

"Predictable worst case noise impact" (quoted from NPC 300)

means the noise impact associated with a planned and predictable mode of operation for stationary source(s), during the hour when the noise emissions from the stationary source(s) have the greatest impact at a point of reception, relative to the applicable limit. The acoustic assessment of stationary source noise impacts at a point of reception must address the predictable worst case noise impact.

The greatest noise impact at a point of reception may not occur when the noise emissions from the stationary source(s) are highest, since the applicable limit (the higher of either background sound level or exclusion limit) may vary throughout the operating time.

The predictable worst case noise impact addresses the following activities:

Regular, routine operation of equipment Operations of equipment are included in the predictable worst case scenario.

Infrequent operation of equipment Operations of equipment (stationary sources) that occur at least twice a month and emit noise for at least one half hour on each occasion are considered planned and predictable even if they are not occurring at precisely the same time on each occurrence, and are included in the predictable worst case scenario.

Operation of emergency equipment Activities related to the operation or testing of equipment used for emergency purposes, but in non-emergency situations, are addressed using separate sound level limits, described in Section B7.3 and Section C4.5.3.

# Land Use Compatibility Assessments – air assessments – Halman Pit

Franco DiGiovanni, PhD LEL  
Senior Project Manager – DiGiSci Environmental

Franco.digiovanni@digiscienviromental.com  
+1-905-467-4669

# Dr Franco DiGiovanni LEL

## Senior Project Manager

### DiGiSci Environmental Consulting Inc.

- ▶ BSc(HONS) Geology – Royal School of Mines, Imperial College, UK
- ▶ PhD – Physical Geography – Dispersion Modelling – University of Hull, UK
- ▶ Post Doctorate – University of Guelph
- ▶ NSERC Visiting Scientist to a Canadian Government Laboratory – Environment Canada
  
- ▶ Lead Scientist in DiGiovanni Scientific Consulting
- ▶ Senior Air Quality Modeller at Airzone One Inc.
- ▶ Senior Project Manager with Hemmera EnviroChem Inc.
- ▶ Senior Project Manager with DiGiSci Environmental Consulting Inc.



# Land Use Compatibility



Photo Credit: Ivan Wong Rodenas of Flickr

- Meant to ensure different land uses do not cause each other environmental problems
- Enshrined in PPS (p. 1.2.6.1)

# Land Use Compatibility PPS (2020, p. 1.2.6.1)

*“Major facilities and sensitive land uses shall be planned and developed to avoid, or if avoidance is not possible, minimize and mitigate any potential adverse effects from odour, noise and other contaminants, minimize risk to public health and safety, and to ensure the long-term operational and economic viability of major facilities in accordance with provincial guidelines, standards and procedures.”*

- *adverse effects* = EPA definition

# Adverse effects and Air Quality

- Requires an air impact assessment
- Impact assessment should include cumulative effects





[www.digiscienviromental.com](http://www.digiscienviromental.com)

- ▶ Franco DiGiovanni, PhD LEL
- ▶ Senior Project Manager, DiGiSci Environmental Consulting Inc.
- ▶ [Franco.digiovanni@digiscienviromental.com](mailto:Franco.digiovanni@digiscienviromental.com)
- ▶ +1-905-467-4669



# The Danger of Fine Particulate Matter to Our Community

IMPACT OF THE HALLMAN PIT



# Preconsultation Meeting Notes for the Hallman Pit Application

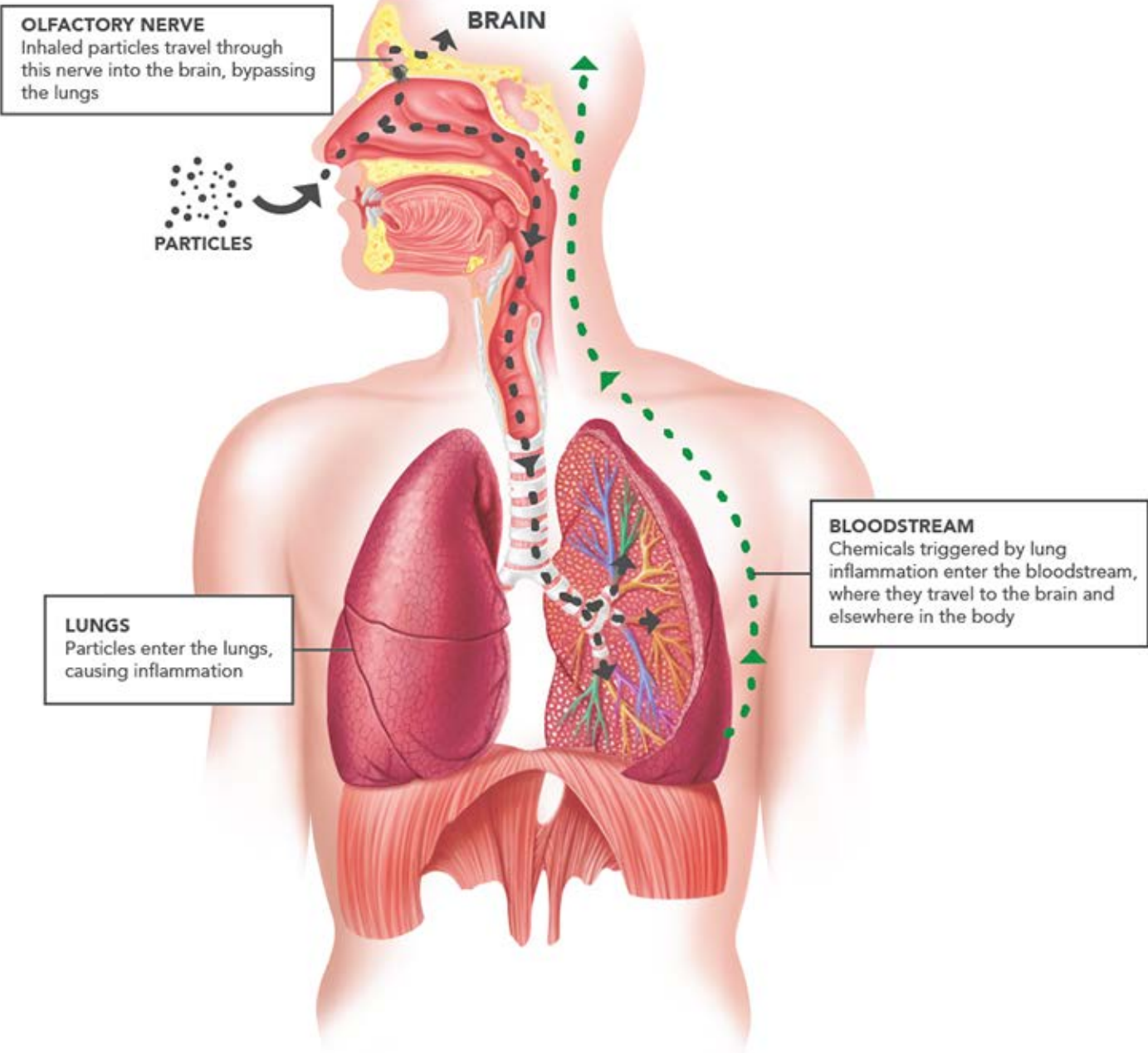
- ▶ “Mr. Martin asked about whether a dust study is being done or not. He indicated that the residents of Shingletown are fairly close to the site and that a dust study may be prudent. Mr. Sisco noted that berms and setbacks will be provided and that a dust study is typically not required through the ARA.”
- ▶ No further discussion is noted on the topic

# Diesel Emissions

- ▶ Contain toxic fine particulate matter – smaller than a red blood cell
- ▶ Diesel emissions enter your homes then your body
- ▶ Large diesel trucks on regional roads will increase
- ▶ Load of diesel emissions along haul routes will increase
- ▶ Inhaled fine particulate matter will increase

# The International Agency for Research on Cancer (IARC) – Health Impact of Diesel Emission (part of the WHO)

- ▶ Diesel engine exhaust is  
“carcinogenic to humans”
- ▶ Diesel exhaust linked to lung  
cancer & bladder cancer



**OLFACTORY NERVE**  
Inhaled particles travel through this nerve into the brain, bypassing the lungs

**PARTICLES**

**BRAIN**

**LUNGS**  
Particles enter the lungs, causing inflammation

**BLOODSTREAM**  
Chemicals triggered by lung inflammation enter the bloodstream, where they travel to the brain and elsewhere in the body

# Current Information about Air Pollution 2021

Environmental Research Journal

- ▶ 1 in 5 premature deaths can be attributed to air pollution from Fossil Fuels
- ▶ Researchers used a new way of measuring pollution that allowed the separation of fossil fuels from other air pollution

# Lancet Planetary Health

December 2020 (used data from U.S. & Ont)

- ▶ Impaired cognitive function
- ▶ Accelerated cognitive decline
- ▶ Parkinson's disease
- ▶ Alzheimer's disease
- ▶ Dementia

# Global Burden of Disease, Injuries and Risk Factors Study 2016

Between 1990 & 2016

- ▶ Prevalence of Parkinson's disease increased by 145%
- ▶ Alzheimer's disease and related dementias have increased by 117%
- ▶ In around 25 years these neurodegenerative diseases have more than doubled

# Shingletown Residents

- ▶ Wind will blow fugitive dust & particles matter towards Shingletown
- ▶ Fine particulate matter can travel for miles
- ▶ Residents outside of Shingletown will suffer
- ▶ Berms will not stop this



# Witmer Road Residents

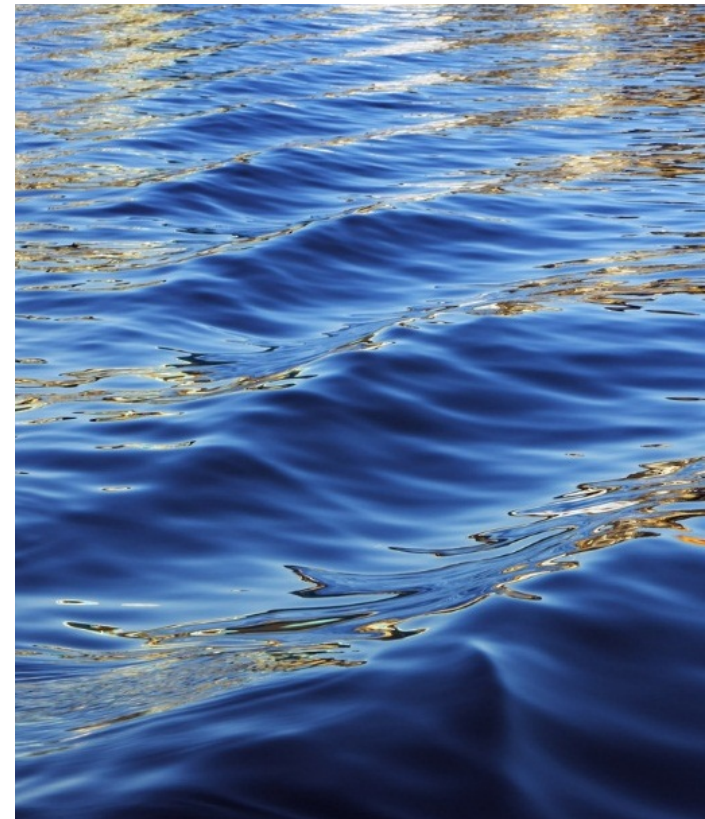
- ▶ One or more diesel trucks every two minutes
- ▶ Trucks idle waiting for the pit to open
- ▶ High humidity traps diesel emission
- ▶ Wind blows diesel emission





# The Hallman Gravel Pit

The health effects of dust and diesel emissions



# The Hallman Gravel Pit

- Who are we?
- Keeping your residents safe
- Health effects of dust (crystalline silica)
- Health effects of diesel emissions (DE)
- Wilmot Township strategic planning

## 2094 Bleams

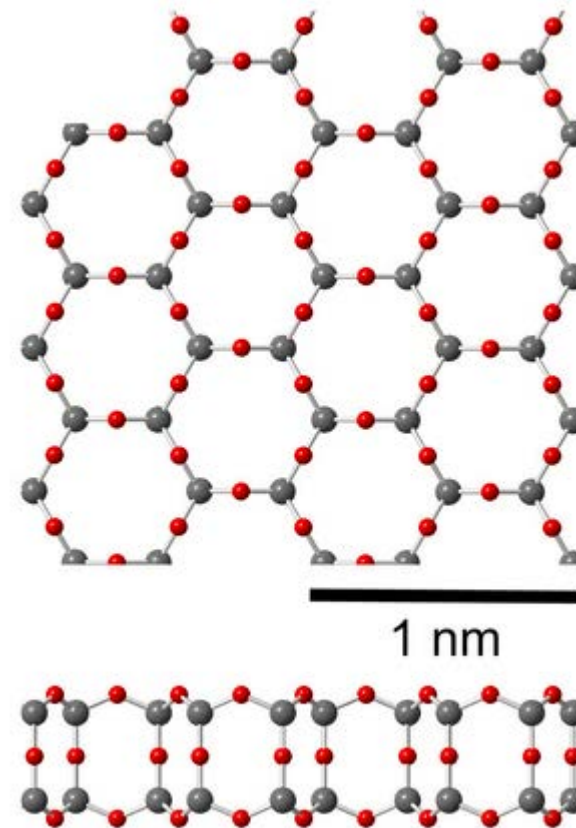


# Wilmot Township

- Wilmot is projected to increase to 28,500 from 21,800 by the year 2031
  - known for “rolling farmland, quaint villages and bustling towns”
- Recent approval of two new subdivision plans
  - key objective is to attract people to work and live in Wilmot
  - commitment to preservation and enhancement of the natural environment
- How will this growing population have the confidence in their role to protect our precious farmland and township for future growth if our council cannot protect its residents

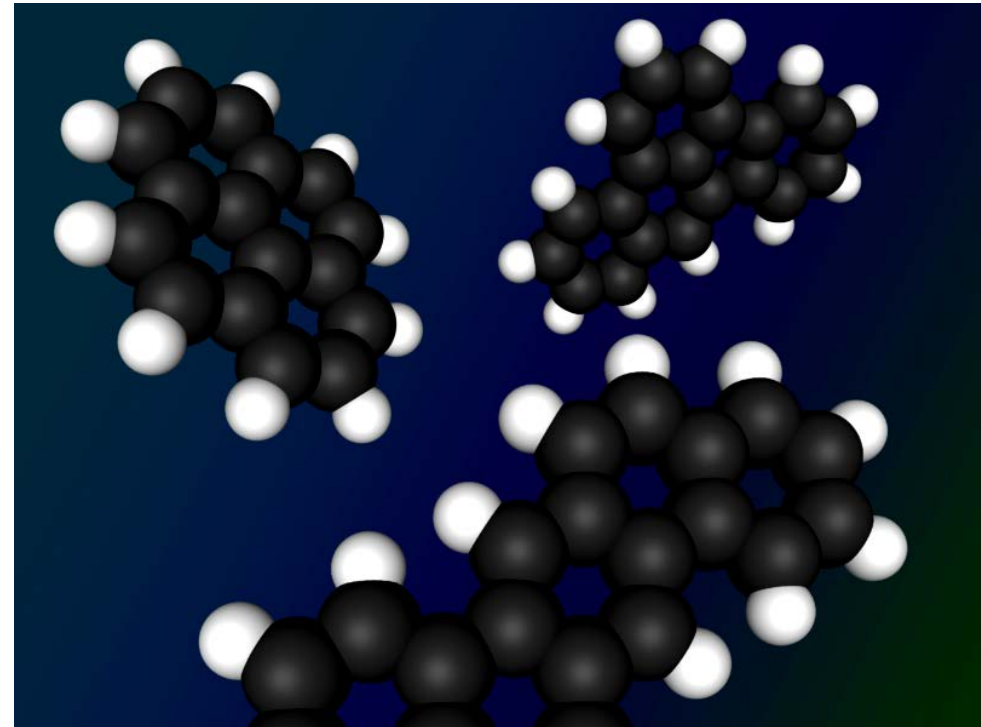
# Crystalline Silica

- What is crystalline silica?
- Silica is a chemical agent and a regulated substance
- Ontario's Occupational Health & Safety Act
- Workplace related silica exposure requires ample protection
- Major health effects
  - cancers, COPD, autoimmune diseases, increasing susceptibility to infections
- source: [https://www.e-laws.gov.on.ca/html/regs/english/elaws\\_regs\\_090490\\_e.htm](https://www.e-laws.gov.on.ca/html/regs/english/elaws_regs_090490_e.htm)
- Source: <http://gravelwatch.org/air-quality-health/>



# Diesel Emission (DE)

- DE is produced from trucks and equipment
- DE consists of both carbon dioxide and monoxide, nitrogen oxides, sulfur, formaldehyde, benzene, and other volatile organic compounds
- DE is a human carcinogenic
- Increase risk to lung and bladder cancer
- Subpopulations specifically the elderly and children are at a greater risk of adverse respiratory issues
- Short-term exposure can irritate your eyes, nose, throat, and lungs
- Source: <https://www.canada.ca/en/health-canada/services/publications/healthy-living/human-health-risk-assessment-diesel-exhaust-summary.html>





# Strategic Planning

- 5 core values – responsible governance, community engagement, economic prosperity, environmental protection and quality of life
- “As a leadership group, we are committed to holding our teams accountable in ensuring we maintain focus on the core values of Wilmot, while achieving the various goals and strategies”
- Protect Us!

A photograph of a road at night, showing a white line on the right side and dashed yellow lines on the left. The road surface is dark and appears to have some markings or damage. A yellow sticky note is attached to the bottom right corner of the photo.

Late October

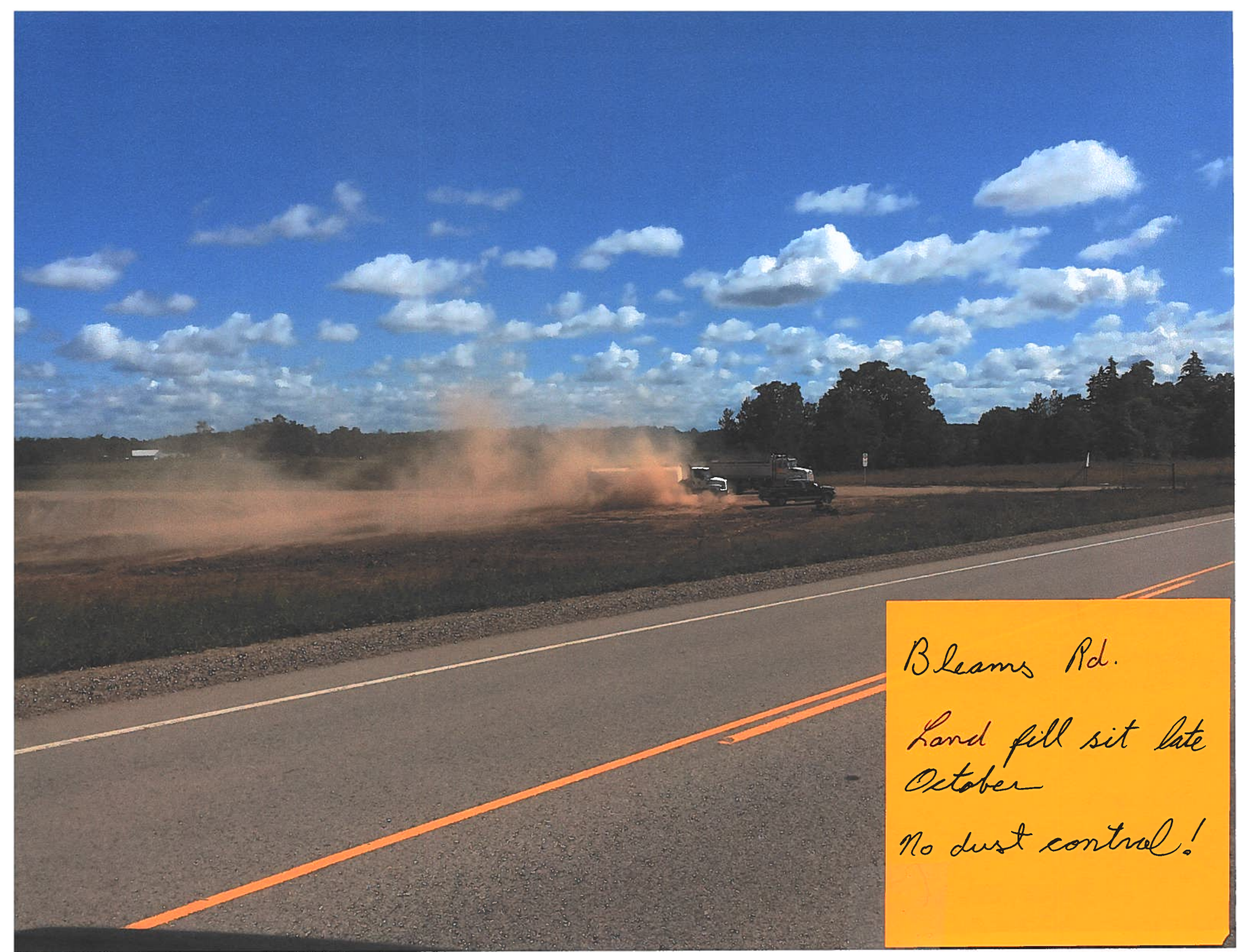
Highland Rd.

"Tri City Pit"

Pic. 1-2-3







Bleams Rd.

Land fill sit late  
October

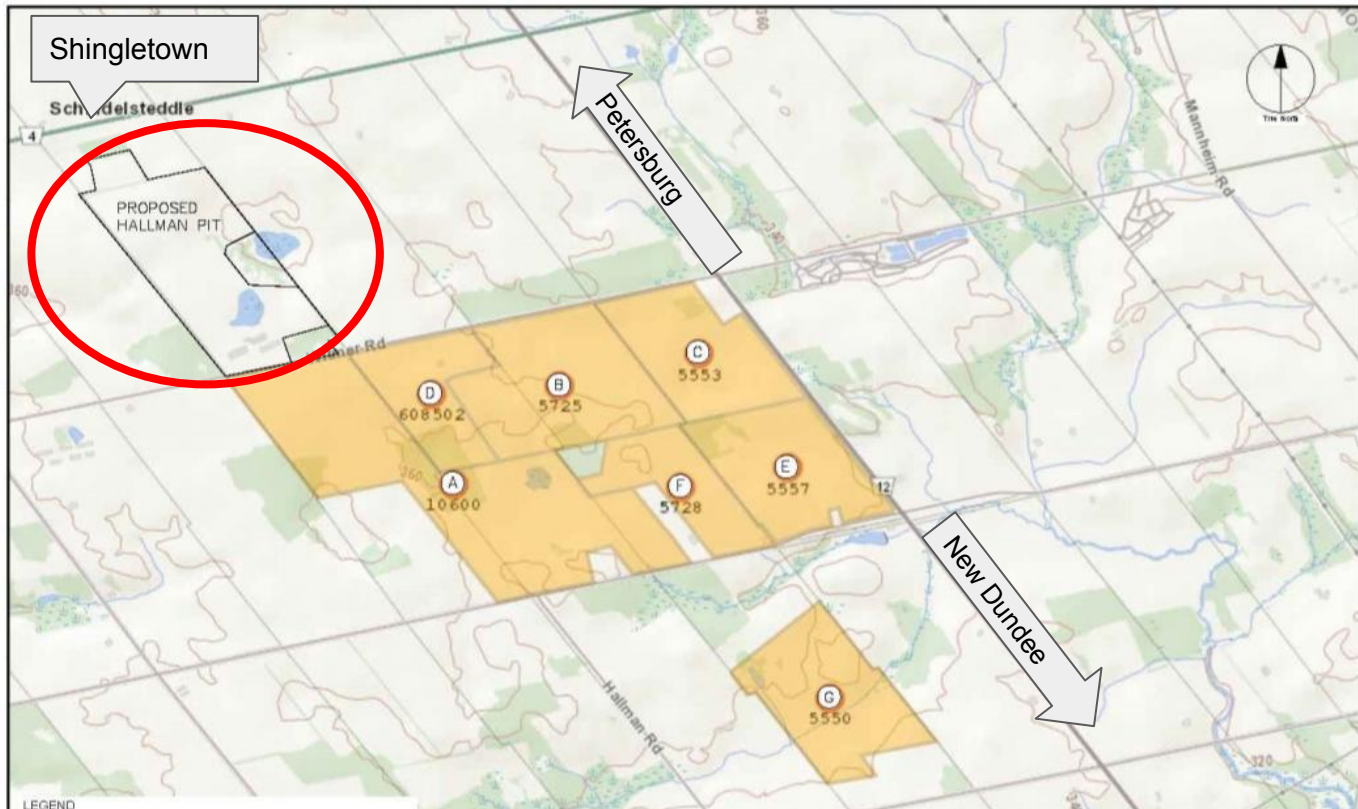
No dust control!



CITIZENS FOR  
**SAFE**  
**GROUND**  
**WATER**

Noise and Air Quality

March 1st, 2021 - Wilmot Township Council Meeting, 7pm



- LEGEND**
- A - CATTLELAND PIT (LAFARGE) #10600
  - B - BARNES PIT (LAFARGE) #5725
  - C - SEIBERT PIT (LAFARGE) #5553
  - D - VOISIN PIT (SPRING VALLEY TROUT FARM LTD.) #608502
  - E - TOWNSHIP PIT (TOWNSHIP OF WILMOT) #5557
  - F - DINO PIT (DINO TRUCKING INC.) #5728
  - G - POLL PIT (1668830 ONTARIO LIMITED) #5550

<b>CLIENT</b> JACKSON HARVEST FARMS LTD.  EXISTING PIT LOCATIONS	<b>PROJECT NAME</b> HALLMAN PIT  WILMOT TOWNSHIP		 <b>IBI GROUP</b> Suite 101 - 410 Albert Street Waterloo ON N2L 3V3 Canada tel 519 585 2255 ibigroup.com	<b>FIGURE NAME</b> FIGURE 1 SURROUNDING PIT HISTORY	<b>FIGURE NO.</b> 1	<b>REVISION</b> 1
	<b>SCALE:</b> N.T.S.	<b>DATE:</b> 2020-09-09				
	<b>PROJECT MGR:</b> D.S.	<b>DRAWN BY:</b> E.T.				
	<b>CHECKED BY:</b> C.T.	<b>APPROVED BY:</b> D.S.				
	<b>PROJECT NO.:</b> 1668830					

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\*statements made are based on expert reviews commissioned by the Region of Waterloo, Wilmot Township and Citizens for Safe Ground Water Inc., as well as the Grand River Conservation Authority, to date\*

# POTENTIAL IMPACTS OF THE PROPOSED HALLMAN PIT



**CUMULATIVE IMPACTS** The combined impact of all 'past, present and future' gravel pits

## HEALTH IMPACTS



Increased noise levels due to truck activity, alarms and extraction



Health effects from exposure to harmful fine particulate matter (dust)



Potential for contamination of our drinking water in sensitive recharge areas

## ECONOMIC IMPACTS



Traffic from dump trucks causes safety concerns and increased costs for municipalities



Loss of 200 acres of prime farmland. Financial viability of farming is decreased after land is used for aggregate extraction

## ECOLOGICAL IMPACTS



Destruction and fragmentation of wetlands and habitats



Auxiliary activities, such as aggregate washing, increase potential for groundwater contamination



Operational practices, such as fuel storage and asphalt recycling, increase risk of pollution



# Agenda

1. Issues with the Hallman Pit application
  - a. Noise
  - b. Air Quality
2. Cumulative Impacts
3. Precedent for Industrial Aggregate Applications in Wilmot Township

# Experts Commissioned

Purpose	Organization
Acoustic Peer Review	J.E. Coulter and Associates
Air Quality Peer Review	Di GiSci Environmental Consulting Inc.
Traffic Impacts Review	True North Safety
Conformance to the Official Plans	Ramsay Planning Inc.
Legal Representation	Canadian Environmental Law Association

- The Region and Township have also commissioned reviews

# Franco DiGiovanni

- Senior Project Manager with DiGiSci Environmental consulting.
- Author of the International Standard Guideline on Air Quality Impact Assessments



Health effects from exposure to harmful fine particulate matter (dust)

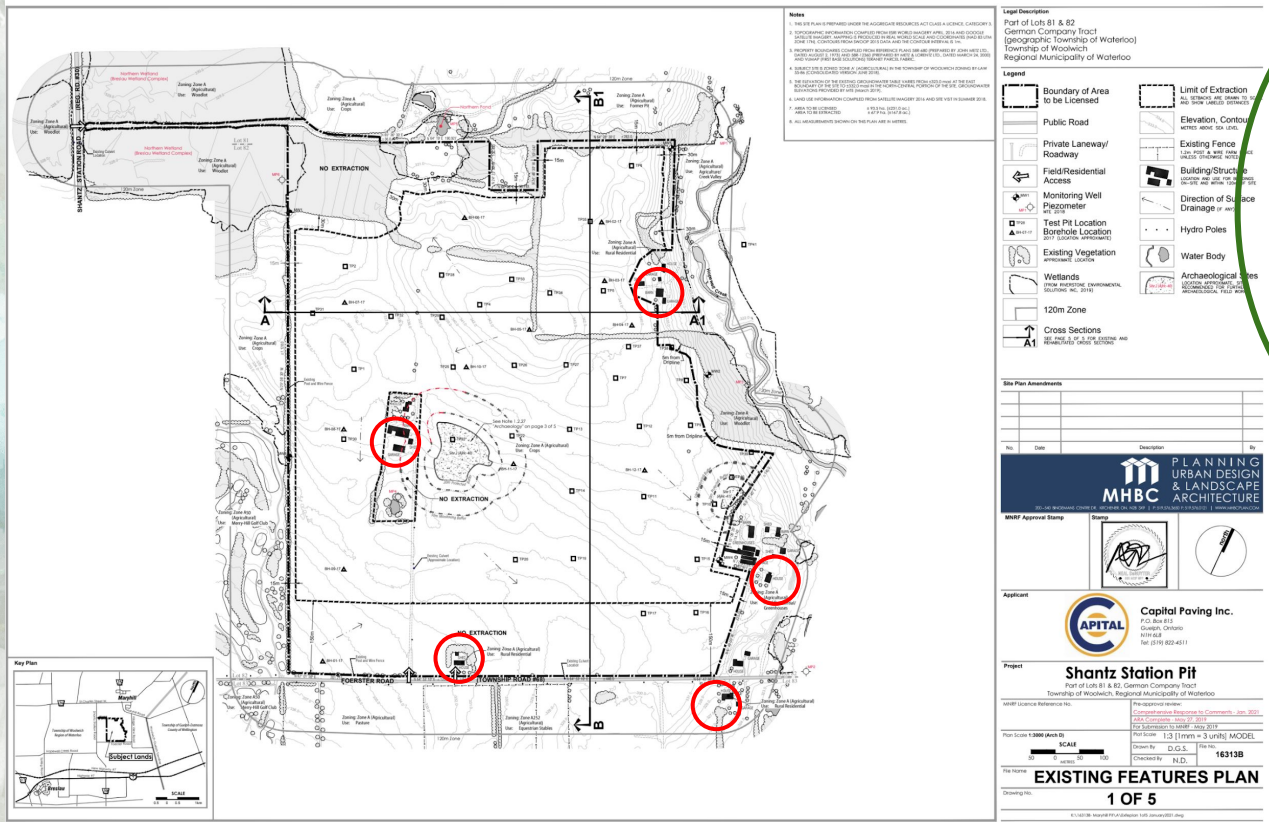
# Air Quality

*"Re-zoning applications under the Planning Act must conform to the Provincial Policy Statement, and especially s.1.2.6. This section requires potential adverse effects to be avoided. For air quality assessments adverse effects (e.g., harm to community health) can only be tested by accounting for pre-existing levels of air quality (imposed by current aggregate pits and other activities in the area) together with the incremental additions to air quality imposed by the proposed Hallman Pit. The resultant, cumulative air quality impacts are those that could affect the health of the community downwind of the Hallman and other pits in the area, if operating simultaneously" - Franco DiGiovani*



Health effects from exposure to harmful fine particulate matter (dust)

# Shantz Station Pit



- **Noise Impact Analysis -**  
June 2020

## Air Quality Assessment

- **Air Quality Peer Review -**  
December 2019
- **Response to Peer Review -**  
February 2020
- **Region of Waterloo  
Response to Peer Review -**  
April 2020
- **Response to Peer Review -**  
May 2020
- **Response to Peer Review -**  
June 2020
- **Response to Peer Review -**  
August 2020

**Legal Description:**  
Part of Lots 81 & 82  
Gerrard Company Tract  
(Geographic: Township of Waterloo)  
Township of Woodwich  
Regional Municipality of Waterloo

**Legend:**  
Boundary of Area to be Licensed  
Public Road  
Private Laneway/Roadway  
Field/Residential Access  
Monitoring Well Designator  
Test Pit Location  
Borehole Location  
Existing Vegetation  
Wetlands  
120m Zone  
Cross Sections

**Site Plan Annotations:**

**MHBP Approval Stamp:**

**Applicant:**  
Capital Paving Inc.  
170 Main St.  
Guelph, Ontario  
N1H 4A4  
Tel: (519) 822-4311

**Project:**  
**Shantz Station Pit**  
Port of Lot 81 & 82, Gerrard Company Tract  
Township of Woodwich, Regional Municipality of Waterloo

**Scale:** 1:3 (1mm = 3 units) MODEL  
SCALE 1:300 (1 inch = 300 feet) MODEL  
DATE: 02.15.20  
DRAWN BY: B.L.D.  
CHECKED BY: B.L.D.  
16313B

**File Name:** EXISTING FEATURES PLAN  
**Drawing No.:** 1 OF 5



Health effects from exposure to harmful fine particulate matter (dust)

# HALLMAN PIT

EXISTING CONDITIONS PLAN  
SHEET 1 OF 7

**NOTE: 120 m setback goes through residents properties and homes**

## Proposed hours of operation:

Mon 6am-7pm

Tues 6am-7pm

Wed 6am-7pm

Thurs 6am-7pm

Fri 6am-7pm

Sat 7am-5pm

Sun 7am-12pm

\*night operations possible

Why no air quality assessment?



Health effects from exposure to harmful fine particulate matter (dust)

FIGURE 2  
HALLMAN PIT, JACKSON HARVEST FARMS LTD.  
TOWNSHIP OF WILMOT, REGIONAL MUNICIPALITY OF WATERLOO  
SCALE NTS  
DATE SEPTEMBER 24, 2019  
PROJECT No. 115885



IBI GROUP  
101 - 410 Albert Street  
Waterloo ON, N2L 3V3 Canada  
tel 519 585 2255  
ibi@ibi.com

EXISTING CONDITIONS

# J.E. COULTER ASSOCIATES LIMITED

*CONSULTING ENGINEERS in  
ACOUSTICS, NOISE & VIBRATION*

## John. E. Coulter

- Graduate of the University of Toronto.
- Engineer with the Noise Pollution Control Section of the Ministry of Environment for a number of years -**wrote the book**
- Private consultant regarding noise pollution for over 30 years.
- President of J.E. Coulter Associates with the goal of helping with the environmental implications of noise pollution.



Increased noise  
levels due to truck activity,  
alarms and extraction

## Summary

1. The backyards of the residences on Bleams Road north of the gravel pit have been incorrectly assumed to be located in a Class 2 area.
2. Noise monitoring at 2115 and 2183 Bleams Road showed that the ambient sound levels from the road traffic on Bleams Road were mostly 2 to 3 dB below the 50 dBA 1-Hour  $L_{eq}$  exclusion limit for a Class 2 area. The measured sound levels imply that the rear yards of the residences in the worst-case scenario are closer to Class 3 area.
3. The truck routes to/from the gravel pit and the recycling plant have not been considered in the report and no acoustical mapping for the haul routes has been provided as requested in *NPC-233*.
4. The report does not provide details about the recycling plant or an acoustic analysis and the necessary mitigation that might be required.

We trust the above will assist in your review of this project. Should there be any questions, please do not hesitate to contact the undersigned.

Yours truly,

**J. E. COULTER ASSOCIATES LIMITED**

John E. Coulter, B.A.Sc. P.Eng.

Brendon Colaco, B.A.Sc.



Increased noise  
levels due to truck activity,  
alarms and extraction



## HEALTH IMPACTS



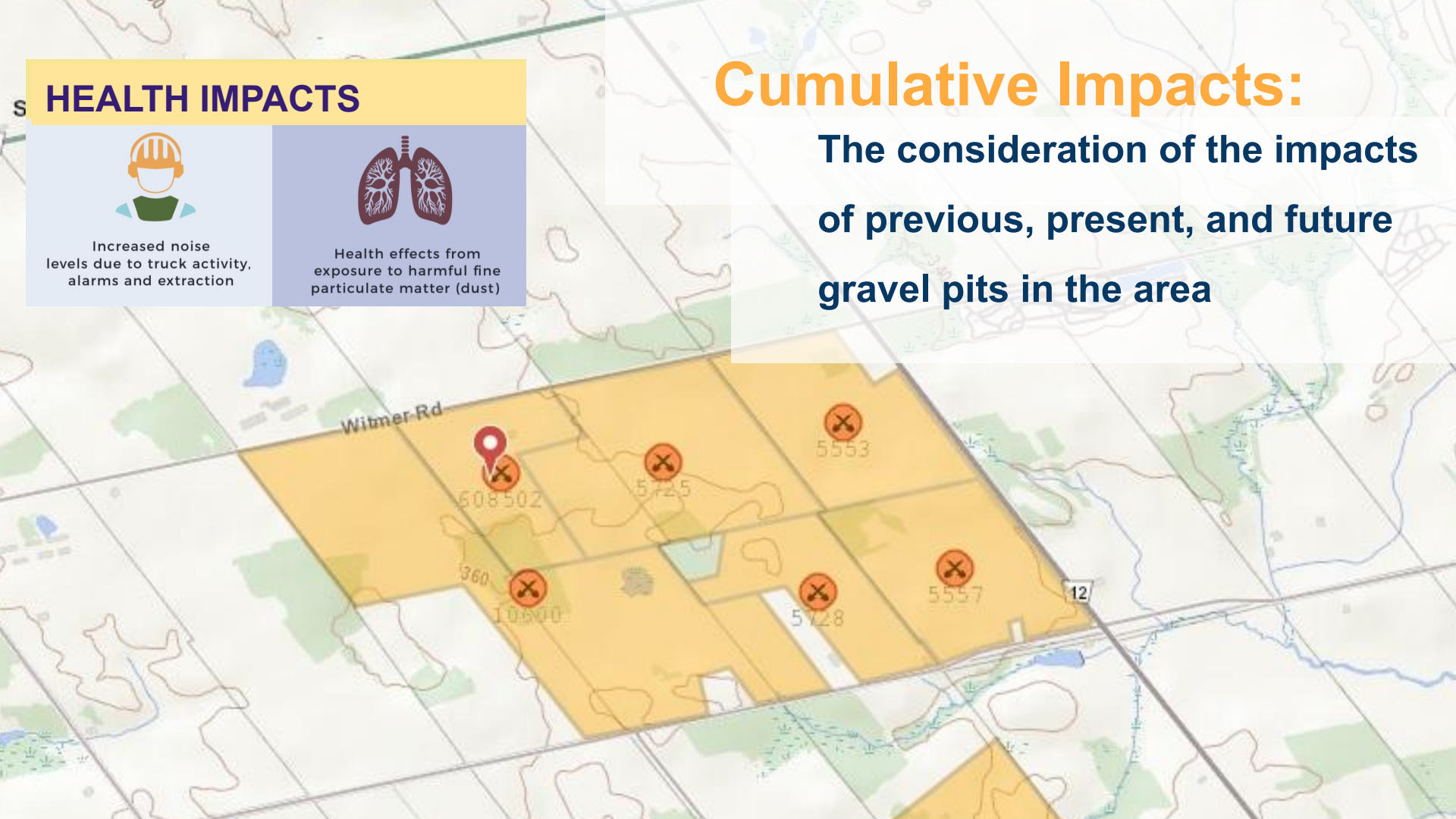
Increased noise levels due to truck activity, alarms and extraction



Health effects from exposure to harmful fine particulate matter (dust)

## Cumulative Impacts:

The consideration of the impacts of previous, present, and future gravel pits in the area



# Impacts NOT addressed

- The Hallman Pit sets an Unacceptable precedent

There is a need for:



1. An air quality assessment report



2. Correct noise standards and modelling in Shingletown



3. Attention to noise and air quality impacts along the Haul Route



4. Cumulative impacts (7.2.4.3) must be reviewed by an expert third party



*Snapshots of a Township Worth Protecting*

# Thank You



CITIZENS FOR  
**SAFE**  
**GROUND**  
**WATER**

*For more information to show  
your support please contact:*

“Citizens for Safe Ground Water”  
on Facebook

[www.safeH2O.ca](http://www.safeH2O.ca)

wilmotgroundwater@gmail.com

**DRAFT**

August 11, 2020

Citizens for Safe Ground Water  
Wilmont, ON

Attention: Samantha Lernout

**RE: PEER REVIEW OF NOISE FEASIBILITY STUDY  
PROPOSED HALLMAN PIT  
WILMONT , ONTARIO**

At the request of Citizens for Safe Ground Water, J.E. COULTER ASSOCIATES LIMITED has conducted a peer review of the Noise Feasibility Study for the Hallman Pit, prepared by HGC Ltd., dated September 12, 2019. We have also reviewed the peer review of the Noise Feasibility Study done by SLR consulting Ltd., dated February 28, 2020.

**Background**

The Hallman Pit is proposed to be located north of Witmer Road, south of Bleams Road (Regional Road 4) and west of Queen Street in the Town of Wilmot.

Operations at the proposed pit include aggregate excavation, a screening plant, a permanent crushing plant (recycling), a permanent washing plant, and a portable crushing plant. Trucks and/or conveyors may be used to transfer material from the working face to the central plant. The gravel pit will typically operate from 07:00 to 18:00 on Monday to Friday, and from 08:00 to 12:00 on Saturday. No other evening or nighttime operations are expected.

There are existing residences located north of the site along Bleams Road and southwest/southeast of the site along Witmer Road. Based on site observations by HGC, the receptors located north of the gravel pit along Bleams Road were considered by the report's authors to be within a Class 2 environment and remaining receptors were considered to be located within a Class 3 environment.

**Criteria**

The Ministry of the Environment, Conservation and Parks' (MECP) applicable criteria to a site such as this are found in its publication *NPC-300* "Environmental Guide for Noise, Stationary and Transportation Sources – Approval and Planning."

MECP considers activities generated by fixed or mobile sources of noise within non-transportation facilities to be stationary sources. *NPC-300* basically states the average noise of the stationary source should not exceed the average noise of the roadway traffic during the same hourly time period or the exclusion limits, whichever is higher. The exclusion limit is lowest value of sound level limit at a specific point of reception for the stationary source (i.e., the sound level limit when the background sound level is below this exclusion limit).

For Class 1 areas (Urban), the exclusion limits that apply are 50 dBA  $L_{eq}$  during the daytime (0700–1900 hours) and 50 dBA  $L_{eq}$  during the evening (1900–2300 hours). For Class 2 areas, the criterion levels that apply are 50 dBA  $L_{eq}$  during the daytime and 45 dBA  $L_{eq}$  during the evening hours. And, for Class 3 areas, the criterion levels that apply are 45 dBA  $L_{eq}$  during the daytime and 40 dBA  $L_{eq}$  during the evening hours.

A “stationary noise source,” to which the guideline applies, is defined in the interpretation section of the MECP guideline as being everything on a property, with a series of exceptions. The time period over which the sound is averaged is 1 hour.

## Methods

Unattended sound monitoring was conducted at 2115 Bleams Road from May 19 to May 28, 2020 and at 2183 Bleams Road from June 5 to June 12, 2020 to determine the validity of the report’s statement that the Bleams Road residences were Class 2 in nature in the worst-case predictable required by *NPC 300*. Sound levels were measured continuously in the backyards of the residences shown in the Figure in the Appendix. Hourly  $L_{eq}$  sound levels were calculated at both locations. Noise measurements were discounted for periods with precipitation or winds greater than 25 km/h. Noise measurements were also discounted when interfering noise sources (landscaping equipment, other machinery operating close to the monitoring equipment) were the dominant sound source.

## Measured Sound Levels

The ambient hourly sound levels measured in the backyards of 2115 and 2183 Bleams Road were between 47 to 50 dBA 1-Hour  $L_{eq}$ . The sound levels measured 50 dBA 1-Hour  $L_{eq}$  for 4 1-hour time periods at 2115 Bleams Road and for 3 1-hour time periods at 2183 Bleams Road. For the rest of the time periods the sound levels were below 50 dBA 1-Hour  $L_{eq}$  at both receptors.

## Recommendations and Conclusions

Sound levels measured in the rear yards at 2115 and 2183 Bleams Road were mostly 2 to 3 dB below the 50 dBA 1-Hour  $L_{eq}$  exclusion limit for a Class 2 area. The sound levels in the backyards of the receptors along Bleams Road are shielded by the residential structures, which results in sound levels approximately 10 dB lower than the levels in the front yards. Additionally, the sound levels from the gravel pit at these receptors would be the loudest when the wind was blowing from the south; while at the same time, a southern wind would provide the lowest background sound levels from Bleams Road for the receptors that are located south of the road. It would appear that the rear yards noise criterion point for the houses south of Bleams Road should be 47, not 50 dBA  $L_{eq}$ .

The noise report provided neither measured nor calculated sound values for the rear outdoor amenities of these residences. The measured sound levels implies that the rear yards of the

residences located are closer to Class 3, and the appropriate criteria that would apply is the average measured noise of the roadway traffic or 45 dBA  $L_{eq}$ , whichever is higher.

*NPC-233*, one of the report's references, states in Section 8-4 that the sound level analysis should include mapping of the existing level of road traffic in the vicinity of the proposed site and the increase in such traffic due to the plants operation, projected for at least 10 years into the future. The truck routes to/from the gravel pit and the recycling plant have not been considered in the report and no acoustical mapping for the haul routes has been provided as requested in *NPC-233*. The intent of the request in *NPC-233* is to ensure that the planners understand the implications of the new facility at larger distances, in order to encourage a selection of haul routes that minimize the noise impact.

The report mentions that a permanent crushing plant located on site may be used as a recycling plant. However, the report does not consider the impacts of additional truck traffic associated with hauling in and out of the recycling material. Nor does the report provide a detailed plan for the location and estimate of the need for mitigation for such a plant.

### **Summary**

1. The backyards of the residences on Bleams Road north of the gravel pit have been incorrectly assumed to be located in a Class 2 area.
2. Noise monitoring at 2115 and 2183 Bleams Road showed that the ambient sound levels from the road traffic on Bleams Road were mostly 2 to 3 dB below the 50 dBA 1-Hour  $L_{eq}$  exclusion limit for a Class 2 area. The measured sound levels imply that the rear yards of the residences in the worst-case scenario are closer to Class 3 area.
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Yours truly,

**J. E. COULTER ASSOCIATES LIMITED**

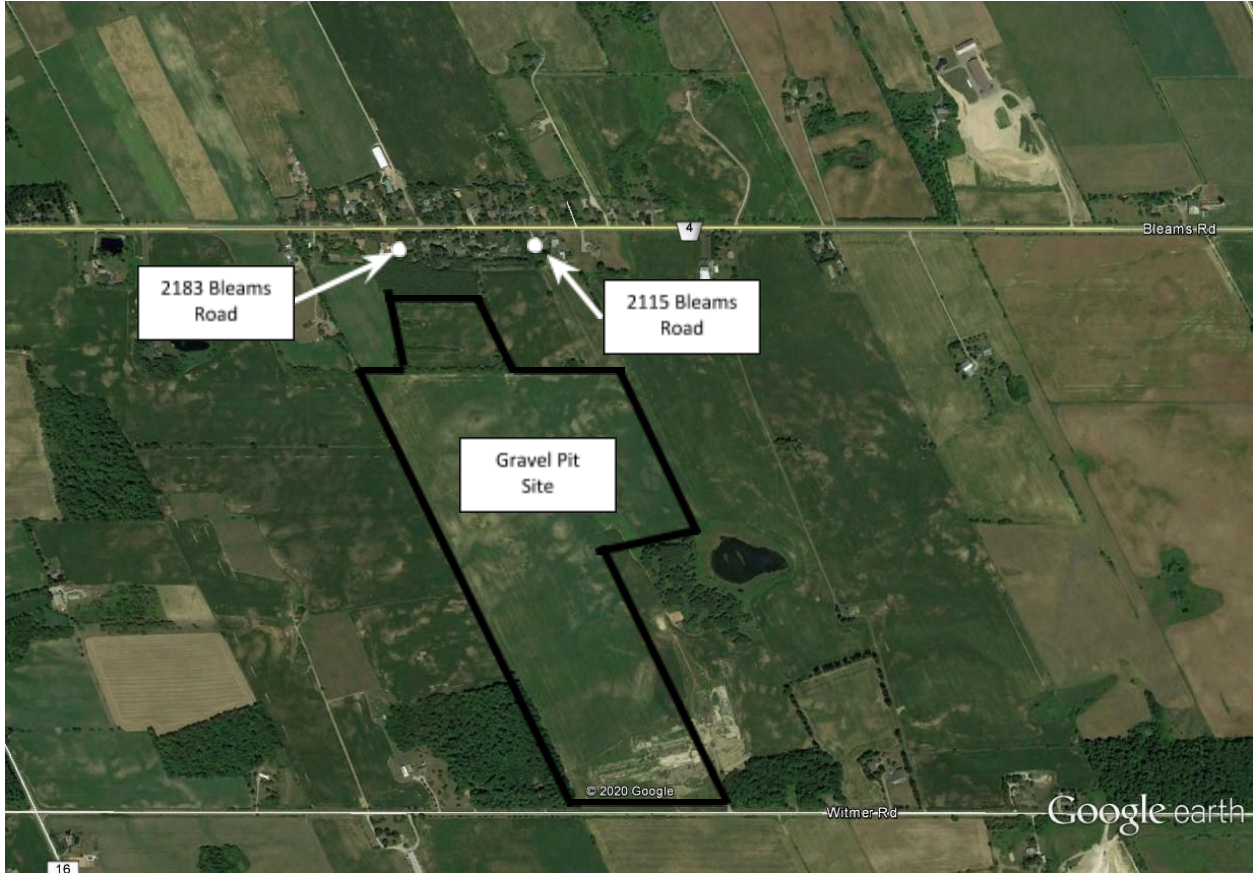
John E. Coulter, B.A.Sc. P.Eng.

Brendon Colaco, B.A.Sc.

JEC:BC:pt



# APPENDIX



Samantha Lernout, President  
Citizens for Safe Ground Water Inc.

05 May 2020

slernout@ugcloud.ca

1-519-404-0134

File #: J2020-17

**Re: Review of: (i) GHD Report (dated 1 October 2019) for Proposed Jackson Harvest Farms Ltd. (JHF) Hallman Pit (Site), and, (ii) Peer Review of Best Management Practices Plan For Control Of Fugitive Dust Emissions (dated 27 February 2020) - Proposed Hallman Pit – Wilmot Township. Both reports submitted in support of a Zoning By-law Amendment Application (ZCA-11-19) by Jackson Harvest Farms Ltd.**

**SUMMARY**

An application has been made to approve a quarry on a 200-acre lot at 1922 Witmer Road in the Township of Wilmot, Ontario. The proposal is seeking to extract up to 750,000 tonnes of gravel a year from the site, which is now being farmed.

DiGiSci Environmental Consulting Inc. (“DiGiSci”) was retained to provide a review of two reports:

(i) the GHD report “Best Management Practices Plan for Control of Fugitive Dust Emissions”, for Jackson Harvest Farms Ltd., 1894 Witmer Road, Wilmot, Ontario, dated 1 October, 2019, and,

(ii) the SLR review report “Peer Review of Best Management Practices Plan For Control Of Fugitive Dust Emissions Proposed Hallman Pit – Wilmot Township”, for Planning, Development & Legislative Services, Region of Waterloo, dated 27 February, 2020.

Based on our review, the provided reports contain a number of serious issues that should be resolved in order to obtain an accurate assessment of the air quality impacts of the proposed Pit. The main issues are (but not exclusively):

- 1) The proponent’s consultant, GHD, has not abided by the PPS (2020) and has not conducted an air quality impact assessment.
- 2) The lack of an air quality assessment, done properly, may lead to unchecked, resultant air pollution exposures, in the surrounding community, that may cause various health impacts, including premature death and thus Years of Life Lost (YLL).
- 3) A proper air pollution impact assessment involves: (a) estimating maximal emissions, (b) combining maximal emissions with worst-case meteorology (in an appropriate dispersion model), (c) combining the upper-limit, incremental, air pollution impacts with maximal (pre-existing) baseline air quality levels, and, (d) comparing resultant, cumulative, levels to air quality standards, or provide results to an air health impacts expert (toxicologist or epidemiologist) to

opine on health risks, especially where air standards may not be protective of human health (e.g., PM2.5, Diesel Particulate Matter, etc.).

- 4) The two consultants involved, working for GHD, should have recognized that adherence to the PPS required that an air quality impact assessment was required.
- 5) The peer-reviewers, SLR Consulting (Canada) Ltd. ("SLR"), should have recognized that adherence to the PPS required that an air quality impact assessment was required.

## **BACKGROUND**

In order to put my review in context, I firstly provide an introduction to air quality assessments as required for land use compatibility assessments in Ontario.

### *Introduction to Land Use Compatibility Assessments (Air)*

In Ontario, land use compatibility, in regards proposed changes to land use, is of municipal concern but is governed by the Provincial Policy Statement (2020, “PPS”), especially under paragraph 1.2.6:

*“Major facilities and sensitive land uses shall be planned and developed to avoid, or if avoidance is not possible, minimize and mitigate any potential adverse effects from odour, noise and other contaminants, minimize risk to public health and safety, and to ensure the long-term operational and economic viability of major facilities in accordance with provincial guidelines, standards and procedures. “ (italicized terms are defined within the PPS).*

Of note is that the very broad definition of “adverse effect” is the same as in the *Environmental Protection Act* (EPA). Consequently, air emissions should account not only for nuisance emissions (dust, odour) but also all human health-related contaminants (e.g., traffic-related air pollutants, criteria air contaminants, etc.). It should also be noted that the definitions of sensitive land uses and facilities, in the PPS, are very broad. The 2020 PPS definition of “facility” is broader than given in the D-Series (see Definitions Guideline D-1-3) but takes precedence over the D-series definition.

Without an appropriate air pollution impact assessment, to check the increases in air pollution caused by the proposed pit operations, air pollution levels, in the surrounding community may rise to levels which may cause adverse effects, including impacts on human health. There may be range of human health effects that could include such extreme effects as premature death and therefore Years of Life Lost (YLL).

In order to determine if an adverse health effect could occur from an air contaminant, it is necessary to determine the resultant air quality (AQ) level, at locations of interest, and ensure those levels do not cause an adverse effect. Therefore, AQ assessments should be cumulative (include baseline AQ and contributions from the subject emission source) and quantitative, so as to provide verifiable numerical results for decision-making.

Guidance to test for land use compatibility is provided in the D-Series set of guides, which were issued by the Ontario Ministry of the Environment in 1995, before responsibilities for LUCAs were downloaded to the municipalities. Of note is that the (now) Ministry of the Environment, Conservation and Parks (MECP) is in the process of updating the guides as they are now considered outdated and do not include the latest science on air quality.

### *D-Series Documents*

Dependent upon the types of facilities present in the study area, D-Series may provide specific screening guidelines for certain facilities identified. The list of facility-specific guidelines available is provided in Procedure D-1-2, which is essentially a “Table of Contents”. These facility-specific screening guidelines form the balance of the documents, D-2 to D-6, and provide the next step of the assessment (where guidelines are provided). For some facility types (e.g., transport corridors) there are no guides provided for air emission assessments, but assessment is still required. If there are no specific screening guidelines provided, other screening methods will be required outside of those specified in the D-Series documents, or, full assessment is required.

As an example, I provide an introduction to the D-6 Industrial facility screening guide next; however, this is not to construe that only air emissions from industrial facilities are to be included in the assessment for the introduction of a new land use.

### *D-6 Screening Methods for Industrial Facilities*

The D-6 guide provides an initial screening tool, based on potential influence distances, to screen-out industrial facilities that are assumed to have negligible impact beyond certain distances. It is meant strictly for industrial facilities and does not apply to other facility types. If industrial facilities do not screen-out then a more detailed, site-specific, assessment is required.

Different separation or influence distances apply to industry screening according to the “class” an industrial facility is classified under. For each class of industrial facility, a “minimum separation distance” and a “potential area of influence” are defined where, outside of the latter area, the facility is assumed to have negligible environmental influence, as shown in the following table. The minimum separation distance indicates the recommended distance within which no incompatible development other than that identified in Section 4.10, "Redevelopment, Infilling and Mixed Use Areas" should occur even if additional mitigation for adverse effects, as discussed in Section 4.2 of Procedure D-1-1, "Types of Buffers", is provided” (Section 4.3 of Guideline D-6).

Industry Category	Probability to “Impact”	Minimum Separation Distance (m)	Potential Influence Distance (m)
Class I	Low probability of impact	20	70
Class II	medium probability of impact	70	300
Class III	high probability of impact	300	1000

Industries are classified based on a few features that correlate to the degree and “noxiousness” of environmental emissions. For example, warehousing may fall under Class I, whereas cement manufacturing may fall under Class III. Therefore, if a Class III facility is located greater than 1000 m

from a sensitive land use it is screened-out and (sometimes) no further assessment is required of that facility.

However, it is important to understand that there are problems with this screening method:

1. Categorization is subjective and sometimes not straightforward to apply to individual industrial facilities
2. Categorization is based on nuisance issues only and ignores non-sensed contaminants (e.g. odourless toxic gases) and may therefore screen-out facilities that emit non-sensed, but potentially harmful, contaminants (e.g., PM2.5, metals, etc.)
3. Basis of setback distances is unknown and so uncertain in its applicability

For example, some really noxious industries can have a significant impact even outside of 1 km separation distance whereas some very environmentally docile facilities may have no impact even if they are immediately adjacent a sensitive land use. Therefore, the influence distances themselves should only be treated as approximations and not bright-lines and so strict interpretation should not cloud case-by-case judgment on where potential environmental influence can occur.

Guideline D-6, in Section 4.5.1, states that “no sensitive land uses shall be permitted within the actual or potential influence areas of Class I, II or III industrial land uses, without evidence to substantiate the absence of a problem.” Therefore, when a facility is located within the separation distance allowable for its class type (i.e., does not screen out) further work is required to determine if the facility poses an adverse risk to the proposed sensitive land use. In other words, where facilities do not screen-out and potential environmental influence may occur, by air emissions, a full (site-specific) AQ assessment should be conducted providing numeric results that can be compared to assess for risk of adverse effect.

In the case of gravel pits and quarries, the D-6 guide indicates that the screening methods presented therein do not apply and so direct application of detailed studies is required.

### Introduction to Full Air Assessments

In the case of Hallman Pit, Witmer Road proposed facility, the full (site-specific) AQ assessment may take the form of a modelled (estimated) quantification of AQ (for all contaminants) at locations in the surrounding community.

What is needed, in these cases, is a complete air pollution impact assessment. An appropriate air pollution impact assessment involves: (a) estimating maximal emissions, (b) combining maximal emissions with worst-case meteorology (in an appropriate dispersion model), (c) combining the upper-limit incremental air pollution impacts with maximal (pre-existing) baseline air quality levels, and, (d) comparing resultant, cumulative levels, to air quality standards, or provide results to an air health impacts expert (toxicologist or epidemiologist) to opine on health risks, especially where air standards may not be protective of human health (e.g., PM2.5, Diesel Particulate Matter, etc.).

For modelled assessments of a proposed sensitive land use, the “adverse effects” test is suitably met by the type of air assessment normally conducted for EAs (thus accounting for baseline AQ). For modelled assessments the International Association of Impact Assessment (IAIA) air quality assessment guide should be used for guidance:

[http://www.iaia.org/uploads/pdf/Guiding%20Principles%20for%20Air%20Quality\\_2.pdf](http://www.iaia.org/uploads/pdf/Guiding%20Principles%20for%20Air%20Quality_2.pdf).

### **SCOPE OF REVIEW**

DiGiSci Environmental Consulting Inc. (“DiGiSci”) was retained by Citizens for Safe Ground Water Inc., to review:

- (i) the GHD report “Best Management Practices Plan for Control of Fugitive Dust Emissions”, for Jackson Harvest Farms Ltd., 1894 Witmer Road, Wilmot, Ontario, dated 1 October, 2019, and,
- (ii) the SLR review report “Peer Review of Best Management Practices Plan For Control Of Fugitive Dust Emissions Proposed Hallman Pit – Wilmot Township”, for Planning, Development & Legislative Services, Region of Waterloo, dated 27 February, 2020.

These documents were submitted under a Planning Act re-zoning Application (ZCA-11-19).

### **MATERIALS USED/REVIEWED**

The following materials, guidelines and requirements were considered as part of this review:

- Those mentioned above.

## **RESULTS OF REVIEW**

Report (i) was submitted in support of a rezoning application for the proposed Hallman Pit, to be located at 1894 Witmer Road, Wilmot Twp., (the “Subject Site” or SS). As such, the requirements of the *Planning Act*, Provincial Policy Statement (2020) (PPS 2020) and associated guides (“D-Series”) apply.

*However, no screening level (D-series), or full (air), impact assessment has been conducted. Therefore, the “BMPP” document provided is insufficient to show a lack of adverse effect, as required by the PPS.*

The two authors of the BMPP report (Turchan and Rubie) are Licensed Engineering Practitioners (LEPs), and should have known those requirements to claim competency in the field.

It should also be noted that air quality assessment is regarded as engineering practise in Ontario; neither LEP has stamped or signed the report.

*Without an appropriate assessment, it is possible that emission from the proposed pit may cause adverse effects, up to and including premature death and Years of Life Lost (YLL).*

Report (ii) was submitted in regards the rezoning application for the proposed Hallman Pit, to be located at 1894 Witmer Road, Wilmot Twp., (the “Subject Site” or SS). As such, the requirements of the *Planning Act*, Provincial Policy Statement (2020) (PPS 2020) and associated guides (“D-Series”) apply.

*The reviewers have committed a serious error in not noting that no screening level (D-series), or full (air), impact assessment has been conducted. The “BMPP” document provided is quite obviously insufficient to show a lack of adverse effect, as required by the PPS.*

Neither of the two authors are LEPs. Since technical reviews of engineering documents, as is the BMPP, they are considered engineering in Ontario, these persons are practising engineering without a license.

*Without an appropriate assessment of impacts, it is possible that local residents may be exposed to resultant air pollution levels sufficient to cause premature death.*