

**Summary Notes and Comments
Acton Quarry Extension
Public Information Session
October 26, 2009
Acton District High School**

Note: The following is not an official transcript of the public information session, but rather the highlights of key themes identified and/or discussed. Responses were provided by representatives from Dufferin Aggregates or Dufferin's consultants, as appropriate.

On October 26, 2009, Dufferin Aggregates held a Public Information Session as a follow up to the company's earlier information session in May, 2009.

The October 26, 2009 Public Information Session comprised three main components:

- A three-part presentation including:
 - A status update on the application process of the proposed extension of the Acton Quarry;
 - An introduction to blast basics and effects; and
 - Response to blasting-related comments made at the May 5 public information session
- Public Questions and Answers
- Display panels and informal individual small-group discussions

HIGHLIGHTS OF PRESENTATION:

(The presentation on the proposed extension is available online at <http://www.dufferinactonquarry.com>)

- Andrea Bourrie, Property & Resource Manager of Dufferin Aggregates provided a brief recap of the company's current land holdings in Acton, including current quarry phases (I-III), extension lands, and lands to remain in their natural form. Andrea also provided updates on the status of the extension application of the Acton Quarry as follows:
 - The Joint Agency Review Team (JART) process is in progress. (The timeline for the JART review and final report preparation is approximately 24 months from the submission date (March 19, 2009))
 - An on-site meeting/walk was held on June 10, 2009. Members of the JART team and their peer reviewers walked the proposed extension lands with Dufferin representatives and technical consultants
 - JART Peer Review comments are under way. A status report is expected in early 2010.
 - According to the review process, separate JART Public Information Centre(s) will also be held
 - JART sub-committee meetings are being organized to allow the experts in various disciplines to provide their comments most effectively
 - In addition to the information exchange with JART, the need for in-person meetings has been identified in order for Dufferin to address questions and issues raised by JART more effectively
- On September 12, 2009 Acton Quarry opened its doors to the public and held its annual Open House. About 300 to 400 people attended. Informational displays, including one on the status of the extension application, were provided. Open House activities included a site tour, rides on rock haul trucks, heavy equipment displays, raffle/door prizes, buffet breakfast and speeches. Dufferin

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encourages community members and stakeholders to join its next on-site events for the public, including an annual tree planting event in the spring and an open house in September, 2010.

- Blast expert, Andrew Curic of Golder Associates, gave a technical presentation to help the session’s participants understand the basics of a blast, including: key blast types, designs, types of causes of blast effects (vibration types, characteristics, factors determining perceived blasting effects), and government limits for air and ground vibrations.
- It was noted that blasting operations at the Acton Quarry are in strict compliance with all of the Ontario Ministry of the Environment’s standards and well below the average North American industry limits. The maximum ground vibration at the Acton Quarry is 3 to 5 millimetres per second (mm/s) – four times less than the 12.5 mm/s ground vibration limit set by the Ontario Ministry of the Environment and well below the American Bureau of Mines’ standard of 50 mm/s.
- Rob McDougall, Site Manager, Acton Quarry, provided an update on various measures that have been taken at the Acton Quarry to respond to blasting-related questions and comments from the information session in May 2009. Rob indicated that results to date show improvements, but conclusions cannot be made until further testing is completed.
- Representatives from Dufferin Aggregates and Dufferin’s consultant addressed various questions, comments and concerns from the audience and committed to providing additional information requested by various participants in the near future.
- Dufferin encourages the community to participate in the application process, which is a complex, structured consultation, review and approval process, by asking questions and expressing its concerns. Dufferin is committed to ensuring that community concerns are addressed throughout this process.

HIGHLIGHTS OF COMMENTS RAISED DURING THE INFORMATION SESSION:

THEME	HIGHLIGHTS OF COMMENTS	GENERAL RESPONSE FROM DUFFERIN AGGREGATES (DFA)¹
BLASTING	How far do emissions of explosives travel, in particular on a cloudy day? What air pollutants are released as a result of blasting?	At Acton Quarry, because of the use of emulsion during a blast, gases dissipate in the air rather rapidly. It is proven that this process is eco-friendly. Dufferin will provide further details related to components of the emulsion.

¹ Further details and statistics as noted in the following responses have been provided by Dufferin Aggregates on its web site at http://www.dufferinactonquarry.com/en/whatsnew/resources/QASummaryfromOct.26-09PIC_updatedJan11-09.pdf

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BLASTING	Does multitude of blasting over time cause damage to house structures?	<ul style="list-style-type: none"> An American Bureau of Mines report concludes that quarry blasts within the regulatory limits do not cause damage to the structures of surrounding residences. Blasting at the Acton Quarry is in strict compliance with all of the Ontario Ministry of the Environment's standards and well below average North American industry limits.
	Is there any difference in blasting effects during the winter and summer?	An individual may feel a blast more in the winter because soil is hardened. However, the difference is minimal and considered negligible in the readings between blasts.
	What causes well water to turn murky after blasts? Does the whirlpool of sands damage well pumps?	<p>There is a possibility that blasting may cause temporary turbidity (murkiness). This effect, if it occurs, should be temporary and of short duration. An American Bureau of Mines report found that for protection of well water, the safe limit of ground vibration had to be no greater than 50 mm/s.</p> <p>The maximum ground vibration at the Acton Quarry is 3 to 5 mm/s – four times less than the 12.5 mm/s ground vibration limit set by the Ontario Ministry of the Environment and well below the American Bureau of Mines' standard of 50 mm/s.</p>
	How much CO ₂ is released into the air from blasting at the Acton Quarry?	At the Acton Quarry, because of the use of emulsion during a blast, gases dissipate in the air rather rapidly. It is proven that this process is eco-friendly and causes little or no negative effects on air quality. Dufferin will provide further details on CO ₂ emissions that are directly resulted from blasting at the Acton Quarry.
	What is Dufferin's compensation policy with regard to damages to area residents' properties?	<ul style="list-style-type: none"> Blasting at the Acton Quarry is in strict compliance with the Ministry of the Environment's standards. Dufferin will investigate the negative impacts residents may feel from blasting in order to accurately assess the cause of any reported damage. Dufferin will compensate the resident if the damage is caused by the Quarry.

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	<p>Are houses built on bedrock less adversely affected by blasting than those on soil, such as houses located north of the Acton Quarry along Churchill Road?</p>	<ul style="list-style-type: none"> • Houses on bedrock are generally safer than those on soil in being adversely affected by blasting. • Dufferin will attempt to gather comparative data on negative impacts from blasting on houses built on bedrock vs. on soil in proximity of Churchill Road subdivision.
	<p>An area resident would like to request reinvestigation of reported damages to his house and re-assessment of the vibration readings from his property (requested that reading to be taken from the 2nd floor vs. the lawn of his home)</p>	<ul style="list-style-type: none"> • Vibration measurement taken at this resident’s residence during a blast came in at 3.2 mm/s and 112 dBLs – both well under the Ministry of the Environment’s limits. • The most desirable location to measure ground vibration is in the ground close to the corner of the structure.
	<p>Where is Dufferin’s receptor located in the above resident’s area to obtain the readings?</p>	<ul style="list-style-type: none"> • Dufferin’s seismograph is set at the nearest receptor² to the blasting area which is currently a residence approximately 400m from the Quarry. • Readings at this receptor continue to come in under 128 dBLs.
	<p>Does the location of the receptor affect how a blast is felt or recorded?</p>	<p>Typically the vibrations are felt or recorded at their highest level when the receptor is placed directly behind the bench of (horizontal layers of aggregate deposits) vs. in front of the quarry face.</p>
	<p>Is the closest receptor the most significant one? Is it possible that a greater reading be taken from a receptor which is located further from the blast?</p>	<ul style="list-style-type: none"> • Impacts of both ground and air concussions typically diminish with distance. • In the case of air vibrations, under overcast occasions, sometimes a higher reading may be seen at a receptor that is further away from the blasting site. This exception, however, does not apply to ground vibrations. • The Ministry of the Environment requires that vibration readings be taken from the receptor located closest in proximity to blasting operations.

² According to Ontario Ministry of Natural Resources, a (sensitive) receptor is defined in the Aggregate Resources of Ontario Provincial Standards as meaning: residences, or facilities where people sleep (nursing homes, hospitals, trailer parks, camping grounds, etc); schools; day care centres. (<http://www.mnr.gov.on.ca/269184.pdf>)

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	<p>Is it possible for Dufferin to investigate two area residents' concerns by measuring/re-measuring vibration levels at their residences as follows:</p> <ul style="list-style-type: none"> • Re-measure vibration levels at Mr. Djurinec's residence by placing/burying receptors at key locations including main floor, second floor, in the ground at the corner of the structure • Measure vibration levels at Ms. Franklin's residence 	<p>Dufferin will investigate the two area residents' concerns and measure/re-measure vibration levels at their residences, if the residents are willing.</p>
	<p>What are the Canadian data in comparison to Ontario's air and ground vibration limits?</p>	<p>Dufferin will provide the Canadian comparative data, as requested.</p>
	<p>Can Dufferin provide comparative data of North American and European blasting limits? What are Holcim's standards and best practices for blasting operation?</p>	<p>Dufferin will attempt to obtain European regulatory limits for quarry blasting as well as blasting standards and best practices from Holcim operations in Europe and internationally.</p>
	<p>Is there any scientific research/data on impacts on species at risk (breeding birds, spawning fish) caused by quarry blasts?</p>	<p>A similar question was brought forward by JART. Dufferin will provide this information in further detail.</p>
<p>WATER</p>	<p>Will there be perpetual pumping in Acton Quarry as there is in Dufferin's Milton Quarry?</p>	<ul style="list-style-type: none"> • Pumping is required at the current Quarry and proposed extension site in Acton. • The proposed extension will allow for increased pumping flexibility because, unlike the Milton Quarry, the proposed water management solution for the Acton Quarry will include a gravity-fed system.
	<p>Who will be responsible for the cost for maintaining the water management system when Dufferin is no longer the Acton Quarry owner/operator?</p>	<p>As with the arrangement for the Milton Quarry, none of the water management costs will be borne by taxpayers in Acton. Agreements and funding will be in place to ensure that these costs are covered.</p>

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	<p>Will a new permit to take water be required for the extension lands or will the existing 10 year water-taking permit be renewed?</p>	<p>The existing water-taking permit will remain in place. The extension lands will require a new water-taking permit. It is at the discretion of the Ministry of the Environment whether it will request Dufferin's the current water-taking permit the new permit for the extension lands be combined.</p>
<p>APPLICATION PROCESS</p>	<p>How does the approval process work? Is everyone going to review the application at the same time?</p>	<p>Dufferin's application to extend the Acton Quarry has been made in its entirety and deemed complete. It is being reviewed simultaneously by the JART agencies, stakeholders and other interested parties. This is the same process that was followed for the review and approval of Dufferin's application for extension of its Milton Quarry.</p>
	<p>What is the organizational structure and process at Sustainable Halton for review of quarry applications?</p>	<p>Dufferin will provide information on Sustainable Halton's structure and process for reviewing quarry applications.</p>