



**church & trought inc.**  
environmental and engineering solutions

## **DUST MANAGEMENT PLAN**

**Sebright Quarry  
City of Kawartha Lakes**

Prepared for:  
**Giofam Investments Inc.**  
**Sebright Quarry**  
c/o VicDom Sand & Gravel Ltd.  
3444 Brock Road North, Box 1359  
Uxbridge, Ontario  
L9P 1N6

Prepared by:  
**Church & Trought Inc.**  
106 – 885 Don Mills Road  
Toronto, Ontario M3C 1V9  
Phone (416) 391-2527  
Fax (416) 391-1931

CTI Project P3598  
April, 2011

## **Executive Summary**

The following document presents a Dust Management Plan (DMP). The DMP has been prepared for the proposed Sebright Quarry, to be located on Part of Lots 18 through 21, Concession 4, and Part Lots 19 and 20, Concession 5, in the Township of Dalton, City of Kawartha Lakes. This document fulfills the requirements of an Ontario Ministry of the Environment “Best Management Practices Plan” describing measures to minimize dust emissions from quarry operations.

The DMP identifies all potential sources of fugitive dust emissions generated from daily quarry operations and details procedures and practices that will be implemented to reduce the release of dust to the atmosphere. The DMP further specifies monitoring, record keeping, and contingency plans in order to maintain a lasting and effective dust mitigation program.

A copy of the DMP will be kept on file at the scale house and will be followed at all times by staff during Quarry operations.

## TABLE OF CONTENTS

### Executive Summary

<b>1.0</b>	<b>Introduction</b> .....	<b>1</b>
<b>2.0</b>	<b>Emission Sources</b> .....	<b>2</b>
	2.1 Overview of Quarry Operations .....	2
	2.2 Dust Emission Sources .....	2
<b>3.0</b>	<b>Control Measures</b> .....	<b>3</b>
	3.1 Aggregate Screening and Crushing .....	3
	3.2 Unpaved Roads .....	3
	3.3 Paved Roads .....	3
	3.4 Truck Loading and Transport .....	4
	3.5 Wind Erosion and Exposed Faces .....	4
	3.6 Rock Drilling .....	4
<b>4.0</b>	<b>Implementation</b> .....	<b>5</b>
	4.1 Schedule .....	5
	4.2 Implementation Plan .....	5
<b>5.0</b>	<b>Inspection and Maintenance</b> .....	<b>6</b>
	5.1 Maintenance .....	6
	5.2 Identification of Problems .....	6
<b>6.0</b>	<b>Monitoring and Record Keeping</b> .....	<b>7</b>
<b>7.0</b>	<b>Response to Complaints</b> .....	<b>8</b>
<b>8.0</b>	<b>Conclusion</b> .....	<b>9</b>

## 1.0 Introduction

A Dust Management Plan (DMP) has been prepared for the proposed Sebright Quarry (Quarry), to be located on Part of Lots 18 through 21, Concession 4, and Part Lots 19 and 20, Concession 5, in the Township of Dalton, City of Kawartha Lakes. The DMP is a detailed document that identifies fugitive dust sources and describes measures to be used to control dust emissions to the atmosphere.

The primary air emission associated with quarry operations is particulate matter released in the form of fugitive dust. Sources of dust can include traffic from on-site haul routes, aggregate processing and handling, and natural releases occurring from exposed stockpiles and rock faces.

To limit the transfer of dust to neighbouring properties, the operator must take all reasonable actions to ensure that fugitive dust emissions are minimized using the best management practices associated with the industry. The Ontario Ministry of the Environment refers to these measures to mitigate dust as a “Best Management Practices Plan”.

The objectives of this DMP are to:

- Provide an overview of the operations at the Site and identify potential sources of fugitive dust;
- Discuss dust control measures and implementation frequency for each of the identified sources;
- Outline maintenance and inspection procedures;
- Illustrate how on-going compliance is ensured through the use of a monitoring and record keeping program; and
- Detail the employee training program for fugitive dust control procedures.

Once implemented, the DMP will serve to minimize all dust emissions from the quarry, so that the risk to human health and the potential for offsite nuisance is also minimized.

## 2.0 Emission Sources

### 2.1 Overview of Quarry Operations

The Quarry will primarily produce specialty aggregate extracted from hard granitic gneiss for high speed highway asphalt. Other aggregate products will also be produced to optimize resource utilization. Operations including loading, shipping and processing, will occur during the hours of 7 AM and 7 PM Monday to Friday, and Saturday from 7 AM until noon. Daily operations within the Quarry will consist of the following activities:

#### Aggregate Extraction

Rock will be loosened by drilling and blasting operations. Aggregate material will be transferred by front-end loader to a crushing plant at the quarry face or to quarry trucks and transported to the processing plant elsewhere on the site.

#### Aggregate Processing

Screening and crushing of aggregate will occur at the processing plant. The processing will be used to crush the aggregate and separate the material into its desired size. The crusher product and undersized material are then discharged onto a belt conveyor and conveyed to a surge pile for temporary storage. Aggregate in the surge pile may be further screened as needed.

#### Shipping

A front-end loader loads highway trucks for shipment of aggregate off-site. Trucks are weighed at the scale house before leaving the Quarry.

### 2.2 Dust Emission Sources

The potential sources of fugitive dust emissions from the Quarry include:

- Wind erosion of exposed stockpiles and faces;
- Release of particulate from blasting, drilling, aggregate crushing, screening, and conveying;
- Mobile equipment, including scrapers, excavators, loaders, dozers, and trucks;
- Truck traffic along roadways within the Quarry;
- Truck traffic along the access road from Monck Road to the Quarry Entrance;
- Truck loading and on-site intermediate truck transportation; and
- Off-site highway truck transportation.

Chapter 11 of the US EPA AP-42 document characterizes fugitive dust from stone crushing and aggregate handling as three (3) forms of particulate matter: PM, PM<sub>10</sub> and PM<sub>2.5</sub>. PM is representative of total particulate matter. PM<sub>10</sub> and PM<sub>2.5</sub> is the respirable fraction of particulate and can have an impact on human health.

## **3.0 Control Measures**

### **3.1 Aggregate Crushing and Screening**

- The processing plant shall be equipped with a water spray system capable of supplying up to 1000 litres / hour of water. The actual water application rate shall vary, being adjusted as needed to reduce visible dust emission.
- Water for the spray system will be provided from the sump or settling pond.
- The spraybars will be triggered whenever the site manager or scale operator observes visible dust emissions.
- Where possible, the height of lifts and discharge distances to the top of the stockpile will be kept to a minimum.

### **3.2 Unpaved Roads**

- A truck or trailer mounted tank will be located on site at all times and shall be equipped with a spray bar to deliver water or another approved dust suppressant evenly over the haul route surface.
- Dust suppressant supply shall be available to allow the tanker truck to fill and apply the full payload each hour, if necessary, during dry conditions.
- The actual application rate shall vary, depending on surface moisture conditions and traffic conditions, and shall be triggered whenever the site manager or scale operator observes trucks producing a trailing cloud of dust greater than 1/3 of a trailer length.
- Haul routes shall be re-graded approximately monthly during May to October, to ensure that loose fine material on the haul route surface is minimized.
- Trucks and other mobile equipment shall reduce speed as necessarily to reduce trailing dust clouds. The maximum speed will be 30 km/hr.

### **3.3 Paved Roads**

- The facility shall have the capability to spray water or other approved dust suppressants on paved surfaces on-site, as well as roads near the quarry entrance as needed. Environmentally hazardous compounds such as waste oil shall not be used as a dust suppressant.
- The actual application rate shall vary, depending on surface moisture conditions and traffic levels, and shall be triggered whenever the scale operator or site manager observes trailers producing a trailing cloud of dust greater than 1/3 of a trailer length.
- Haul routes shall be maintained during Quarry operations, to ensure that loose fine material on the haul route surface is minimized.
- Trucks and other mobile equipment shall reduce speed as necessarily to reduce trailing dust clouds. The maximum speed will be 30 km/hr.

### **3.4 Truck Loading and Transportation**

Truck loading will be suspended if the site manager or scale operator observes the material to be dry and dusty and the wind is directed toward a residence at a speed greater than 30 km/h or otherwise sufficient to cause wide-spread visible emissions.

The highest point of the material loaded into a truck shall not exceed the vehicles tray walls unless it is covered.

### **3.5 Wind Erosion of Exposed Faces**

Extraction shall be suspended if the condition of the quarry face is dry and dusty and the wind is directed toward a residence at a speed greater than 30 km/h or otherwise sufficient to cause wide-spread visible erosion of the open face.

Aggregate stockpiles will be located on the Quarry floor in close proximity to the extraction face or in the stockpile area.

Wind forecasts shall be monitored regularly during this phase of the operation to anticipate the need for these measures and allow for next day planning.

### **3.6 Rock Drilling**

Primary and secondary dust collectors will be employed on the rock drill to minimize the emissions of fine dust particles. The dust collectors will be maintained to the manufacture's specifications.

## **4.0 Implementation**

### **4.1 Schedule**

All control measures are to be in place prior to extraction. Control measures shall remain in place so long as the Quarry remains in operation.

### **4.2 Implementation Plan**

The following outlines how the DMP shall be implemented, including training of facility personnel:

- The DMP shall be kept on file at the scale house;
- Training on new and existing operating procedures shall be provided to relevant staff;
- Refresher training shall be provided at a minimum of once every 3 years;
- The Quarry management shall communicate the DMP to responsible supervisors, who shall ensure staff are following operating procedures defined in the DMP;
- The Site Manager shall be responsible for ensuring the DMP is followed;
- Management shall ensure DMP is reviewed annually; and
- The staff shall follow the DMP procedures.

## **5.0 Inspection and Maintenance**

### **5.1 Maintenance**

The following outlines the details regarding the inspection and maintenance procedures that shall be employed at the site:

- The water spray system for the processing plant will be inspected when in use;
- Haul routes shall be maintained on a regular basis as previously indicated; and,
- Dust collectors on the rock drills shall be cleaned as needed based on usage.

### **5.2 Identification of Problems**

The Site Operator shall be informed of any issues that arise from inspections performed. Operations may be curtailed if dust control equipment is not adequately performing.

## 6.0 Monitoring and Record Keeping

Visual inspection for dusty conditions in areas of emission sources identified in the DMP shall occur at a minimum of twice daily during dry weather and once per day otherwise. Records shall be made each time the following events occur:

- Dust suppressant is applied to paved and unpaved haul routes;
- Unpaved haul routes are maintained;
- Water sprays are used at the processing plant;
- Wet or vacuum-sweeper arrives and cleans paved surfaces;
- Heavy dust plumes are observed; and,
- A complaint is received.

Records will be kept onsite in a logbook.

If a complaint is received the Quarry shall notify the MOE District Manager, in writing, of each environmental complaint within two (2) business days of the complaint. The notification shall include:

- a description of the nature of the complaint;
- the time, date, and location of the incident;
- the wind direction and weather conditions at the time of the incident; and
- the names of Quarry personnel responsible for handling the incident

The Quarry will have an action plan with regards to its operations in response to a complaint, and is detailed in the following section.

## 7.0 Response to Complaints

Signs shall be placed outside the Quarry providing a phone number for citizens to call should they have any dust concerns. The Quarry will request that the MOE District Office and/or City of Kawartha Lakes notify them immediately if they receive a complaint to allow for prompt company response and follow-up.

Complainants are requested to identify the location of the incident as well as the time of day that it was detected and any other relevant information. All dust complaints shall be forwarded to the Site Manager and recorded in the logbook as identified in the previous section.

The Site Manager shall then ensure the following steps:

- Conduct a site survey to identify sources of visible dust contributing to the complaint;
- Create a record of this survey;
- Determine weather conditions (both current and at the time that the complaint was made) and report on all on-site activities at the time the complaint was made.

If the information collected from the survey procedures indicates that Quarry is not the source of the dust complaint, the complainant shall be notified of this finding. Documentation supporting this response mechanism (site survey record and wind station readings at the time of the complaint) shall be provided to the complainant upon request. The Site Manager or other Quarry staff shall respond to all complaints within 24 hours with a phone call to the complainant.

If it is determined that the complaint is related to Quarry activities, the following response procedures shall be followed, in the order provided below:

**Level 1 – Inspection and correction of operations:** The Site Manager shall ensure that all elements of the DMP are being followed. Control measures such as spraying shall be increased or operations may be curtailed, as required.

**Level 2 – Review of the DMP:** If the Level 1 response does not adequately resolve the source of the dust complaint, the DMP shall be reviewed for additional control measures.

**Level 3 – Operational modifications:** If the Level 2 response does not adequately resolve the source of the dust complaint, the Quarry shall commit to making physical changes to the facility to address the source of the dust emissions. Such changes may include, but are not limited to additional enclosures, relocation of equipment, or additional paving.

## 8.0 Conclusion

This document fulfills the requirements of an Ontario Ministry of the Environment “Best Management Practices Plan” describing measures to minimize dust emissions from quarry operations. The Quarry will implement and fully abide by these measures to successfully control on-site dust emissions. Record keeping, inspections and oversight will ensure an effective dust mitigation program throughout the lifespan of operations at the Quarry.

The DMP will serve to minimize all dust emissions from the quarry, so that the risk to human health and the potential for offsite nuisance is also minimized.