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Dear Neil

Hampstead Heath Ponds Project- Air Quality Dust

Thank you for your recent enquiry for Air Quality Dust Monitoring to be undertaken as part of the Hampstead Heath Ponds project. We are pleased to provide you with our proposal for air quality dust monitoring

Background

It is understood that London Borough of Camden have requested dust monitoring as part of the section 106 agreement.

This states that

'*No development at the borrow pits at the Highgate Chain and the Model Boating Pond shall take place until full details of the air quality dust monitoring regime has been submitted to and approved by the local planning authority in writing. Such details shall include the location, number and specification of the monitors, including evidence of the act that they have been installed in line with guidance outlined in the GLA's Control of Dust and Emissions during Construction and Demolition Supplementary Planning guidance and have been in place for 3 months prior to the proposed implementation date of works at these locations. The monitors shall be retained and maintained on site for the duration of the development in accordance with the details thus approved*.'

The areas for monitoring are based on the Impact Assessment in the ES (Section 12) as produced by Atkins.

Section 12.20 indentifies residential properties and other sensitive receptors that have been identified in the Baseline Conditions and there is a Local Authority Air Quality management programme which includes air quality monitoring in the local area to the project. This is undertaken by London Borough of Camden

Section 12.32 identifies Sensitive receptors at the residential properties on Millfield Lane which is 20 m from the Highgate Chain, South Hill Park Gardens which is 20 metres from Hampstead Heath no1 and no2 on the Hampstead Heath chains and Vale of Heath Road which is 35m from the Vale of Heath pond . These properties are within 350m of the Proposed Development.

The works are due to start towards the end of May 2015 and the works in these areas are the first works and will include undertaking and earthworks.

I trust that this proposal is in order and will be of interest to you. Please let me know if you have any questions or would like to discuss the proposal in detail

Yours sincerely

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ESG Proposal to undertake Air Quality Monitoring for BAM at Hamsptead Heath Ponds

Background

In deciding where to propose installing the dust monitoring equipment ESG has taken into consideration the following information available in the Impact Assessment Section 12.

Table 12.10 Summary of Dust Risk for All Construction Works Areas.
This identifies Borrow Pits – Highgate Chain No1 and Model Boating Pond as having a large dust emission magnitude during the earthworks. All other areas the impact is low or medium. At the Model Boating Pond the earthworks activities have been classed as 'large' due to the quantity of material that is required for the dam. At the Highgate Chain borrow pits, the earthworks activities have been classed as 'large' in terms of the dust emission magnitude, as the total site area in each case would be greater than 10,000m2

It is stated that with appropriate mitigation to prevent and control dust emissions the impact from construction dust is expected to be negligible. On this basis there are not expected to be significant effects on air quality due to the Proposed Development.

Proposed Dust Monitoring and Equipment

ESG propose that two types of air quality monitoring be undertaken for the duration of the project. This will include the period 3 months prior to the start of the project and continue for the duration of the 18 months project works ie 21 months total duration.

Nuisance Dust Monitoring using Frisbee Dust Deposition Gauges.

- This technique is used to determine the levels of relatively large particles of dust & to assess the likely hood of complaints arising.

Real Time Particulate Monitoring using TOPAS Monitors.

- The TOPAS is a real-time, light scattering & data-logging dust monitor. The instrument will measure & record concentration of airborne particulates in the dust range PM_{10}.

- The unit has the facility to send an **alarm text message** to designated mobile phones should the instrument detect dust concentrations above a set Trigger Value and an online facility to **download data readings on a daily basis.**

Frisbee Dust Deposition Gauge

Introduction

The “Frisbee” dust gauge is used for the measurement of ambient dust deposition. It is often deployed by ESG in cases of nuisance dust complaints in order to quantify the extent of a problem, but also on behalf of environmentally aware companies who wish to monitor the impact of their operations or comply with Planning Conditions etc.

Locating the Gauges

Gauges are deployed at dust sensitive locations and are used to monitor the effects of a range of activities such as construction sites, quarries, coal workings and other potentially dusty processes etc.

Principle of Operation

The dust collector consists of an inverted aluminium Frisbee, which is **accurately profiled** in manufacture. Dust, which falls into the gauge, does not blow out, owing to the aerodynamic shape. Rain washes deposited dust into a collection bottle.

Sampling

The collectors are usually sampled every two weeks and submitted for analysis at the UKAS (United Kingdom Accreditation Service) accredited laboratories of ESG.

Directional dust assessment is achieved by the addition of adhesive strips to each Frisbee Gauge support. This technique was developed by ESG and is based on assessment methods proposed by Beaman and Kingsbury.

Strips of white adhesive material, mounted as a vertical cylinder, are exposed to atmosphere for periods of up to 4 weeks. The degree of soiling is assessed using a reflectometer and gives soiling rates from 8 points of the compass

Analysis & Reports

The basic analysis consists of: Mass of undissolved solids determined gravimetrically and a calculation of dust deposition rate in **$mg.m^{-2}day^{-1}$.**

Results are reported on an ESG UKAS Test Report. UKAS **Testing Number 1205**

The deposited material can also be subjected to a range of analytical techniques.

The laboratory can also determine volume, pH and conductivity of collected rainwater and mass of **dissolved** solids determined gravimetrically and calculate deposition rate in $mg.m^{-2}day^{-1}$.

Results are reported in Percentage Effective Area Covered per Day (%EAC.day-1) and can be useful for the determination of the direction/location of potential dust sources.

The material can be subjected to chemical analysis for the determination of, for example, toxic metals concentration. In addition, the deposited particles can the examined by Scanning Electron Microscopy to visually identify the type and nature of the dust and also to provide addition chemical information using a technique known as Energy Dispersive Spectrometry Analysis.

Acceptance of the method.

The use of the Frisbee dust gauge is described & accepted by Central & Local Government Agencies.

The Environment Agency describe its use in its Guidance Documents TGN M9 Monitoring Methods for Ambient Air & TGD M17 Monitoring of Particulate Matter in Air Around Waste Facilities.

Use of Frisbee gauges is widely accepted by Local Authorities & its use is cited in Greater London Authority and London Councils document: The control of dust and emissions from construction and demolition Best Practice Guidance.

Real Time Dust Monitoring: TOPAS Instrument

The instrument instruments continuously measures and records the concentration of airborne particles.

A pump continuously draws an air sample through the nephelometer, which analyses the individual particles as they pass through a laser beam.

The instruments will be set to monitor the concentrations of TSP, PM10 particles.

The instruments features internal data logging for the particle concentrations. The TOPAS can be fitted with wind speed and direction sensors if required.

In addition, a GSM (cell phone) modem is fitted which will enable a Text Message to be sent in the event that a preset alarm level is exceeded and the recorded dust levels can be downloaded remotely.

A sample Report is attached in Appendix 1 'Sample Frisbee Report.pdf

A sample Report is attached in Appendix 2 'Sample TOPAS Report.pdf

Proposed Monitoring equipment Locations

A site visit has been undertaken to assess the most suitable location for the monitoring equipment so that is covers both the receptors on Millfield Lane and the users of the Heath.

TOPAS Installation location

- It is proposed that nos2 TOPAS units are installed
  - One unit to be installed at the Millfield Lane Public toilets.
  - One unit to be installed on the lamp post in Millfield Lane approximately 100m from the Public Toilets. These positions have been chosen to provide a safe and secure location with a power supply that will monitor areas including the receptors on Millfield Lane and the users of the Heath.

Frisbee Gauge Installation location

- ESG propose that nos2 Frisbee gauges are installed in the open heath area between Millfield Lane and the Model Boating Pond.
  - One unit to be installed in the open heath area between the cycle path leading from Millfield Lane to the Model Boating Pond Dam
  - One unit to be installed in the open heath area to the left of the path by Millfield Lane public toilets

Both Frisbee Gauges will be securely housed fixed to the ground (BAM to manufacture and provide secure housing and install units)

Air Quality Monitoring Programme

ESG propose that the equipment be installed for the 3 months prior to the project commencement and that it remains in place for the 18 months during the construction programme ie total period 21 months

Air Quality Fee Proposal

The cost proposal is detailed in the attached document Appendix 3 'Cost *Proposal Air Quality Hamsptead Heath Ponds.xls (v1.4)*