

Proposed Burlington Quarry Expansion JART COMMENT SUMMARY TABLE – Blast Impact Assessment

Please accept the following as feedback from the Burlington Quarry Joint Agency Review Team (JART). Fully addressing each comment below will help expedite the potential for resolutions of the consolidated JART objections and individual agency objections. **Additional, new comments may be provided once a response has been prepared to the comments raised below and additional information provided.**

	JART Comments (January 2021)	Reference	Source of Comment	Applicant Response	JART Response
Report/Date: Blast Impact Analysis, March 24, 2020 & April 23, 2020		Author: Explotech Engineering Ltd.			
1.	The introduction recommends that a vibration monitoring program be continued and maintained for the duration of all blasting activities. Is this a requirement of the MECP Certificate of Approval? Are there securities or other legal assurances that the monitoring will take place? Is it possible for the language of the Official Plan Designation to include this recommendation?	General	City of Burlington		
2.	In the BIA report no mention is made regarding presence of any identified water body within the proposed extraction areas or within 500.0 metre stand off distance outside the extraction areas. There are water bodies in the area.	General	DST Consulting Engineers Inc.		
3.	It is noted that the version of site plan drawings appended to BIA is missing the “Note” section. The same version of site plan drawings provided to the retained consultant by Halton includes “Notes” on the drawings.	General	DST Consulting Engineers Inc.		
4.	The impact of blasting in the context of production of vibration and overpressure and their effect on neighbouring sensitive receptors located at various standoff distance are considered by the BIA report. The BIA report identifies a number of these receptors to be owned by the applicant, and hence considers them as non-sensitive receptors for the purpose of predictive vibration and overpressure impact calculations. Should these be considered as sensitive receptors given current use and design?	General	DST Consulting Engineers Inc.		
5.	In order to mitigate the potential vibration and overpressure on surrounding existing sensitive receptors, the BIA uses a well-known predictive model, namely the Bureau of Mines (BOM) prediction formula or Propagation law. The BIA states that this model has been used by Golder Associates (Golder) to develop a site-specific attenuation formula based on a study carried out at the existing Burlington Quarry in 2006. However, the attenuation curves referred to in the Appendix C of the report are dated 2004. The BIA solely relies on the site-specific attenuation curves established by Golder for the existing Burlington Quarry for their assessment of the impact of blasting on surrounding sensitive receptors in the proposed Burlington Quarry Extension area with no new data added, even though the new data is available.	General	DST Consulting Engineers Inc.		
6.	The BIA report under the heading “EXISTING CONDITIONS” identifies seventy-eight (78) sensitive receptors with respective standoff distance from the extraction zones comprising of residential dwellings and a Golf Course known as Camisle Golf Course. The civic addresses and the land use of these properties are also identified in the BIA report. Of the seventy-eight sensitive receptors, eleven (11) dwellings are presently owned by the proponent and may be converted to offices, in which case will be eliminated from the list of sensitive receptors. The properties owned by the proponent are amongst the closest to the proposed extraction areas. The BIA identifies Buildings located at 2280 No. 2 Side Road presently owned by the proponent as structures classified as “culturally significant” and will be vacant at the time of extraction, and thus will not be considered as sensitive receptors. Should all of these building be considered as sensitive receptors given current use and design?	Existing Conditions	DST Consulting Engineers Inc. and Halton Region		
7.	Page 7 recommends that vibrations at 2280 No. 2 Side Road be maintained below 50.0 millimetres/second, and the closest structure on the property shall be monitored for ground vibration and over pressure when vibration calculations suggest vibrations in excess of 35.0 millimetres/second. Page 8 indicates Nelson Quarry is the owner of	Page 7	City of Burlington		

	the property, please confirm that the vibration monitoring equipment will be or has been installed and monitored				
8.	Page 10 provides recommendations on blast monitoring, please provide confirmation on where the vibration monitors will be (or are currently) installed (municipal address, and location on property) and if necessary (for non-owned properties) provide written confirmation from landowners that they have given permission for the vibration monitors to be installed on their property.	Page 10	City of Burlington		
9.	Page 20 references the Sun Canada Pipeline. The BIA report provides a detailed assessment of the impact of blasting on the Sun Canadian High Pressure Oil Pipeline and recommendation on changes in the blast design parameters to protect the pipeline based on the Sun Canadian vibration limit policy. GIS mapping indicates there is also an Enbridge Pipeline and Imperial Oil Pipe line south of the south expansion, have any of those agencies been contacted to see if there are any precautions or requirements for blasting in proximity to the pipelines?	Page 20	City of Burlington		
10.	The BIA report under the heading "REVIEW OF HISTORICAL BURLINGTON QUARRY DATA" states that vibration and overpressure data has been collected in recent years for all blasts conducted at the Nelson Aggregate Burlington Quarry (for 2014 through 2019) and provided to Explotech as part of their analysis. The historical vibration and overpressure data are included in Appendix C of the report. As part of their analysis, the BIA further confirms that the data reveals occurrence of 18 exceedances over the period from 2014 to 2019. List of exceedance occurrences, their location, exceedance level, date and time are presented in Table 5 of the BIA report. Although the data has been reviewed, it is not used in the BOM model prediction model for predicting expected vibration and overpressure levels for the quarry extension. If the prediction formula established by Golder is used for calculation of predicted vibration and overpressure levels for the new extension, then the data collected from actual quarry blasting during the period of 2014 to 2019 should have been incorporated in the model.	Review of Historical Burlington Quarry Data	DST Consulting Engineers Inc.		
11.	The Recommendations section (pages 28/29) does not address warning clauses, are there any warning clauses recommended for surrounding residential properties and/or to be included in the Official Plan Designation?	Pages 28-29	City of Burlington		
12.	The BIA report under the heading "RECOMMENDATIONS" provides nine (9) recommendations as the condition of blasting in the proposed Nelson Aggregates Burlington Quarry Extension areas. The following need to be addressed: <ul style="list-style-type: none"> Critical conditions recommended by the BIA be included in the site plan notes. 	Recommendations	DST Consulting Engineers Inc.		
13.	The BIA report under the heading "RECOMMENDATIONS" provides nine (9) recommendations as the condition of blasting in the proposed Nelson Aggregates Burlington Quarry Extension areas. The following need to be addressed: <ul style="list-style-type: none"> The Golder Associates vibration attenuation study report referred to in the BIA report be provided for ease of technical review and cross reference. 	Recommendations	DST Consulting Engineers Inc.		
14.	The BIA report under the heading "RECOMMENDATIONS" provides nine (9) recommendations as the condition of blasting in the proposed Nelson Aggregates Burlington Quarry Extension areas. The following need to be addressed: <ul style="list-style-type: none"> The source of the Nelson Quarry vibration and Air Attenuation Curves included in Appendix C (Figures 5 and 6) of the BIA report be identified. 	Recommendations	DST Consulting Engineers Inc.		
15.	The BIA report under the heading "RECOMMENDATIONS" provides nine (9) recommendations as the condition of blasting in the proposed Nelson Aggregates Burlington Quarry Extension areas. The following need to be addressed:	Recommendations	DST Consulting Engineers Inc.		

	<ul style="list-style-type: none"> Vibration and overpressure data collected in the first 12 months of the proposed quarry extensions be incorporated in the data attenuation data base to develop a more reliable and new site-specific attenuation formula. 				
16.	<p>The BIA report under the heading “RECOMMENDATIONS” provides nine (9) recommendations as the condition of blasting in the proposed Nelson Aggregates Burlington Quarry Extension areas. The following need to be addressed:</p> <ul style="list-style-type: none"> Provide the rationale why the attenuation formula established by Golder in 2004 was used, but the historical vibration and overpressure data from the same site was not incorporated in formula. 	Recommendations	DST Consulting Engineers Inc.		
17.	<p>The BIA report under the heading “RECOMMENDATIONS” provides nine (9) recommendations as the condition of blasting in the proposed Nelson Aggregates Burlington Quarry Extension areas. The following need to be addressed:</p> <ul style="list-style-type: none"> According to the “Level 1 and Level 2 Natural Environment Technical Report, April 2020, page 60, Fish Habitat Summary” conducted by SAVANTA, there are potential direct fish habitat within 120.0 metres of the adjacent lands, and no fish habitat within the extraction areas. <p>A review of historical supporting information and current Level 1 and Level 2 Natural Heritage Reports provided by the applicant was also carried out by the Halton Region Environmental Consultants Matrix Solutions Inc. (MSI). “This review provides the following overview of fish habitat within 500.0 metres of the proposed Burlington Quarry Extension areas:</p> <ul style="list-style-type: none"> West Arm of the West Branch of Mount Nemo Tributary of Grindstone Creek East Arm of the West Branch of Mount Nemo Tributary of Grindstone Creek Willoughby Tributary of Bronte Creek <p>In addition to these, there are waters containing fish within the existing quarry and proposed extension areas. Within the existing quarry, it can be assumed that all pond features contain fish. In historical reports prepared by ESG International (October 2000) the following features were noted:</p> <ul style="list-style-type: none"> Pond 1 – support a largemouth bass population Pond 2 – supports a stickleback and pumpkinseed population Pond 3 – supports a largemouth bass population Pond 4 – supports largemouth bass, pumpkinseed and stickleback population <p>Although there are fish within these features, earlier reports do not classify these as “fish habitat” due to the isolation of these watercourses. According to MSI, the applicant has been requested to provide DFO concurrence that this is the case.</p> <p>Within the West Extension area, largemouth bass is present in all of the irrigation ponds within the golf course. Although the fish are present within these watercourses, they are currently not viewed as “fish habitat” by the applicant. These irrigation ponds are hydrologically connected to Willoughby Creek Tributary. The applicant has been requested to provide DFO concurrence that this is not fish habitat”.</p>	Recommendations	DST Consulting Engineers Inc.		

	<p>In the case that DFO confirms that the above noted features are considered as “fish habitat”, the applicant’s blasting consultant should revise their BIA to include a section addressing the impact of blasting on these features and recommend mitigation measures to address the potential impact on the fish habitat in accordance with the “Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters”. The document can be sourced online at https://www.racerocks.ca/wp-content/uploads/2015/09/DND-explosive-guidelines.pdf.</p> <p>The potential impact of blasting may be insignificant on the fish habitat within 120.0 metres of the adjacent lands considering the proposed blasting parameters. However, the potential impact should have been addressed by the BIA. The Location of these water bodies are also shown in the site plan drawings and described as “Water Features”.</p>				
18.	<p>The BIA report under the heading “RECOMMENDATIONS” provides nine (9) recommendations as the condition of blasting in the proposed Nelson Aggregates Burlington Quarry Extension areas. The following need to be addressed:</p> <ul style="list-style-type: none"> Considering that the proposed blasting operations at one point will approach a standoff distance of 12.8 metres from Sun Canadian Pipeline corridor, all requirements of their blasting specifications outlined in Appendix 2, section 8.3 to 8.5 under the heading “Vibration and Blasting Control” be implemented (copy attached for reference). 	Recommendations	DST Consulting Engineers Inc.		