

Adverse Effects: Thirteen Homeowners Near A Blasting Quarry Bought Out By Quarry Owner (January 26, 2021)

A search of rural residential property sales over a number of years (1991-2010) near the Acton Quarry¹ in Halton Hills, a quarry blasting below the water table, now operated by Dufferin Aggregates² through a series of changes in corporate ownership, uncovered acquisitions of fourteen (14) rural residential properties on Third Line, including one vacant building lot, by owners of the Acton Quarry.

None of the 13 residences and one vacant building lot were purchased on the open market, as evidenced by the absence of any “for sale” MLS listings³ corresponding to the date each property was purchased by the then owner of Acton Quarry. In 8 of the acquisitions, the quarry operator’s true identity was concealed through the use of numbered companies, and one company with the delightful name “Snowfarm Ltd.” The 14 transactions are summarized as follows.

Address	PIN	Lot		Sale Date	Sale Price	Vendor	Purchaser	Demolished
		Dimensions	Lot Area (sf)					
11759 Third Line	25017-0077	160' x 400'	63,647	8-Jan-10	\$468,000	Watson	Snowfarm Limited	
11749 Third Line	25017-0078	160' x 400'	63,712	8-Jan-10	\$495,000	McEachern	Holcim (Canada) Inc.	
11998 Third Line	25017-0005	100' x 200'	19,913	29-Dec-06	\$410,000	Harris, Oliver	St. Lawrence Cement Inc.	
11992 Third Line	25017-0006	122' x 200'	24,305	29-Jan-07	\$656,500	Locke	St. Lawrence Cement Inc.	
11988 Third Line	25017-0007	100' x 200'	19,913	28-Dec-00	\$232,000	MacNeil	Blue Circle Canada Inc.	2010-2015
11978 Third Line	25017-0008	125' x 200'	24,897	28-Dec-00	\$224,000	Bradbury	Blue Circle Canada Inc.	2015-2017
11970 Third Line	25017-0009	125' x 200'	24,897	28-Mar-91	\$359,000	Vander Eyken	St. Lawrence Cement Inc.	2015-2017
12723 Third Line	25005-0030	203' x 226'	38,600	27-Mar-08	\$683,333	French	764296 Ontario Ltd.	2017-2019
Third Line	25005-0029	125' x 242'	31,980	23-Oct-08	\$300,000	Coxe	747752 Ontario Ltd.	
12759 Third Line	25005-0028	125' x 269'	35,359	27-Mar-08	\$683,333	Henderson	764296 Ontario Ltd.	2017-2019
12763 Third Line	25005-0027	125' x 296'	38,729	27-Mar-08	\$683,333	Pettipher	747752 Ontario Ltd.	2017-2019
12765 Third Line	25005-0026	125' x 323'	42,108	27-Mar-08	\$658,133	Hotham, Osborne	764296 Ontario Ltd.	2017-2019
12771 Third Line	25005-0025+	157' x 364'	51,473	27-Mar-08	\$683,333	Kirkwood	747752 Ontario Ltd.	2017-2019
12775 Third Line	25005-0138	425' x irreg	159,618	27-Mar-08	\$733,333	Coxe, et al	764296 Ontario Ltd.	2017-2019

Aerial views and other data sources reveal that ultimately 9 homes of the 13 improved properties on Third Line bought out by Acton Quarry have been demolished: 1 dwelling (2010-2015), 2 dwellings (2015-2017), and 6 dwellings (2017-2019).

According to the scaling function provided by the Toronto Real Estate Board (TREB), at the time each homeowner of the 14 properties (13 rural residences and one vacant building lot) was bought out by the then corporate owner of the Acton Quarry, the closest distance from the quarry pit to each of the three Sub-Groups of sales (shown on the attached aerial sketch – Appendix A) was approximately:

¹ See the destruction of the terrain and stagnant water ponds at the Acton Quarry on the August 5, 2014 YouTube video, <https://www.youtube.com/watch?v=nJd6j2K2754>.

² “Dufferin Aggregates purchased Acton Quarry in November 2001. With 3.47 million tonnes annual production, this quarry is ranked 5th in Canada in 2001.” <http://www.geologyontario.mndm.gov.on.ca/mndmfiles/mdi/data/records/MDI40P09SE00002.html>.

³ A search of Toronto Real Estate Board (TREB) and Oakville, Milton & District Real Estate Board did not uncover any MLS listings for any of the 14 transactions at the time each homeowner was bought out.

- Sub-Group (7 sales) 750 feet (229 metres) from quarry pit
- Sub-Group (5 sales) 2,100 feet (640 metres) from quarry pit
- Sub-Group (2 sales) 4,950 feet (1,509 metres) from quarry pit

Typically, an appraisal would be commissioned for each residential property, accompanied by **instructions from the quarry owner to the appraiser to ignore the impact of the quarry operation on the market value**, with each property owner required to sign a confidentiality agreement as a condition of sale.

Implicit in the concept of *Market Value*⁴, defined as follows, is that the purchaser is reasonably knowledgeable or well advised. However, the vendor will virtually always be more knowledgeable than the purchaser.

The most probable price, as of a specified date, in cash, or in terms equivalent to cash, or in other precisely revealed terms, for which the specified property rights should sell after reasonable exposure in a competitive market under all conditions requisite to a fair sale, with the buyer and seller each acting prudently, knowledgeably, and for self interest, and assuming that neither is under undue duress.

Angela MacNeil, the owner of 11988 Third Line, was bought out by Blue Circle Canada Inc. (ASO: David Marsh) on December 28, 2000, for \$232,000 (all cash), a home which Angela MacNeil purchased on December 30, 1998, for \$209,000 from the Russell family, who had acquired the property on November 25, 1988, for \$189,000.

The adverse effects endured by the Russell family while residing near the Acton Quarry for approximately 10 years were expressed in testimony (Witness Statement) at an OMB hearing (LPAT PL170688), which commenced May 21, 2019, involving another quarry, blasting below the water table, proposed some 1,500 metres from their present residence in Guelph Eramosa.

My family and I lived on 3rd Line Acton, south of 22nd sideroad from [November 25,] 1988 to 1999 [December 30, 1998]. When we moved into the house, the Acton Quarry was an established operation that was bounded on the south side by 22nd sideroad which meant that our house was about 1,100m from the quarry....However, the quarry did expand south of 22nd sideroad a few years after....which brought with it several new challenges but the key ones that I am addressing here are the property damage and consequential property devaluation.

As to the extent of the adverse effects endured by the Russell family over the period of 10 years while residing near the Acton Quarry, they consisted of the following:

- *[B]lasting shockwaves were very evident at the house. One could feel the whole structure move as the shockwave passed. I vividly recall the first time I personally experienced the blasting shortly after moving in. I was on vacation (and so at home at the regular daily noon hour blasting) and sitting on the garage floor working on my car. For an instant, as the shockwave passed, I felt weightless, almost as though I left the ground!*

⁴ *The Appraisal of Real Estate, Third Canadian Edition*, Appraisal Institute (US) and the Appraisal Institute of Canada (2010))

- *[T]his blasting was daily at the time, and so my wife and three pre-school children experienced that same shockwave effect every day.*
- *My house eventually started to display significant symptoms that I would believe were a direct result of the repeated mechanical shocks [from everyday blasting]. At first they were relatively minor such as cracks in window frames and some cracks in the drywall. Eventually, the symptoms became more serious.*
- *Following the expansion of the quarry south of 22nd sideroad, cracks started to propagate across the concrete floor of the garage and basement. The house then developed a crack through both of the masonry walls on the south wall of the structure (this was the largest section of the structure above ground). This grew...[to] be a ½” crack that extended diagonally both on the interior structural masonry as well as the exterior cosmetic masonry. The two cracks propagated at 90 degrees to each other suggesting that they were not just due to simple subsidence (note that the house had been there for approximately 20 years already so the foundation would reasonably be considered as very stable).⁵*

When the Russell family discussed the damage to their home with representatives of the Acton Quarry, the quarry operator denied any responsibility, claiming that

There was no proof that the cracks were related to the blasting as I had not had the foresight to have my house monitored with accelerometers and recorders [which provide less than reliable measures of damage when a property is exposed to repeated blasting]. [underscoring added]

And, yet, in December 2000, only two years after the Russell family had sold their home to Angela MacNeil in December 1998, the quarry operator (Blue Circle Canada Ltd.) acquired the property, along with the abutting home at 11978 Third Line, both of which were subsequently demolished by the owner of Acton Quarry.

A representative of Dufferin Aggregates, when asked at a December 10, 2012 public meeting⁶ by a resident whether an inventory of any issues with houses near the quarry had been recorded when Dufferin Aggregates acquired Acton Quarry in November 2001, responded as follows:

The public is repeating concerns that existed over 10 years ago and many homeowners in the area bought homes when they knew a quarry was present. He believes those complaining should show proof that cracks in foundation happened due to recent Acton Quarry operations. He explained it is

⁵ As ruled by the appellate court in *Civil Construction Company Limited v. Frederick Leon (1st Respondent)*, [and other Respondents], Civil Appeal SCA 36/2016), “[i]n my view the 1st Respondent’s evidence, in accordance to the theory of ‘*la causalite adequate*’ [adequate causation], that the cracks started to appear in their houses only after the quarry started its operations and that after about 20-25 years after the houses had been built makes it obvious that it was the vibrations caused by blasting and movement of heavy machinery that contributed materially to the damages. That in my view was sufficient evidence to establish the link and proximity between the acts of Appellant and the damage caused to the Respondents property, even without any expert evidence. That in my view was sufficient evidence to establish the link and proximity between the acts of Appellant and the damage caused to the Respondents property, even without any expert evidence. This in my view is where the common law doctrine of ‘*Res ipsa loquitor*’ (The thing speaks for itself) applies.” <https://seylli.org/sc/judgment/court-appeal/2018/33/CCCL%20v%20Leon%20%26%20rs%28Twomey%29Judg.14.12.18.pdf>

⁶ <https://www.dufferinaggregates.com/wp-content/uploads/2020/06/Meeting-Minutes-20.pdf>

likely the cracks occurred well before Dufferin Aggregates came into the town p. 5]. [underscoring added]

This offensive reverse onus on homeowners residing near quarries blasting below the water table to prove damages to their residences is a classic tactic of quarry owners. Repeated blasting, coupled with dewatering,⁷ is known to cause environmental and structural damage, and compromise the health, safety and welfare of nearby residents, pets and wildlife. Blasting is an ultrahazardous activity held to strict liability.

All of the homes surrounding the quarry were built at different times, using different building materials, presumably in compliance with the building codes prevailing at the time each home was built. Accordingly, there is no uniform intensity of blasting that each residence can withstand. The homeowners are not under any legal obligation to ensure that their homes are constructed to a (fortress) standard that would withstand the impacts of repeated blasting using powerful explosives.

By ignoring residents' complaints of property damage, the only effective remedy available against a quarry owner is costly litigation, which may be dragged out by the quarry operator for years, with an uncertain outcome, even with the benefit of strict liability and a favourable "more probable than not" burden of proof. This is one more reason why the precautionary principle should be applied, and an abundance of caution exercised, when a municipality considers the locational characteristics of an application for a new quarry blasting below the water table, or expansion of an existing quarry blasting below the water table.

Any semblance of community life along Third Line near the Acton Quarry has all but been obliterated, as only a few homes remain standing. The few remaining homes on Third Line near the Acton Quarry are not readily marketable or mortgageable on typical terms and conditions, and homeowner insurance may be difficult or costly to obtain, especially if previous damages have been claimed, leaving Acton Quarry as the only viable buyer. Of course, there is always the possibility of selling one of the few remaining homes on Third Line to an unsuspecting purchaser with no knowledge of the *adverse effects* associated with residing near a quarry blasting below the water table.

Buying a home with an awareness of a quarry nearby does not imbue the typical purchaser with an understanding of all the adverse effects of a quarry blasting below the water table

⁷ 6th Annual Georgia Environmental Conference, Savannah, Georgia, August 25, 2011, Limestone Conditions With Pit Dewatering, USGS Open-File Report OF-010484, Worst-Case: 1) WATER TABLE lowered by quarry dewatering. 2) SPRING no longer receives groundwater discharge. 3) WETLANDS dried up & destroyed. 4) CAVITIES & PIPES form in the soil where groundwater support is lost. 5) SUBSIDENCE of the land occurs. 6) COLLAPSE SINKHOLE after soil falls into an underlying cavity. 7) STREAM dries up. 8) RIPARIAN WOODLANDS destroyed., Slide 22, <https://citizensagainstmining.org/wp-content/uploads/2017/04/Quarry-Effects-by-Leggette-Brashears-and-Graham.pdf>.

or as to how long the quarry will remain operational.⁸ Many questions would need to be answered:

- Was the purchaser informed of the adverse effects of living near the quarry by the realtor (or was the realtor as uninformed as the purchaser) before purchasing the property?
- Was the purchaser aware of how often blasting would occur at the quarry, and that blasting is an ultrahazardous activity?
- Was the purchaser aware that operations at the quarry, including blasting, could interfere with family use of outdoor amenity space?
- Was the purchaser giving implied consent to the quarry operator to compromise the health, safety and welfare of their family, pets and livestock?
- Was the purchaser advised of the health risks of exposure to silica dust,⁹ a by-product of quarry operations, to their family, pets or livestock?
- Was the purchaser advised of the dangers of *flyrock*, an inevitable by-product of blasting rock, and considered the ultimate adverse effect (most people have never heard of *flyrock*, a closely guarded dirty little secret of the aggregate industry and its explosives engineers)?
- Was the purchaser giving implied consent to the quarry operator to cause future damage to their property?
- Was the purchaser aware that it is prudent to have a well water pumping test of their own conducted?

⁸ Labelling a quarry operation as in “interim” land use is extremely misleading, as a quarry can theoretically remain operational in perpetuity, and where aggregate extraction occurs below the water table, there is no prospect of rehabilitating the excavated pit to a productive economic use.

⁹ “Crystalline silica has been classified as a human lung carcinogen, and can cause serious lung disease and lung cancer. It only takes a very small amount of respirable silica dust to create a health hazard. One of the dangerous effects of silica exposure is a disease called silicosis, which can be contracted after just a few months of high exposure. Silicosis occurs when silica dust enters the lungs and causes the formation of scar tissue, reducing the lungs’ ability to take in oxygen. There is no cure for silicosis, and cases can be disabling or even fatal.” <https://www.concentra.com/resource-center/articles/what-is-silica-and-why-is-it-dangerous/>. [underscoring added] “Environment Canada (2011) reports generally do not indicate the existence of any wide-spread significant concern about airborne crystalline silica exposures to the general public. (Not: “general public”, as the term is used here, means individuals not living near an identified source of crystalline silica emissions.). However, US EPA (1996) stated that “some potential exists for environmental silicosis to human populations”. Exposures of potential concern may be more likely if populations are close to large sources of uncontrolled emissions. p. 16, Silica Study August 30, 2011.” <https://dnr.wi.gov/files/PDF/pubs/am/AM407.pdf>. “Based on annual concentration of 10 microgram/m³ – 85 premature deaths in Oakville attributable to PM_{2.5} pollution every year; More of other outcome documented in health effects studies...for every microgram/m³ **reduced** – 8 fewer deaths. Slide 4 (Source: ICAP 3.), See Common “errors” by Industry Consultants, p. 20”. Impact Assessments for Quarries: Protecting the Public, January 22, 2020, Franco DiGiovanni, PhD LEL, Senior Project Manager – Atmospheric Services East, Hemmera. https://d3n8a8pro7vhmx.cloudfront.net/wellingtonwaterwatchers/pages/902/attachments/original/1580084654/Reid_Road_Reservoir_Quarry_-_Air_Quality_-_Jan_22_2020_webinar_-_versn_3.pdf.

- Was the purchaser aware that there was a potential for an impact on the quantity of their well water? (CMHC requires a water flow of ≥ 3 gallons per minute for 2 hours and a government tested well sample)
- Was the purchaser aware that it is prudent to retain a structural engineer to ascertain the structural integrity of the home?
- Where and when would the quarry operator expect the average purchaser to ascertain if there were prior insurance claims?
- Was the purchaser aware that the quarry operator would be expanding its operations, and exposing the family to further adverse effects?
- Where and when would the quarry operator expect the average purchaser to gain the expertise to understand the highly technical aspects and dangers associated with operating a quarry blasting below the water table before making an informed decision to purchase a home near a quarry?
- Should visiting relatives and friends, and home repair and property maintenance workers (lawn grooming and snow removal) of purchasers of homes near a blasting quarry be expected to be aware of the adverse effects to which they are being exposed? Is there a legal duty on the part of the homeowner to advise these people of the potential adverse effects to which they are being exposed and are these visitors covered under the homeowner's liability insurance, especially if there is a previous claim?
- Should patrons or guests of nearby sensitive land uses (or activities) such as a park, golf course, convention centre, hotel or motel, restaurant, service station, daycare centre, school, place of worship, etc., be informed by the business or institutional owner of the potential adverse effects of the blasting quarry? Is there a legal duty on the part of the business or institutional owner to advise patrons and guests of the potential adverse effects to which they are being exposed and are these visitors covered under the property owner's liability insurance, especially if there is a previous claim?

Considering the significant amount of time (steep learning curve) and cost to be incurred by a prospective homeowner to properly and adequately address the concerns identified in the acquisition of a property near a quarry blasting below the water table, and discounting the asking price accordingly, the potential pool of buyers becomes virtually non-existent.

When access to important information is asymmetrical, resting solely in the possession of the vendor (property owner or agent), a prospective homeowner is rendered incapable of making an informed decision, and overpays.

Uninformed buyers overpay, particularly when purchasing complex assets whose values are difficult to accurately quantify (Carlin et al., 2013). Uncertainty over value creates market environments that allow asymmetric information price effects to persist (Kelly and Ljungqvist, 2012)...Home buying is an area where the ability of households to gather and effectively use market information can have profound effects on housing decisions, through

both the choice of mortgage product and the purchase transaction itself [p. 1].¹⁰ [emphasis added]

According to the Provincial Policy Statement, 2020, p. 39,¹¹ **Adverse effects:** as defined in the *Environmental Protection Act*, means one or more of:

- a) *impairment of the quality of the natural environment for any use that can be made of it;*
- b) *injury or damage to property or to plant or animal life;*
- c) *harm or material discomfort to any person;*
- d) *an adverse effect on the health of any person;*
- e) *impairment of the safety of any person;*
- f) *rendering any property or plant or animal life unfit for human use;*
- g) *loss of enjoyment of normal use of property; and*
- h) *interference with [the] normal conduct of business.*

Flyrock meets the Ontario EPA definition of contaminant, and the *adverse effects* of *flyrock* are not trivial.¹² In *Castonguay Blasting Ltd. v. Ontario (Environment)*, 3 SCR 323, 2013 SCC 52 (CanLII), the Supreme Court held that “the flyrock could easily have seriously injured or killed someone.”

The residents of the community near the Acton Quarry have been exposed to a number of potential short- and long-term *adverse effects* including *flyrock*, and there is a diminished sense of community as most of the homeowners along Third Line have been bought out by the Acton Quarry operator/owner.

As noted from public records, Dufferin Aggregates (owner of the Acton Quarry since November 2001) subsequently bought out 11 nearby homeowners, and, in 8 of those acquisitions, the identity of Dufferin Aggregates was concealed through the use of numbered companies, including one named “Snowfarm Limited.”

Additional adverse impacts attributed to the quarry operation by the Russell family included:

¹⁰ Arno J. van der Vlist and Geoffrey Turnbull, “Uninformed house buyers and foreclosures,” *Working Paper 1503*, June 2015, https://www.researchgate.net/profile/Arno_Vlist/publication/291103181_Uninformed_house_buyers_and_foreclosures/links/569e135608ae16fdf07b73fe/Uninformed-house-buyers-and-foreclosures.pdf?origin=publication_detail.

¹¹ Provincial Policy Statement, 2020, Under the *Planning Act*, <https://files.ontario.ca/mmah-provincial-policy-statement-2020-accessible-final-en-2020-02-14.pdf>.

¹² The EPA “land Use Compatibility Definitions” defines “**Trivial Impact**” as “present or predictable contaminant discharges which are or are likely so minor that there would not be an “adverse effect.” Wherever and whenever rock blasting occurs (i.e., proposed blasting quarry), “flyrock” is inevitable.

- *Inaccessibility to 22nd Sideroad due to the 3^d Line being closed by quarry workers due to the risk of rocks [i.e., flyrock]¹³ landing on the 3^d Line road during the blasting.*
- *The congestion caused by trucks lining up for the opening of the quarry in the early morning. These stationary, large vehicles caused safety issues due to road constrictions and visibility issues for other motorists.*

As to the diminution in the value of the Russell family home while they retained ownership, the Russell family had this to say:

- *When we sold our house [on December 30, 1998, for \$209,000], we realized an 11% appreciation in the [acquisition] price [of \$189,000 paid on November 25, 1988] in nominal dollars [which amounts to an [insignificant] average annual rate of increase of 1.04758% over a period of 10.10 years.]*
- *During the time [10.10 years] that we lived there, the consumer price index moved up by 35%....When adjusted for inflation, our property declined in real value by 24% despite all our significant upgrades to the property and the fact that the presence of the quarry would have already been factored into the price we paid initially [but the expansion of the Acton Quarry brought the Russell family home closer to the quarry].[underscoring added]*
- *In reality, the loss [in property value] was probably much worse if the performance was to be compared to an appropriate housing index given that Acton was a growing community at the time [the property was sold on December 30, 1998].*
- *The direct and indirect influences of the quarry operations led to a further deterioration to the neighbourhood such that my old property [1988 Third Line] today is now gone following a series of degradations that ultimately led to the house being no longer fit for habitation....In fact, 6 [now 9] of the 13 houses along the road where we lived are...no longer there or are uninhabitable. [underscoring added]*

The diminution in property values is always a major concern expressed by residents living near existing pits or quarries, or living near proposed pits or quarries, a sentiment conveyed by the Town of Caledon in a January 22, 2014 submission to the Standing Committee on General Government Report on the Review of the Aggregate Resources Act.¹⁴

8. Reduction in value of neighbouring properties

An issue which is raised by the public at all municipal meetings for aggregate operations is the impact on the value and marketability of neighbouring properties. At one of Caledon's public meetings for an aggregate pit, a resident provided evidence confirming that the Province of Ontario's Municipal Property Assessment Corporation (MPAC) has recognized the impact on property value by providing a 10% reduction in assessment to a landowner due to proximity of the property to an aggregate pit.

The Town of Caledon undertook a study which included property value impact to support its position with respect to a quarry application. However, no detailed economic studies have been done. The Province should undertake a comprehensive study on the impact of new aggregate pits

¹³ "Flyrock" is the ultimate adverse effect, and is defined by the National Institute for Occupational Safety and Health (NIOSH) as "any debris that lands outside the designated blasting area. It can vary in mass from marble-sized to car-sized and can be incredibly dangerous and potentially fatal." Wherever there is blasting of rock, flyrock can occur, and be propelled distances exceeding 1,000 metres. No matter how well a blast is executed the consequences of flyrock are unpredictable.

¹⁴ <https://www.peelregion.ca/council/agendas/pdf/rc-20140213/communication-ma-b3.pdf>.

on neighbouring property values. This study by the Province should form part of the criteria for the ARA licence and Planning Act approval. [p. 7] [underscoring added]

At a 2015 Town Board public meeting of the Town of Nassau,¹⁵ evidence was presented by Professor Hite relating to the impact of a proposed quarry blasting below the water table, on the value of nearby residential properties:

- 12 residential parcels within 500 feet (152 metres) of the proposed quarry,
- 22 residential parcels at 1,000 feet (305 metres),
- 26 residential parcels at ¼ mile (402 metres), and
- 291 residential parcels within 1 mile (1,609 meters).

At 2.6 people per household (pph), that equates to 756 people (291 × 2.6 pph) or about 15% of the Town's population lives within 1 mile (1,609 metres) of the proposed quarry. [p. 80]

*That analysis of property value impacts (The Impact of Hard Rock and Gravel Mines on House Prices in Upstate New York) applied a scientific model (Hedonic Price Model) to analyze the effect of mining operations on house values. This study used a large dataset on housing sales in areas surrounding three industrial stone mines and one sand/gravel mine in Columbia, Saratoga, and Rensselaer counties.... **Hite's study concludes that mine operations are a disamenity that would have a negative impact on property values ranging from a 7.5% to 36% discount. Related to these discounts, she concludes (page 12) that 'These discounts are statistically significant at the 99+% level; such a high degree of significance leads us to conclude that, without a doubt, the quarry that Troy Sand & Gravel Co., Inc., proposes to develop and operate in the Town of Nassau, Rensselaer County, New York, will have a deleterious financial effect on existing homeowners [p. 72].'** [bold added]*

Had the residents of the Town of Nassau been aware or made aware of the proposed blasting quarry, they would have bought property elsewhere, and if the quarry were to be established the homeowners contend they would have difficulty selling their homes or be unable to sell their homes or develop additional residences.

...[T] he Town has received numerous affidavits from residents that indicated that they would not have considered buying property in Nassau had they known about the mine [quarry], that they would sell their property, or that they are concerned they will never be able to sell their property. The public record contains an abundance of information from landowners who feel that they will have difficulty in selling their properties if the mine is in operation, and that it will deprive them the ability to sell or develop additional residences on land already owned [p. 72].

On March 19, 2009 Dufferin Aggregates submitted Official Plan and Zoning By-law Amendment Applications to the Town of Halton Hills¹⁶ to permit expansion of the Acton Quarry by 124.4 hectares (307.4 acres) with an extraction area of 99 hectares (244.6

¹⁵ Resolution of the Town Board of the Town of Nassau Decision on the Troy Sand & Gravel Special Use Permit Application, Resolution No. 17, September 1, 2015.

¹⁶ Town of Halton Hills, Report PDS-2014-0028, May 30, 2014, <http://webaps.halton.ca/Planning/Dufferin%20Aggregates%20Acton%20Quarry/Town%20of%20Halton%20Hills/Town%20of%20Halton%20Hills%20Staff%20Report%20May%2030.%202014.pdf>.

acres), subsequently revised (June 2012) to 90.6 hectares (223.9 acres) and 66.5 hectares (164.3 acres), respectively.

It probably is no coincidence that Acton Quarry bought out 7 residential properties (including one vacant building lot) on Third Line in 2008 (March and October), and further 2 residential properties in 2010 (January), presumably to silence justified opposition to the proposed quarry expansion from those homeowners already adversely effected by the activities at the blasting Acton Quarry.

Dufferin Aggregates retained Golder Associates Ltd. (Golder) to prepare a Blasting Impact Assessment report (November 2008), a copy of which was obtained from the internet. The report does not include an assessment of the risk of flyrock, let alone even mention the word flyrock.

Human response to flyrock is generally extreme. Apart from any consideration of damage, it is the only blasting-related hazard that can cause serious injury and death. It is the ultimate adverse effect of blasting and must be avoided at all costs.¹⁷ [Milestone 5, p. 31] [emphasis added]

A rock that lands harmlessly in a field may not appear to be a large issue. However, mowing and tilling become hazardous when rock is struck by farm equipment. Rock through timber stands mar trees and potentially impact the market value.¹⁸ [emphasis added]

Accordingly, without acknowledging flyrock, the statement at p. 16 of the Blasting Impact Assessment report, that “the proposed operation will not result in unacceptable impacts on surrounding receptors,” is not credible. That “receptors” are not defined makes the Blast Impact Assessment report even less credible. At p. 3, Golder states that “[t]his report...evaluates the long term impact of the blasting operations on surrounding structures,” concluding that repeated blasting “would not [have] any noticeable cumulative effect,”¹⁹ despite complaints to the contrary based on the historical operation of the quarry. Equally disturbing is that the Joint Agency Review Team (JART) in its March 2013 report failed to raise concerns about flyrock, a health and safety issue ignored in the Blast Impact Assessment undertaken by Golder in connection with Dufferin Aggregates’ March 2009 application to expand operations at the Acton Quarry. However, JART may not have possessed an awareness or understanding of “flyrock.”

¹⁷ Mine Health and Safety Council, South Africa, https://mhsc.org.za/sites/default/files/public/research_documents/SIM140901%20Final%20Report.pdf

¹⁸ “Controlling the Adverse Effects of Blasting,” OSMRE, <https://www.osmre.gov/resources/blasting/docs/WYBlasterCertModules/8AdverseEffectsBlasting.pdf>.

¹⁹ In *Cage Brothers v. McCormack et al.*, 344 S.W.2d 203 (1961), the Texas appellate court held that repeated blasting at a limestone quarry had damaged four houses distant as far as 1,200 feet (366 metres) from the blasting area. One piece of “flyrock” weighing 85 pounds was launched 730 feet (223 metres). Dr. Tonn, the homeowners’ expert testified that repeated blasting has a cumulative effect of causing cracks from initial blasts to widen or worsen, even if subsequent blasts are of a lesser intensity. [https://scholar.google.ca/scholar_case?case=10141646206778100249&q=%E2%80%9Cblasting+damage%](https://scholar.google.ca/scholar_case?case=10141646206778100249&q=%E2%80%9Cblasting+damage%20)

It is a little known fact that the impetus for environmental protection of the Niagara Escarpment, which is impacted by the Acton Quarry, came as a protest against the damage caused by flyrock, as explained by Murray Stephen of the Halton Region Conservation Authority in the January 1991 issue of *The Journal* (Milton Historical Society).²⁰

The impetus for the conservation authority in this area came not from the need for flood control but as a protest against “flyrock” from industrial blasting at Mount Nemo [p. 4].

All potential adverse effects, including flyrock, from a quarry blasting below the water table must be borne by the proponent/applicant, the private profit-seeking quarry operator.²¹ It is repugnant for a quarry operator to attempt to impose adverse effects on innocent third-party homeowners living nearby and have their health, safety and welfare compromised, and their standard of living lowered without permission or compensation.²²

In denying Troy Sand & Gravel’s application to permit quarry blasting below the water table, the Town of Nassau concluded with the following reasons, highlighting, in particular, the egregious and presumed use of neighbouring properties as an off-site “dumping” ground for adverse effects (e.g., fugitive dust, air pollution, noise, vibration, flyrock) and sterilizing the properties from future development or redevelopment, without concern for the health and safety, quality of life, and financial well-being of the property owners.

Use of private lands surrounding the proposed quarry in order to buffer impacts is unacceptable. The Lead Agency’s Findings Statement used the location of the homes located around the mine [quarry] property as receptors for judging impacts, such as fugitive dust and air pollution, noise, and vibration from blasting. In many cases, the Lead Agency relied upon the spaces and distances between the nearest houses and the property boundary of the mine [quarry] as a buffer area for off-site impacts of the mine [quarry]. For example, noise or vibration impacts migrating out from beyond the property line of the mine [quarry] were expected to dissipate on the properties of surrounding land owners, but prior to reaching the location of existing homes on the properties. The same conclusion was reached about dust and air pollution that would migrate beyond the mine [quarry] property boundary. In that event, according to the Lead Agency, dust and pollutants were expected to dissipate and settle upon the land of those property owners, but before those pollutants reached existing homes. Town Board members had a visceral reaction to the idea of the Applicant using neighboring private properties to buffer mine [quarry] impacts. This was essentially letting the Applicant using those properties to dispose of various forms of impacts or pollution without either their permission or compensating them. But the potential damage is still larger than that. The Town Board is aware that there are home-based businesses in the lands surrounding the mine [quarry] site that depend on the rural character and the existing peace and quiet as part of their businesses. Hence, the use of these properties as buffer areas for noise, dust and vibration, the impacts of the

²⁰ The Journal, Milton Historical Society, January 1, 1991,

http://miltonhistoricalsociety.ca/documents/journal_archive/1991.pdf.

²¹ In *Norma Moore et al. v. Smith Construction Company, a Division of the Miller Group Inc.*, OSCJ [Nov 2011], the Superior Court agreed with the defendants that a quarry owner “is a private, for-profit company and should be required to pay the full cost of its operations without forcing the plaintiffs [homeowners] to effectively subsidize its business through the free use of their properties [para. 70].”

²² Resolution of the Town Board of the Town of Nassau Decision on the Troy Sand & Gravel Special Use Permit Application, Resolution 17, September 1, 2015,

https://mhsc.org.za/sites/default/files/public/research_documents/SIM140901%20Final%20Report.pdf.

mine [quarry] will likely damage the local rural economy which is fragile as it is without additional stress factors. Still further, by relying on the location of existing homes only (receptors), the DEC's analysis on this point also rested on the unsupportable assumption that no new homes would be located closer to the mine in the next 100 years or so. This is improbable. The use of neighboring properties as buffer area for off-site impacts, and to deposit settling dust which migrates off-site, is unacceptable. The Applicant should have been required by the Lead Agency to mitigate these impacts before they reach the mine [quarry] property line. [pp. 100-101]

As noted in the March 2013 JART report,²³ which reviewed the studies submitted by Dufferin Aggregates in support of its application to permit expansion of the Acton Quarry, there have been numerous complaints from nearby residents about well-water quantity and quality:

Private well-related concerns have been raised by some local residents since the mid-1990s and were again re-iterated at the September 26, 2012 public meeting at Halton Region and in correspondence with the Agencies regarding the proposed expansion. The comments ranged from general concern with the potential impacts of the proposed expansion on private water supplies to specific concerns that historical impacts on private wells are related to the existing quarry.

Specific private well-related concerns have mainly been clustered around the homes to the east of the Dufferin-owned lands along Fourth Line. Between 17 Sideroad and the rail line to the north, private wells are typically bedrock wells drilled into the Cabot Head and Queenston Shale formations, with some using the Reynales or Whirlpool formations as a source of water. In general, well-related complaints have been attributed to the relatively poor capacity of the shale bedrock formations to provide sufficient capacity to be used as a reliable source of water, particularly under drought conditions. Water quality-related issues have generally been related to the operation of the private wells resulting in excessive drawdown during dry periods and resulting in degradation of the shale bedrock when exposed to air causing sediments in well water [p. 41].

According to a January 26, 2010 article in the Independent Free Press,²⁴ the Lister family, who reside on a farm on Fourth Line 1,800 metres from the existing quarry and 1,850 metres from the extraction limit of the quarry extension (expansion),²⁵ complained that

their farm has been experiencing water shortage problems since 2005 when the quarry stopped pumping water into the southern pond. At that time she said their water supply changed. Over the past two years she said they have had to have water delivered every two days, which Dufferin [Aggregates] has paid for. [underscoring added]

Other complaints relating to well issues and water quality and quantity by nearby residents are described as follows:

²³ JART REPORT, March 2013,

[http://webaps.halton.ca/Planning/Dufferin%20Aggregates%20Acton%20Quarry/Joint%20Agency%20Review%20Team%20\(JART\)/Final%20JART%20Report%20\(March%202013\).pdf](http://webaps.halton.ca/Planning/Dufferin%20Aggregates%20Acton%20Quarry/Joint%20Agency%20Review%20Team%20(JART)/Final%20JART%20Report%20(March%202013).pdf).

²⁴ "Dufferin seeking to expand Acton quarry," <https://www.theifp.ca/community-story/5358737-dufferin-seeking-to-expand-acton-quarry/>.

²⁵ Dufferin Aggregates, OMB Case No. 15-137, August 26, 2016, para. 113.

Dufferin responded to one complaint received in regards to the Acton Quarry (ARA 5492) in 2012 relating to “cloudy water”. Although their investigation did not determine the exact cause of “cloudy water”, Dufferin installed a water storage tank and filtration system to prevent similar issues in the future [p. 5].²⁶

I've lived on the Fourth Line for approximately 13 years...Eight years ago [c.2004] we lost all our water, our well collapsed and its 200-foot well is full of 100 feet of sand²⁷ [Steve Hepman September 27, 2012]]

This is a 1,500 gallon [plastic] water tank that the quarry has installed for us because several weeks ago on a Thursday we ran out of water. What came out of our taps was sand and sludge. We were told not to drink the water from the well because it could be contaminated. Now that has an impact on all of us. As you can see we have three children here. Three young people that need water.²⁸
[Pat Bonozew, Fourth Line Resident, December 3, 2012] [underscoring added]

According to a representative of Dufferin Aggregates addressing residents at a December 10, 2012 public meeting,²⁹ Acton Quarry confines monitoring of ground water impacts caused by dewatering to a radius of 200 metres, which appears to be an inadequate cone of influence given that *water quantity and quality* complaints have been received from residents residing beyond the 200 metre radius chosen by Acton Quarry.

Dufferin Aggregates does not measure impact on the ground water outside 200 metres around the quarry boundary [p. 4].

Maintaining the water allocation between the Credit River and Sixteen Mile Creek watersheds requires perpetual (i.e., forever) pumping (dewatering) at the Acton Quarry,³⁰ and, in the event of mechanical failure, the environmental consequences could be catastrophic.

The [JART] peer review team reiterates that perpetual pumping will be required to maintain the present allocation of flow between the Sixteen Mile Creek and Credit River watersheds. Without permanent active management, all surface and groundwater flows towards the existing quarry, and the proposed extension would be directed to the Credit River watershed.

As part of the on-going agreement negotiations CVC and Conservation Halton have agreed that an allocation strategy for discharge between the Credit River and Sixteen Mile Creek will be required. This allocation is proposed to become a requirement of the long term agreements relating to the project [p. 39].

²⁶ Report No. – LP(6-15- State of Aggregate Resources within Halton Region, September 2, 2015. <http://sirepub.halton.ca/councildocs/pm/18/Sep%202%202015%20Planning%20and%20Public%20Works%20LPS9615%20%20State%20of%20Aggregate%20Resources%20within%20Hal%20%20LPS9615%20State%20of%20Aggregate%20Resources%20within%20Halton%20Regiondoc%20188685.pdf>

²⁷ <https://www.youtube.com/watch?v=oQOdpZuSrik>.

²⁸ <https://www.youtube.com/watch?v=1FsyvMFVokg>.

²⁹ <https://www.dufferinaggregates.com/wp-content/uploads/2020/06/Meeting-Minutes-20.pdf>.

³⁰ JART Report March 2013.

According to the Town of Halton Hills, third-party haulers at the Acton Quarry repeatedly circumvent the designated haul route, and

In 2018, the records identified 50 violations of improper use of Maple Avenue....Dufferin Aggregates provided a one-time contribution of \$15,000 to the Town to hire an additional two students to monitor the haul route [p. 2].³¹

The Town's survey results identified an average of 11 violations of 37 trips travelled by haul trucks on Maple Avenue that accessed Acton Quarry between July 25, 2017 and July 30, 2019. The Maple Avenue violation rate of 30 percent (%) is due to the private haulers accessing Acton Quarry [p. 2].

The one-time token payment of \$15,000 by Acton Quarry to the Town to hire two students to monitor the haul route does nothing to stop truckers hauling aggregate from circumventing the designated haul route, thereby exposing residents to dust, noise, increased traffic and potential motor vehicle accidents, problems which will continue to adversely affect the health and safety of residents in the community unabated while the quarry remains operational.

After Acton Quarry bought out the homeowners of the 13 residential properties on Third Line, with the last two buyouts occurring in January 2010, two reported complaints related to noise and/or vibration from the blasting at the quarry were received even though the blasts were conducted within regulatory limits.

...[T]wo blast-related complaints (noise and/or/vibration) were received from local residents in 2014 [p. 6].³²

In a promotional Case Study of the Acton Quarry posted on the internet,³³ Orica Mining Services (Orica), the blasting contractor, cites testimonials received from Acton Quarry applauding the benefits of less downtime and more productivity (enhanced profitability) from larger blasts at the Acton Quarry, while externalizing costs on unwitting and innocent third-party homeowners, and ignoring to mention the adverse effects that blasting has had on the environment and neighbouring residents. **No neighbouring residents are cited as being thankful for the larger blasts at the Acton Quarry.** Of course, the Case Study fails to mention the consequences to the residents living nearby that the increase in blasting power causes problems such as higher ground vibration, airblast and flyrock.

The larger the blast, the less downtime and more productivity for the quarry. We went from single row blasts to 3 rows. The digging is good and we have less oversize. It's working out. And we're significantly below compliance even with the larger blasts.

³¹ Dufferin Truck Monitoring Station Update, August 13, 2019. <https://pub-haltonhills.escribemeetings.com/filestream.ashx?DocumentId=6946>.

³² Report No. – LP(6-15- State of Aggregate Resources within Halton Region, September 2, 2015.

³³ Case Study – Reducing Community Impact while increasing Productivity with Larger Blast Sizes, Acton Quarry, Canada, http://www.oricaminingservices.com/uploads/Fragmentation/quarries/100034_Case%20Study_Reducing%20Community%20Impact%20while%20Increasing%20Productivity%20with%20Carer%20Blast%20Sizes_Acton%20Quarry_English.pdf.

We can shoot more pounds per delay, we can expand the pattern, so we save on drill costs, we save on not having to deck as much, and we get better fragmentation because of the accurate timing we can put in. [Assistant Director of Operations Acton Quarry]

Before we were shooting every day and we had to shut down the operation for 45-60 min. in peak production time. Now if we can shoot once a week or every 5 days and it's a big plus for us. [Quarry Manager Acton Quarry]

If we can put a week's worth of production on the ground with one blast, compared to blasting every day, there's 3 to 5 hours of down time saved every week. [Quarry Manager Acton Quarry]

Orica is the same blasting contractor responsible for the May 4, 2007 blast at the Pattersonville quarry that launched flyrock debris 526 feet (160 metres) onto New York State Thruway I-90, striking two vehicles and a charter bus, and injuring two people, one of whom was a teenage passenger on the charter bus that was penetrated by a 100-pound boulder.³⁴

On May 4, 2007, the shot was laid out by Orica and drilled by Archibald Drilling. Flyrock from the blast traveled approximately 526 feet onto the New York State Thruway, I-90, striking three separate vehicles. A charter bus traveling west was struck by a rock measuring approximately 16-inches by 12-inches and weighing approximately 100 pounds. The flyrock passed through the roof of the bus and struck a teenage passenger. A passenger car traveling east was struck in the driver's side windshield, striking the operator in the abdomen. A third vehicle received a broken windshield and dents to the hood.

Buying out homeowners that are as far as approximately 1,509 metres from a quarry blasting below the water table speaks to the far-reaching significant and sometimes catastrophic adverse effects on the environment and neighbouring community, including the health, safety and welfare of its residents, pets and livestock, and their quality of life.

Demolition of the homes on Third Line, accompanied by the loss in market value of the remaining homes in the community surrounding the Acton Quarry, has eroded the municipality's tax base, a loss that will continue for as long as the blasting quarry remains operational.

In 2017, the Ontario Aggregate industry launched an industry-wide assessment appeal that resulted in the reclassification of aggregate pits from *industrial* to *Class 5 farm land*,³⁵ retroactive to 2009,³⁶ **shifting the realty tax burden without compensation to homeowners (for the life of the quarry operation)** and causing a substantial hardship on municipalities such as Halton Hills, with a number of Licensed Aggregate Sites and a small 2016 population base of approximately 61,200 residents.

³⁴ MSHA Contest Proceeding, May 26, 2010, <https://fmshrc.gov/decisions/alj/Yk2007-74o.htm>.

³⁵ Canada Land Inventory System Soil Classification defines *Class 5* as "Soils have very severe limitations that restrict their capability to producing perennial forage crops, and improvement practices are feasible."

³⁶ <https://www.gottarent.com/news-story/7312110-settlement-to-cost-ontario-s-municipal-taxpayers-millions-as-gravel-pits-get-huge-tax-break/>.

The Town of Caledon was the lead municipality in the scheduled assessment appeals before the Assessment Review Board. MPAC had applied an industrial land rate of \$75,000 per acre to 846 acres of extraction lands in the Town of Caledon, while the appellants argued for agricultural land rates of \$8,000 to \$12,000 per acre. The details of the settlement reached in the Aggregate Property Assessment Appeals are contained in a November 17, 2020 memorandum addressed to Members of Caledon Council.³⁷

For the 2009 – 2012 assessment cycle, aggregate/gravel pit property owners, supported by the Ontario Stone, Sand and Gravel Association (OSSGA) filed assessment appeals across the province. These appeals then carried forward to the 2013-2016 assessment cycle as they remained unresolved by the close of 2012. The property assessments of fourteen of the twenty-five gravel pits in the Town of Caledon were appealed, with two of these appeals going back to 2006. The initial valuation proposal put forth by the OSSGA was \$8,000 to \$12,000 per acre. Aggregate properties in Caledon were assessed at \$75,000 to \$101,000 an acre for 2009-2012 and \$60,000 to \$92,000 an acre for 2013-2016....

For the current property assessment years between 2017-20, gravel pit assessments are now based on class 5 farm land rates and cap out at \$15,000 per acre. That represents a significant hit to all affected municipalities and their taxpayers. [underscoring added]

According to the Town of Caledon,³⁸ the Town's portion of the annual revenue tax loss stemming from the reclassification of gravel pits to farmland (class 5) is estimated at \$270,000, which, over an assumed average quarry life of 40 years, results in a total revenue tax loss of \$10,800,000 (\$270,000 × 40 years), without taking into account inflation, the burden of which will fall on the shoulders of the residents of Caledon, in the form of higher property taxes.

According to Wendy O'Donnell, Manager Halton Hills, in addition to annual revenue losses – which have already been accounted for – town staff determined the settlement for Halton Hills pits alone would cost municipal taxpayers in Halton Region a total of \$2,010,750.56 in back taxes to be refunded....

The hit just for Halton Hills taxpayers based on seven listed pits in the report clocks in at \$671,442.26 – all to be paid back to the pits in question for past taxes no longer applicable based on the settlement.

The MPAC assessment settlement, which was explained to Halton Hills council in a presentation by MPAC reps at its May 9 meeting, drew understandable consternation from the mayor and all councilors present....

"We have nine (gravel pits and quarries)..." said the mayor [Rick Bonnette], adding the tax revenue gained by allowing aggregate pits following this decision is becoming so small as to call into question the value of even allowing new ones. [underscoring added]

A number of other councilors echoed those same concerns, pointing out the environmental impact of aggregate extraction and cost of road maintenance to accommodate the heavy trucks needed to transport the extracted materials. [underscoring added]

³⁷ November 17, 2020 Memorandum, <https://pub-caledon.escribemeetings.com/filestream.ashx?DocumentId=11838>.

³⁸ May 13, 2013, Town of Caledon letter regarding Assessment Appeals of Gravel Pit Properties, <https://www.peelregion.ca/council/agendas/pdf/rc-20130613/communication-ma-d1.pdf>.

According to Somerville, the one-time hit of \$670K and the loss of annual tax revenue is going to hit property taxes for local residences and business, who will be required to make up the shortfall.
[underscoring added]

"I don't think it's right, but I think we're stuck with it," added Councillor Jane Fogal.

According to the 2020 Provincial Policy Statement, under **Part V: Policies (1.0 Building Strong Healthy Communities)**

*Ontario is a vast province with urban, rural, and northern communities with diversity in population, economic activities, pace of growth, service levels and physical and natural conditions. Ontario's long-term prosperity, environmental health and social well-being depend on wisely managing change and promoting efficient land use and development patterns. **Efficient land use and development patterns support sustainability by promoting strong, liveable, healthy and resilient communities, protecting the environment and public health and safety, and facilitating economic growth.*** [emphasis added]

How a quarry blasting below the water table that causes numerous *adverse effects*, leading to the destabilization of a community, can possibly be consistent with the Province's policy objective of *building strong healthy communities* remains a mystery.

As implausible, ironic and arrogant as it seems, in 2014, Dufferin Aggregates "earned the prestigious Environmental Achievement and Community Relations Award," from the Ontario Stone, Sand & Gravel Association (SOSGA), a self-serving lobby group of the aggregate industry.

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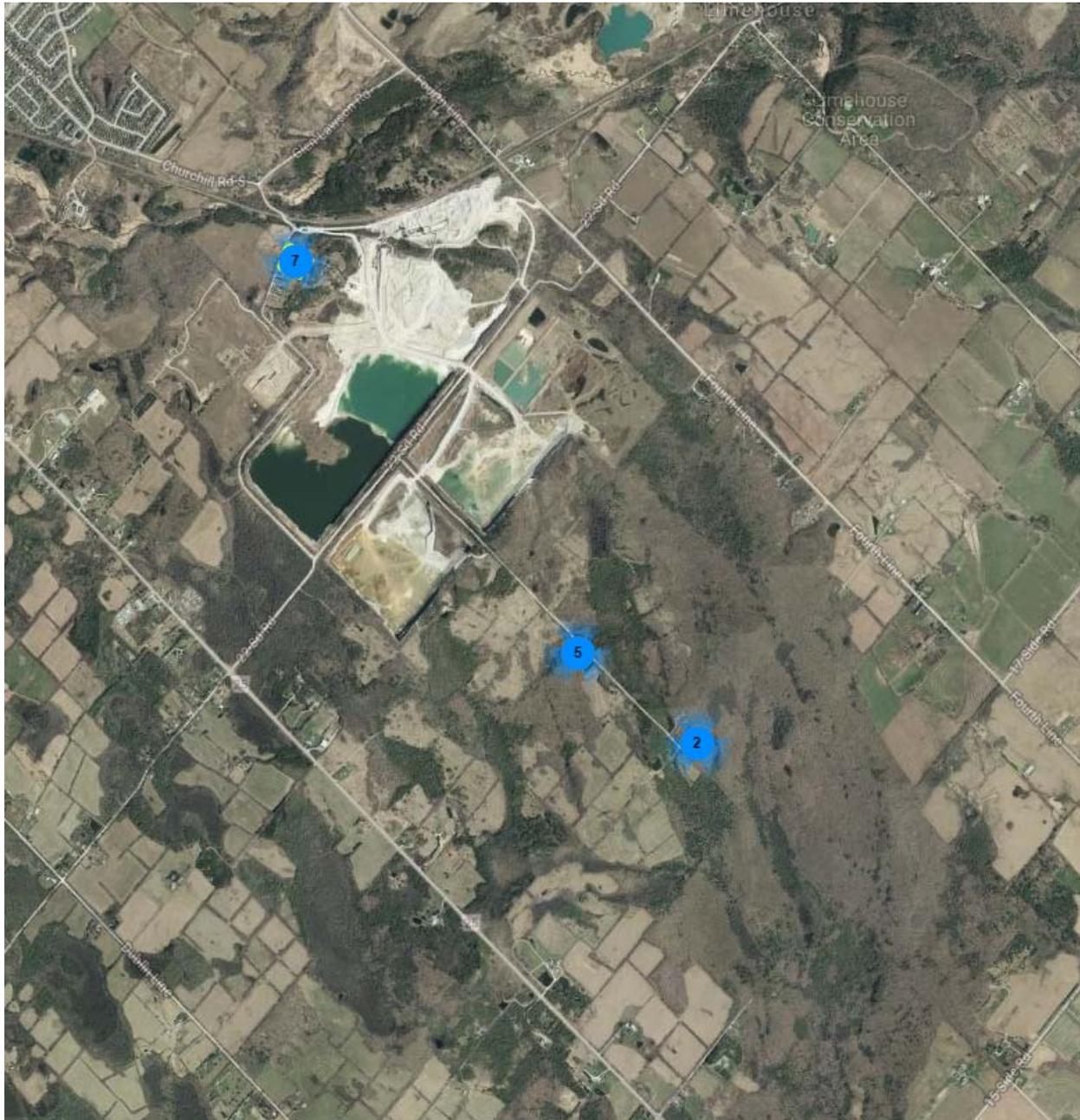
President, International Forensic & Litigation Appraisal Services Inc. and

International Valuation Consultants Inc.

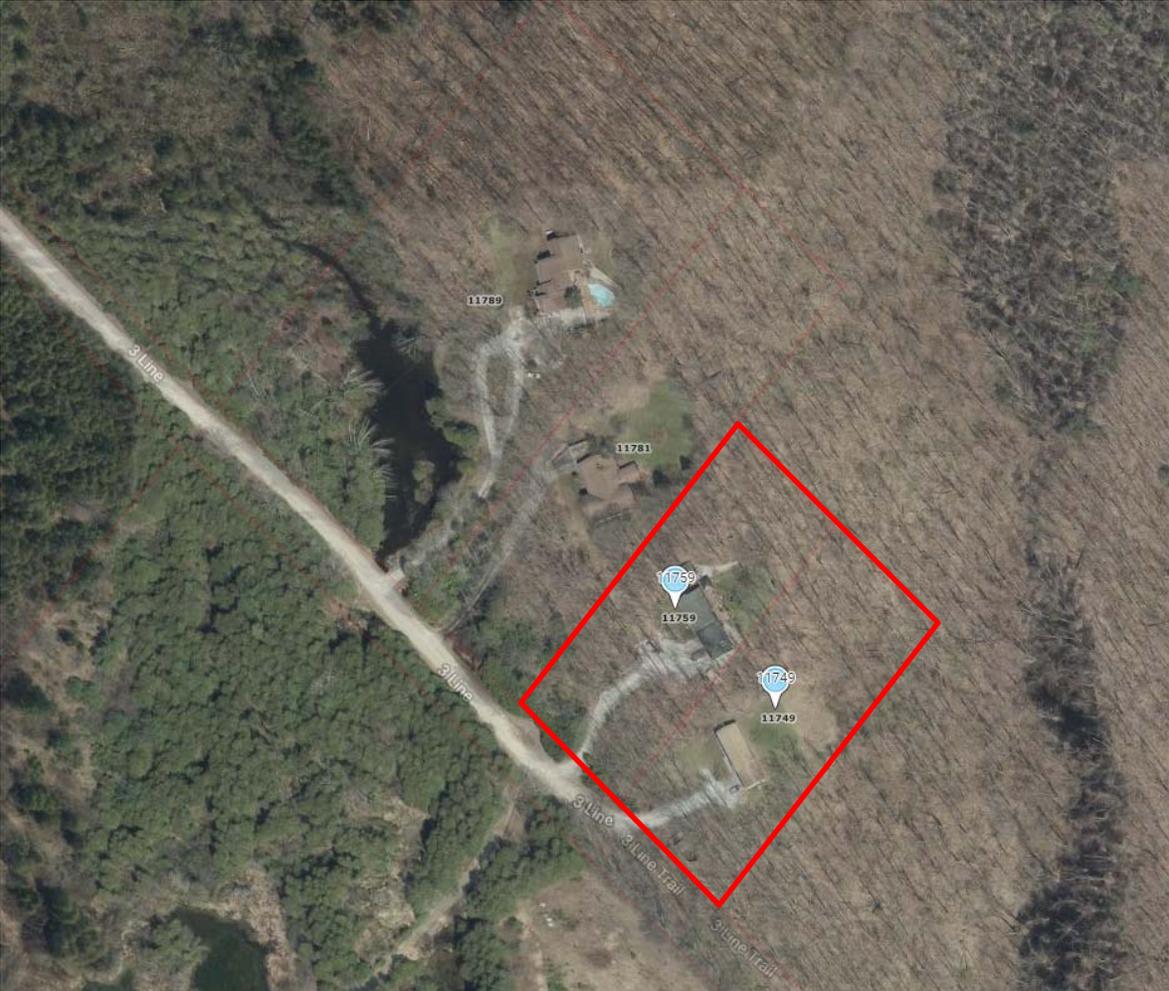
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Appendix A

TREB (Map Date: Spring 2019)



Sub-Group (2 Properties - 11749-11759 Third Line)



Sub-Group (5 Properties - 11970-11998 Third Line)



Sub-Group (7 Properties - 12723-12775 Third Line)

