

Odour Management Plan

For Metro Vancouver Staff Review Only



ALL ROADS CONSTRUCTION INC.

Prepared by:
Envirochem Services Inc.

Prepared for:
All Roads Construction Inc.

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TABLE OF CONTENTS

1	INTRODUCTION	1
1.1	ODOUR MANAGEMENT APPROACH	1
1.2	CONTACT INFORMATION	2
1.2.1	Facility Name and Address.....	2
1.2.2	Contact Information.....	2
2	SOURCES ON SITE	3
2.1	POTENTIAL ODOUR EMITTING SOURCES.....	3
2.1.1	ES-01	5
2.1.2	ES-02	5
2.1.3	ES-16	6
3	ODOUR PREVENTION/MITIGATION	7
3.1	ADMINISTRATIVE CONTROLS	7
3.1.1	Staff Training Procedures.....	7
3.1.2	Recordkeeping Systems and Forms	8
3.2	ENGINEERING CONTROLS	8
3.2.1	Blue Smoke Capture System	8
3.2.2	AC Storage Tank Condensers	9
4	COMPLAINT TRACKING SYSTEM	10
	LIMITATIONS	11
	APPENDIX A – COMPLAINT HANDLING SOP.....	12

LIST OF TABLES

Table 1: Emission Sources on-site.....	3
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LIST OF FIGURES

Figure 1: Site Layout at All Roads.....	4
Figure 2: Drum Burner/Dryer System (left) and HMA Silos (right).....	5
Figure 3: Asphalt cement (AC) storage tanks	6
Figure 4: HMA loadout.....	6
Figure 5: Blue Smoke Capture System	9

1 INTRODUCTION

All Roads Construction Ltd. (All Roads) retained Envirochem Services Inc. (Envirochem) to review the operation of their Hot Mix Asphalt (HMA) plant located in Coquitlam B.C. for the preparation of an Odour Management Plan (OMP) as part of the company's environmental management system, and to satisfy a requirement of their Metro Vancouver Air Quality Permit (GVU1184). This OMP provides an overview of the potential odour sources at the All Roads site, the controls implemented to reduce/mitigate odours, and actionable guidance to promote best practices and develop continual improvement strategies. This plan is based on information provided by All Roads, third parties and site visits/inspections.

1.1 ODOUR MANAGEMENT APPROACH

All Roads' goal is to operate its HMA facility as a good citizen and neighbour. While there may be a potential for odours to be generated from typical asphalt production process, All Roads intends to avoid emitting objectionable odours. The purpose of this OMP is to provide actionable guidance. The methods and technology in this OMP are designed to be continuously updated and improved.

The odour management approach outlined in this document is structured following the principles of ISO 14001 (e.g., "plan-do-check-adjust"). Consequently, this plan provides a process for evaluation, assessment and correction, and a format for identifying any areas that may need adjustment to prevent and/or reduce odours.

This OMP is a tool to reduce or control potential odours whilst maintaining effective operations. It seeks to balance, where practical, all aspects of its operations and is designed to assist operators in how to manage and mitigate the potential emission of objectionable odours outside the HMA facility boundary.

This OMP is designed to be proactive rather than reactive. This pattern of odour management is best described as:

- Operate to minimize the potential escape of objectionable odours beyond the facility boundary and self-diagnose and self-regulate odour prevention and control;
- Assess odour and odour causing conditions under a number of operating conditions;
- Evaluate findings and respond by adjusting the HMA facility or the operating plan to prevent and minimize odours.
- Re-evaluate and adjust operations as necessary on an iterative basis.

1.2 CONTACT INFORMATION

1.2.1 FACILITY NAME AND ADDRESS

All Roads Construction Ltd.
2320 Rogers Avenue
Coquitlam, BC V3K 5X7

1.2.2 CONTACT INFORMATION

Rod Stephens, President
Rod@allroadsconstruction.com

Dennis Eby, Asphalt Plant Manager
D.Eby@allroadsconstruction.com

2 SOURCES ON SITE

As part of All Roads' odour management approach, the emission sources at the All Roads facility were assessed and potential odour emitting sources identified. A summary of the authorized emission sources at the All Roads facility (as per Metro Vancouver approval GVU1184), including identification of potential odour emitting sources, is provided in **Table 1** below. Emissions sources at the All Road's facility will be continually assessed for potential for odour and table/OMP updated accordingly.

Table 1: Emission Sources on-site

Source ID	Description	Potential for Odour
ES-01	Natural gas-fired warm mix, hot mix asphalt (HMA) drum burner and aggregate dryer filtered through a baghouse discharging through a Stack	✓
ES-02	Natural gas-fired hot oil heater used to heat three hot mix asphalt (HMA) silos and two asphalt cement (AC) storage tanks discharging through a Stack	✓
ES-03	Aggregate transfer from barge to dump truck using front-end loader	-
ES-04	Aggregate transfer from dump truck to aggregate stockpile	-
ES-05	Aggregate transfer from stockpile to hoppers using front-end loader	-
ES-06	Aggregate transfer from hopper to conveyor belt	-
ES-07	Aggregate transfer from collector conveyor to scalping screen	-
ES-08	Aggregate scalping screening operations	-
ES-09	Aggregate transfer from scale conveyor to drum conveyor	-
ES-10	Pre-crushed RAP delivered to site and dumped from truck onto stockpile	-
ES-11	RAP transfer from stockpile to hopper using front-end loader	-
ES-12	RAP transfer from hopper to conveyor belt	-
ES-13	RAP transfer from collector conveyor to scalping screen	-
ES-14	RAP scalping screening operations	-
ES-15	RAP transfer from scale conveyor to drum conveyor	-
ES-16	HMA Load-out to truck	✓

2.1 POTENTIAL ODOUR EMITTING SOURCES

As seen in **Table 1**, three (3) sources (ES-01, ES-02, and ES-16) were identified to contain processes/activities with potential for odour.

These sources (and the potential odour generating processes/activities associated with them) are described in sections **2.1.1**, **2.1.3**, and **2.1.3** and are marked in **Figure 1** below.

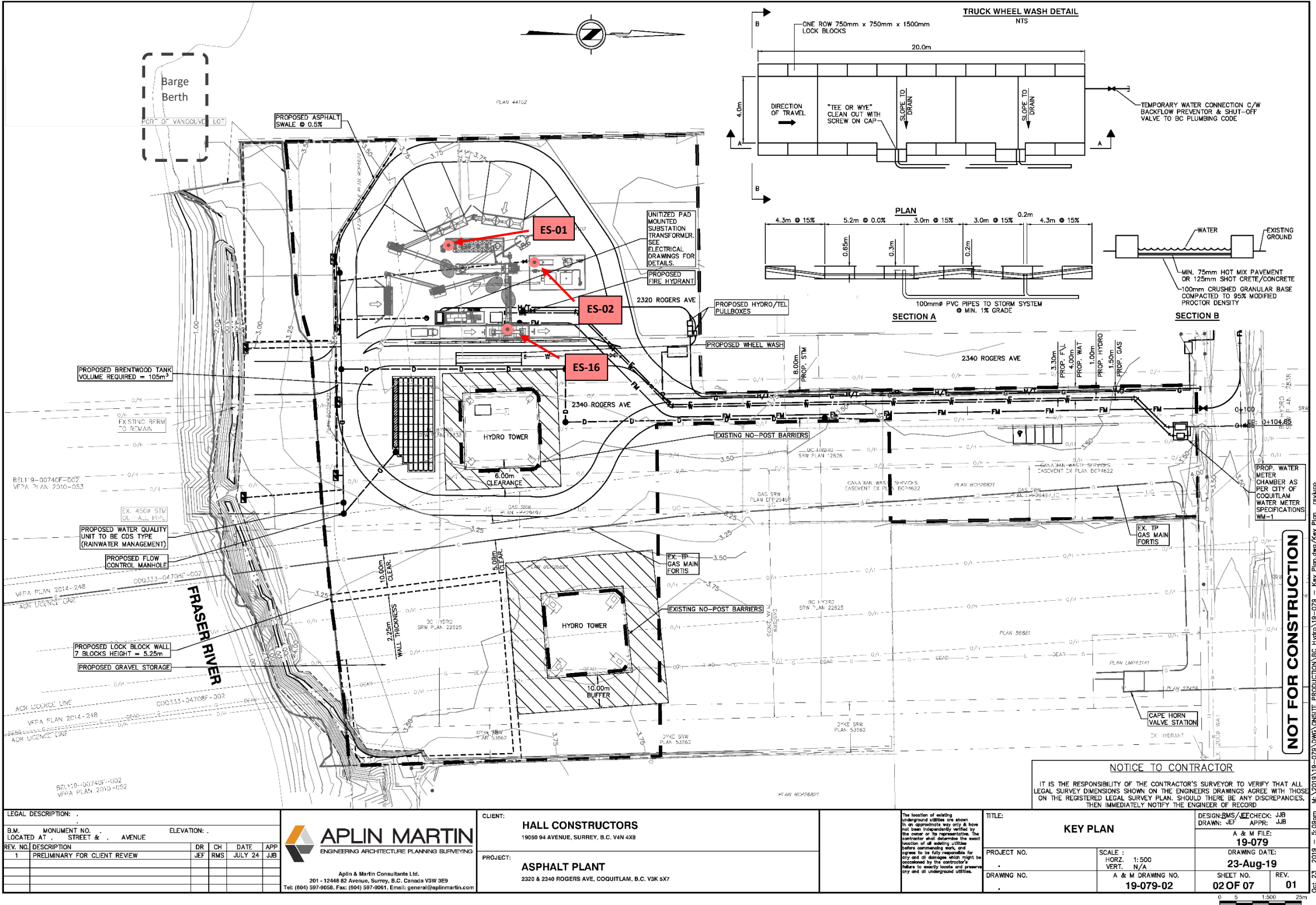


Figure 1: Site Layout at All Roads

2.1.1 ES-01

Potential odours associated with source ES-01 are generated from typical HMA processing operations (e.g. drying and mixing operations).

The drum burner (shown in **Figure 2**) takes inputs of aggregate, reclaimed asphalt pavement (RAP), and asphalt cement (AC), where they are mixed at temperatures ranging from 135°C to 165°C to produce Hot Mix Asphalt (HMA) and Warm Mix Asphalt (WMA). HMA is then transported by an enclosed slat conveyor to three (3) HMA silos for storage (shown in **Figure 2**). As material is processed, and HMA is transferred/stored, blue smoke (a gas comprising of hydrocarbons, other off gases, and potentially odourous vapours) may be generated.

Blue smoke generated from HMA processing operations are captured and destroyed by a Blue Smoke Capture System (as described in section 3.2.1).



Figure 2: Drum Burner/Dryer System (left) and HMA Silos (right)

2.1.2 ES-02

Source ES-02 consists of a natural gas-fired hot oil heater used to heat three hot mix asphalt (HMA) silos and two asphalt cement (AC) storage tanks (shown in **Figure 3**). As the AC is heated in the storage tanks, hydrocarbon vapours consisting of potentially odourous compounds are generated.

Condensers fitted to the AC storage tanks (as described in section 3.2.2) are used to contain vapours (and potentially odourous compounds).



Figure 3: Asphalt cement (AC) storage tanks

2.1.3 ES-16

Once ready to be transported offsite, HMA product is unloaded from the HMA storage silos onto truck beds for distribution (shown in **Figure 4**). Loadout is completed directly onto truck beds from the bottom of the storage silos.



Figure 4: HMA loadout

During the loadout process, residual vapours/odours from material processing may be released from the bottom of the storage silos. Although HMA loadout operations are considered to have a low potential for odour (based on the completed odour assessment), this source will be continually assessed for potential for odour and additional measures introduced as necessary.

3 ODOUR PREVENTION/MITIGATION

Odour prevention/mitigation measures at All Roads range from operating procedures to engineering controls. The procedures/controls implemented at the All Roads facility are described in the following sections.

3.1 ADMINISTRATIVE CONTROLS

Odour mitigation strategies at All Roads begin with good operating practices. The facility has been specifically designed to ensure any potential odours are contained within the facility boundary, and employees are trained in odour prevention awareness. Please note the All Roads facility has a low potential for odour at the site boundaries. Noticeable HMA related odours will be identified and addressed accordingly. Routine equipment checks/maintenance will also be completed to ensure good working order. The facility manager will be responsible for implementation of this plan and assigning specific duties as required.

3.1.1 STAFF TRAINING PROCEDURES

All Roads is responsible for overseeing implementation of the OMP and ensuring compliance. Management and site personnel will be required for various tasks relating to the OMP. These will be assigned based on expertise and proximity to the assigned area. All relevant (operational and/or health and safety) personnel will be trained to understand the various operations at the facility and plans in place.

All Roads has guidance to ensure that staff members, including workforce and contractors, are appropriately trained and competent to carry out and ensure optimal odour management performance. The procedure outlined below describes training related aspects of the OMP:

- Any employee of All Roads that has functional responsibility for odour management aspects will be trained as necessary relevant to their position or activities.
- In the event of promotions or new hires, the employee's previous training, education and skills are reviewed to develop an appropriate custom training program.
- As necessary, the operations and maintenance workforces receive "on-the-job-training" in the form of tool box talks.

3.1.2 RECORDKEEPING SYSTEMS AND FORMS

Documents pertaining to odour management (e.g., complaints/notifications, inspections, odour observations/notes, training documents/OMP updates, etc.) will be stored in the central filing system. In addition to paper files, electronic data files are located on the central company electronic database. Documents will be maintained so that they can be easily found, are adequate and up-to-date or dated, and so that any documents with significant aspects essential to operations are also available in the current version at the controlling location.

Documents that are no longer relevant will be stored in separate files and marked as obsolete or otherwise prevented from unintended use. Files stored for over 5 years may be shredded and recycled.

3.2 ENGINEERING CONTROLS

There are several different control technologies installed at the All Roads facility to control odours, including Blue Smoke Capture Systems and AC Tank Condensers. These odour abatement measures have been designed by the equipment vendor (Gencor Industries Inc.) to minimize emissions and have been successfully implemented at other facilities across Canada and the U.S.

The engineering controls present for odour mitigation are described in sections **3.2.1** and **3.2.2** below.

3.2.1 BLUE SMOKE CAPTURE SYSTEM

A Top Silo Blue Smoke Capture System will be utilized to eliminate blue smoke (a gas comprising of hydrocarbons, other off gases, and potentially odourous vapours) generated from/during HMA operations.

HMA exiting the drum burner and aggregate dryer system is transported via an enclosed slat conveyor to the top of one of three (3) HMA storage silos on-site. Hence, blue smoke/potentially odourous vapours are contained in the enclosed ducting that seals the HMA from the mix drum exit to the top of the HMA silo. A centrifugal fan is used to create negative pressure, drawing smoke/vapour into a knock-out box. The captured smoke/vapour is then injected into the mix drum burner where it is combusted as fuel.

An image of the Blue Smoke Capture System is provided in **Figure 5** for reference.

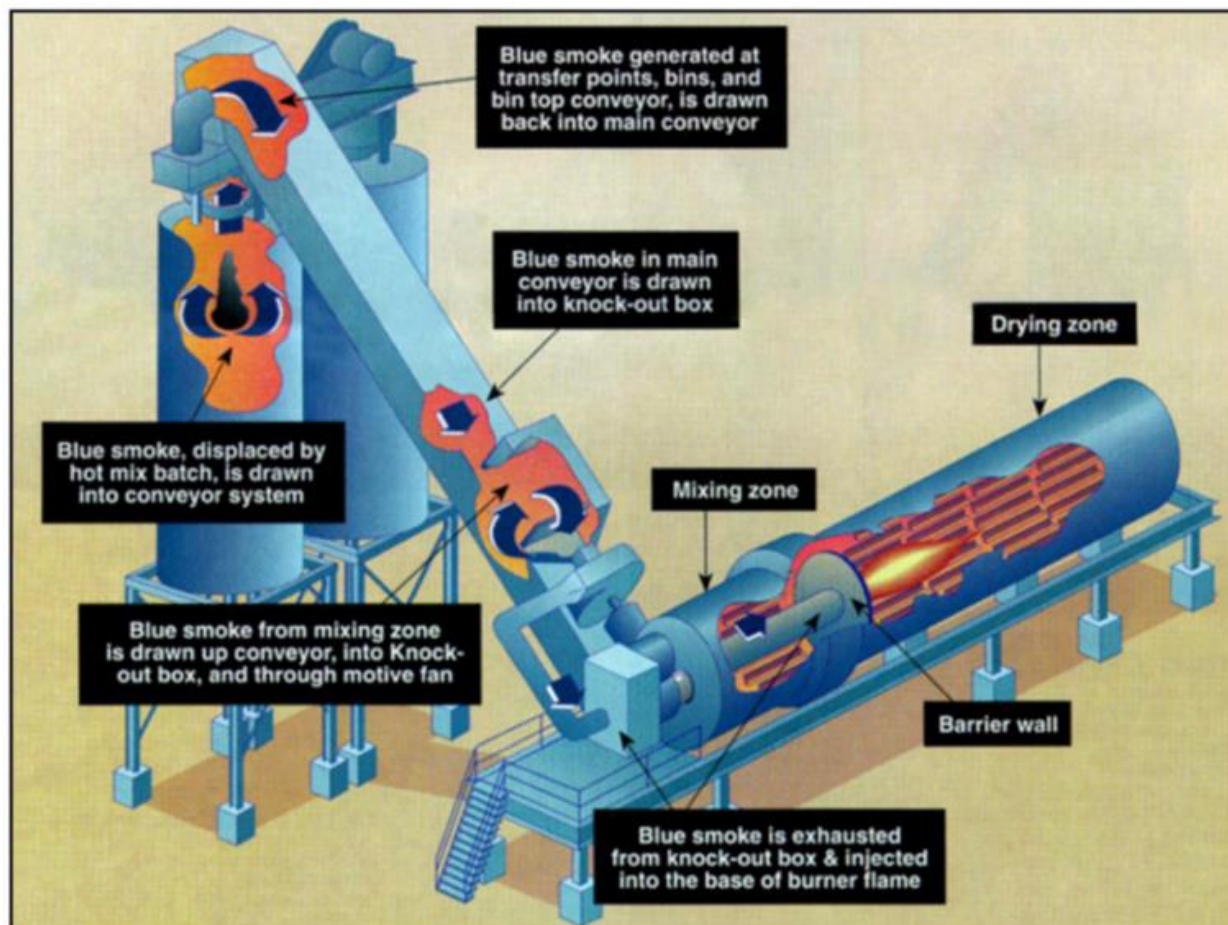


Figure 5: Blue Smoke Capture System

3.2.2 AC STORAGE TANK CONDENSERS

To prevent the release of vapours (and potentially odorous compounds) generated from AC storage, condensers (fitted to the AC storage tanks) will be used. Any vapours generated from AC storage will be condensed to a liquid and drained back into the tank, ensuring potential odours are contained.

4 COMPLAINT TRACKING SYSTEM

Should an odour complaint be received by All Roads Construction Ltd., an investigation will be launched into the root cause to assess if the odour is attributable to All Roads. If All Roads is determined to have caused the odour, a response plan will be put in place and necessary steps completed (including communicating relevant information to individuals in the surrounding community as required).

The complaint handling standard operating procedure has been attached to this OMP.

LIMITATIONS

This Plan is intended for the use of All Roads Construction Ltd. and is provided solely for Metro Vancouver own review and comment. This plan is not for the benefit of any third party. As it contains information that is confidential and proprietary to All Roads, the disclosure of which to any third party can reasonably be expected to cause material damage or loss to All Roads, please treat the Plan as confidential and do not disclose it in whole or in part to any third party without the prior written consent of All Roads.

Some conditions are subject to change over time and those making use of the plan should be aware of this possibility and understand that the plan only presents the conditions at the time of writing.

Any third-party recipient of this plan or user of any content contained herein uses this plan and its contents at its sole risk. Envirochem has relied upon information provided by All Roads and/or third parties to compile this odour management plan. Envirochem accepts no responsibility for any deficiency, misstatements or inaccuracy contained in this plan as a result of omissions, misstatements or fraudulent acts of persons interviewed.

APPENDIX A – COMPLAINT HANDLING SOP

STANDARD OPERATING PROCEDURE

Complaint Handling

STANDARD OPERATING PROCEDURE

CONFIDENTIAL AND PROTECTED

TITLE

Complaint Handling

RELEASE DATE

2020/12/14

EFFECTIVE DATE

2020/12/14

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STANDARD OPERATING PROCEDURE

Complaint Handling

1 PURPOSE

- 1.1** Define the process of handling external complaints related to All Roads Construction Ltd. ("All Roads").

2 IMPLEMENTATION

- 2.1** This procedure should be followed by all employees. This procedure provides guidelines for the handling of external complaints directed towards All Roads operations.

3 SCOPE

- 3.1** Applies to any employee or third party contracted by All Roads who receives a complaint related to All Roads on-site operations, including but not limited to odour and fugitive dust.

4 RESPONSIBILITIES

4.1 The Complaint Receiver is responsible for:

- 4.1.1** Acknowledging all complaints received.
- 4.1.2** Receiving the complaint in a manner that is respectful to the complainant. Proper complaint processing procedures (as outlined in this document) will be followed when a contracted third party, or any other All Roads employee is intaking the complaint from the complainant.
- 4.1.3** Logging the details of incoming complaints and forwarding information and relevant materials (e.g. emails, letters, voice messages) to the site compliance coordinator and/or All Roads management as applicable.

4.2 The Site Compliance Coordinator is responsible for:

- 4.2.1** Monitoring email for incoming complaints (e.g. info@allroadsconstruction.com) or other email as identified, or personal email of the site compliance coordinator.
- 4.2.2** Receiving on-site complainants in-person in a manner that is respectful to the complainant and logging the details of the complaint.
- 4.2.3** Ensuring all complaints logged are appropriately investigated.
- 4.2.4** Responding to all external queries regarding complaints.

STANDARD OPERATING PROCEDURE

Complaint Handling

4.2.5 Facilitating communications between relevant personnel regarding complaints.

4.2.6 Reviewing the findings of all complaint investigations and responding appropriately.

4.2.7 Forwarding details of closed complaint investigations to the General Manager and/or All Roads management as applicable

4.3 The General Manager is responsible for:

4.3.1 Ensuring that all on-site operations are compliant with Standard Operating Procedures and all applicable regulations.

4.3.2 Ensuring all complaints logged are appropriately investigated

4.3.3 Reviewing all complaint investigations to ensure investigations are thorough and timely, operations are compliant with Site SOPs and required regulations.

5 DEFINITIONS

5.1 Complaint: A complaint received related to on-site/facility operations (including but not limited to odour/fugitive dust) which is unrelated to product quality.

6 MATERIALS AND EQUIPMENT

6.1 Materials

6.1.1 N/A

6.2 Equipment

6.2.1 N/A

7 SAFETY AND ENVIRONMENTAL INFORMATION

7.1 No employee should perform any procedure without the appropriate SOP training. If an employee has any safety concerns with completing a task outlined in an SOP, the immediate supervisor should be notified. Under the provisions of the Canada Labour Code, R.S.C 1985 c. L2 employees have the:

7.1.1 The Right to Participate: Employees have the right and responsibility to participate in identifying and correcting job-related health and safety concerns through workplace health and safety committees or worker health and safety representatives.

STANDARD OPERATING PROCEDURE

Complaint Handling

- 7.1.2** The Right to Know: Employees have the right to be informed of known or foreseeable hazards in the work place and to be provided with the information, instruction, training and supervision necessary to protect their health and safety.
- 7.1.3** The Right to Refuse Dangerous Work: Employees have the right to refuse dangerous work if they have reasonable cause to believe that a condition at work presents a danger to themselves, and the use or operation of a machine or apparatus presents a danger to the employee or another employee and the performance of an activity constitutes a danger to the employee or to another employee. In order for, an employee to be protected by the Code, the employee must follow the proper procedure.

8 PROCEDURE

8.1 Receiving and Logging Complaints

8.1.1 When a complaint is received via email:

- 8.1.1.1** The individual who receives the complaint will forward the original email to the site Compliance Coordinator inbox, or if unknown, to the general/facility manager for logging and review. Relevant details are to be recorded in the 'Complaint Information Form'.
- 8.1.1.2** The individual who receives the complaint will respond to the incoming email acknowledging receipt of the complaint.
- 8.1.1.3** The individual who receives the complaint will relay to the complainant that their message has been forwarded to the appropriate parties for further investigation.

8.1.2 When a complaint is received via text-message/voice message:

- 8.1.2.1** The individual who receives the complaint will forward the messages (as applicable) to the site Compliance Coordinator for logging and review
- 8.1.2.2** The individual who receives the complaint will acknowledge their receipt of the complaint's message in a manner that is respectful to the complainant.
- 8.1.2.3** The individual who receives the complaint will relay to the complainant that their message has been forwarded to the appropriate parties for further investigation. Relevant details are to be recorded in the 'Complaint Information Form'.

STANDARD OPERATING PROCEDURE

Complaint Handling

8.1.3 When a complaint is received via phone:

8.1.3.1 The individual who receives the complaint will forward the call to the site Compliance Coordinator for logging and review.

8.1.3.2 If the complainant prefers, the individual who receives the complaint will provide the complainant with the appropriate contact details of the site Compliance Coordinator (email or other as applicable). Relevant details are to be recorded in the 'Complaint Information Form'.

8.1.4 When a complaint arrives on-site to speak to someone in-person:

8.1.4.1 The complainant will be directed to the Compliance Coordinator by whomever receives the complainant.

8.1.4.2 The Compliance Coordinator will receive the complainant, and acknowledge their concerns in a manner that is calm and respectful.

8.1.4.3 The Compliance Coordinator will log the details of the complaint in the 'Complaint Information Form'.

8.2 Complaint Investigations

8.2.1 Performing an investigation:

8.2.1.1 The Compliance Coordinator will engage the appropriate personnel to investigate complaints in a timely manner. All complaints should be targeted for closure within 30 days. Any reason for extension should be documented within the complaint investigation and approved by All Roads management as part of the complaint approval process.

8.2.1.2 Complaint investigations will be documented by the Compliance Coordinator as follows:

- Complete a description of the complaint and relevant conditions at the time of complaint (e.g. wind speed/direction, precipitation, site activity)
- Determine which area(s) of the site requires investigation with justifications. Determine which steps would be useful for determining the root cause and indirect cause of the complaint.
- Determine trends by using historical data collected
- Record information resulting from the in-dept investigation. Include detailed information about the trending results and their effect on any

STANDARD OPERATING PROCEDURE

Complaint Handling

additional steps that may be required. Determine and record the root cause and indirect cause(s).

- Determine if Corrective Active Preventative Action is required and provide justification.

8.2.1.3 Managers in affected departments will review the investigation and agree or disagree with the findings. If there is a disagreement, the form will be returned to the Compliance Coordinator for further investigation.

8.2.2 Closing an investigation:

8.2.2.1 A complaint is considered closed when a resolution has been accepted by all parties involved, or all reasonable actions have been taken. If an agreement cannot be made between All Roads and the complainant, information will be kept on file detailing the action(s) completed to address the complaint.

8.2.2.2 Final communications regarding the complaint and actions completed to address the complaint will be sent via email to the parties involved. If contacting is necessary and an email is not available, parties will be contacted via their preferred method of contact.

STANDARD OPERATING PROCEDURE

Complaint Handling

Complaint Information Form

Date/Time Received		Receiver Initials	
Complainant Name			
Complainant Contact Information			
Date/Time of Detection			
Location of Detection			
Perceived Source of Issue			
Issue Description			
Effect of Issue			
Additional Notes			