



**PEER REVIEW OF AIR QUALITY ASSESMENT
Hunder Development Limited
Hunsberger Pit**

Submitted to:

Township of Woolwich
24 Church Street West, P.O. Box 158
Elmira, Ontario N3B 2Z6

Submitted by:

AMEC Americas Limited
2020 Winston Park Drive
Oakville, ON
L6H 6X7

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Prepared by:

A handwritten signature in black ink, consisting of several overlapping loops and a long horizontal stroke extending to the right.

Tony van der Vooren, Ph.D., P.Eng. QEP
Manager, Air Quality

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1.0 INTRODUCTION

AMEC was requested by the Township of Woolwich to undertake a review of air quality issues related to the proposed Hunder Development Limited Hunsberger Pit. The review focussed on air quality issues raised in the proponent's application for an open pit sand and gravel operation. These issues were discussed in context of relevant legislation and guidelines. Sources of information included:

- Dust Assessment of the Hunsberger Pit, Senes Consultants Limited. Dated September 2009 (Note: this reported was updated from an earlier report (dated January 2009) included with the Planning Report).
- Planning Report, Hunsberger Pit; IBI Group, April 3, 2009.
- Review of relevant environmental legislation, and Ministry of the Environment guidelines on land use compatibility and separation distances; and,
- Review of the relevant planning documents for the Township of Woolwich.

The predominant air quality issue related to open pit operations is dust (particulate matter). In any large materials handling operation, dust is generated from blasting, materials handling, crushing, wind-blown dust erosion, and truck traffic on paved and unpaved roads. The magnitude of these emissions is directly related to the amount of material handled and the level of activity. Mitigation for these types of emissions is possible, but needs to be carefully designed and implemented. Frequently, off-site impacts from these types of operations occur due to poor or inadequate operational procedures and mitigation.

Particulate matter is a variety of solid and liquid particles that remain suspended in the air. It includes smoke, fumes, dust, pollen, metals and soil materials. Impacts of particulate matter are related to health effects, effects on vegetation, visibility and effects on exposed materials (e.g. building materials, paint finishes). Emissions from quarrying and aggregate operations are predominantly crustal materials released by materials handling and metals contained in the ore and surrounding rock.

The health impacts of particulate matter are directly related to the composition of the particle as well as the size of the particle. Smaller particles (less than 2.5 μm) can penetrate deep into the human lung and at elevated levels, can lead to adverse effects (e.g. respiratory symptoms, decreased pulmonary functions).

Excessive quantities of deposited particulate matter can adversely affect vegetation. Particles can cover the leaves and plug stomata and cause a reduction in the growth and yield of some plants.

Fine particulates can also cause visibility reduction. Particles absorb and scatter light, thereby causing a reduction in long-range visibility. Moisture and particulate characteristics are important in assessing the extent of the visibility reduction.

Particulate matter can also create environmental concerns related to the soiling and corrosion on surfaces. Deposited dust can require increased cleaning of surfaces. Also, the chemistry of the particle may be corrosive to some materials requiring, not only increased cleaning, but potentially replacement of damaged materials or use of more corrosion resistant surfaces.

2.0 LEGISLATIVE FRAMEWORK

2.1 Overview

Air quality in Ontario is regulated by the Ontario Ministry of the Environment (MOE). With a few exceptions, none of which are applicable to this project, the Federal government does not directly regulate air emissions. Municipalities and local governments also do not typically regulate or control air emissions, but do deal with air quality impacts through zoning and land-use.

The current gravel pit application to the Ontario Ministry of Natural Resources (MNR) is part of a larger process that leads from initial planning through to final approvals and operation. At this stage, consideration is being given to the proponent's application for a license under the Aggregate Resources Act. The Ministry of Environment and the local governments are able to raise concerns and issues through the consultation process, but are not responsible for approving the application. Such responsibility lies with MNR. The proponent has also submitted a rezoning application through the local government.

A Certificate of Approval (Air) application will still need to be submitted through the MOE for the on-site operations. There is typically much overlap in timing with these applications. As well, even though the MOE does not have a specific approval capacity in the zoning activities at the local level, the MOE has established land-use compatibility guidelines to assist local governments with appropriate zoning and land-use planning. MOE will not issue a Certificate of Approval (Air) until MOE is satisfied that land-use and zoning issues have been settled with a municipality.

Specific requirements for the MNR quarry license application procedure have been provided by the proponent. Issues related to this license application and supporting documents are discussed in Section 3.

The following sections review each of the relevant pieces of legislation and guidance documents as they specifically apply to air quality and the current proposal.

2.2 Aggregate Resources Act

The Aggregate Resources Act of Ontario (as amended in 1997 by Bill 52) was established to provide management of the aggregate resources in Ontario. The act also has the listed purpose:

"to minimize adverse impact on the environment in respect of aggregate operations" (Aggregate Resources Act, RSO 1990, c. A.8, as amended, s. 2(d))

In the definition of the word environment, specific mention is made of the air environment.

“environment means the air, land and water or any combination or part thereof.....” (Aggregate Resources Act, RSO 1990, c. A.8, as amended, S. 1(1))

As part of the duties of the Minister (Section 12 (1) (a)), there must be consideration of “the effect of the operation of the pit or quarry on the environment” (which would include people impacted by the operations) and there must be consideration of “the effect of the operation of the pit or quarry on nearby communities” (Section 12 (1) (b)). These aspects are not further defined or clarified in the Act.

MNR provides further direction for license applications under the Provincial Standards (1997) that have been developed to support the Aggregate Resources Act.

Aggregate Resources Act - Provincial Standards

Provincial standards were developed to support the Aggregate Resources Act. The standards set requirements for:

- Site plan standards;
- Report standards;
- Prescribed conditions;
- Notification and Consultation;
- Operational standards; and
- Annual Compliance Reporting.

As noted in the Introduction of the Provincial Standards, these were developed to provide minimum requirements for delivery of the Act.

There are a few specific requirements in the Standards that address air quality issues. These are:

- I. The Standards recommend that in the preparation of the reports that accompany an application, reference should be made to the Environmental Protection Act (EPA). The EPA and regulations under the EPA are very specific with respect to air quality issues (see Section 2.3 for further details).
- II. Prescribed Conditions in the Standards are minimum requirements that cannot be varied or rescinded by the Minister of Natural Resources or the Ontario Municipal Board (OMB), but on a site-specific basis additional conditions can be attached.

- III. Under the Prescribed Conditions for a Class “A”, Category 2 license the following conditions, that impact air emissions, are required:
- A. Dust will be mitigated on site. (Condition 3.1)
 - B. Water or another provincially approved dust suppressant will be applied to internal haul roads and processing areas as often as required to mitigate dust. (Condition 3.2)
 - C. Processing equipment will be equipped with dust suppressing or collection devices, where the equipment creates dust and is being operated within 300 metres of a sensitive receptor. (Condition 3.3)
 - D. If required, a Certificate of Approval will be obtained for processing equipment to be used on site. (Condition 3.8)

No other specific air quality conditions are required under the Aggregate Resource Act Provincial Standards. There are also no specific details provided on the application of the above requirements.

Hunder Application

The site plans shown in the Planning Document contain notes related to dust mitigation. It indicates a number of specific actions to mitigate dust on the site. Unfortunately, these notes do not seem to reference the Best Management Plan (BMP) that provides the details necessary to mitigate dust on site. We would recommend that the site plans specifically reference the BMP. In so doing, the BMP would also be enforceable by the MNR through the site plans. This would also allow for controlled updates of the BMP as needed, without requiring amendments to the site plans.

2.3 Environmental Protection Act

Air quality in Ontario is regulated under the Environmental Protection Act (EPA), through Section 14 (adverse effects), Section 9 (requirements for Certificates of Approval), Provincial Regulation 419 and the MOE’s ambient air quality criteria (formerly Regulation 337).

Desirable ambient air quality levels in Ontario are set in the list of Ambient Air Quality Criteria (February 2008). Ambient air quality criteria are used to determine the acceptability of air quality in a given region. These criteria are not source specific and all contributing sources are considered. These are used by the MOE to determine areas that require specific air quality action. The MOE’s monitoring network provides details on the existing levels of air quality in an area.

Pursuant to Section 14 (1) of the EPA, “no person shall discharge a contaminant or cause or permit the discharge of a contaminant into the environment that causes or is likely to cause an adverse effect.” An adverse effect is defined in the EPA as, among other things:

- impairment of the quality of the natural environment for any use that can be made of it;
- injury or damage to property or to plant or animal life;
- harm or material discomfort to any person;
- an adverse effect on the health of any person;
- interference with normal conduct of business; and,
- loss of enjoyment of normal use of property (EPA, RSO 1990, c. E.19, as amended, s.1(1)).

Any discharge to the air, requires a Certificate of Approval (Air) under Section 9 of the EPA. A Certificate of Approval (C of A), (Air) is required prior to the construction and operation of a process that will emit to the atmosphere. The C of A (Air) is obtained from the MOE and will indicate the terms and conditions of the MOE’s approval. These conditions can include emission limits, operating conditions and maintenance requirements. Compliance with a C of A does not imply overall compliance with the Act. Sources are still governed by other provisions in the Act, including not causing an adverse effect (S.14).

Regulation 419 also requires that specific sources cannot cause exceedances of specific air quality criteria provided in the Regulation and subsequent lists published by the MOE. These criteria are applied against specific modelled concentrations (point-of-impingement) determined at a location away from the source. These points-of-impingement are typically at the fence-line for near-ground level emissions and at the maximum off-property concentrations for elevated sources. MOE requires this to be demonstrated through a site specific Emission Summary and Dispersion Modelling Report.

The MOE requires a facility to meet Reg. 419 point-of-impingement criteria for the combined emissions from a facility, not just for a single emission point; however, background or existing air quality is not considered in Reg. 419.

“As of Oct. 1, 1998 all applications for Section 9 Approvals must include enough information to demonstrate that the entire facility complies with Section 5 of Regulation 346....” (MOE announcement - undated)

This demonstration (i.e. compliance with numerical standards through modelling), according to the MOE’s Air Emission Summary and Dispersion Modelling Report guidance material (Guideline A-10), does not have to include fugitive dust emissions, if the facility provides an acceptable dust management plan (Best Management Plan (BMP)) for fugitive dust control.

2.3.1 Hunder Application

The Hunder operation will require a full Emission Summary and Dispersion Modelling report and a Section 9 Certificate of Approval for air emissions. This approval will be required prior to construction. The current reports are not structured as a support for a Certificate of Approval submission (i.e. as an ESDM report). The detail necessary for an ESDM is provided in the dust report and is adequate to demonstrate that the site should be approved by MOE.

The Township should confirm that Hunder will obtain a Certificate of Approval. The Certificate of Approval will require the detailed Best Management Plan and conditions of operations. This will ensure that MOE will have specific enforcement requirements for the site and operations. The requirement for a Certificate of Approval should be part of the ARA plans.

2.4 Land Use and Zoning

The property will require re-zoning to allow for aggregate extraction. As such, there are specific planning requirements for both the Region and the Township.

The MOE does not exercise any direct jurisdiction in land use issues. Instead, MOE provides local governments with guidelines related to environmental issues and land use planning.

These are reviewed in the following sections.

2.4.1 Official Plans

There are various parts of both the Regional and Township official plans that address air quality and impacts. These are:

1. The Regional Official Policy Plan (ROPP) (Section 5.3.14 b) states.

“confirmation from the Ministry of Environment that all requirements of the Ministry with respect to noise, vibration and dust related concerns have been addressed to their satisfaction;”

2. The Woolwich adopted OPA 13 Policy 11.11.1(i) and 11.11.9 states:

11.11.1 The Dust and Air Quality Impact Study as described in Section 11.11.1(i) shall provide the following information;

a) an identification of the policy framework which is aimed at addressing dust and air quality impacts, including provincial policy, Regional policy, and Township of Woolwich policy, and an analysis of how this policy framework is being satisfied by the subject proposal;

b) an assessment of background levels of dust and a modeling of additional dust contributions that can be expected from the proposed operation;

c) the nature of dust impacts on air quality, how these impacts can be mitigated, the risks associated with mitigation, and the remaining impacts after mitigation; and

d) a proposed monitoring program which includes an appropriate amount and duration of baseline data and which addresses changes in the proposed operation associated with phasing.

2.4.2 Hunder Application

The air quality report does address most of the requirements of the Townships policy; specifically clauses b) to c). Clause a) (policy framework) is not addressed in the air quality report though it is addressed in the planning report. Item d) (monitoring) indicates that a “proposed monitoring program” be included. The Hunder application discusses monitoring and concludes that direct monitoring is not required. In lieu of direct monitoring, the BMP requires observations and record keeping of visible dust emissions. The visible emissions then trigger various levels of mitigation. This is an acceptable (and actually more direct and thorough) “monitoring” requirement.

It is not clear what ROPP intends with the requirement for MOE “confirmation”. MOE will not issue Certificates of Approval for air and noise until any zoning issues have been resolved. The Planning Report indicates that the “Region has the delegated authority to review these items”. We are not aware that MOE has delegated authority to the Region on Air Certificates of Approval.

The specific details of meeting the Woolwich policy requirements are addressed in Section 3.0.

2.4.3 Ministry of the Environment - Land Use

Though the MOE is not directly involved in land use planning, MOE has realised that many environmental issues can result due to incompatible land uses. The MOE has developed a series of guidelines to be used when a change in land use is proposed. Specifically, the MOE has developed guidelines to minimize or prevent adverse effects through the use of buffer zones. These guidelines are:

D-1: “Land Use and Compatibility”;

D-1-1: “Land Use Compatibility: Procedure for Implementation”;

D-1-2: “Land Use Compatibility: Specific Applications”;

D-1-3: “Land Use Compatibility: Definitions”;

D-6: “Compatibility Between Industrial Facilities & Sensitive Land Uses”;

D-6-1: “Industrial Categorization Criteria”; and,

D-6-3: “Separation Distances”.

The guidelines and associated procedures are applicable under circumstances when a new facility is proposed and an existing sensitive land use (which includes residential properties) is within the facility's potential influence area. Specifically the guideline states:

"If a proposed use is permitted in the official plan, but rezoning is required, or if both redesignation and rezoning are required, then this guideline shall apply." (Guideline D-1 s 2.3.2).

The guidelines and procedures focus on the use of separation distances from the proposed facility to the sensitive land uses. It is the proponent's responsibility to determine the zone of influence for the facility. Specifically, Procedure D-1-1 requires the proponent to evaluate the severity of the impacts both before and after mitigation.

In the absence of site-specific studies (D-6), the MOE recommends that pits and quarries be treated as a Class III industrial facility and that the potential influence area and minimum separation distances for such a facility be used in land use planning. Class III facilities are defined as facilities having a high probability of fugitive emissions. For Class III facilities, the MOE has identified the potential influence area, wherein adverse effects may occur, to be 1000 m. Even with mitigation, the MOE suggests a minimum separation distance of 300 m. It is important to note, that in this guideline, the MOE recommends that these distances be measured from property line to property line, not from specific source to residential building.

2.4.4 Hunder Application

The current application (though not specifically the air quality study) partially addresses the issues raised in the Official Plan policies for land use changes.

The application does not specifically address the MOE recommended separation distances for proposed facilities of this type; but does provide site specific air quality studies required by the guidelines in-lieu of meeting the separation distances. Some homes appear to be within 100 m of the site operations, but the air quality study indicates the impacts at these homes are within acceptable MOE standards. As such, the application does indirectly address and meet the intent of the MOE D1-D6 guidelines.

3.0 AIR QUALITY ASSESSMENT – REVIEW

The September Air Quality report prepared by SENES for the proposed Hunsberger Pit operations is generally well done. The methodology and approach meet acceptable current practice. Overall, the report uses appropriate emission estimating methods and dispersion modelling (ISC). The report addresses all of the key particulate impact parameters (total particulate, PM₁₀, PM_{2.5} and dustfall). The conclusions reached in the report; that the operations can operate within accepted MOE standards is appropriate.

As the report implies, careful attention to operational details and dust control are essential. Without strict adherence to mitigation, unacceptable impacts will occur. As such, details of the Best Management Plan are important.

There are a number of questions and issues related to the Air Quality report that should be clarified or improved.

There are discussed in detail in the following table.

Table 1: Review of Air Quality Assessment

Statement or Issue	Location in Air Quality Study (or Planning Study (PR)	Discussion	Significance
1. Selecting background air quality	Section 2.1	Report uses the Point Petre background station and then adjusts for agricultural activities in the area. The resulting background estimates seem reasonable, but we would suggest a closer look at other MOE or Environment Canada stations to see if other rural stations may be more appropriate.	Background used seems reasonable. Further confirmation from other stations would strengthen the assessment.
2. Other sources in the area.	Section 2.1 (not discussed in the Planning Report either)	There are currently at least 2 other pit proposals for the area. This air quality study does not consider this.. It is also not clear how this should be addressed in any specific study.	Very significant, but not clear how any specific application should address. These are not existing, but proposed. Township should discuss with various proponents how to address the

Statement or Issue	Location in Air Quality Study (or Planning Study (PR))	Discussion	Significance
			cumulative impact.
3. Operations	Section 3.3 PR Page 36 and 24.	<p>The maximum emissions/impacts were based on an estimated maximum extraction of 2700 tonnes/hour. While the estimate for this seems reasonable, there is no indication in the planning report or site plans that this is an operational maximum. The other applications indicate instead an annual maximum. In the planning report and in Table 3.1 of the air quality report it is noted that asphalt and concrete will be brought to site to be crushed. It is not clear if this has been assessed in the emissions.</p> <p>The Air Quality report indicates a maximum hourly extraction rate of 225 tonnes per hour. It is not clear if all of the 225 tonnes requires crushing (it would appear the emission estimates assume it all is). This would overestimate potential impacts.</p>	A commitment that the daily maximum not exceeds 2700 tonnes should be included in site plans or be a commitment as a maximum daily production limit in the Certificate of Approval air.
4. Operations	Section 3.3 PR Page 36	The air quality report was updated as a result of changes to assumptions in truck weights (assumed 35.7 tonnes in the initial report, this was changed to 25 tonnes load). The air quality report now reflects a higher truck traffic count and a lower daily maximum. This is currently not consistent with the Planning Report dated March 2009.	Editorial; assuming any approvals are granted on the updated numbers, not the original numbers.
5. Operations	Section 3.3	It is also not clear if there is a limit to how much material can be	Dust impacts will be greater if there is a significant amount of

Statement or Issue	Location in Air Quality Study (or Planning Study (PR))	Discussion	Significance
		brought to site for processing.	off-site materials brought to the site for crushing and processing. This should be addressed through controlling the amount of offsite materials coming to site and ensuring the air quality assessment includes these materials. (note: this might also impact the estimated truck traffic on site and on nearby roads)
6. Meteorological Data	Section 3.2	<p>It is not clear if the meteorological data set has been “adjusted” to account for calm conditions as per current MOE requirements. Based on the wind rose showing 9.7% calms, it is likely that the assessment did not adjust for calms.</p> <p>MOE is requiring a very conservative adjustment to treat calm conditions. Though there is some controversy over this, it is being used by MOE to demonstrate compliance with standards.</p> <p>MOE also allows for discounting of the 8 highest hours and the highest 24-hour in each modelled year. This has not been done.</p>	<p>Results could be higher if calms have not been adjusted as per MOE guidance.</p> <p>Eliminating some of the highest modelled results (as per MOE guidance) would lower maximum impacts.</p>
7. Operations	Section 3.3 PR page 36	Winter operations. Modelling was done for the entire year to be conservative (though scaled for reduced winter activity). As such,	Not significant. This assumption would lead to potential over

Statement or Issue	Location in Air Quality Study (or Planning Study (PR)	Discussion	Significance
		<p>maximums might be modelled when operations are not occurring.</p> <p>It should be noted this is inconsistent with the planning report which indicates the pit only operates for 220 days per year and is closed during the winter.</p>	<p>predicting impacts.</p>
8. Emissions	Section 3	<p>Control on crusher. It would appear that the extracted material is considered to have high moisture. As such, the emission factors for “controlled” (i.e. wet) material were applied. This is appropriate but further confirmation is required that the crushed material will always be sufficiently moist to be considered controlled. Alternatively, provision should be made to allow for water spraying if materials are dry and dust emissions are noted. (emissions for dry crushing are about 5 times higher than wet crushing)</p> <p>This is also very important for crushing of off-site materials (e.g. concrete). It is unlikely this will have sufficient moisture to be considered as a controlled emission.</p>	<p>Could be significant. If dry material is crushed high dust emissions could occur.</p> <p>Water suppression should be included on the crusher to ensure control.</p>
9. Emissions and control	Off-site roads; Section 3	<p>The is no discussion or mitigation proposed to ensure that if there is any tracking of material onto offsite roads (Katherine Street and Hunsberger) that Hunder will clean the road.</p> <p>We accept that by paving the</p>	<p>Possibly significant.</p> <p>Provisions for cleaning the nearby roads should be developed and included in the BMP.</p>

Statement or Issue	Location in Air Quality Study (or Planning Study (PR))	Discussion	Significance
		<p>access roads to the public roads, this will be minimized, off-site tracking of material could still occur. We would suggest the BMP include provisions for off-site road cleaning as well.</p> <p>We recognize that this is complicated by requiring agreement with the Region to allow road access for cleaning.</p> <p>As such, the off-site roads should be included in the BMP and if dust is noticed, further control should be undertaken.</p>	
10. Emissions and control	Off-site Road; Site Entrance	<p>Katherine Street has unpaved shoulders along the stretch of road where the site access occurs. The planning report states that no road changes will be necessary (we do not know if this has changed as a result of the increased truck estimates).</p> <p>Often trucks or other vehicles will use the shoulders to either pass stationary vehicles (e.g. trucks turning) or to accelerate (e.g. trucks leaving the site). Unpaved shoulders are not always well maintained and are usually not part of a dust mitigation plan. These unpaved surfaces can create significant dust emissions and impacts.</p>	Recommend that the unpaved shoulders along Katherine Street either be paved (and maintained) or become part of the BMP with regular maintenance and watering as necessary. Agreement with the Region would be required to allow Hunder to undertake these activities.
11. Modelling	Section 3.5	Impacts can vary due to elevation differences. It is not clear why the report considers a flat terrain. Terrain data is readily available	Recommend including terrain in the modelling assessment.

Statement or Issue	Location in Air Quality Study (or Planning Study (PR))	Discussion	Significance
		through MOE websites.	
12. Mitigation	<p>AQ Section 4.4</p> <p>PRT page 26, 30</p> <p>Site Plans</p>	<p>The report indicates that trees and vegetation are relatively effective barriers to dust dispersion. Though this is not easy to quantify, studies have shown this can be significant in reducing ground level dispersion. We agree with this conclusion.</p> <p>The PR and site plans indicate that the berms will vegetated with legumes (grass type).</p> <p>The grasses would not be as effective in dust reduction as taller bushes.</p>	We would recommend consideration of bushes or other vegetation that was taller than grass in strategic locations on the berms to minimize dust impacts at critical receptors.
13. BMP Plan.	Attachment E Air Quality Report.	<p>The BMP plan provides an excellent framework for control of dust emissions.</p> <p>The plan does require the following additional details:</p> <ul style="list-style-type: none"> • A minimum daily inspection to observe dust emissions from traffic and operations. Visible dust from any operation needs to trigger mitigation. Using visual triggers allows both the operator and other agencies to determine if dust control is adequate. • Some actions are required based on temperature and wind speed. No details provided on how this will be managed? Record keeping should be 	Significant. Dust can be well controlled, but requires a detailed plan for control triggers, initiation of mitigation and record keeping.

Statement or Issue	Location in Air Quality Study (or Planning Study (PR))	Discussion	Significance
		<p>included as well. (Note: commitment to “no visible” emissions overcomes some of the complexity of mitigation schemes based on meteorological observations).</p> <ul style="list-style-type: none"> • BMP should also include off-site roads. There may be track out and this needs to be controlled. As well, unpaved shoulders near the site entrance could result in high dust emissions. • Complaint form should include description of meteorological conditions and operations at time of complaint. • Complaint form has a “none” for actions taken. If none is checked, explanation should be required as to why not. Too often these show complaint, and no action taken. • Records should be made available to the Municipality upon request 	
14. Monitoring	Not discussed	We would not recommend actual long-term air quality monitoring for this site. Real time monitoring is very expensive and siting of the monitors to ensure maximum impacts are captured is always difficult. Integrating (i.e. standard	Visual “monitoring” and reporting should be included in the BMP. This is the most appropriate mechanism to ensure

Statement or Issue	Location in Air Quality Study (or Planning Study (PR))	Discussion	Significance
		<p>hi-volume) monitors are not appropriate. They require days to obtain results and only provide a retrospective look at impacts and mitigation. Visual “monitoring” on an ongoing basis to ensure no visible plumes of dust come from operations and traffic is the most appropriate monitoring to ensure appropriate mitigation and minimize off-site impacts.</p>	<p>appropriate mitigation.</p> <p>Visible monitoring also allows for others (inspectors, Town, Region, even nearby residents) to confirm that mitigation is occurring and is effective.</p> <p>We would recommend that specific “confirmation” sampling be done with appropriate equipment at times when there are significant changes at the site, or during extreme weather conditions. This would be used to calibrate the BMP to ensure that the plan is adequate.</p>

4.0 CONCLUSIONS

The air quality study demonstrated that with appropriate mitigation, the proposed Hunsberger site can operate within air quality standards and criteria set by the Ministry of the Environment. A key issue that could not be addressed in the study, but must be considered for this approval is the potential cumulative effect of two other pit proposals in the area.

There are a few areas in the report that we would recommend improving and a number of inconsistencies between the air quality report, site plans and the planning report that need to be addressed. These are detailed in the previous section. These should not significantly change the conclusions.

It is not clear if the recycling of asphalt and concrete has been considered in the assessment. No limits on the amount of off-site materials that might be processed are indicated. The extra materials need to be assessed and limits on the amount of processing set.

We would also recommend that the Town seek assurances from Hunder that a Certificate of Approval (Air) be obtained for the site.

The Best Management Plan is key to both ensuring the necessary mitigation is undertaken and the monitoring to show that the plan is implemented. The proposed BMP covers most key areas, but should be improved to provide further details on the plan and operational details and reporting to ensure the plan can and will be followed. These recommendations are detailed in the previous section. None of these improvements should be difficult for Hunder to include.

We would not recommend actual long-term air quality monitoring for this site. Real time monitoring is very expensive and siting of the monitors to ensure that maximum impacts are captured is always difficult. Integrating (i.e. standard hi-volume) monitors are not appropriate. They require days to obtain results and only provide a retrospective look at impacts and mitigation. Visual "monitoring" on an ongoing basis to ensure no visible plumes of dust come from operations and traffic is the most appropriate monitoring to ensure appropriate mitigation and minimize off-site impacts. We would recommend that specific short term "confirmation" sampling be done with appropriate equipment at times when there are significant changes at the site, or during extreme weather conditions. This would be used to calibrate the BMP to ensure that the plan is adequate and protective of air quality.