation or on the {name provided] basement floor, as proposed by VME. I am not aware of any subsequent vibration studies incorporating the VME recommendations I have observed the damage from blast shocks to be cumulative. There is no single shock that is damaging but it starts with micro-cracks in the foundation and the cumulative effect over a long period of time has been the formation of larger cracks leading to eventual collapse of parts of the foundation. Our barn is currently in a state of limbo and un-repair until the quarry expansion proposal is settled. If rejected, I will spend the money on repairs; if approved, I know that the foundation will not be able to stand up to the ground vibration long-term and I will be faced with barn demolition costs.	
P70	Blasting	**Blasting/crushing operations** – Local residents and wildlife are suffering from detrimental impacts of blasting and crushing operations – including damage to their homes, dust related health impacts and unacceptable noise levels. Blasting, vibrations, noise and dust cause harm to wildlife and plant life –	

Source	Topic	Comment	JART Response
		including impeding crop growth, disrupting amphibian/bird/mammalian/reptilian breeding, feeding and migration activities, harming animal respiratory health, reducing or altering insect populations and removing or permanently altering their habitat or habitat corridors.	
P1	Traffic	I am very much against the expansion of the existing quarry. Traffic issues, blasting and preservation of water and wildlife are my reasons for objection.	JART notes your concerns
P4	Traffic	Our concerns are Traffic, more trucks on road	The application suggests that the existing number of trucks and the existing haul route are sufficient.
P7	Traffic	Matters needing addressing Traffic is a concern	JART notes your concerns
P13	Traffic	We need to reduce out dependency on aggregates by investing in more public transit instead of highways. Train commerce instead of truck commerce and be innovative and modern in finding sustainable products or use recycled ones.	
P15 P15 cont'd	Traffic	Impact on Road Safety-truck traffic-trucks take longer to stop, represent a great danger to cars and pedestrians. Sheer weight of trucks makes them inherently more difficult to stop endless responsive during evasive manoeuvres. Residents of this area have been looking forward to cessation of the onslaught of trucks emanating from this area for a long time. They don't want it extended. Impact on road maintenance – truck traffic damages road at rates up to 300 times faster than regular automobile traffic	JART notes your concerns
P17	Traffic	Truck traffic on Cedar Springs Road should not be allowed from quarry No.2 Sideroad to Dundas. Only in case of emergency if Guelph Line blocked.	Truck traffic is not permitted on Cedar Springs Road.
P18	Traffic	Traffic studies should look at impact of the proposed expansion of the Nelson Quarry and the proposed new Millborough quarry, and Milton/Burlington new housing expansions. Can Guelph Line handle this?	JART notes your concerns

Source	Topic	Comment	JART Response
P22	Traffic	The drivers of the quarry trucks seem to be the worst on the highway, esp. Guelph Line. - Excessive speeds and extreme tailgating.	JART notes your concerns
P23	Traffic	We looked forward to the day when Nelson quarry was scheduled to close. The noise, dust, traffic, are ten times worse than when we moved out here 30 years ago. The gravel truck drivers as a whole seem not to care for the safety, welfare, lives of themselves or the residents of the local area. The speed limit on our stretch of the road is signed at 50 Km/hr and the trucks pop over the hill at approx 80-100 even when school buses are stopped with their light flashing – Scary! The local police don't seem to bother about the speed of the gravel trucks, and the truck drivers always flash their lights when there is a police car ahead on the road. Perhaps a stop light at Guelph Line and Britannia Road would slow <u>all</u> traffic down and make the area a safer place to live.	JART notes your concerns
P25	Traffic	Regarding the planned extension of the Nelson Aggregates Quarry I would like to make some suggestions for operating conditions to be part of any permit. These arise due to the increased nuisance which the existing operation is inflicting on the village of Lowville. Important ways to reduce the nuisance are- 1. Restrict hours of travel, in particular at the start of the day when the trucks are trying to get to the quarry long before it opens 2. Monitor trucks for noisy brakes, both engine and friction, and noisy exhaust silencers 3. Check for downhill speed limit violations, which are dangerous, noisy, and also result in spillage on the curves at the bottom of the grades The owner of the proposed Flamborough Quarry has stated that he will set conditions for truck operators if he is given the "go ahead" and I think that it would be appropriate for some restraints be included in the Nelson Quarry future operating permit. Of course there would be costs associated with the monitoring/checking process, but the truck operators would soon smarten up and keep to the rules. Please give this some thought, and if there is an opportunity to incorporate conditions in the Permit I will be happy to appear before the appropriate Committee of City Council	JART notes your concerns

Source	Topic	Comment	JART Response
		Thank you for all the good efforts you are making in many controversial issues which are on the Agenda these days	
P26	Traffic	Tunnel under the roadway? - what a terrible idea ?!!! - do they think this will make all the issues disappear - below grade? What dreamers!	JART notes your concerns
P27	Traffic	The high decibel noise of constant gravel truck convoys is a real irritant to the numerous residents especially as they gear up or down for the climb or decent of the escarpment at 100+kph. (The traffic fine warnings are not working !)	JART notes your concerns
P29	Traffic	Transportation – one just has to live in the area now to notice the noise, pollution and traffic that the existing operations create. Apparently this issue has become significantly worse in the last ten years, with activity on the roads starting as early as 5:00 a.m. in the morning and not settling until early evening, significantly infringing upon the privacy of those homes in the immediate vicinity of the quarry. Expansion will expose even more households, roads will eventually be worn down and homes ruined from the harsh reality that aggregate is dirty and rough on the area due to consistent blasting. Traffic will automatically increase and this alone makes for unsafe roads for children and the elderly. I can attest to the fact that I have rarely been out front of my home and hear nothing but complete silence. To expand this quarry will undoubtedly create additional congestion on a long term basis and ultimately disenfranchise the rural setting which we all value so highly. How much longer can residents in the surrounding area of operations tolerate the devaluation of lands that are being raped by quarry operations.	JART notes your concerns
P34	Traffic	The monitoring of the blasting and traffic (dust/noise) impacts is totally reactive and proactive monitoring by Nelson has boon non-existent What proactive measures does Nelson AC propose to put in place?	JART notes your concerns
P37	Traffic	As residents of Britannia Rd., we have tolerated the existing quarry since moving in in 1985.	JART notes your concerns

Source	Topic	Comment	JART Response
		We were looking forward to the end of blasting, trucks and negative effects on local water tables. We now find out that, not only are the rehabilitation commitments by Nelson sadly lacking (letting the pit fill up with water) but that now even that minimal level of rehabilitation may be delayed for another 20 years. I understand that the province needs aggregate for construction and roads. It appears, however, that we have not done enough to reduce our dependence on this non-sustainable resource. For example, in other countries recyclable materials, such as ground up tires are being used with good success in road construction. If there is still a need for quarries, then sites need to be found that have less impact on the environment than on one of our most unique and sensitive land forms – the Niagara escarpment.	
P44	Traffic	I have noted with some regret that truck traffic from the Nelson Quarry will be restricted to Guelph Line. I live on Guelph Line north of Dundas and find the truck traffic to be intolerable already. The number of trucks using Guelph Line during a weekday numbers in the hundreds and on some days may approach 1000. The city should undertake a traffic review before considering the quarry expansion application and the speed limit should be reduced to 60 in order to give the full loaded trucks at least a chance at stopping if necessary. Stronger enforcement also wouldn't hurt. From various materials that I have read, the overall priority in the review process seems to be how fast the trucks can deliver their loads and how much the stone is needed in the community. With regards to the expansion, I can't understand where the need for the stone in Burlington is going to come from when the City is almost built to its development limits. With regards to the trucks, public safety should always take priority. Furthermore, there is the issue of increased truck traffic along Guelph Line that poses serious safety concerns to the residents of the area and motorists in general. Quarry traffic causes backlogs of through traffic and is a danger to merging traffic. Many of these truck drivers show a complete disregard for passenger vehicles, so much so that we have personally	The haul route for the existing quarry and the expansion are both confined to Guelph Line. Roads to the west have restrictions against truck use. The review does include a report on traffic. The report can be obtained online at the Region of Halton's website and on the applicant's website. Paper copies of the report can be viewed at the Region and city hall in Burlington. The submitted traffic report suggests that traffic levels will be similar to those from the existing quarry operation.

Source	Topic	Comment	JART Response
		been forced to the shoulder of the road on a number of occasions.	
P55	Traffic	RE: Environmental terrorism This company has continually shown complete disregard for our neighbourhood. There is no record of the police ever enforcing the standing and idling by-law and their truckers know that. That is why they still park directly in front of my home on a regular basis. The amount of mineral waste that bombards my home daily has rendered my property a mining waste dump. Add that to the record as well.	The city idling by-law is administered by the by-law department at the City of Burlington. Bylaw complaints can be directed to them at 905 335-7731
P57	Traffic	While my dispute is with Nelson Aggregate I realize the real fight is to clean up City Hall. They have allowed this to happen. Myself and many of my neighbours know it and intend to do something about it. I applaud your efforts to stop the destruction of the escarpment for the benefit of corporate profit I live 200 meters from the Nelson Quarry and have endured the wrath of a corporate polluter who left unchecked is completely out of control. I have complained numerous times, including in person at the office of the Quarry. No one at the Quarry even listens to me, much let alone attempts to correct the problem. Their cavalier attitude leads me to the belief that they already have all our local politicians in their pocket. The front of my house is the staging area where trucks leaving the Quarry stop to complete their paperwork before continuing down Guelph Line to the highway. If I ever forget to keep my windows closed tightly, even for a few hours, the entire inside of my house is filled with dirt emanating from the dust storm that trails these industrial vehicles. I park my sports car inside my garage for protection from the gravel missiles that continually shower my driveway. However I do not have garage space for my other vehicles which I must wash two or three time weekly. I must wash the windows of my house weekly also. I am currently replacing the liner in my backyard swimming pool which has	Complaints with regard to the existing operation should be directed towards the Ministry of Natural Resources. Under the planning act municipalities cannot restrict the right of a landowner to apply for changes to the official plan. Complaints with regard to the existing operation should be directed towards the Ministry of Natural Resources, not the operator Please cc your complaints to city hall and the Region, we're not cavalier about this. Proper dust mitigation is a requirement of the existing license and would be added to any future site plans. Gravel trucks must be covered. This prevents rocks from falling from the trucks. In addition ,the road is washed continuously to ensure rocks are not left on the roadway.

Source	Topic	Comment	JART Response
P57 cont'd		been ravaged by the high volume of grit and dirt that is bombarding my property. Once I received a phone message from councillor Taylor basically defending the Quarry and advising me that trucks were abiding by the by-laws and not stopping on Guelph Line. Ironically while I was listening to his excuses for the Quarry I was looking out my front window at a Nelson's transport truck idling in front of my house. Needless to say I never returned his call. I have no desire to speak with the friends of Nelson Aggregate who have so readily betrayed their neighbours. I am afraid we will lose this battle and our neighbour will be sacrificed for the sake of Nelson Aggregate. We need to turn our attention to ridding our community of those city politicians and bureaucrats that not only allowed our homes to be destroyed but are actually considering plans to worsen the situation. We need a new mayor and a new city council that represents the people of Burlington. If anyone doubts the merits of my complaints, just drive by my house and witness the river of mineral waste that runs down my driveway daily.	It is the right of a landowner to apply for an amendment to the official plan. Once an application is submitted staff and politicians work on the public's behalf in reviewing the application – completely and fairly.
P58	Traffic	In our village, Lowville, there is a constant stream of trucks on the Guelph Line, heading north out of the City, five and a half days per week, at this time. This would continue, when the existing quarry is mined out, if the expansion proposal is accepted. Let common sense prevail. Shorter trucking routes reduce air pollution and wear and tear on our roads. We urge you to reject the Nelson Aggregates proposal.	JART notes your concerns
P64	Traffic	I am completely opposed to the quarry expansion. I live in the heart of Lowville. The region is a haven for families, children and pets. The Lowville park is a large attraction for tourists and families who come from far and wide, <u>children are everywhere</u> – especially in the summer. There are many reasons why I am opposed to the expansion – however – the two most important reasons are the gravel trucks and nature. I am thoroughly angered every	JART notes your concerns

Source	Topic	Comment	JART Response
		time I see a speeding truck driving down or up the big Lowville hills. The drivers of these trucks seem totally oblivious to our family oriented neighbourhood and as far as I am concerned they are putting our children and pets at risk. <u>All</u> of these trucks are gravel trucks from the quarry. If this expansion takes place, there will be even more trucks to make our lives more dangerous. This town is a tourist attraction. It is a place for peace and quiet that is so close to town that it is easy to get to. It is a beautiful place for people who live in the heart of the cities to come and have a picnic – or to ride their bikes. Imagine the jeopardy you are putting those bike riders in by adding more truck traffic.	
P65	Traffic	I am writing to express my SEVERE opposition to the proposed Nelson Aggregate quarry on Mt. Nemo in North Burlington. I live in the beautiful town of Lowville and will be very disappointed and upset if this plan goes through. I will do what I can to fight alongside my many neighbours who also oppose this. My sister in law was killed by a gravel truck. This has caused me to carefully watch the comings and goings of all the trucks in this beautiful, quite, rural neighbourhood. Further expansion would ruin our family oriented neighbourhood completely. The loud polluted trucks are already constantly speeding up and down the hills in Lowville with reckless disregard for any safety of the neighbourhood children and pets. This is my *personal* reason for opposing this.	Over the last several years a number of serious accidents have occurred in Burlington and Halton Region involving gravel trucks. While we understand that as a municipality we do not regulate the way people drive vehicles it is our belief that safety is paramount. There is a designated haul route for gravel trucks and truck safety is an important related issue.
P70	Traffic	**Trucking** – The safety of area residents continues to be compromised on area roads given the steep grade of the haul route and its direct descent into and past residential areas. Another 20 plus years of trucking will continue to take a heavy toll. The impact on wildlife will continue with rates of road kill which are already unacceptable. I object to more injuries and deaths of both animals and people on area roads.	
P9	Existing Quarry	What about preservation of historical buildings? The existing quarry demolished an historical property. The "new" site will include the home originally owned by Lockhart Spencer a son of the original quarry/farm site.	Comments noted

Source	Topic	Comment	JART Response
		This proposal does not consider preservation of escarpment lands – once again, we are losing our natural heritage. I AM VEHEMENTLY OPPOSED TO THIS EXPANSION	
P10	Existing Quarry	We strongly object to this escarpment environment being further degraded by the applicant. In 40 years of our residence the applicant has not kept many promises that were made by Nelson. They seem to operate on "elastic: time e.g. 7 yrs = 20 yrs.	Comment noted
P28	Existing Quarry	They still have seven years worth of rock to blast out of their huge hole in the ground and everyone of us within their orbit has been looking forward to the day when they close their operation here and rehabilitate the area (we hope they will be made to rehabilitate it?). It isn't as if there would be no quarry at all in the area. There is a huge quarry proposal for the Millborough Line – 400 acres of it and a new one also just east of us. That should be enough to satisfy the demand – unless the intent is to pave over every scrap of the 80% of Canada's arable land that is contained in Southern Ontario The area along and around Cedar Springs Road is, in truth, rural residential. There are more homes and golf courses in the area than anything else. The quarry is total incompatible with the character of the area. It is my hope that, in this instance, the property owners in the area will prevail and the operations of this quarry will cease in the next seven years. After all, by that time, area residents will have been subjected to 57 years of it.	Comments noted
P29	Existing Quarry	My primary issue is the process by which the JART is following, brought to light in the most recent public meeting in Kilbride. My understanding is that the application is reviewed in isolation of the proponents existing license. It is my feeling and that of others in the community, that if there is any possibility of granting Nelson Aggregate a new license to continue quarrying, their existing operations	The operation of the existing quarry must be in accordance with the existing site plan, conditions of the licnce, the ARA and Provincia Standards

Source	Topic	Comment	JART Response
		must be scrutinized. My concerns are, but not limited to, the following areas: 1) Nelson Aggregate's outdated licenses were issued some time ago, in very different legislative times. They have been, to my understanding, "grandfathered" forward. Regulations under their existing license are outdated and insufficient to properly safeguard both current conservation efforts and residential safety. The Niagara Escarpment is already scarred and continues to be threatened by business practices that have been poorly conceived. The proponent proclaims their desire extend the life of the existing quarry for 20 years for the processing of aggregate mined from the new proposed site. The JART has acknowledged this conceptually be referring to a tunnel that potentially would be built under No. 2 Side Road for transportation purposed between the two operations. As a result <u>significant thought must be given to the existing processing plant</u>. The new application cannot be looked at in isolation and without this relevant analysis, as it would condone the unsuitable standards by which the current operation could continue. I implore the JART to take the following questions into consideration with regard to the existing processing plant; are the proponents meeting current best practices or at least, minimum standards of operation with respect to: 2) MOE requirements for emissions of noise, dust, and fumes? a. adherence to various By-Law's and 'restrictions' set by the City of Burlington & the Region of Halton b. traffic matters (such as approved road usage, emissions, idling, etc.) c. cumulative affects of blasting & degraded water quantity/quality (and the exasperation of such matters if an additional quarry is approved)	

Source	Topic	Comment	JART Response
		d. how loosely defined are the criteria around their business practices? e. operating an asphalt plant below the water table (ie., pollutants) f. burying goods at the bottom of the quarry (ie., industrial materials) g. trucking in earth for sloping (where is the earth dug out of the pit) h. are the proponents in violation of their current Site Plan? (for example, are they actively deploying dust mitigation efforts, etc.) The proponent's application asks that the existing site continue for the purposes of processing the new proposed quarry's aggregate for the next 20+ years, thus making the current site an integral part of Nelson's proposed ongoing operations. Therefore, JART and the MNR must ensure that the issuance of any license forms a new, all encompassing license, for both operations, which are NOT mutually exclusive of each other. Quarry's are meant to be 'interim land uses', however, the proponent has been operating over 50 years now. The existing site should be mandated to cease operations, if only based on the simple premise that their time is up and be rehabilitated to today's standards.	
P37	Existing Quarry	As residents of Britannia Rd., we have tolerated the existing quarry since moving in in 1985. We were looking forward to the end of blasting, trucks and negative effects on local water tables. We now find out that, not only are the rehabilitation commitments by Nelson sadly lacking (letting the pit fill up with water) but that now even that minimal level of rehabilitation may be delayed for another 20 years. I strongly suggest that this application be denied. We know much more now about the impacts of quarries on the environment than we did when the existing quarry was granted its license. We should not take that new knowledge lightly. At minimum I suggest that an Environmental Impact Assessment be conducted on this proposal to permanently alter land that is this environmentally sensitive.	Comments noted
P53	Existing	Let's talk about Nelson Aggregates. Their	Comments noted

Source	Topic	Comment	JART Response
	Quarry	contract is now up. The time has come for them to move on. They have outlived their usefulness and I must say their welcome in the community. We have been patient these 40 some years. Times have changed and as communities today we value our natural environment and all that it has to offer over the revenues or commodity output of a single corporate entity. It is time now for Nelson Aggregates to make good on their commitment to rehabilitate the existing quarry, not to expand and delay this outcome for yet another 20 years. It is time to give back to the community that has hosted them these many years. Actually, it is past time. Please listen and take action on the pleas of this community. We are the ones who live this, every day. We have firsthand knowledge of the history of this area, both natural and experiential. And believe me, this is truly something well worth fighting for.	
P68	Existing Quarry	The purpose of this letter is to voice opposition to the Nelson Aggregate Expansion Proposal. **Don't Worry, It'll Grow Back** My name is (NAME PROVIDED). I am a local Burlington resident, an author, a photographer, but until now have never felt the need to be a vocal advocate for conservation or preservation. Now there is a need for it. Although I've clearly stated I'm in opposition to this expansion, it's necessary to shed some light on why. I have lived in Burlington most of my 42 years. I have been patiently waiting for that mythical day when the Mt. Nemo quarry would wind down and finally become the highly-touted rehabilitated parkland. After 30 years of rhetoric and promises I was pleased to hear the day might actually arrive. Imagine my surprise when I discovered that a promise was turned into a proposal to ravage another 200 acres of protected land, only then to be coddled with promises of future rehabilitation. So much for trust and patience. What remains is to add my voice to the others, who represent common sense and reason, and oppose the expansion of this pit.	Comments noted
P70	Existing	Broken Promises – over 50 years ago when the	Comments noted

Source	Topic	Comment	JART Response
	Quarry	original owner sought and got approval for the existing quarry, Halton residents were **promised** that it would operate no more than 35 years. It would then be made into a lake for all to enjoy. Halton residents have now endured this quarry for 20 years more than what they agreed to. Up until two years ago, the existing owner has lead newcomers to the area to believe that operations would wrap up within 5 years. Many newcomers purchased homes based on this premise. Given that approval for the existing site was granted based on the promises made above and the prospect of an enhanced Mt Nemo after rehabilitation of the existing site. Area residents now anxiously await a reprieve from this industrial activity and a return to the area's former rural and natural character. I object to an additional 20 plus years of quarrying and the associated environmental and social damage it will cause.	
P13	Rehabilitation	According to Ontario Environmental Commissioner, Gord Miller, in his 2002-2003 report the aggregate industry was opening up more than two hectares for every on being rehabilitated. Between 1992 and 2000 the lag created 5,500 hectares of land left rehabilitated. (Taken from ON Nature, Autumn 2004) Nelson Quarry, as you heard last night has not been active in rehabilitation.	Final rehabilitation of the existing quarry will be in accordance with the approved Aggregate Resources Act site plans. In its March 7, 2008 Notice of Objector Response, Nelson Aggregate Co. provided additional details on operations and rehabilitation in both the existing quarry and the proposed quarry. JART will be reviewing this information and discussing this matter with the Nelson Aggregate Co. in more detail.
P18	Rehabilitation	To further delay the restoration of the existing quarry by another 20-25 years is not acceptable.	Comments noted
P21	Rehabilitation	They should be required to COMPLETELY rehabilitate the OLD site IMMEDIATELY, so that there would be only the one ugly hold in the ground. If they are not required to do se they will not spend one penny on either rehabilitation or technically up-to-date plant. Whey would they if they are not required so to do? If allowed, they will simply keep the old plant in the old quarry and continue to expand. Fifty years from now the scar that extends from Colling Road to Number Two Sideroad would then extend from Colling Road to Number One Sideroad, and they won't have spent a penny on	Comments noted

Source	Topic	Comment	JART Response
		rehabilitation!	
P29	Rehabilitation	In addition, I bring particular attention to Nelson's unrestricted rights to take water and question the rehabilitation requirements that are long overdue. Rehabilitation – If the recent application is approved and the proponent continues its operations as defined, rehabilitation efforts will again be stagnated in the existing quarry and in fact, gives way for the proponent to avoid it's obligations to rehabilitation commitments for another 20 years. Many concerned citizens are already worried that current rehabilitation plans will have this gigantic crater filled with water only, or worse, that it will be used for landfill, such as the case with a quarry in Campbellville. <u>Habitat Loss / Rehabilitation</u> – excavating the land will bring obvious disruption to flourishing vegetation and indigenous wildlife that roam these lands. Again, I bring to light the stark reminders that this expansion is encroaching upon a protected domain that was meant to be secured as one of the few areas left untouched by urbanization and industrialization. The exercise of prudent restoration has not even been carried out on the existing operation as per Nelson's promises of years ago. What would make us believe that any such measures will be taken seriously in years to come. Already, Nelson is asking to use its existing quarry to process aggregate mined from the proposed expansion, all along deferring the obligation to get rehabilitation efforts under way. If history repeats itself, the Cedar Springs Community will be left with two big holes in the next twenty years and who will be the watchdog insisting that Nelson's obligations be met? It's this exact and typical model of big business that is destroying the world today – take today and worry about the future tomorrow. Unfortunately, once bad decisions have been made, it's usually too late to fix what's broken and no one has, or wants, to spend the money necessary to take care of the problem	Comments noted

Source	Topic	Comment	JART Response
P37	Rehabilitation	As residents of Britannia Rd., we have tolerated the existing quarry since moving in in 1985. We were looking forward to the end of blasting, trucks and negative effects on local water tables. We now find out that, not only are the rehabilitation commitments by Nelson sadly lacking (letting the pit fill up with water) but that now even that minimal level of rehabilitation may be delayed for another 20 years.	Comments noted
P47	Rehabilitation	The EBR posting does make reference to a "rehabilitation" plan. Waterkeeper respectfully suggests that "rehabilitation" amounts to little more than false charity. No wetlands constructed in the future can compensate for the dramatic, lengthy disruption to the natural ecosystem that the quarry activities would bring today.	Comments noted
P50	Rehabilitation	They are buying up land – probably enough to last at least 75 years. It will be one huge ugly hole from #2 Side Road to #1 Side Road and they will still have done no rehabilitation. They won't spend a penny on rehabilitation if they can keep on postponing it.	Comments noted
P70	Rehabilitation	A promise is a promise. The residents of Halton have upheld our end of the bargain, now it's time the past and present proponent(s) of this development uphold their promises – including the complete and final rehabilitation of the area and an orderly exit with minimal disruption to the employees of the company, area residents and wildlife.	Comments noted
P13	UNESCO Biosphere Reserve	The land where the Quarry wants to expand is in the escarpment rural area. My position and that of CONE – Coalition On The Niagara Escarpment – is that the Niagara Escarpment should not be viewed as a long term source of aggregates. No new aggregate operations and no expansions of existing operations should be allowed in the UNESCO Biosphere Reserve. (Pg6, On The Edge- CONE, Spring)	The NEP makes allowances for mineral aggregate operations only in the Escarpment Rural Area and, in this case, only by way of Amendment. There are three areas within the Biosphere Reserve: Core (equivalent to Escarpment Natural Area), Buffer (equivalent to Escarpment Protection and Escarpment Rural Areas) and Transitional Zone (equivalent to an urban area and mineral resource area)
P27	UNESCO	The numerous negative impacts would surely	The allowance for mineral

Source	Topic	Comment	JART Response
	Biosphere Reserve	soar. The devastation of 280 additional acres of sensitive environment and habitat in a biosphere unique in the world, according to UNESCO, on top of 600 acres already destroyed permanently, is intolerable.	extraction was in place in the NEP as far back as 1990 (the year UNESCO bestowed the title of World Biosphere Reserve on the Niagara Escarpment.
P29	UNESCO Biosphere Reserve	Nelson Aggregate is proposing to dig a new hole in a UNESCO Biosphere Reserve that cannot be repaired. JART and its constituent members must evaluate the application in conjunction with the proponent's past performance, current standards and future impacts on the Niagara Escarpment and its inhabitants.	UNESCO would have known of the "allowance" for aggregate extraction in the Escarpment Rural Area and other varieties of uses.
P37	UNESCO Biosphere Reserve	My main reasons for my concern are for the environment and health of our community. When an area like the escarpment is situation on a United Nations World Biosphere Reserve, protected by the Niagara Escarpment Plan and surrounded by provincially significant Areas of Natural Scientific Interest (ANSI), it makes no sense to approve such a destructive activity as limestone mining.	Even a World Biosphere Reserve designation would not prohibit a resource extractive use in a transitional zone. The zone is just that, in transition from the most ecologically sensitive areas to a developed area or state.
P39	UNESCO Biosphere Reserve	I am writing in opposition to the proposed amendment to the Niagara Escarpment Plan Ph 105304 (Nelson Aggregate). The land in question is ecologically sensitive and the proposed quarry would seriously disrupt both the wetlands, home to presently endangered species, and the woodlands, home to the endangered butternut tree. It also threatens to disrupt the headwaters of two tributaries of Grindstone Creek. As the Niagara Escarpment has been designated an UNESCO World Biosphere Reserve, to disturb it for a quarry seems unconscionable.	In considering the subject application, approval authorities must evaluate whether the Escarpment should continue to be viewed by the Aggregate Industry as the "long term" source for available aggregate in this Province.
P42	UNESCO Biosphere Reserve	I'm writing to express my concern regarding the proposed quarry expansion by Nelson Aggregate Niagara Escarpment in your region. Is there really no other source of gravel for the area than in a UNESCO designated world biosphere reserve? Which is more important for your residents: gravel or clean water? No doubt Nelson Aggregate, as a subsidiary of a much larger company, has plenty of money and political clout to bring to bear on this issue. Yet it is difficult to swallow their portrayal of good faith considering the nature of their	Comments noted

Source	Topic	Comment	JART Response
P42 cont'd		proposals, and the correct choice for the long-term health of actual Burlington residents seems clear. I trust your choice here will make clear to those who live in your community where you allegiances lie. It's my understanding that some independent cost analyses and environmental impact studies are being done which I hope your government will respect.	
P43	UNESCO Biosphere Reserve	I oppose the application for a new quarry by Nelson Aggregate. I oppose the quarry for the following reasons: 1. The property is situated in a United Nations World Biosphere Reserve.	Comments noted
P65	UNESCO Biosphere Reserve	As you know, there are other reasons that are more widely supported by my neighbours. This is the Niagara Escarpment which is a world biosphere reserve. This is also a unique and wonderful town. Many families travel here at all times of the week all year round to enjoy the park, the Bruce Trail and it's loops, the quiet, peaceful retreat from the cities of Burlington and Oakville. This quiet rural area is simply not the right place for such an operation!!!!! I encourage you, to take a clear message to our elected officials – this proposal is simply a bad idea. They must reject Nelson Aggregates proposal. Thank you for your time and consideration.	Comments noted
P69	UNESCO Biosphere Reserve	I have received a letter from the Ontario Ministry of the Environment, concerning the request by Nelson Aggregates Co, to expand their existing quarry on the Niagara Escarpment, in North Burlington I understand discussions are still underway on this application, and that parties involved include Halton Region, the Niagara Escarpment Commission, and the City of Burlington, and that any concerned party may express an opinion on the allowance to grant Nelson Aggregates their request and that all such opinions will be considered, in granting this request or not. I would therefore like to state my objection to the allowance requested by Nelson Aggregate,	Comments noted

Source	Topic	Comment	JART Response
		on the main grounds that this area has been designated a World Biosphere by the United Nations, therefore any alteration or intervention would undermine the integrity of this area. Your response would be appreciated. Thank you.	
P70	UNESCO Biosphere Reserve	**The Niagara Escarpment is a World Biosphere Reserve** – Aggregate extraction is one of the most environmentally destructive activities undertaken by Humankind. It constitutes almost complete removal of the local ecosystem. In 1990, UNESCO (the UN's Educational, Scientific, and Cultural Organization) recognized Ontario's Niagara Escarpment as a World Biosphere Reserve. I object to continued offence of the spirit of this globally recognized designation. It is imperative that we protect Mount Nemo from continued aggregate mining and find more environmentally responsible places and practices to secure sources of aggregate material.	Comments noted
P2	JART Process	I did not feel the committee was able to answer any one question very directly and honestly. JART should be working for the <u>people</u> not the business owners.	JART is comprised of government and agency representatives not Nelson employees. Public concerns will be addressed by JART in its report.
P8	JART Process	Why is the Ministry of the Environment not part of JART? The Ministry of Natural Resources has an inherent conflict of interest in quarries i.e. aggregates since those resources add to the Ministry's coffin. The MOE would be a more impartial partner when it comes to expanding quarries.	MOE has provided input to JART on issues within their mandate.
P29	JART Process	I am a concerned citizen, interested in the methodology the JART is deploying to review the application submitted by Nelson Aggregate, for a new quarry on the Mt. Nemo plateau. In reviewing this application and engaging various community leaders, it is apparent that proper consideration of pertinent operational and environmental issues is required at this time. The tone set at the recent public meeting was clear. The community is calling upon the JART to act in their best interest by preserving our natural environment and quality of life. With the stewardship of your governing agencies, you have the inherent responsibility to ensure land and habitat that make the	The mandate of JART is to review the technical reports provided by Nelson in support of its application and to advise the public agencies as to whether the studies were complete and technically sound. JART is assisted by peer review consultants and receives input from the public and their consultants. JART is not a decision-making body. Once the JART report is complete the planning approval process continues and it is up to

Source	Topic	Comment	JART Response
		Niagara Escarpment a unique Biosphere Reserve are protected from abuse. Thus, the JART's mandate must go significantly beyond simply "following the process". When studying revisions to the Provincial Policy Statement and the City of Burlington's White Paper, coupled with the Region of Halton's ROPA 25 and the new Greenbelt initiatives, it is encouraging to note that environmental standards are far more meaningful today than they were even five years ago. This highlights a positive outlook as to current views and paves the way to directives in conservation and protection. In conclusion, there could not be a more meaningful time for the JART to exemplify leadership by adhering to a fully disclosed, democratic process. We, the community, look to you to acknowledge your responsibility to ensure valued resources are protected, by making smart, sound recommendations and decisions today and for generations to come. We risk that all might be lost to in irreversible situation. <u>Studies</u> – although Nelson claims to have performed a series of studies, results cannot be trusted as if these tests are an exact science. In addition, these studies are generally going to be biased and in favor of what Nelson wants to report. I understand the JART Committee will have its own experts review these studies and perhaps even have their own studies done, however, like anything in life, no one can exactly forecast the outcome of anything, let alone the serious nature of what you are considering. The issues are too multi-factorial and long term results unpredictable. Environmental conditions hinge on a complex balance of so many variables, which will be compromised and disrupted in order to carry out the proposed plans. There is no study that can determine the complications that could occur with the impact directly affecting so many people. What we can predict, is if the current landscape is disrupted, there will most definitely be change and most likely in a negative way. Are we, the residents, supposed to hedge that risk?	the City, the Region, the NEC, the Provincial ministries and conservation authorities to make recommendations to the decision-makers.

Source	Topic	Comment	JART Response
P4	Other	Our concerns are Nursing home will lose revenue as people will not want to live close to the new quarry	Residential uses have been located by the existing quarry for 55 years. The nursing home will likely be further removed from the new quarry boundary than it currently is to the existing quarry.
P5	Other	I owned 11 acres (NE corner Steeles and Bell School) beside Milton Limestone - I know what a quarry is about. That quarry had no JART type meeting and handled the public poorly. It's a shame that quarry closed and the resources lost forever. I did work in an aggregate related business but I left that business over 5 years ago. As a local resident I fully support Nelson's expansion. I stand nothing to gain or lose either way to this expansion but I think we need to utilize our reserves wisely	JART notes your concerns
P6	Other	What financial recompense will Nelson offer me for the thousands of dollars I will lose (that I can't afford to lose) when I sell my house?	Nelson states in their ARA response that there has been no demonstrated impact on property values as a result of their existing quarry. Nelson has no obligation to compensate for any loss of value since the quarry is currently in operation.
P7	Other	Matters needing addressing The "bond" idea seems innovative	
P13	Other	Bill 27, The Greenbelt Protection Act by the Ontario Government is an attempt to improve our quality of life by reducing air pollution, enhancing water source protection, containing urban sprawl, reversing the fragmentation of natural areas, and retaining the uniqueness of The Niagara Escarpment. The encroachment of the Nelson Quarry into the Escarpment Rural Area defeats the stated purposes of the Greenbelt Protection Act. We are so fortunate to be stewards of this scenic, special land. I invite you to come and visit me so that you will see first hand the effect that the expansion of the Nelson Quarry would have on this part of the Niagara Escarpment neighbourhood.	Aggregate extraction is permitted under the Greenbelt Plan. The Niagara Escarpment Plan and Escarpment formation is a part of the Greenbelt Protection Act and the Greenbelt Plan. In the NEP Area, the NEP applies with the exception of Parklands and Open Space provisions. NEP provisions are to be considered/evaluated in an application for aggregate expansion.
P17	Other	Why is quarry allowed to start work at 6:00am when hours 7:00am to 6:00pm?	The hours of operation is a condition of the quarry

Source	Topic	Comment	JART Response
		Nelson Quarry should repair No.2 Sideroad at entrance to quarry since asphalt breaking up. Ministry of Natural Resources representative evasive in answers showed lack of knowledge especially in area of ground and lake improvements. For Nelson to purchase 90 hectares in past 3 1-2 years leaves impression they will obtain license to expand.	operator's licence with the MNR issued pursuant to the Aggregate Resources Act. The conditions of the licence may allow the operator to stockpile and prepare material for shipment, however, the actual distribution of aggregate, off-site shipping and receiving, cannot commence before 7 am. Nelson is required to pay tonnage fees to the Region and City for road repairs. Nelson may have purchased the land but it needs to be able to conclusively prove that aggregate removal will be done in a manner satisfactory to NEC, City, Region, Conservation Halton and other agencies.
P20	Other	I am a property owner in the area of Nelson Aggregates, I attended the November 8th public information session for Nelson Aggregates Burlington Quarry Expansion, and have a couple of questions for all of you. First, there is a preamble to the question. I am not a land user planner but I am somewhat knowledgeable about such matters, in that, I understand that the role of the government is not to dictate to property owners what they are allowed to do with their properties. Rather the governmental role is to make sure that any impacts associated with a property owners chosen use does not unduly affect other property owners and citizens. Furthermore, to assist in determining the impacts and whether they can be mitigated, a series of subject experts will be hired by Nelson and/or your organizations. I think the idea of **not** dictating land use is evident when Bruce Krusheniski from the Planning Department of the City of Burlington was recently quoted in the Burlington Post (regarding the proposed Wal-mart on Fairview Street) as stating "It is not our job to say 'no'". (Of course, feel free to correct me if you believe that my (rather simplistic) understanding of	As par t of the evaluation of the Nelson planning applications, consideration of the appropriateness of the land use will be undertaken in addition to the extent to which Nelson has demonstrated whether there will be off-site impacts and how those can be mitigated.

Source	Topic	Comment	JART Response
		municipal land use planning is flawed.) Regardless of the forgoing, specific mention is made in the new plan for this southern Ontario greenbelt that permits new quarry operations. Aggregate is necessary for building and maintaining Ontario infrastructure, so the good of the many will outweigh the good of a few, and let's face it - the expansion is destined to go ahead despite the opposition of a few locals because of the need for aggregate in the infrastructure industry. Now having stated that, here are the questions. 1. I do not believe that the JART will require Nelson Aggregates to prove that an expansion is needed, because it is generally clear that the construction industry requires aggregate. However, does Nelson Aggregate have to examine alternative sites? Perhaps sites that are not in areas that are *globally* significant?? I understand that Nelson will provide a tremendous resistance to this as they have already acquired to Escarpment properties and they have no interest in looking elsewhere. This should not really be of concern to you - Nelson bought these properties on speculation that they would be permitted to develop it as a quarry. Much the same way that landfill operators are required to look at different sites, and road authorities must look at different highway routes, Nelson should be held to the same standard. 2. Should Nelson not be required to examine alternative sites, or should this site be selected as the most desirable then let's face it, the Nelson Aggregate quarry expansion will happen as long as it does not unduly affect adjacent property owners. So. what, if any, are the deal breakers here?? What unmitigatable impacts must be uncovered by the proposed expansion for your organization to not support the expansion?? Is there anything that would "kill" the expansion? Thank you for your attention to this matter. Should you require any clarification, please contact me directly. I look forward to a reply from each of you.	The Provincial Policy Statement does not require Nelson to consider alternative sites. The aggregate industry general follows the principal "close to market". Its infrastructure is currently available and will continue to be used and made available for use with the proposed expansion, same road network used for existing quarry. Nelson purchased the properties with the idea of being able to actively mine the resource. Its consultants and technical experts had provided sufficient guidance and advice to suggest that the site was acceptable both in terms of available resource and quality of resource. Issues of particular concern to JART are hydrogeological impacts, environmental impacts including key natural features and species of concern.
P21	Other	Their hours of business should be confined to the period between 7am and 6pm.	The hours of operation is a condition of the quarry

Source	Topic	Comment	JART Response
			operator's licence with the MNR issued pursuant to the Aggregate Resources Act. The conditions of the licence may allow the operator to stockpile and prepare material for shipment, however, the actual distribution of aggregate, off-site shipping and receiving, cannot commence before 7 am.
P22	Other	• When the quarry was opened we understood that when its lifespan had expired, it would become a lake. I think the original commitment should be honoured and look forward to that day, seven years from now. • If otherwise, I fear another expansion in another 20 or 30 years – and so on, and so on.	Private land owners cannot be prevented from making a planning application on their land. MNR is responsible for overseeing ongoing rehabilitation under the existing site plan. It is still the intention that a lake will be developed as the after use as part of the rehabilitation.
P28	Other	The area along and around Cedar Springs Road is, in truth, rural residential. There are more homes and golf courses in the area than anything else. The quarry is totally incompatible with the character of the area.	The JART report will assess how the applicant has addressed land use compatibility but residential uses have been near the existing quarry for 55 years, well before some houses were constructed.
P29	Other	Substitutions – as Isabelle Harmer pointed out on November 24th, a quarry in urban Burlington would not be appropriate, so why does anyone think it is appropriate to have one in the middle of a protected rural residential community? There are plenty of other quarry sites that can be exploited, which are better situated, in order to handle the demand for aggregate within the Province. We simply cannot allow Nelson to dig up our backyards. In addition, substitutions for lime stone aggregate should be researched as it is my understanding that they are available. Why is conservation and planning not part of this very complicated equation? Just like the asphalt business, there have been alternatives for years, (such as using old rubber tires which serves a dual purpose of recycling as well). However, greed for profits in big business, the road building industry refuses to give up its stake and continue doing as they always have.	Potential use of recycled materials will be addressed through the Region of Halton led Aggregate Strategy. Nelson indicates in its ARA response that they facilitate recycling on their property under their current licence. A quarry would not be permitted/encouraged in a built urban area, not because it is not permitted, but because of the infrastructure already in place. The rural residential community is identified in the City OP and the Region's OP as a "Rural Settlement" and "Hamlet". The quarry is proposed on lands outside the community boundary as the current quarry is. There may be other sites but

Source	Topic	Comment	JART Response
		Like anything in life, there is always an alternative if one is just willing or motivated to apply it - solar energy being a classic example. If there is a major problem in aggregate supply, the government should take a leadership role in sourcing the means of providing alternative sources to meet demand. In conclusion, my question to the JART, in contrast to arguing why you should not approve and accept Nelson's application, is why would you? Nelson must be mandated to get the old quarry up to the rehabilitation standards it laid out years ago and leave the area once their current contract has expired. The residents of this area have had enough and deserve to have this community take on the character that lives in the spirit of the Niagara Escarpment and Greenbelt Plans. I implore you to consider your ability to give back the country to those who will cherish it and hand it down to generations who will have very few local lands of such beauty to enjoy. Clearly expansion of this quarry is the wrong choice. I have passionate intentions of bringing together some form of collective leadership and getting our message across, particularly to the members of the JART Committee, who in my opinion have a responsibility to put taxpayers first. I look forward to the time and effort that I am willing to dedicate towards rallying the upset residents of the community and will bring a representative consensus to the table for further discussion. Thank you for your time and I look forward to hearing your feedback.	Nelson is not compelled through Provincial Policy to consider them. JART is not an approval authority but a committee that reviews the technical submissions from the proponent and provides the approval authorities with technical advice upon which they will base their decisions on the associated OP and NEP amendment applications. Rehabilitation of the existing quarry is required under the existing licence. An amendment to the site plan was recently approved by MNR to permit additional lake filling which is part of the rehabilitation plan. The public will have the opportunity to address their concerns at future public meetings. JART is not a decision-making body but will provide a review with respect to the technical findings.
P34	Other	What guarantee is Nelson or the City of Burlington going to give me as a property owner that my quality of life is not going to be impacted, that my home is not going to be damaged in any way and that the quantity and quality of my well water is not going to deteriorate, and further should any of this occur, are they both prepared to compensate me and if	Nelson has provided certain assurances that all aspects of quarry operation from blasting to air quality will meet Provincial regulations.

Source	Topic	Comment	JART Response
		not, why? Half an hour of question time is not enough. This should be increased – people were there to voice their concerns and more should have had the opportunity to do so.	
P45	Other	Missing from the Initial Staff Report and, therefore, CONE surmises, from the applicant's supporting documents (noted on pp. 18-19 of the Initial Staff Report), is any analysis of the potential for demand management for aggregates to reduce the need for virgin aggregates from the proposed Nelson Aggregate Company quarry expansion through recycling of used aggregate and other means of managing demand. There is no indication of whether the applicant has reviewed the recent report titled Rebalancing the Load: the need for an aggregates conservation strategy for Ontario by the Pembina Institute (Mark Winfield and Amy Taylor), January 2005 (www.pembina.org). This study found that the Province lacks basic information on the current demand for an uses of aggregate, and that the Province does not have up-to-date projections regarding future demand. The study notes that "the lack of current, comprehensive, publicly available information makes it impossible to properly assess claims of a supply 'crisis' in the southern part of the province, or, more generally, to manage the resource in a sustainable manner. The study finds that, to date, the provincial government has done little to ensure the efficient use of the resource through such things as using secondary materials as substitutes, or implementing alternative approaches to urban design and infrastructure that would reduce the overall need for aggregates… [emphasis added]". The study finds that other jurisdictions, including the United Kingdom, Denmark and Sweden, faced with similar conflicts between aggregate extraction and the protection of natural heritage, prime agricultural and source water lands have adopted a wide range of policy measures intended to promote the more efficient use of the resource. The study concludes that "Ontario needs to develop and implement a comprehensive strategy for the management and conservation	Potential use of recycled materials will be addressed through the Region of Halton led Aggregate Strategy. Nelson indicates in its ARA response that they facilitate recycling on their property under their current licence. The Provincial Policy Statement does not require the demonstration of need for the resource in the evaluation of an application.

Source	Topic	Comment	JART Response
		of the province's aggregate resources. Such a strategy should seek to reduce overall demand for aggregate resources and maximize the substitution of secondary materials for newly extracted aggregate [emphasis added]". In addition, it should be noted that the Environmental Commissioner of Ontario, in his 2002-2003 annual report to the Legislature, recommended the development of a conservation strategy for aggregates. It is CONE's position that proposed NEP Amendment 153 cannot be processed in isolation from the development of a comprehensive strategy for the management and conservation of aggregate resources in Ontario, as recommended by the Environmental Commissioner of Ontario and by the Pembina Institute. IV Conclusion Although CONE opposes proposed NEP Amendment 153, we agree that it should continue to be processed. Our summary concerns with the proposed Amendment are outlined in Part III above. Issues (a), (b) and (c) are site-specific matters, whereas issue (d) speaks to our overarching concern about this amendment and any other amendment related to new or expanded aggregate extraction in the NEP Area – that it is being proposed in a policy vacuum related to aggregate conservation in Ontario. If you have any questions about CONE's position, please contact either myself at (email address provided) or (phone number provided), or Linda Pim at (email address provided) or (phone number provided). Thank you very much.	The Region of Halton response to the ECO report can be found in Report PPW18-08.
P53	Other	No! Just say it. How difficult can that be? Now say yes, yes to good health, cleaner air, good water in our wells, our creeks and streams. Say yes to our wildlife, our flora and fauna, two threatened species. Say yes to preserving something so valuable as escarpment land and natural habitat for future generations, not in the form of some manmade vision of rehabilitated land once ravaged, but in its current natural state. Say yes to community, to those who have endured property loss or damage to their homes and whose concerns have been conveniently	Public input will be recognised in the JART and in the agency recommendations to decision makers in addition to the evaluation of the technical studies.

Source	Topic	Comment	JART Response
		ignored for years, to those whose way of life has or will be significantly altered or destroyed. We all know the issues at hand. And the choice seems so obvious. We have become embroiled in our policies, our studies, our reports. Does not simple moral or ethical judgment come into play anymore? Nowhere has it been more apparent than at the public meeting held this evening and hosted by JART, that the main concern, the main focus of the MNR, Halton Region, and Nelson Aggregate is to ensure that the policies, the studies and the reports are all in perfect order. Nowhere was it made clearer that the people in this community did not matter or indeed even count as a stakeholder in this process. We are asked for our input, our concerns, our questions. We are not given direct answers, nor are we provided with any assurances that our concerns are being or will be addressed. Perhaps we have just not paid enough attention to our own policies, done enough of our own studies and written enough reports. Don't get me wrong, PERL has done and continues to do a remarkable job playing the game as apparently it must be played, and I am grateful for their efforts. And it is apparent that Councillor Taylor has the best interests of the community at heart. But it is devastating to feel so powerless in this supposedly democratic society.	
P54	Other	We will be seeking guarantees/compensation for any well/property damage. A fund should be set up (levy on quarry) for future compensation.	Comments noted
P55	Other	Our family has resided across the street from the existing quarry for nineteen years. As such, we have been subject to a number of ramifications resulting from the daily operation of the quarry ranging in severity from considerable inconvenience to significant safety hazards. Should the Nelson Aggregate Co. be allowed to proceed with the expansion of the quarry, the problems that we currently experience, not only will continue but, may increase in severity making living in the area intolerable. Consequently we request that the application	Concerns regarding safety hazards should be reported directly to Nelson and the MNR.

Source	Topic	Comment	JART Response
		made by Nelson Aggregate Co. to expand the existing quarry be denied.	
P56	Other	My wife and I wish to record our opposition to the expansion of the Nelson quarry to the south side of #2 Sideroad. Such an expansion would degrade the environmental amenities of the area, potentially hazard the water table, bring greater levels of dust and dirt to the residences in the area (including a nursing home that would be almost directly on the edge of the hole they propose to create) and continue to damage roads in the area with heavy truck traffic. The expansion would also damage property values in the area. It would also go against the plans I understand the region and the escarpment commission have to preserve the escarpment countryside.	The JART report will assess how the applicant has demonstrated land use compatibility.
P58	Other	At a recent public meeting a representative of the applicant stated that "the planned quarry expansion on No. 2 Sideroad in Burlington will supply the needs of the City in the years to come". This was immediately refuted by Councillor John Taylor who pointed out that the City is almost at the point of no further development expansion. Thus the market for such products in Burlington will significantly reduce. The area which is undergoing rapid development is the Town of Milton, as evidenced by the huge housing developments to the east and west of the town center; planned and already in progress. Referring to the attached map it is obvious that the existing Dufferin Aggregates quarry is much closer to the developing areas than the Nelson quarry expansion would be. The material produced is the same.	The supply of aggregate is not limited to the needs of one municipality but must be assessed in terms of the overall needs of the GTA and beyond.
P59	Other	Lets Keep what we have (re: escarpment destruction) We, the undersigned residents of Halton and surrounding area, draw attention to the following: THAT precious water and habitat resources are being destroyed by quarrying on the Niagara Escarpment;	See comment under Biosphere Reserve.

Source	Topic	Comment	JART Response
		THAT the Niagara Escarpment is a UNESCO World Biosphere Reserve; THAT 40% of Ontario's rare species live on the Niagara Escarpment; THAT the Niagara Escarpment is home to the oldest trees in eastern North America (eastern white cedar): 1000+ years; THAT rural Ontarians rely on the fresh water resources that are provided by wetlands and ancient aquifers on the Niagara Escarpment; THAT a freeze on expansions and new quarries within the Niagara Escarpment Plan is in the greater public interest for protection of valuable Natural Capital in this area; THEREFORE, your petitioners call upon parliament to freeze expansions and new quarry permits on the Niagara Escarpment	
P61	Other	It is unfair that a large corporation is able to impact on my lands and property so extensively for the sake of deriving economic wealth and savings. Recourse in courts is not an option for me against a corporation with unlimited resources and would drag out causing stress and mental anguish. I would be very grateful if the economic hardship to which we and our neighbours have already been subjected by Nelson Aggregate operations is taken into consideration as being reflective of the impact from their mode of operation. I urge you. Therefore, to deny the proposed quarry expansion as the additional economic burden will be too great for us and our barn's foundation will not sustain the vibration if the quarry operations are allowed to move closer to our property.	Nelson is required to address economic impact to satisfy the requirements of the Region of Halton Official. Municipal staff will comment on this aspect in their staff report to Council. See comments under Blasting with respect to barn foundation.
P63	Other	I am writing to express my opposition to the proposed Nelson Aggregate quarry on Mt Nemo in North Burlington. As you know, the proposed site is part of the Niagara Escarpment (a world biosphere reserve). In my view, the costs of this project, which include further disruptions to the area's water table, continued air, water, noise and light pollution and the destruction of critical habitat	The JART report will assess how the applicant has dealt with hydrogeology, air, water, noise and environmental impacts.

Source	Topic	Comment	JART Response
		of know threatened species such as the Jefferson salamander and Butternut tree, far outweigh any temporary economic benefit that the community may receive from the materials mined at this location. We must consider the social costs associated with operation of a huge and expanding commercial complex in the midst of a quiet rural area. This is simply not the right place for such an operation. I encourage you, to take a clear message to our elected officials – this proposal is simply a bad idea. They must reject Nelson Aggregates proposal. Thank you for your time and consideration.	The purpose of the JART report will be to advise Council with respect to technical issues. After that municipal staff and agencies will make recommendations to Council.
P64	Other	Also, just think for a minute. Expansion, building… where will it stop? We must protect the limited amount of beautiful space we have in this ugly concrete filled world we live in. If this expansion happens, you are just another contributor to big business' plan to devastate our planet and our natural green space. Please respect the neighbourhood that we moved to. We moved here for a reason – don't ruin it for us.	The JART report will assess how the applicant has demonstrated land use compatibility.
P68	Other	The air is becoming more and more unbreatheable; our water isn't fit to come in contact with. Urban expansion is being allowed above Highway 5 and begins to encroach further into our protected areas, and we want to blast away another 200 acres of protected land so that we can get the next Wal-Mart up in a cost-effective manner. We need to act now and say "No." The O.S.S.G.A. has arguments. They state that quarrying has been going on in this area for decades. The same can be said for slavery, war, genocide, racism…. I guess that's a good reason. The O.S.S.G.A. also advocates that aggregate contributes greatly to our high quality of life. While I don't deny I am one of those who benefits from aggregate products, it can't come from protected areas. Dig elsewhere. Our high quality of life is going to change whether we act now or not. We are already paying the price	The potential impact of the quarry on air quality is the subject of one of the studies submitted by Nelson and peer reviewed by consultants to JART. Nelson has changed its current activities to improve dust control. The PPS requires that efforts must be made to make aggregates available close to markets but this is only one criterion against which the application will be tested.

Source	Topic	Comment	JART Response
		for paving over most of the land surrounding Lake Ontario. The past year has seen record numbers of tornadoes, tsunami, earthquakes and hurricanes. Whether you subscribe to global warming or a coming ice age theory doesn't really matter at this point. The fact is that local and global environmental systems are changing. The temperature is rising. Our quality of life is already changing. Amongst the O.S.S.G.A.'s arguments against relocating is the inconvenience of further distance from market causing increased greenhouse gases because the trucks have further to drive. These arguments are misdirection, semantics, crap. There's always rail. Trucks having to drive longer distances will have a negligible impact on the huge emissions problems we already have. They won't make as big a difference as blasting away 200 acres of protected land. What we have to remember is that Nelson Aggregate is in the business of making money, and the O.S.S.G.A. is there to lobby for that business. Economics is what drives business and they deal with environmental issues only because they are forced to. Stopping this expansion will cost them money in relocation and distribution and that is their concern.	JART notes your concerns
		To put a nice face on, the O.S.S.G.A., Nelson, and even J.A.R.T. employ consultants to assess and evaluate possible impact to the wetlands and watershed, and then put forth proof as to how they can negate those impacts. Are we so arrogant as to actually believe we can predict every negative impact of this expansion? Do we think we've even discovered all the negative impacts from past quarry operations? It doesn't matter if you're a consultant or a scientist, there is no way to possibly prepare for every contingency and anyone who thinks we can is an ass. We're just not that smart. We are talking about turning 200 acres of fertile, life-filled, heat and CO2 absorbing land into a large pit filled with electric- and fuel-driven machinery blasting into the watershed. I worked in the transportation industry for 18 years. I have a familiarity with how these things work (or more to the point don't). No matter	Fuel storage is regulated by TSSA and an Emergency Response Plan is in place. The ARA requires progressive

Source	Topic	Comment	JART Response
P68 cont'd		how many procedures are put in place, no matter how many safety and environmental regulations may exist, shit happens, as they say. Fuel spills, chemical spills, hydraulic leaks, fumes, blasting and dust would be the first that come to mind. Every instance may be dealt with within "regulations", but it's kind of hard do get hydraulic oil or diesel fuel out of the ground once you've already spilled it. If we allow this expansion, these things will happen. They always do, and every day. Since Nelson is already in violation over Grindstone Creek are we going to be gullible/stupid enough to believe there won't be further instances over the next 20 years? Really. I don't care how smart you think you are, or what kind of procedures you might come up with, but the only way to prevent these kinds of contaminations is not to allow them to happen in the first place. The only way to ensure they don't is not to allow the expansion. I hear the response, "But the land will be reclaimed! You'll see. It'll grow back." When? I doubt me or my children, or my grandchildren will ever see this really neat park, or reclamation area we keep hearing about. Norm Elmhirst of Nelson Aggregate is telling me that the result will be a "…great increase in shore wetlands…" and will "… in time create a large connected forest corridor that previously didn't exist." Holy crap. Flashback. What, am I 15 again? That's when I first heard this fairy tale. That line has probably been all over the last century. It will take them a long time to clear out the whole area, and by then they'll have new people in the company, new people in government, and this whole issue will fly again when they want to expand further. At some point we have to just say stop. You can't dig here anymore, regardless of your brilliant rehabilitation plan. It took an extremely long time for the Niagara Escarpment to be what it is today. To provide some perspective, Mount Nemo, such as it is,	rehabilitation of the site. A recent amendment to the site plan for the existing quarry was approved by MNR to accelerate lake filling. As part of the Sustainable Halton planning exercise, the Region of Halton has gathered information about aggregate resources in Halton and will be developing an Aggregate Management Strategy to look holistically at aggregates and the issue of rehabilitation. In taking a position on this application, the approval authorities will consider all the issues raised against core principles to ensure that any impacts on the Region and its residents can be mitigated.

Source	Topic	Comment	JART Response
		was evolving for (give or take a few million) 450 million years *before* the caveman showed up. Then another 2.5 million years went by before man began forming groups or societies 5,000 years ago. I am actually sitting next to a cedar which was a sapling when the last of the Laurentian people walked this land 1000 years ago. Early Iroquoians would have seen this very tree and sat on this very rock. But we need another Wal-Mart, so let's blast away at it. Don't worry, it'll grow back. I'm aware that there are no current plans to actually blast away the cliff face in the conservation area. No, the proposed area is about a ten minute walk from here. There comes a time when we have to ask ourselves: Do we really want to mess any further with our groundwater? Can we honestly say we know how bad it can get? Do we really want to just smash it with a hammer and see what happens? Oh, right. Don't worry. It'll grow back. In a few thousand years. Please be responsible and progressive in your decision. Please don't be distracted by economics or industry and remember this is about survival. Please for the sake of common sense, say "No." I don't have a few thousand years to wait for it to grow back.	
P70	Other	**Archaeological Preservation** – An archaeological excavation was conducted on this land in 2004 which uncovered a Neutral Indian settlement dating back to the 1600's. Hundreds of ceramics and tools were found, as well as glass trading beads that French explorers traded with the Neutrals, confirming the era of the settlement. I object to the destruction of this settlement area based on its cultural and scientific value and potential to attract tourism to the area in the future. **Broken Promises** – Over 50 years ago when the original owner sought and got approval for the existing quarry, Halton residents were **promised** that it would operate no more than 35 years. It would then be made into a lake for all	The Ministry of Culture has reviewed the Stage 1-4 archaeological assessments of the site and has advised they have no objection to the amendment application. First Nations will be notified of the statutory public meeting regarding the application. The Nelson applications will be evaluated in terms of impact on the community but as the owner of the lands, Nelson has the right to make an application for

Source	Topic	Comment	JART Response
		to enjoy. Halton residents have now endured this quarry for 20 years more than what they agreed to. Up until two years ago, the existing owner has lead newcomers to the area to believe that operations would wrap up within 5 years. Many newcomers purchased homes based on this premise. Given that approval for the existing site was granted based on the promises made above and the prospect of an enhanced Mt Nemo after rehabilitation of the existing site. Area residents now anxiously await a reprieve from this industrial activity and a return to the area's former rural and natural character. I object to an additional 20 plus years of quarrying and the associated environmental and social damage it will cause.	a quarry extension.

APPENDIX D

Reports Submitted by Nelson in Support of its Application

The following is a listing of reports submitted by Nelson in support of their applications

Planning and Regulatory Context

Nelson Aggregate Co., Burlington Quarry Extension Planning Report and Aggregate Resources Act Summary Statement
Prepared by MHBC Planning Limited
Dated May 2006 and included Appendix B - MHBC Response to JART's questions, dated March 22, 2005

Burlington Quarry Extension Site Plans
Prepared by MHBC Planning Limited
Dated January 11, 2008
(these plans supercede the site plans dated April 5, 2006)

Natural Heritage

Biological Inventory of Nelson Quarry and Adjacent Property, City of Burlington
Prepared ESG International Inc
October 4, 2000

Summary of Natural Heritage Features - Extension Lands
Prepared by Stantec Consulting Ltd
Revised August 31st, 2004

Nelson Aggregate Co., Burlington Proposed Extension Level II Natural Environment Technical Report
Prepared by Stantec Consulting Ltd
Updated May 16, 2006

Summary of Terrestrial and Aquatic Field Investigations 2006 - Addendum
Prepared by Stantec Consulting Ltd
September 29, 2006

Technical Memorandum, Proposed Nelson Extension – Field Observations in Southwestern Woodlot
Prepared by Golder Associates Ltd
January 2007

Water Resources

Report on Hydrogeological and Water Resources Assessment of the Proposed Nelson Quarry Co. Extension
Prepared by Golder Associates Ltd
October 2004 and reissued May 2006

Additional Hydrogeological Work
Compiled by Golder Associates
Dated May 2006.

The additional work included 5 Attachments:
Attachment 1
Draft Peer Review Responses to proposed Nelson Quarry Extension
Prepared by Golder Associates Ltd
September 16, 2005
Attachment 2
Additional hydrogeological field studies at the proposed Nelson Aggregate Co. Quarry Extension
Prepared by Golder Associates Ltd
April 13, 2006
Attachment 4
Draft report on conceptual design of groundwater impact mitigation system, proposed Nelson Quarry Extension, Nelson Aggregate Co., Burlington, Ontario
Prepared by Golder Associates Ltd
May 10, 2006

Hydrogeological Peer Review Responses
Responds to technical questions raised by peer consultant, Mr. Chris Neville of S.S. Papadopulos regarding additional hydrogeologic field studies at the Proposed Nelson Quarry Co. Extension.
Prepared by Golder Associates Limited
August 17, 2006

Reports Addressing the Hydrology and Ecology of Wetland Features Located on the Proposed Burlington Quarry Extension
The reports were submitted Sept 27, 2007 and include:

- Monthly Water Balances for Individual Wetland Areas
  Golder Associates Ltd
  September 2007
- Characterization of Shallow Overburden Hydrogeology at the Proposed Nelson Quarry Extension
  Golder Associates Ltd
  September 2007
- Wetland Ecological Effects Assessment Associated with Predicted Hydrologic Changes - Nelson Aggregate Co. Proposed Burlington Quarry Extension
  Stantec Consulting Ltd. in association with Savanta Inc
  September 2007

Addendum Report On Water Resources Impact Assessment & Contingency Design Updates

This addendum provides supporting information for the recently submitted Adaptive Management Plan and the Response to Joint Agency Review Team Key issues reports. This addendum provides updated information related to the revised extraction area of 51.6 hectares now proposed for the extension.
Prepared by Golder Associates Ltd
January 2008

Response to Blackport review of hydrogeology and water-related issues at the proposed Nelson Quarry Extension
Prepared by Golder Associates
October 2008

Karst Assessment

Additional Hydrogeological Work
Compiled by Golder Associates,
May 2006
Attachment 3
Karst investigations of the proposed Nelson Quarry Co. Extension
Prepared by S. Worthington
April 13, 2006

Karst Comments
Responds to technical questions raised by peer reviewer regarding karst investigations
Prepared by S. Worthington
Aug 25, 2006

Archaeology

Archaeological Assessment (Stages 1, 2, 3) Nelson Aggregate Quarry Extension
Prepared by Archaeologix Inc
August 2003

Archaeological Assessment (Stage 4) Nelson Aggregate Quarry Expansion
Prepared by Archaeologix Inc
August 2004

Agriculture

Nelson Aggregate Co., Burlington Quarry Extension Agricultural Impact Assessment
Prepared by MHBC Planning Limited
May 30, 2005

Traffic

Nelson Aggregate Co. Burlington Quarry Extension Traffic Study
Prepared by Paradigm Transportation Solutions Ltd
Updated June 2005

Noise, Air Quality and Blasting

Nelson Quarry Co. Burlington Quarry Extension Noise Impact Study
Prepared by Aercoustics Engineering Ltd
May 31, 2004,
Revised August 9, 2005 including the addendum to the Noise Impact Study dated May 9, 2006

Burlington Quarry Extension - Blasting Assessment; New Residence Receptor Locator
Prepared by Golder Associates Ltd
December 13, 2004

Air Quality Assessment of Nelson Quarry Co. Burlington Quarry Extension, Burlington, Ontario
Prepared by Golder Associates Ltd
August 2004
Reprinted May 2006 to include Golder's response to JART's questions dated February, 2006

Dust Management Strategy for Nelson Quarry Company Draft Report
Prepared by Golder Associates Ltd
October 3, 2005

Blasting Impact Assessment Proposed Nelson Aggregate Co.
Prepared by Golder Associates Ltd
Updated April 2006

Burlington Quarry Co. Burlington Quarry Extension Noise Impact Study (Revision 2),
Prepared by Aercoustics Engineering Ltd
January 2, 2008
This report builds on the Noise Impact Study dated May 31, 2004, revised August 9, 2005 and the addendum to the Noise Impact Study dated May 9, 2006

Adaptive Management Plan

Additional Hydrogeological Work
compiled by Golder Associates Ltd
May 2006.
Attachment 5
Draft report on Adaptive Management Plan for local private wells (Version 1) proposed Nelson Aggregate Co. Extension Burlington Ontario
Golder Associates Ltd
May 10, 2006.

Draft Adaptive Management Plan Outline Ecological Component, Nelson Aggregate Co., Burlington Proposed Extension
Prepared by Stantec Consulting Ltd
May 16, 2006

Report on Adaptive Management Plan (AMP) Version 1, Water Resources and Ecological Features, Proposed Nelson Aggregate Co. Extension, Burlington, Ontario
Prepared by Golder Associates Ltd, Stantec Consulting Ltd, Savanta Inc
March 2007

Adaptive Management Plan - Version 1
Prepared by Golder Associates Ltd & Stantec Consulting Ltd in association with Savanta Inc.
January 2008

Other

Notice of Expansion Map
Illustration depicting the proposed area of expansion of the Burlington Quarry

Nelson Aggregate Co. – Burlington Quarry Extension Response to the Joint Agency Review Team Key Issues
Prepared by Nelson Aggregate Co.
January 16, 2008

Burlington Quarry Extension Status Update Nelson Co
Note: This document was not a report but rather distributed to attendees at the information session
February 12, 2008

The Market for Crushed Stone in the GTA West and Economic Benefits of the Proposed Nelson Burlington Quarry Extension
Prepared by Altus Group
December 2, 2008

APPENDIX E

Listing of Peer Reviewer Comments and Other Technical Information

The following is a listing of additional information commissioned and/or considered by JART during their review of the Nelson applications.

PEER REVIEWERS

S.S. Papadopulos & Associates, Inc.

Peer review of *Hydrogeological and Water Resources Assessment*, May 9, 2005

Follow-up comments on responses to peer review comments on *Hydrogeological and Water Resources Assessment*, [Includes follow-up comments on responses to peer review comments on karst characterization], November 2, 2005

Comments on proposed additional hydrogeologic investigations, January 26, 2006

Report on site visit: March 15, 2006

Peer review comments on *Karst Investigations at the Proposed Nelson Quarry Co. Extension*, May 8, 2006

Follow-up comments on responses to comments on karst investigations, Sept. 6, 2006

Peer review of additional hydrogeologic field studies (final): May 17, 2006

Follow-up on responses to peer review comments on additional hydrogeologic field studies and updated groundwater modelling (final): August 25, 2006

Recommendations for the minimum elements of an Adaptive Management Plan for the proposed extension of the Nelson Aggregate Co. Quarry, Burlington, Ontario: Last update: March 1, 2007

Request for additional analyses to support the characterization of water resources in the vicinity of the proposed Nelson Quarry Co. extension (final): February 5, 2007

Follow-up on request for additional analyses to support the characterization of water resources in the vicinity of the proposed Nelson Quarry Co. extension: April 11, 2007

Clarifications of requirements for water budget analyses: May 15, 2007

Peer review of interim water balance analyses for individual wetland areas: August 14, 2007

Peer review of overburden characterization: August 14, 2007

Peer review of revised water budget analyses report: October 30, 2007

Review of revised overburden characterization report: October 29, 2007

Responses to follow-up questions on wetland issues: November 29, 2007
Peer review comments on AMP Version 1 (January 2008), May 17. 2008

Peer review comments on private wells: November 29, 2008

Peer review comments on Southwest woodlot: December 3, 2008

AMEC Earth and Environmental

AMEC draft preliminary review of the Air Report to Halton, March 21, 2005.

AMEC review of Golder's February 20, 2006 submission, March 28, 2006

AMEC final comments with respect to the peer review of the Air Report, December 6, 2006

AMEC Summary Report, November 26, 2008

HGC Engineering

Preliminary Peer Review of Blasting Vibration Impact Assessment Prepared by Golder Associates Ltd.,Nelson Quarry Expansion, Burlington, Ontario (Draft), March 8, 2005

Preliminary Peer Review of Noise Impact Study Prepared by Aercoustics Engineering Limited, Nelson Quarry Expansion, Burlington, Ontario (Draft), March 18, 2005

Preliminary Peer Review of Blasting Noise and Vibration Impact Assessment Prepared by Golder Associates Ltd. Nelson Quarry Expansion, Burlington, Ontario (Second Draft), March 24, 2005

Preliminary Peer Review of Noise Impact Study Prepared by Aercoustics Engineering Limited Nelson Quarry Expansion, Burlington, Ontario (Revised Draft), March 24, 2005

Peer Review of Noise Impact Studies, Nelson Quarry Expansion, Burlington, Ont. Sept. 28, 2005

Peer Review of Noise Impact Studies, Nelson Quarry Expansion, Burlington, Ont. June 6, 2006

E-mail message to David Matchett and Helma Geerts re: MOE opinion concerning background sound levels, Nov. 2, 2006

Peer Review of Noise and Blasting Impact Studies, Nelson Quarry Expansion, Burlington, Ont. – Response to Outstanding Issues, Dec. 5, 2006

Peer Review of "Nelson Quarry Co. Burlington Quarry Extension Noise Impact Study" Revision 2, January 2, 2008, Prepared by Aercoustics Engineering Ltd. (AEL), March 25, 2008

E-mail Message to Nancy Mott-Allen re: response to comments from a neighbourhood resident re Urban vs. Rural ambient. April 16, 2008

Nelson Quarry Co., Burlington Quarry Extension, Peer Review of Noise and Blasting Studies, Summary Report, Jan. 20, 2009

Daryl W. Cowell & Associates Inc.

"Karst Assessment" Review, Cowell, D. W. 2005a, March 24, 2005

Comments on Golder's Responses to Proposed Nelson Quarry Extension Review Karst Issues, Cowell, D.W. 2005b, October 25, 2005

Report on the Karst Site Visit, Nelson Aggregates Proposed South Quarry Extension (Tuesday March 15, 2006), Cowell, D.W. 2006a, March 17, 2006

Peer Review of "Report on Karst Investigations at the Proposed Nelson Quarry Co. Extension" (Worthington April 13, 2006), Cowell, D.W. 2006b, May 8, 2006

Letter sent (via e-mail attachment) to Helma Geerts, Region of Halton (JART co-ordinator), Cowell, D.W. 2006c, September 6, 2006

Proposed Nelson Quarry Expansion, Sign-Off Letter Pertaining to Karst Peer Review, December 2, 2008,

OTHER

- Provincially Significant Grindstone Creek Headwaters Wetland Complex, February 2007. Ontario Ministry of Natural Resources, Aurora District
- Correspondence relating to Nelson and PERL presentations to Halton's EACC, including EACC's final report dated October 9th, 2008
- Halton Agricultural Advisory Committee correspondence dated July 7th, 2006
- Burlington Sustainable Development Advisory Committee June 2008
- Letter from OMAFRA , December 1st 2008
- Ministry of Culture letter dated November 19th, 2004 regarding Archaeology
- PERL Consultant submissions
  - Natural Resources Solutions Wetland Evaluation
  - Letter from Wilf Ruland (P.Geo.) to PERL dated April 23,2005, Re: review of October 2004 report titled "Hydrogeological and Water Resources Assessment of the Proposed Nelson Quarry Co. Extension
  - Letter from Wilf Ruland (P.Geo.) to JART dated December 23, 2006 Re: further review of the May 2006 submission from Golder Associates titled "Additional Work Programs, Proposed Nelson Aggregate Co. Extension, Burlington, Ontario".
  - Blackport Hydrogeology Inc., prepared by Ray Blackport, P. Geo. for PERL, Re: Review of Hydrogeology and Water Related Issues Proposed Nelson Quarry Expansion (December 17, 2007).
  - Ray Blackport powerpoint presentation to JART on water hydrogeological issues.

For further information regarding this Appendix, please contact:

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