



**This form will report compliance with your permit as determined by an Environment Agency officer**

Site	Frog Island			Permit Ref	403185		
Operator/ Permit holder	S WALSH & SON LIMITED						
Date	02/04/2024			Time in	11:35	Out	12:30
What parts of the permit were assessed	F						
Assessment	Site Inspection	EPR Activity:	Installation	Waste Op	X	Water Discharge	
Recipient's name/position	Director						
Officer's name	Henry De Havas Morais, Emma Gunning			Date issued	18/04/2024		

**Section 1 - Compliance Assessment Summary**

This is based on the requirements of the permit under the Environmental Permitting Regulations (EPR). A detailed explanation and any action you may need to take are given in the "Detailed Assessment of Compliance" (section 3). This summary details where we believe any non-compliance with the permit has occurred, the relevant condition and how the non-compliance has been categorised using our [Compliance Classification Scheme](#) (CCS). CCS scores can be consolidated or suspended, where appropriate, to reflect the impact of some non-compliances more accurately. For more details of our CCS scheme, contact your [local office](#).

Permit Conditions and Compliance Summary			Condition(s) breached
a) Permitted activities	1. Specified by permit	N	
b) Infrastructure	1. Engineering for prevention & control of pollution	N	
	2. Closure & decommissioning	N	
	3. Site drainage engineering (clean & foul)	N	
	4. Containment of stored materials	N	
	5. Plant and equipment	N	
c) General management	1. Staff competency/ training	N	
	2. Management system & operating procedures	N	
	3. Materials acceptance	N	
	4. Storage handling, labelling, segregation	N	
d) Incident management	1. Site security	N	
	2. Accident, emergency & incident planning	N	
e) Emissions	1. Air	N	
	2. Land & Groundwater	N	
	3. Surface water	N	
	4. Sewer	N	
	5. Waste	N	
f) Amenity	1. Odour	N	
	2. Noise	N	
	3. Dust/fibres/particulates & litter	C2	3.1.1
	4. Pests, birds & scavengers	N	
	5. Deposits on road	N	
g) Monitoring and records, maintenance and reporting	1. Monitoring of emissions & environment	N	
	2. Records of activity, site diary, journal & events	N	
	3. Maintenance records	N	
	4. Reporting & notification	N	
h) Resource efficiency	1. Efficient use of raw materials	N	
	2. Energy	N	

**KEY:** C1, C2, C3, C4 = CCS breach category ( \* suspended scores are marked with an asterisk),  
 A = Assessed (no evidence of non-compliance), N = Not assessed, NA = Not Applicable, O = Ongoing non-compliance – not scored  
 MSA, MSB, TCM = Management System condition A, Management System Condition B and Technically Competent Manager condition which are environmental permit conditions from Part 3 of schedule9 EPR (see notes in Section 5/6).

<b>Number of breaches recorded</b>	1	<b>Total compliance score</b> (see section 5 for scoring scheme)	31
If the Total No Breaches is greater than zero, then please see Section 3 for details of our proposed enforcement response			

## Section 2 – Compliance Assessment Report Detail

This section contains a report of our findings and will usually include information on:

- the part(s) of the permit that were assessed (e.g. maintenance, training, combustion plant, etc)
- where the type of assessment was 'Data Review' details of the report/results triggering the assessment
- any non-compliances identified
- any non-compliances with directly applicable legislation
- details of any multiple non-compliances
- information on the compliance score accrued inc. details of suspended or consolidated scores.
- details of advice given
- any other areas of concern
- all actions requested
- any examples of good practice.
- a reference to photos taken

This report should be clear, comprehensive, unambiguous and normally completed within 14 days of an assessment.

This CAR form has been amended due to the CCS score being written in the incorrect Permit Conditions and Compliance Summary Section - S1. The condition CCS score has been moved from E1 - Air to F3 - Dust/fibres/particulates & litter.

02/04/24 – Officers arrived on site. The weather was 12C, mostly cloudy, with a west, south westerly wind of 11mph. 3 on the Beaufort scale.

The purpose of the visit was to investigate multiple reports of dust emissions leaving the site.

The site is operating to an Environment Management System (EMS) dated May 2018 and a Dust Emissions Management Plan (DEMP) also dated 2018, which have been used to assess compliance. TCM for the site is Roy MARTIN. Officers met a site operative (SO), showed their personal authorisations and explained the purpose of the visit. A Notice of Powers and Rights, ref: 54337, was issued to SO.

### **Comments and Observations**

Officers spoke with SO about the dust complaints and they stated they were aware of the issue. SO believed the primary cause of the dust emissions was a gap in the site boundary fence located behind a hanger style storage area on your left as you enter the operations area of the site from the main entrance (See Photo 1). SO stated that they planned to have this gap filled using a container and some corrugated sheeting they already had on site. SO showed officers the materials in question and stated that it would be installed by the following day (Wednesday 03/04/24). Operations were in progress during the time of inspection and officers witnessed dust being produced both from the ends of screening conveyors and as a result of the waste landing from a significant drop (approximately 4m) into its segregated waste pile. These operations were being undertaken within 10m of the site boundary and some dust was witnessed to have been leaving site.

At no point during the inspection was the dust suppression misting system that resides along part of the site boundary turned on. The auxiliary dust suppression cannon was also not in use. Officers asked SO why the dust suppression was not in use, and he stated that due to the prevailing winds the water from the dust suppression systems is immediately blown off site. During a walk around the outside of the site boundary it was noted that some of the dust netting had been damaged.

At the time of inspection waste pile heights were seen to be significantly higher than allowed by the sites dust emissions management plan (DEMP). The site DEMP allows for waste piles heights of 3m whereas actual levels ranged from approximately 3m-8m in height (See Photo 2). Much of the waste pile also acts as a platform that plant machinery operates off of. Some of the waste piles were approximately 5m in height built on a waste pile platform approximately 2m in height. In addition, much of the loading operations undertaken by 360 grabbers are executed at the top of these piles further exposing these operations to the effects of wind whipping (See Photo 3). Across the operations area of site there remains to be large quantities of silt and mud however this was not seen to be leaving site.

Once the site inspection itself had been completed officers then walked the perimeter of the sites boundary to substantiate complaints of dust emissions. When patrolling Ferry Lane, the road that runs in tandem to the site boundary, deposits of dust were found in the drainage gullies (See Photo

4) of the pavement at a quantity sufficient enough for plant life to grow. Dust was also seen on 4 vehicles in a private car park, with open wire fencing, directly opposite the rear of the hanger style structure. As such, it is clear that the dust suppression systems present, along with the mitigative techniques currently employed on site are not sufficient to reduce dust emissions caused during operations.

### **Permit Breaches**

### **F3 – Amenity – Dust/Fibres/Particulates & Litter**

#### **Permit Conditions 3.1.1**

#### **Score CCS 2**

Permit condition 3.1.1 *“Emissions of substances not controlled by emissions limits (excluding odour) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved emissions management plan, have been taken to prevent or where that is not practicable, to minimise, those emissions”.*

Pollution is defined as ‘emissions as a result of human activity which may i) be harmful to human health or the quality of the environment ii) cause offence to human senses, iii) result in damage to material property or iv) impair or interfere with the amenities or other legitimate uses of the environment’. The dust present outside of the site boundary and found on and inside cars proves a potential for damage to material or property, and the noted emissions entering the air demonstrates a threat to the quality of the environment due to the sites positioning within an Air Quality Management Area (AQMA).

The activities are not being operated using the techniques, and in the manner, described in the DMP in the following sections:

- 1 – Introduction
- 4 – Mitigation and Monitoring

Section 4.2 of the DMP, Table 3, requires that:

- *“Drop heights from crusher, screener and vehicles will be kept to a minimum. Maximum drop height will be from the screener, approximately 2.56m.”*
  - During the time of inspection drop heights from operating conveyors were seen to be approximately 4m in height and actively causing dust plumes to be emitted upon impact to the pile below.
- *“The stockpiles are maintained below the height of the dust netting. Stockpiles will be a maximum height of 3m.”*
  - During inspection the pile of C&D waste at the north easterly most point of the site was seen to be at a maximum of 8m in height, approximately, and above the dust netting located along the site boundary to the west. The overall quantity of waste was significant and rather than singular peaks being found to have exceeded the 3m maximum the majority of the waste on site had been formed into almost 1 combined set of structures containing plateaus and ridges with most approximately ¼ of all waste to have resided above the 3m maximum height.
- *“If visible dust emissions can be seen to cross the site boundary despite the employed mitigation measures, operations will be reduced or ceased.”*
  - Although no dust was seen to have been crossing the site boundary during the time of inspection, this site inspection was instigated specifically due to repeated dust emission complaints. After the site visit officers walked the perimeter of the boundary along Ferry Lane and confirmed clear persistent dust emissions in the form of dust accumulation in pavement drainage gullies, in parking lots and on vehicles. Based on the principles of the source, pathway, receptor model

although, at the time of inspection, no dust emissions were witnessed to have been crossing the site boundary. Due to the lack of any other potential sources in the immediate vicinity it is clear that these emissions came from this site.

- *“Installation of netting to capture released debris and dust/particulates prior to it being dispersed off-site.”*
  - There is some dust netting present on site, along the north-eastern boundary however some parts are damaged, and the netting does not continue for a sufficient enough distance. Such as, the entire length of the boundary where waste activities are taking place As aforementioned, dust emissions have been substantiated to have been leaving the site boundary adjacent to areas free from any netting.
- *“A mobile dust suppression unit (Portable Independent Rotary Unit (PIRU)) is used on site and is repositioned based on site activities and prevailing wind direction. The PIRU will be positioned at the dust source to be effective.”*
  - There is a static dust suppression system installed along some of the site boundary, where the netting is installed, however the dust suppression system was not in use at the time of inspection. Additionally, there is a directional dust suppression cannon that can be aimed at certain operations; however, this was also not in use.

In the event that dust emissions are to cross the site boundary the DMP states that the Dust Action Plan (DAP) will be implemented. The DAP constitutes:

- Identified source(s) of off Site dust emissions will be ceased and/or additional mitigation will be implemented with immediate effect.
- An Accident and Incident Record (see Form C in the Environment Management System) will be completed. Upon completion this procedure ensures that:
  - The root cause has been identified; and
  - Action has been put in place to prevent recurrence of root cause;
- If a complaint is received it must be investigated fully and the source of the dust identified (see Form D in the EMS);
- The EA is notified if pollution has been caused off site;
- Once the source has been identified, mitigated and recorded operations can be resumed;
- A record of the complaint together with the remediation actions and the completed proforma in (Forms C and D) will be kept on site; and a review of the site specific mitigation measures detailed above will be undertaken.
- 

During the time of the inspection SO stated that they believed the cause of the emission was the gap in the eastern boundary behind the hanger type storage unit. This emphasises the sites awareness of said dust emissions. Although SO stated they had the materials on site and intend to remedy the problem by the next day. As written in the DAP operations must be ceased and/or mitigation implemented with immediate effect. Additionally, the Environment Agency has not been informed by the site of any pollution.

**Action 1** – To reduce stockpiles of waste to below the 3m limit outlined in the DMP. Send photographic evidence this has been achieved to [henry.dehavasmorais@environment-agency.gov.uk](mailto:henry.dehavasmorais@environment-agency.gov.uk)

**Deadline** – 12pm 26/04/24

**Action 2** – To lower conveyor heights during operations to be inline with the requirements outline in the DMP with a maximum of 2.56m. Send photographic evidence this has been achieved to [henry.dehavasmorais@environment-agency.gov.uk](mailto:henry.dehavasmorais@environment-agency.gov.uk)

**Deadline** – 12pm 26/04/24

**Action 3** – To repair the damaged dust netting and to extend the netting across the Eastern, North-Eastern boundary up to the parking area. Send photographic evidence this has been achieved to [henry.dehavasmorais@environment-agency.gov.uk](mailto:henry.dehavasmorais@environment-agency.gov.uk)

**Deadline** – 12pm 10/05/24

**Action 4** – To use all available dust suppression equipment on site during operations as per the DMP.

**Deadline** – 12pm 26/04/24

**Nothing in this CAR form prejudices the right of the Environment Agency to take enforcement action in accordance with its Enforcement and Sanctions Statement.**



Photo 1: Gap in boundary behind hanger style storage unit.



Photo 2: Waste piles already on 2m high waste platform, approximately 5m in height.



Photo 3: 360 Grabber operations being undertaken at height. Approximately 3m from plant base.





Photo 4: Dust accumulation in pavement drainage gully.

**Section 3- Enforcement Response**

**Only one of the boxes below should be ticked**

You must take immediate action to rectify any non-compliance and prevent repetition. Non-compliance with your permit conditions constitutes an offence\* and can result in criminal prosecutions and/or suspension or revocation of a permit. Please read the detailed assessment in Section 2 and the steps you need to take in Section 4 below.

*\*Non-compliance with MSA, MSB & TCM do not constitute an offence but can result in the service of a compliance, suspension and/or revocation notice.*

Other than the provision of advice and guidance, at present we do not intend to take further enforcement action in respect of the non-compliance identified above. This does not preclude us from taking enforcement action if further relevant information comes to light or advice isn't followed.

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In respect of the above non-compliance you have been issued with a warning. At present we do not intend to take further enforcement action. This does not preclude us from taking additional enforcement action if further relevant information comes to light or offences continue.	
We will now consider what enforcement action is appropriate and notify you, referencing this form.	X

#### Section 4- Action(s)

Where non-compliance has been detected and an enforcement response has been selected above, this section summarises the steps you need to take to return to compliance and also provides timescales for this to be done.

Criteria Ref.	CCS Category	Action Required / Advised	Due Date
See Section 1 above			
F3	C2	Action 1 – To reduce stockpiles of waste to below the 3m limit outlined in the DMP. Send photographic evidence this has been achieved to henry.dehavasmorais@environment-agency.gov.uk Deadline – 12pm 26/04/24	26/04/24
		Action 2 – To lower conveyor heights during operations to be inline with the requirements outline in the DMP with a maximum of 2.56m. Send photographic evidence this has been achieved to henry.dehavasmorais@environment-agency.gov.uk Deadline – 12pm 26/04/24	26/04/24
		Action 3 – To repair the damaged dust netting and to extend the netting across the Eastern, North-Eastern boundary up to the parking area. Send photographic evidence this has been achieved to henry.dehavasmorais@environment-agency.gov.uk Deadline – 12pm 10/05/24	10/05/24
		Action 4 – To use all available dust suppression equipment on site during operations as per the DMP. Deadline – 12pm 26/04/24	26/04/24

## Section 5 - Compliance notes for the Operator

To ensure you correct actual or potential non-compliance we may

- advise on corrective actions verbally or in writing
- require you to take specific actions in writing
- issue a notice
- require you to review your procedures or management system
- change some of the conditions of your permit
- decide to undertake a full review of your permit

Any breach of a permit condition is an offence\* and we may take legal action against you.

- We will normally provide advice and guidance to assist you to come back into compliance either after an offence is committed or where we consider that an offence is likely to be committed. This is without prejudice to any other enforcement response that we consider may be required.
- Enforcement action can include the issue of a formal caution, prosecution, the service of a notice and or suspension or revocation of the permit.
- A civil sanction Enforcement Undertaking (EU) offer may also be available to you as an alternative enforcement response for this/these offence(s).

### See our Enforcement and Civil Sanctions guidance for further information

*\*A breach of permit condition MSA, MSB & TCM is not an offence but may result in the service of a notice requiring compliance and/or suspension or revocation of the permit.*

This report does not relieve the site operator of the responsibility to

- ensure you comply with the conditions of the permit at all times and prevent pollution of the environment
- ensure you comply with other legislative provisions which may apply.

### Non-compliance scores and categories

CCS category	Description	Score
C1	A non-compliance which could have a <b>major</b> environmental effect	60
C2	A non-compliance which could have a <b>significant</b> environmental effect	31
C3	A non-compliance which could have a <b>minor</b> environmental effect	4
C4	A non-compliance which has <b>no</b> potential environmental effect	0.1

**Operational Risk Appraisal (Opra)** - Compliance assessment findings may affect your Opra score and/or your charges. This score influences the resource we use to assess permit compliance.

### MSA, MSB & TCM are conditions inserted into certain permits by Schedule 9 Part 3 EPR

**MSA** requires operators to manage and operate in accordance with a written management system that identifies and minimises risks of pollution.

**MSB** requires that the management system must be reviewed, kept up-to-date and a written record kept of this.

**TCM** requires the submission of technical competence information.

## Section 6 – General Information

### Data protection notice

The information on this form will be processed by the Environment Agency to fulfill its regulatory and monitoring functions and to maintain the relevant public register(s). The Environment Agency may also use and/or disclose it in connection with:

- offering/providing you with its literature/services relating to environmental matters
- consulting with the public, public bodies and other organisations (e.g. Health and Safety Executive, local authorities) on environmental issues
- carrying out statistical analysis, research and development on environmental issues
- providing public register information to enquirers
- investigating possible breaches of environmental law and taking any resulting action
- preventing breaches of environmental law
- assessing customer service satisfaction and improving its service
- Freedom of Information Act/Environmental Information Regulations request.

The Environment Agency may pass it on to its agents/representatives to do these things on its behalf. You should ensure that any persons named on this form are informed of the contents of this data protection notice.

### Disclosure of information

The Environment Agency will provide a copy of this report to the public register(s). However, if you consider that any information contained in this report should not be released to the public register(s) on the grounds of commercial confidentiality, you must write to your local area office within 28 days of receipt of this form indicating which information it concerns and why it should not be released, giving your reasons in full.

### Customer charter

#### What can I do if I disagree with this compliance assessment report?

A permit holder can challenge any part of the CAR form by writing to the Environment Agency office local to the site within 28 days of receipt. If the issue cannot be resolved by the local office, a permit holder may request an appeal of the regulatory decision by emailing [enquiries@environment-agency.gov.uk](mailto:enquiries@environment-agency.gov.uk) within 14 days of receipt of the outcome.

If you are still dissatisfied, you can make a complaint to the Ombudsman. For advice on how to complain to the Parliamentary and Health Service Ombudsman phone their helpline on 0345 015 4033.

**Exhibit Rebuttal 2**

<u>Time &amp; Date</u>	<u>Complaint Type</u>	<u>NIRS No/Communication Type</u>
10:30 – 20/02/2024	<p>“Excessive dust coming from the crushing operation on Ferry Lane, fine glassy, cement-like dust is covering all the cars, meaning they have to keep all the windows shut to avoid impact. Looks like a bag of cement has been thrown over the cars.</p> <p>The dust scratches the paint on the cars and does not wash off easily, when wet it clumps together.</p> <p>The road is also covered in the dust, which is not cleaned anymore by the tractors that used to wash it.</p> <p>Caller states is usually worse in the mornings, is a regular issue, daily recently.”</p>	02233715
09:39 – 14/03/2024	<p>“We are unable to open our windows on most days. These are of the sand build up on our cars which will in the long-term cause expensive damage.</p> <p>Could you please investigate this matter as soon as possible.”</p>	02246261
09:37 – 18/03/2024	<p>“As you can see by the pictures attached the dust situation hasn't improved. These pictures were taken at 0930. We have only been on site since 0815 and you can see the build-up already. Who will be paying for any damage caused by this to our vehicles. We're having to wash them on regular basis so we can see out of the windows. It is getting ridiculous situation now. With the warm weather coming up we will not be able to open windows as the dust</p>	02247520

	coming in and I am sure it's not healthy breathing it in all day."	
20:27 – 21/03/2024	<p>"Please find pictures from one of our customers who was on site on Tuesday. This of course didn't go down very well. The dates may be confusing as this was the date I received the mail. Are there any plans for you to speak or visit the site. Thank you.</p> <p>Please find pictures form this morning. We have only been here since 8 am and you can see the build-up of sand already."</p>	02249596
10:01 – 25/03/2024	<p>"e mails showing the extent of the sand being spread all over our vehicles from S Walsh &amp; Sons. We can't open our windows on some days as the sand being spread is so bad and we don't know if it's safe to breath in. It is causing damage to our vehicles. There use to be a tractor driving around the roads spraying water and a road cleaner. These have no affect on the airborne dust. The work at Walsh's seems to be starting around 7am most days and depending on the wind direction depends on how much sand we get. on certain days there are big sand clouds that are hard to capture on a picture. I am told they use to sprinkle water on to the sand prior to it dropping off the conveyer. This doesn't look like it's happening, they only have a</p>	02250268

	large fan that appears to be doing nothing.”	
07:39 – 03/03/2024	<p>"Good Morning. Please find more pictures of the dust/sand being spread across our vehicles daily. I believe one of your team were in the area last week. It was hard to capture on camera, but I can only describe the conditions as a sandstorm. We were looking to invest a large amount of money on solar panels, but now have put this on hold due to the daily cleaning of the panels that would be required.</p> <p>Some members of staff are getting particularly worried at finding the amount of sand on and in their vehicles and worried it may be causing damage to the engines and body work as it does not come off easily when washing the vehicle.</p> <p>I will of course continue to send you updates of the situation."</p>	02253716
08:10 - 08/04/2024	<p>"Please find the latest pictures of the damage being caused by the air born dust being generated by S.Walsh. The situation seems to be getting worse and nothing is being done about it. We still can't open our windows, the dust is getting on all our equipment, and we are unsure what the dust concerns and some of our employees are raising concerns about what they are breathing in.</p>	02255331

	<p>It is occurring daily, some days worse than others. The dust is everywhere.</p> <p>It is affecting all our staff; we are unsure of the harm as we don't know what the dust contains. Our vehicles are being damaged as the dust is so fine it is getting into every part on the car. I don't expect that anyone will be paying for repair bills for any damage caused by this.</p> <p>It normally lasts all day and has been getting worse since the start of the year.</p> <p>Some of my employees are that concerned that they are considering contacting the local council and MP, as there has been nothing done about this issue even though we have been sending you evidence on a daily/weekly basis."</p>	
07:24 – 10/04/2024	"Good Morning. Please see the pictures from yesterday. I have tried to capture the dust. Hence this is why we can't have our windows open."	Direct email
12:59 – 12/04/2024	"Good Afternoon. Please see the pictures of the sand on our vehicles today."	02257030
08:22 – 15/04/2024	"Good Morning. I hope you had a good weekend. Please find pictures from Friday afternoon as we left site after work."	02257534
07:17 – 19/04/2024	"The dust is coming from S.Walsh & Sons. It normally starts at 6am and continues until 17.00. We have had one of your colleagues (Henry De Havas Morais) visit the site, but we still haven't seen any improvement. This has been	02258798

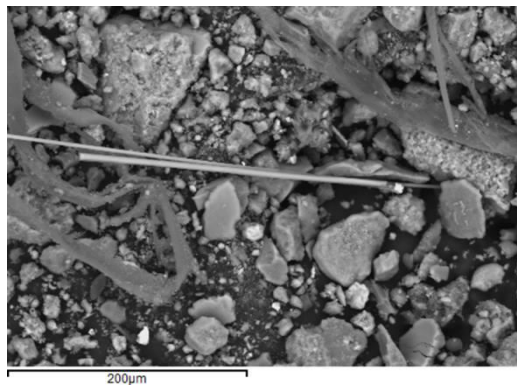
	happening for months. We can't open our windows as the dust/sand comes in and we don't even know what it is as the site has no restrictions on what it can dispose of."	
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**Report - 70674/K**

**REPORT ON THE ANALYSIS OF DUST SAMPLES FOR THE PRESENCE OF CONCRETE  
CRUSHING PLANT DERIVED MATERIAL  
(Site: Unit 12 Easter Park)**



8a Beam Reach Management Ltd  
(12) Easter Park  
Ferry Lane South, Rainham  
Essex  
RM13 9BP

This report comprises  
5 pages of text  
Appendix A – 5 pages / photographs  
Appendix B – 1 page  
Appendix C – 6 pages  
Appendix D – 1 page

For the attention of Mr David Brown

29 September 2021

Partners: NCD Sandberg SC Clarke DJ Ellis RA Rogerson MA Eden JD French CMorgan  
GSMayers GCS Moor JFagan JH Dell Dr EDW Maclean MI Ingle M Faliva AL Pitman  
Senior Associates: RA Lucas DA Kinnersley J Glen Dr WR Newby YN Guellil  
Associates: KJ Green J Gallagher NA Fetter E McPheat F Easthope EKrylowicz SR Kwincinski CS Newberry

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## Report - 70674/K

### REPORT ON THE ANALYSIS OF DUST SAMPLES FOR THE PRESENCE OF CONCRETE CRUSHING PLANT DERIVED MATERIAL (Site: Unit 12 Easter Park)

#### 1 INTRODUCTION

Sandberg was requested to investigate the origin of dust deposits accumulating in the vicinity of Unit 12 at Easter Park estate.

The client advised that it was suspected that the dust deposits accumulating on cars and buildings around the premises of Unit 12 could originate from a concrete crushing plant less than 100m west of the premises. We understand that the crushing plant has been active for over three years, handling various materials including concrete and soil with excavators and crushing equipment and the client believes that in the process of concrete crushing, fine cementitious particles become airborne and are deposited in the surrounding area. Dust control measures including a stacked shipping container wall, a 2-3m high netting, and a sprinkler dampening system have been implemented but the client advises that these do not appear to be sufficiently controlling airborne pollution.

Five dust samples were obtained from various locations during a site visit by Mr Thomas Willetts of Sandberg LLP on 3 September 2021. The dust samples were to be analysed for the presence of construction derived material and to identify other principal constituents of the dust. Instructions to proceed with the analysis were submitted via email by David Brown of 8a Beam Reach Management Ltd on 23 August 2021.

#### 2 SAMPLES

The following samples were obtained to represent the dust deposits during Sandberg's site visit:

Laboratory reference	Site sample number	Sample location	Sample description
K16819/1	Sample 1	Unit 12 office key cage	In office area unexposed to exterior dust
K16819/2	Sample 3	Unit 12 office cabinet	In office area unexposed to exterior dust
K16819/3	Sample 6	Outside Unit 12 window sill	On site area affected by dust
K16819/4	Sample 7	Outside Unit 11 window sill	On site area affected by dust but cleaned 48 hours prior to sampling
K16819/5	Sample 10	Estate entrance sign	On site area proximal to plant

### 3 TEST METHODS

- (i) The samples were collected from site using adhesive carbon tape.
- (ii) Samples were examined with a Hitachi SU3500 scanning electron microscope.
- (iii) Chemical analyses were made of the dust samples using an Oxford Instruments INCA energy dispersive X-ray microanalysis system calibrated with certified mineral standards

### 4 RESULTS

#### 4.1 Scanning electron microscopy and X-ray microanalysis of the dust samples

The location of each dust sample is illustrated in Figures A1-5 in Appendix A. A description of each dust sample composition is given in Table B1 in Appendix B. Backscattered electron images and X-ray maps illustrating the samples are given in Figures C1-6 in Appendix C. Chemical analyses of the dust samples are given in Table D1 and Figure D2 in Appendix D.

#### 4.2 Summary of dust sample compositions

The following table summarises the main constituents identified in each sample:

<i>Sandberg ref</i>	<i>Sample location</i>	<i>Main constituents</i>	<i>Summary description</i>
K16819/1	Unit 12 office key cage	Si-Al-K particles and organic material	Low dust levels composed of principally 10-100µm Si-Al-K based grains and 50-1000µm fibrous organic material with moderate levels of calcite crystals and calcium sulfate grains. Minor levels of sodium chloride, cementitious debris, and siliceous debris.
K16819/2	Unit 12 office cabinet	Organic material and calcium sulfate	Moderate dust levels composed of principally 50-1000µm fibrous organic material and 1-50µm calcium sulfate grains with moderate levels of Si-Al-K based grains and siliceous debris grains. Minor levels of sodium chloride, cementitious debris, and calcite.
K16819/3	Outside Unit 12 window sill	Siliceous debris and cementitious debris	High dust levels composed of principally 5-100µm angular siliceous debris grains and 5-300 angular to subrounded cementitious debris grains with moderate levels of Si-Al-K based grains, calcite crystals, and organic material. Minor levels of sodium chloride and calcium sulfate.
K16819/4	Outside Unit 11 window sill	Siliceous debris, cementitious debris, and Si-Al-K particles	High dust levels composed of 5-100µm angular siliceous debris grains, 5-300µm angular to subrounded cementitious debris grains, and 10-100µm Si-Al-K based grains with moderate levels of organic material. Minor levels of calcite, calcium sulfate, and sodium chloride.
K16819/5	Estate entrance sign	Cementitious debris and siliceous debris	Moderate dust levels composed of principally 5-100µm angular siliceous debris grains and 5-300µm angular to subrounded cementitious debris grains with moderate levels of organic material, and calcite crystals. Minor levels of Si-Al-K based grains, calcium sulfate, and sodium chloride.



**5 OCCURRENCE AND ORIGIN OF THE DUST DEPOSITS**

The following table summarises the interpretation of the origin of the various types of dust deposits identified:

<b>Dust particle type</b>	<b>Particle characteristics</b>	<b>Occurrence</b>	<b>Comments on probable origin of deposits</b>
Siliceous debris	Very fine to fine grain sized silica-rich angular debris likely to include a high proportion of quartz. The particles are of a size that are likely to readily become airborne.	Occurs as a dominant component in all samples collected outside of Unit 12. The proportion of siliceous debris in the dust present in an affected area of Unit 12 is moderate compared to the proportion in the unaffected area. It is considered likely to be related to / generated by activity at the concrete crushing plant.	This material would be expected to be present in dust generated by the crushing and storage of construction materials including concrete, mortar or screed. The highly angular shape of the debris particles is indicative of the brittle process of crushing materials. The increased proportion in the area affected by dust inside of Unit 12 may indicate the presence of dust infiltration into the building however the moderate levels do not provide a high degree of confidence.
Cementitious debris	Very fine to coarse grain sized subangular particles with a chemical composition that matches that of Portland cement with high levels of silicon, calcium, and aluminium (as illustrated in Figure C6 in Appendix C). The particles are of a size that are likely to readily become airborne.	Occurs as the single dominant dust component in the sample collected near to the crushing plant. Also a dominant component in the dust outside units 12 and 11. This material is therefore considered to be related to / generated by activity at the concrete crushing plant.	This material would be expected to be present in dust generated by the crushing and storage of construction materials including concrete, mortar or screed. It is unlikely this dust has reached the inside of Unit 12 as it is only a minor dust constituent in both areas sampled.
Organic material/ sodium chloride	Fine to coarse grain sized fibrous to occasionally irregular shape carbon-rich debris. The sodium chloride occurs as very fine euhedral to subhedral crystals. The particles are of a size that are likely to readily become airborne.	Both occur in all five dust deposits and are therefore considered ambient dust, varying in proportion as a result of increased rates of other components settling. Notably, the proportion of each is highest in dust deposited inside of Unit 12 suggesting low rates of overall dust settling.	The organic material is likely to be a combination of normal organic matter generated from human activity such as skin flakes.  Sodium chloride deposits form in a wide range of conditions in buildings and the urban environment.



<b>Dust particle type</b>	<b>Particle characteristics</b>	<b>Occurrence</b>	<b>Comments on probable origin of deposits</b>
Al-K-Si particles	Very fine clay-grade to fine grain sized material with chemical compositions that are indicative of the presence of clay debris. The particles are of a size that are likely to readily become airborne.	Occurs in all five deposits but is lowest in proportion in the sample collected near to the concrete crushing plant and therefore considered to be dust unrelated to the concrete crushing plant.	The particles containing aluminium, potassium and silica could be derived from traces of air-borne clay which inherently have many sources including dirt introduced from shoes or clothes.
Calcium sulfate	Very fine to fine grained irregular to elongate particles with chemical compositions that are indicative of the presence of gypsum. The particles are of a size that are likely to readily become airborne.	Occurs as a dominant component of dust present in both of the locations inside of Unit 12 that would not have been exposed to external dust contamination.	Commonly deposited inside buildings due to the presence of gypsum based plaster. The gypsum can become airborne and deposited as dust due to deterioration from damp penetration or general exposure during drilling works.
Fibrous matter	Fibrous material resembling synthetic polymers.	Occurs in all five dust samples and is therefore considered to be ambient dust. No asbestos fibres have been detected	Possible sources would include, carpet or clothing fibres.



**6 CONCLUSIONS**

- 6.1** The dust accumulated outside of Units 12 and 11 contain a high proportion of dust considered likely to be the result of the crushing and handling of concrete and other construction materials. Much of the dust in the external locations would readily become airborne due to its small particle size.
- 6.2** The dust in the external locations appears to have been accumulating at a high rate as large levels of dust settlement are known to have occurred in the 48 hours prior to Sandberg's site visit on the 3 September 2021.
- 6.3** Dust accumulated inside of Unit 12 is dominated by debris that is likely to originate from normal office activity with only trace levels of dust considered likely related to the crushing and handling of concrete and other construction materials. The variations in the amounts of dust inside Unit 12 relate to variations in the amounts of plaster dust.
- 6.4** The dust particle size present inside of Unit 12 is typically 5-10µm compared to about 40µm outside of units 12 and 11. Although both typical dust sizes would be readily suspended in air, the dust size difference suggests that it is unlikely significant levels of construction debris contamination is inside of Unit 12.

**7 REMARKS**


The above concludes the requested programme of testing. Please do not hesitate to contact us if we can be of any further assistance in this matter.

8a Beam Reach Management Ltd  
(12) Easter Park  
Ferry Lane South, Rainham  
Essex  
RM13 9BP

For the attention of Mr David Brown

for GEOMATERIALS RESEARCH SERVICES  
(part of Sandberg LLP)

  
T. Willetts, MGeol., FGS  
Assistant Geologist

  
M. A. Eden, BSc., MSc., FGS., C.Geol., FIMMM  
Partner

29 September 2021

Samples can only be retained for a period of one month from the date of issue of the report unless we are instructed otherwise. Samples can be returned or retained for a further charge.

**APPENDIX A – PHOTOGRAPHS ILLUSTRATING THE SAMPLE LOCATIONS**

*Figure A1*

Sample K16819/1

Sample location: Unit 12 office key cage.

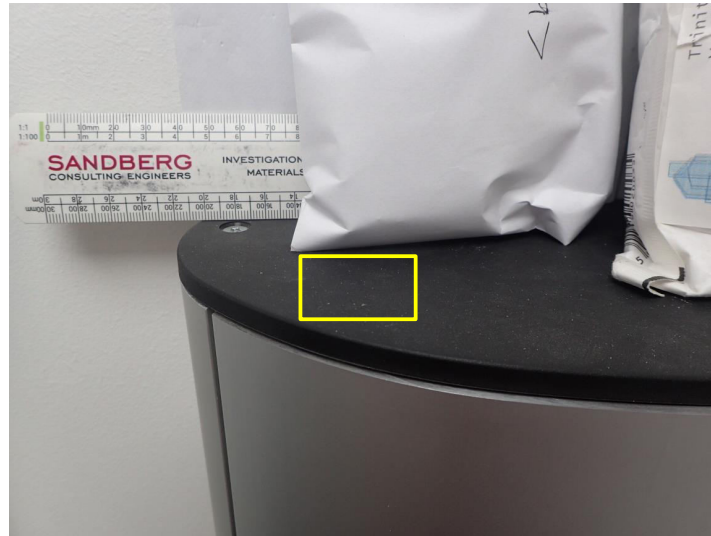


Figure A2

Sample K16819/2

Sample location: Unit 12 office cabinet.





Figure A3

Sample K16819/3

Sample location: Outside Unit 12 window sill.



Figure A4

Sample K16819/4

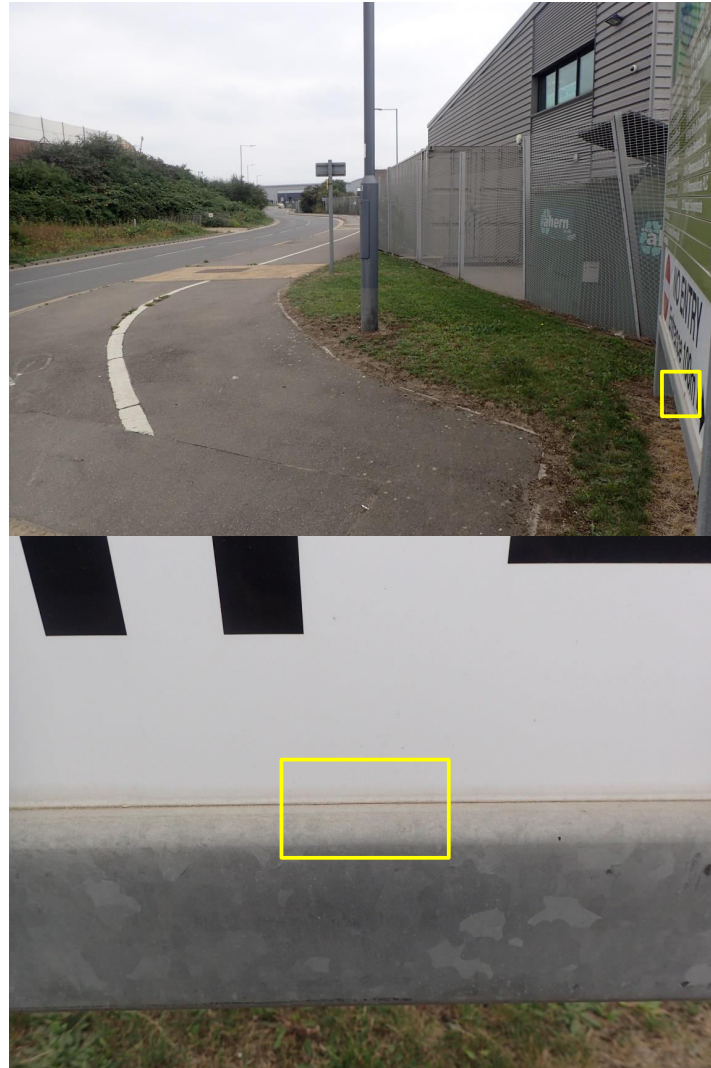
Sample location: Outside Unit 11 window sill.



*Figure A5*

Sample K16819/5

Sample location: Estate entrance sign.





**APPENDIX B-- SEM-BASED DUST SAMPLE CONSTITUENT PROPORTIONS**

**Table B1: SEM-based composition proportions of dust samples**

<i>Sandberg ref</i>	<b>K16819/1</b>	<b>K16819/2</b>	<b>K16819/3</b>	<b>K16819/4</b>	<b>K16819/5</b>
<b>Sample location</b>	<b>Unit 12 office key cage</b>	<b>Unit 12 office cabinet</b>	<b>Outside Unit 12 window sill</b>	<b>Outside Unit 11 window sill</b>	<b>Estate entrance sign</b>
<b>Typical particle size</b>	5µm	10µm	40µm	40µm	40µm
<b>Constituent:</b>	<i>Estimated volume %</i>				
<b>Siliceous debris</b> <i>Individual angular grains rarely occurring in clumps, between 5-100µm in size</i>	5%	10%	33%	26%	33%
<b>Cementitious debris</b> <i>5-300µm irregular, angular to subrounded particles</i>	5%	5%	25%	25%	40%
<b>Organic material</b> <i>50-1000µm fibrous and occasionally irregularly shaped particles</i>	25%	33%	10%	15%	10%
<b>Si-Al-K compounds:</b> <i>10-100µm irregular shaped and occasionally platy grains seen individually or in clumps</i>	30%	15%	20%	25%	5%
<b>Calcium sulfate:</b> <i>1-50µm elongate to irregular grains seen individually or in clumps</i>	15%	30%	1%	2%	1%
<b>Calcite</b> <i>10-50µm subhedral crystals</i>	15%	2%	10%	5%	10%
<b>Sodium chloride</b> <i>5-20µm euhedral to subhedral crystals</i>	5%	5%	1%	2%	1%
<b>Trace miscellaneous material</b>	10-20µm Zn-rich particles, 5-20 µm FeO particles, and 10-20µm Al-Cl spherical and angular grains	10µm Cr-rich angular grains, and 10-20µm Al-Cl subrounded grains	10-20µm FeO particles, and 100-300µm fibrous Ca-Mg particles	10-20 µm TiO <sub>2</sub> subrounded grains, 10-20µm FeO subrounded grains, and 100-300µm fibrous Ca-Mg particles	20µm Fe-Ca-Si subangular grain

APPENDIX C- BACKSCATTERED ELECTRON IMAGES AND X-RAY MAPS ILLUSTRATING THE SAMPLES

Figure C1

Sample: K16819/1

Location: Unit 12 office key cage, in office area unaffected by dust

Backscattered electron image of dust: View showing typical appearance of the dust sample with constituents annotated and an X-ray map illustrating the elemental composition of the deposit (detected silicon, calcium, and chlorine is represented by red, blue and green points respectively).

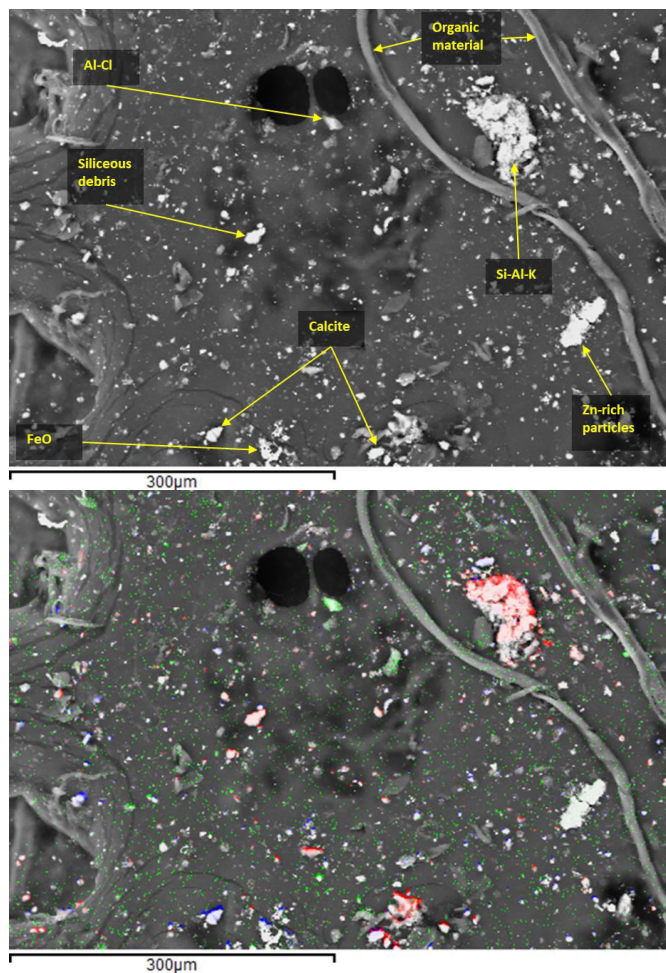


Figure C2

Sample: K16819/2

Location: Unit 12 office cabinet, in office area affected by dust

Backscattered electron image of dust: View showing typical appearance of the dust sample with constituents annotated and an X-ray map illustrating the elemental composition of the deposit (detected silicon, calcium, and chlorine is represented by red, blue and green points respectively).

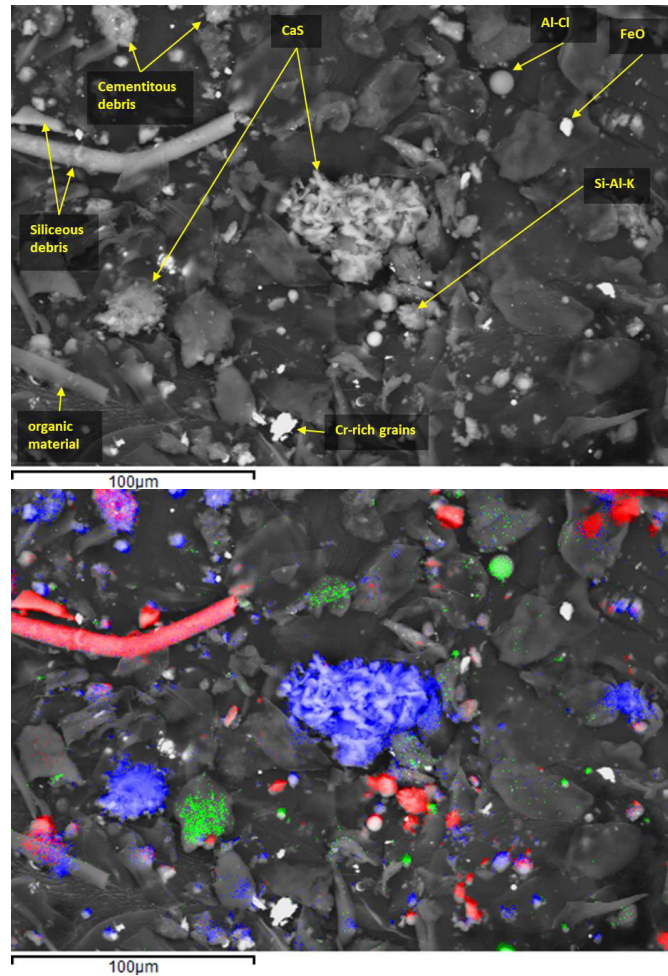


Figure C3

Sample: K16819/3

Location: Outside Unit 12 window sill, on site area affected by dust

Backscattered electron image of dust: View showing typical appearance of the dust sample with constituents annotated and an X-ray map illustrating the elemental composition of the deposit (detected silicon, calcium, and chlorine is represented by red, blue and green points respectively).

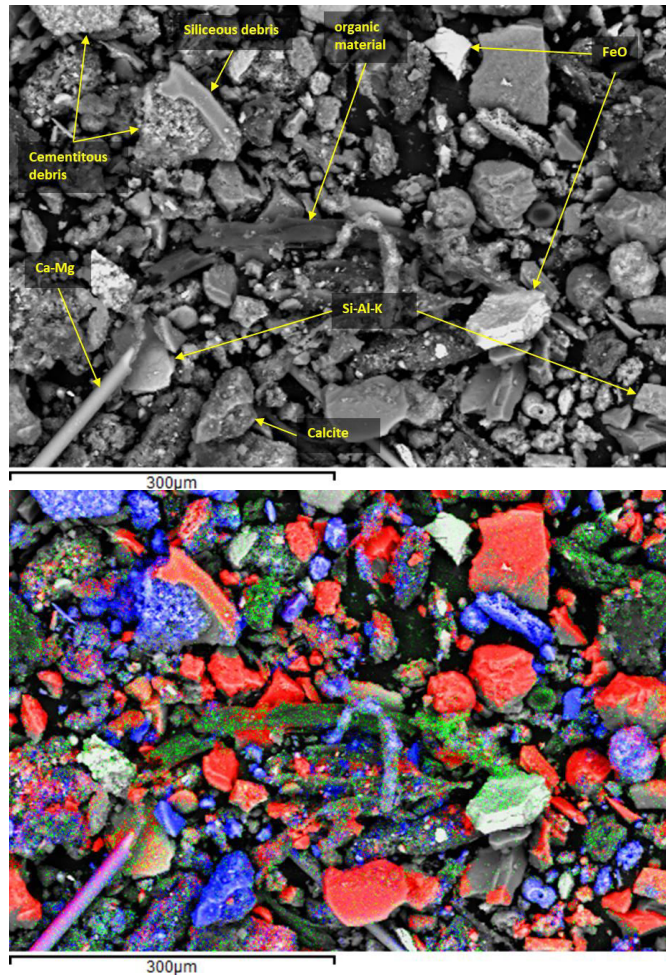


Figure C4

Sample: K16819/4

Location: Outside Unit 11 window sill, on site area affected by dust but cleaned within 48 hours

Backscattered electron image of dust: View showing typical appearance of the dust sample with constituents annotated and an X-ray map illustrating the elemental composition of the deposit (detected silicon, calcium, and chlorine is represented by red, blue and green points respectively).

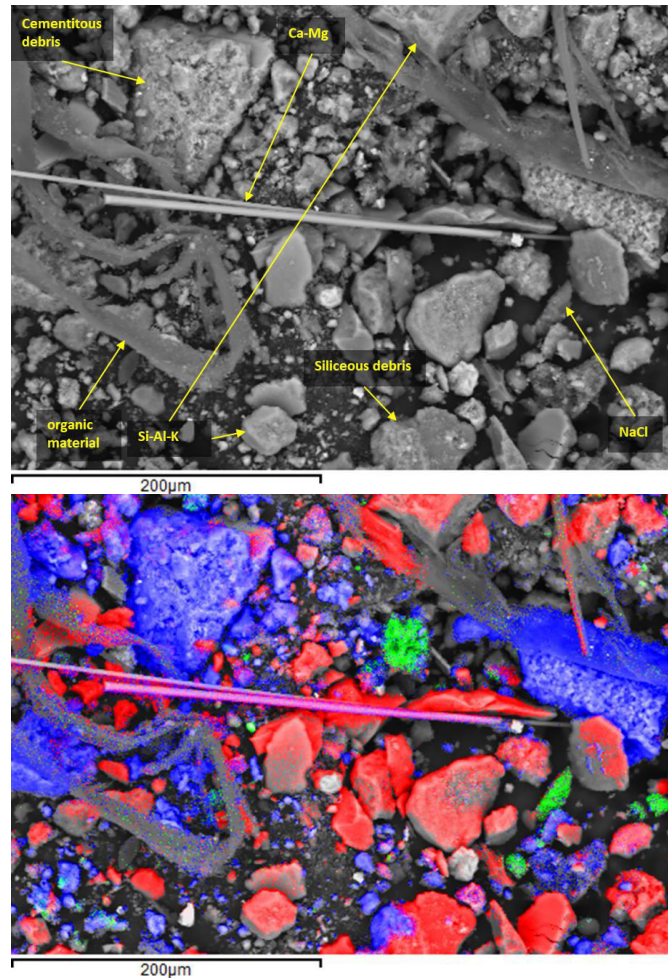




Figure C5

Sample: K16819/5

Location: Estate entrance sign, on site area proximal to plant

Backscattered electron image of dust: View showing typical appearance of the dust sample with constituents annotated and an X-ray map illustrating the elemental composition of the deposit (detected silicon, calcium, and potassium is represented by red, blue and green points respectively).

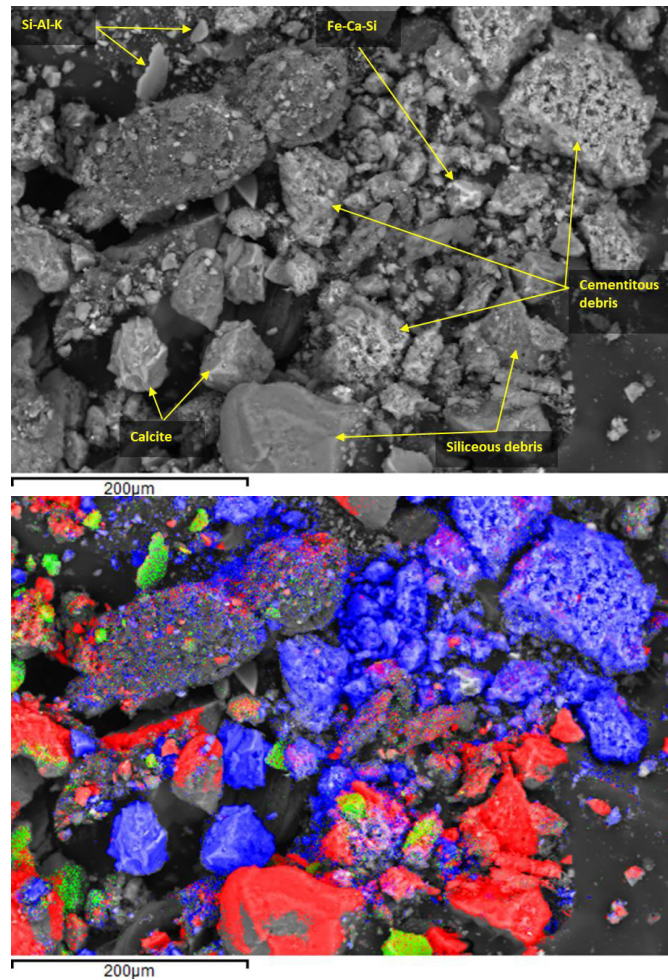
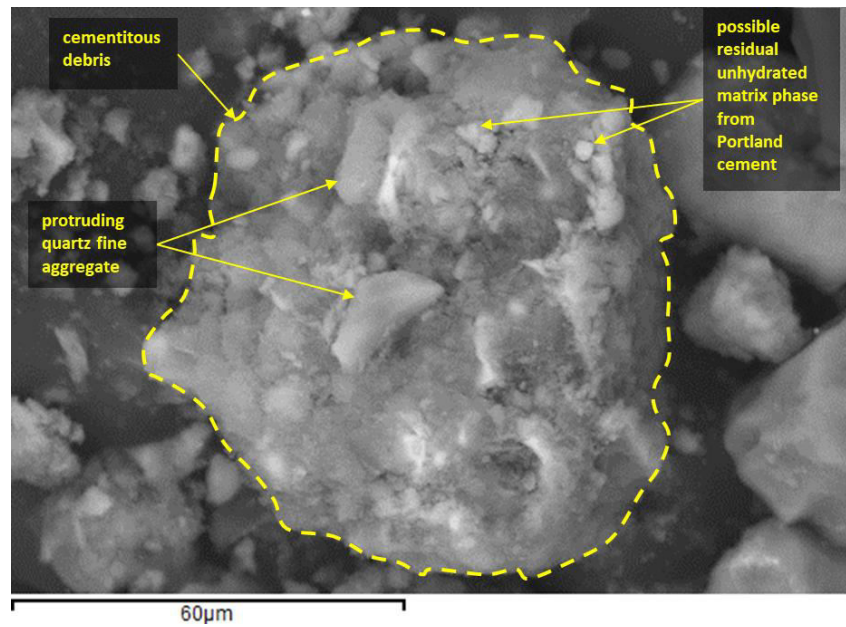


Figure C6

Sample: K16819/5

Location: Estate entrance sign, on site area proximal to plant

Backscattered electron image of dust: View showing typical appearance of cementitious debris particle with key features annotated.



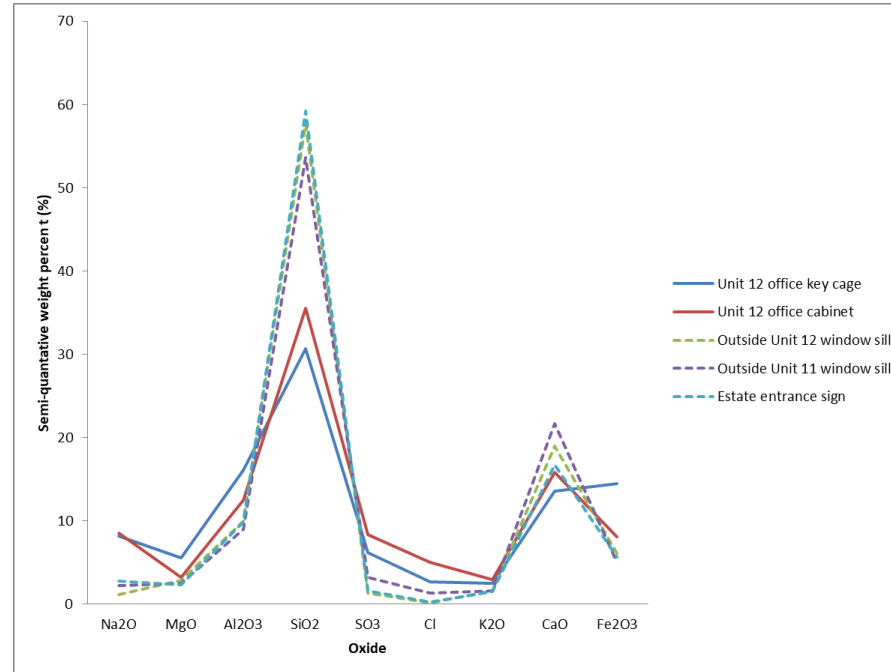
**APPENDIX D– CHEMICAL ANALYSIS OF THE DUST SAMPLES**

**Table D1: Semi-quantitative area analyses of the dust samples**

<i>Sandberg ref</i>	K16819/1	K16819/2	K16819/3	K16819/4	K16819/5
<i>Sample location</i>	Unit 12 office key cage	Unit 12 office cabinet	Outside Unit 12 window sill	Outside Unit 11 window sill	Estate entrance sign
<i>Na<sub>2</sub>O</i>	8.2	8.5	1.2	2.2	2.8
<i>MgO</i>	5.6	3.2	2.9	2.5	2.3
<i>Al<sub>2</sub>O<sub>3</sub></i>	16.1	12.5	10.0	9.0	9.9
<i>SiO<sub>2</sub></i>	30.7	35.5	57.7	53.6	59.2
<i>SO<sub>3</sub></i>	6.2	8.4	1.3	3.2	1.6
<i>Cl</i>	2.7	5.0	0.2	1.3	0.3
<i>K<sub>2</sub>O</i>	2.5	3.0	1.6	1.6	1.5
<i>CaO</i>	13.6	15.8	19.0	21.7	16.7
<i>Fe<sub>2</sub>O<sub>3</sub></i> <sup>Note 1</sup>	14.5	8.1	6.1	5.0	5.7

**Note 1:** The analyses are in weight %, are normalised to 100% and exclude O, C, and H.

**Figure D2: Line graph of the semi-quantitative area analyses of the dust samples**





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This report shall not be reproduced, except in full, without the written approval of Sandberg LLP.

Where test results are given, the results and our conclusions relate only to the samples tested and apply to the sample(s) as received, except where sampling has been conducted by Sandberg LLP.

Materials, samples and test specimens are retained for a period of 2 months from the issue of the final report.

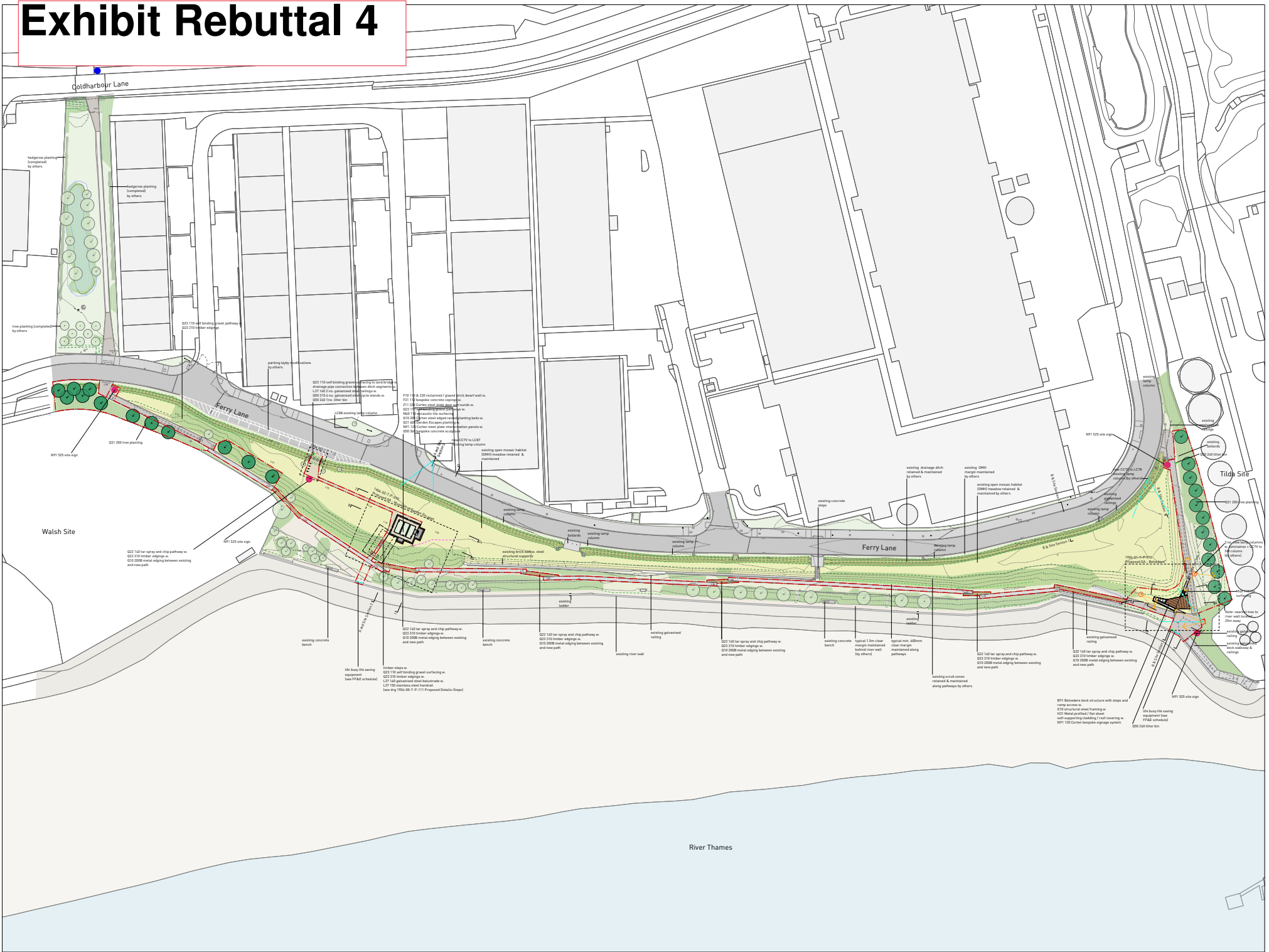
Tests reported on sheets not bearing the UKAS mark in this report/certificate are not included in the UKAS accredited schedule for this laboratory.

Opinions and interpretations expressed herein are outside the scope for UKAS accreditation.

End of report.



# Exhibit Rebuttal 4



- Notes:**  
 All dimensions must be checked on site and NOT scaled from this drawing. Any discrepancies are to be reported to the architect prior to construction.  
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- KEY:**
- Site Boundary - 3/16 sign
  - Existing highway
  - Existing carriageway
  - Existing asphalt pathway
  - Existing concrete pathway
  - Existing rough ground
  - Existing grass
  - Existing open mosaic habitat (OMH) margin
  - Existing open mosaic habitat (OMH) measure
  - Existing drainage ditch
  - Existing street ground
  - Proposed new path in maximum level building ground
  - Proposed new hard landscape path for spruce & thorn
  - Existing signage
  - Proposed new site interpretation signage
  - Existing Tree to be retained, species and canopy size to appropriate survey, and as varied path draw
  - Proposed Tree

**GENERAL NOTES:**  
 All works relate to Topographic Survey datum.  
 Use of BIM: Structural, MEP & Fluid Pathways Detail Drawings, and F&E and Soft Landscape Schedule for further information.  
 Refer to Flow Structures Engineer's title for further details on the Drainage structure.  
 CDM Health & Safety  
 Refer to Drainage Detail hazard management report, and the construction information, including site survey and utility information.  
 Contractor to follow risk assessments and working method statements described in construction phase plan to mitigate all project risks.  
 Proceed with caution at all times. If in doubt, ask.

**Revisions:**

Rev.	Date	Description
01	2023/01/24	Information
02	2023/07/20	Stage 4 Issue for Costing
03	2023/07/11	Final



**UNTITLED PRACTICE**  
 Unit 0219, Parthall Workspace  
 40 Marshall Road, London SE21 8EN  
 020 8470 0778  
 office@untitledpractice.com  
 www.untitledpractice.com

client: London Riverside BID  
 job no.: 1904  
 job title: Rainham Riverside  
 drg title: Site Plan  
 Proposed Site Strategy

Drawn: LP  
 Checked: LP  
 Scale: 1:750 @ A1  
 Date: September 2023  
 Status: Tender  
 Drg no.: 1904-00-1-P-001 Rev: 03

## Notes

All dimensions must be checked on site and NOT scaled from this drawing. Any discrepancies are to be reported to the architect prior to construction.

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## KEY

- Existing footway
  - Existing carriageway
  - Existing asphalt path
  - Existing concrete path
  - Existing concrete path
  - Existing gravel path
  - Existing soft landscape - grass
  - Proposed soft landscape enhancement - meadow
  - Proposed soft landscape enhancement - swale
  - Proposed soft landscape enhancement - scrub
  - Proposed tree planting strip
  - Proposed new hard landscape elements
  - Proposed new gravel path
  - Existing signage
  - Proposed new signage / interpretation
  - Existing Tree
  - Proposed Tree
- 1.0 Refer to Scope of Works schedule for number key items

## WIP DRAFT

### Revisions

Rev	Date	Description
01	2020/07/15	First Issue



0 5 25m

## UNTITLED PRACTICE

Unit D219, Parkhall Workspace  
40 Martell Road, London SE21 8EN  
020 8670 0778  
office@untitledpractice.com  
www.untitledpractice.com

client London Riverside BID

job no. 1904

job title Rainham Riverside

drg title General Arrangement  
Proposed  
Area 4 - Site 45a  
(1 of 4)

drawn UP

checked UP

scale 1:500 @ A3

date July 2019

status Information

drg no. 1904-00-SK-P-010 rev 01



signage / interpretation

seating

seating

line of fastigate trees / climbing plants to boundary

upgrade to existing railing/frontage

1m zone for trees / planting

line of trees along boundary to screen Walsh site

signage / interpretation

Coldharbour Lane

upgrade to existing railing/frontage

potential 'mini-gym' on concrete mat

meadow/ grassland enhancements

tree grove

tree grove