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**HYGROVE AGGREGATES
CWM NANT LLEICI QUARRY
PONTARDAWE
SWANSEA**

ENVIRONMENTAL SCHEME



Environmental Scheme
to
Identify, Mitigate, Control and Monitor the Impacts of Noise, Dust, Groundborne Vibration
and air overpressure
to
Accord with Planning Permission Ref: P2006/0853
for the
Extension of Existing Quarrying Operations
at
Hygrove Aggregates
Cwm Nant Lleici Quarry
Pontardawe
Swansea

Scheme submitted to:-

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CONTENTS

1. INTRODUCTION

2. ENVIRONMENTAL NOISE

- 2.1 Background Information
- 2.2 Monitoring Procedures
- 2.3 Suppression Measures
- 2.4 Permissible Noise Levels
- 2.5 Procedure to be Followed in the Event of the Permissible Levels Being Exceeded

3. DUST AND AIR QUALITY

- 3.1 Introduction
- 3.2 Suppression Measures
- 3.3 Permissible levels
- 3.4 Monitoring

4. GROUNDBORNE VIBRATION AND AIR OVERPRESSURE

- 4.1 Background information
- 4.2 Monitoring procedures
- 4.3 Impact reduction measures
- 4.4 Permissible levels
- 4.5 Procedure to be Followed in the Event of the Permissible Levels Being Exceeded

5. COMPLAINTS PROCEDURE



1. INTRODUCTION

- 1.1 The main objective of Hygrove Aggregates (HA) in respect of noise, dust, groundborne vibration and air overpressure generated by mineral extraction operations at Cwm Nant Lleici Quarry, is to ensure that the environmental impact of each is kept to an acceptable level. This will be carried in accordance with specific planning conditions, mineral planning guidance and policy. This Environmental Scheme proposes the procedure to be adopted and outlines the measures to be taken in order to identify, mitigate, control and monitor the environmental impacts from the site.
- 1.2 The scheme has been prepared to update the previously approved scheme and similarly accords with conditions 30, 31 and 40 of Planning Permission Ref: P2006/0853 issued by Neath Port Talbot County Borough Council (MPA) on 15 April 2009. The scheme also refers to conditions 16, 17, 25, 26, 27, 28, 29, 32, 33, 34, 36, 37, 38, 39, 43, 44, 57 and 58 of Planning Permission Ref: P2006/0853.
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- 1.3 The scheme incorporates communication procedures to be established between HA and MPA in order for the Scheme to be regularly reviewed and any concerns of the local community to be satisfactorily addressed. The scheme shall also be reviewed in the event that any of the properties, which are proposed as monitoring locations, become under the control of HA.
- 1.4 Each environmental impact is addressed separately within the Scheme.
- 1.5 The scheme acknowledges existing good site operational practices, recognised good practice, relevant National and UK policy as set out in National Planning Policy, Technical Advice Notes (TAN), other guidance documents and relevant British Standards.
- 1.6 Any proposed monitoring is procedures are all in accordance with current Welsh Government guidance and British Standards.



- 1.7 The scheme is provided as a generic document that will apply to Cwm Nant Lleici to ensure that existing sensory environmental impact and that from any future proposed development is adequately mitigated.
- 1.8 The scheme shall be reviewed as required and amendments will only be made with the mutual agreement of HA and the MPA. The scheme will also be reviewed in the event of significant changes to Welsh Government guidance, planning policy and British Standards.
- 1.9 The scheme supersedes any existing environmental monitoring schemes approved by the MPA.



2. ENVIRONMENTAL NOISE

2.1 Background information

- 2.1.1 The permissible noise levels which are contained in this scheme are in accordance with the extant Planning Permission.
- 2.1.2 Permissible noise levels are applied to those locations specified in 2.2.2 below.
- 2.1.3 In the event that access cannot be obtained to undertake noise monitoring at the selected locations then measurements will be carried out at either another representative position or at a suitable location on the site boundary. Calculations will then be made in accordance with the distance adjustment methods outlined in BS5228-1: 2009 + A1: 2014 '*Code of practice for noise and vibration control on construction and open sites – Part 1: Noise*', to demonstrate compliance with the permissible levels. Corrections will be made for any afforded topographical, ground / air absorption effects or barrier attenuation.

2.2 Monitoring procedures

- 2.2.1 Monitoring will be undertaken at the following measurement locations at a frequency of not less than once per year. Sample measurements shall also be conducted during any key stages of site development for example new development phases, temporary operations, which include soil stripping and baffle mound construction, top bench working when in close proximity to dwellings or other operations as determined by the HA management.



2.2.2 Monitoring shall be carried out at the following locations, subject to the owner's permission. In the event that any of the nominated properties become in the control of HA, then monitoring at the property will cease:-

Measurement Location	Measurement Position
Cilmaengwyn Uchaf	Rear of courtyard
Pen Y Darren Farm	Rear of farm bulding
Pantgwyn Farm	Boundary of front garden
Gellifowy Fach	Rear garden
New Mountain Gate	Rear garden

2.2.3 Additional monitoring will be undertaken as required ie. in accordance with the complaints procedure as stated in Section 5 – Complaints Procedure.

2.2.4 In the event that monitoring establishes that the noise impact from site operations is having negligible effect upon the noise environment at the measurement locations or that other noise sources not associated with site operations are the primary influence, it is proposed that the requirement for routine monitoring will be reviewed in consultation with the MPA. However HA will react immediately to any complaint received in respect of environmental noise in accordance with 2.5.1 below and Section 5 of this scheme.

2.2.5 The instrumentation used to monitor the noise levels will meet the standards specified in Type 1 of BS EN 61672-1:2013 '*Electroacoustics. Sound Level Meters - Specifications*'.

2.2.6 The monitoring will be undertaken with reference to the methods and procedures provided specifically in clauses 5.1, 6.2 and 6.4 of BS 4142: 2014 + A1: 2019, '*methods for rating and assessing industrial and commercial sound*' (*British Standards Institution 31.10.14*) and BS5228-1: 2009 + A1: 2014 Annex G, at times when it is known that the site is fully operational. In summary, measurements will be made in accordance with the procedure below:-



2.2.7 Monitoring will be undertaken by competent persons and only at times when it is known that the site is fully operational.

2.2.8 Measurements will be made in accordance with the procedure below:-

- the instrumentation will be calibrated on site both before and after use in accordance with the manufacturer instructions using a UKAS certified acoustic calibrator;
- measurement height between 1.2 to 1.5 metres above the ground;
- instrument setting - fast time response and A weighted;
- 15 minute measurement periods; and
- recorded measurement parameters - L_{A10} , L_{A90} and L_{Aeq} ;

2.2.9 Monitoring will not be undertaken if it is considered that the prevailing weather conditions could detrimentally effect the measurements either by generating extraneous noise or by influencing sound propagation. Such weather includes wind speeds which are greater than 5ms^{-1} , low ambient temperatures or rain.

2.2.10 So far as is reasonably practicable, monitoring shall be undertaken to ensure that all site operations are representatively assessed and in the event of steady noise conditions a minimum fifteen minute measurement period shall be adopted at each agreed location. This will include both attended and unattended measurements being carried out.

2.2.11 Within six weeks of each monitoring exercise site management will ensure that a report is prepared detailing the monitoring results. The report shall include the following information:-

- the aims of the assessment;
- monitoring locations and measurement position;
- influencing factors upon the noise environment;



- monitoring procedures including any deviation from the procedures detailed in this scheme;
- meteorological conditions including weather, wind speed/direction, cloud cover and ambient temperature;
- monitoring instrumentation used;
- measurement duration;
- site activities taking place during the measurement periods;
- measurement results; and
- discussion of results.

2.2.12 All relevant records pertaining to the measurement and recording of noise will be retained by the HA site management and a copy will be held on site and be available to for inspection by authorised officers of the MPA.

2.2.13 HA shall supply copies of any noise monitoring reports to the MPA if requested.

2.3 Suppression measures

2.3.1 Best practicable means will be adopted to ensure that static and mobile plant will be suitably noise attenuated and maintained. Daily and weekly checks of mobile plant, including inspection of the vehicles transmission, exhaust and hydraulic systems will be carried out.

2.3.2 If site conditions dictate that ancillary diesel driven equipment be employed eg. mobile plant, water pumps etc. the equipment will be suitably silenced to ensure that noise generated by such equipment does not give rise to an increase above the agreed permissible noise levels.

2.3.3 No mobile plant will operate using intrusive audible reversing alarms. Vehicles controlled by *Quarries Regulations 1999*, '*Quarries Regulations 1999 - Approved code of practice*' (*Health & Safety Executive. Second Edition 2013*), required to operate with reversing warnings will be fitted with 'broadband' type alarms.



2.4 Permissible noise levels

- 2.4.1 Unless approved by the MPA or in exceptional circumstances to maintain safe quarry working as required by Health and Safety Executive (HSE) Quarries legislation, HA will take all reasonably practical steps to control noise levels generated by permitted operations at the site. The noise limits which apply to the site are provided below:-

Time Period	Noise Limits dB L _{Aeq, 1hour} (freefield)
07:00 hrs. to 19:00 hrs. Mondays to Fridays	50
08:00 hrs. to 12:00 hrs. Saturdays	50
At any other time	42

- 2.4.2 For temporary operations, for example bund formation, soil placement etc. the extant planning permission allows for a higher noise limit to be applied to accommodate such occurrences for periods of up to 8 weeks in any one year.

Time Period	Noise Limits dB L _{Aeq, 1hour} (freefield)
07:00 hrs. to 19:00 hrs.	67

- 2.4.3 The limits contained in the extant planning permission only applies to inhabited dwellings, which are not in the control of the developer and existed outside the site boundary prior to the date that Planning Application Ref: P2006/0853 was duly made.

2.5 Procedure to be followed in the event of the permissible levels being exceeded

- 2.5.1 Following a noise survey, in the event that the permissible noise levels attributable to site operations are exceeded by operations from the site, HA will inform MPA of the occurrence and of any mitigating measures taken to reduce the impact. Any further action will be agreed between all parties.



3. DUST AND AIR QUALITY

3.1 Introduction

The dust control measures to be utilised in this scheme are to accord with the recommendations established in Institute of Air Quality Management '*Guidance on the Assessment of Mineral Dust Impacts for Planning*', 2016, Minerals Industry Research Organisation '*Good Practice Guide: Control and Measurement of Nuisance Dust and PM₁₀ from the Extractive Industries*', 2011, Department of the Environment Minerals Division '*The Environmental Effects of Dust from Surface Mineral Workings*', 1995 and *Minerals Technical Advice Note (Wales) 1: Aggregates*, 2004, The Welsh Assembly Government. The measures also accord with condition 30 i, ii, iii, iv, v and vi of the extant Planning Permission.

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3.2 Suppression Measures

- 3.2.1 The site operations require the following suppression methodologies, which are derived from and are mutual to established documentation.
- 3.2.2 The adoption of best practicable means to ensure dust and fumes from the site are effectively suppressed.
- 3.2.3 Mobile plant should be regularly serviced and equipped with effective exhausts to prevent fume emissions.
- 3.2.4 Haul roads should be adequately maintained.
- 3.2.5 Water bowsers will be used during dry conditions on the access road, haul roads and any other trafficked areas as and when required. At least one water bowser will be permanently available on site at all times.



- 3.2.6 An adequate supply of water shall be maintained on site at all times for use as a dust suppressant.
- 3.2.7 HA shall ensure that all commercial vehicles pass through a wheel cleaning facility prior to leaving the site to prevent the deposition of material onto the public highway.
- 3.2.8 Due to the length of the access road, it is unlikely that dust or mud from the quarry would be deposited on the public highway. In the unlikely event that dust or mud from the site has been deposited on the public highway, a road sweeper will be employed.
- 3.2.9 HA shall ensure all vehicles leaving the site onto the public highway are suitably sheeted.
- 3.2.10 During dry conditions, vehicle speed control on access and other trafficked areas will be implemented by HA and must be adhered to with due regard to weather and ground conditions in order to reduce fugitive dust generation.
- 3.2.11 The Site Manager or instructed site personnel will undertake periodic inspections of the public highway in order to identify the need for any cleaning requirements. Observations from all inspections will be logged.
- 3.2.12 The loading and unloading of vehicles should ensure drop heights are minimised. This is especially pertinent during soil stripping and overburden removal, construction of the screening bunds and restoration activities in the vicinity of sensitive receptors.
- 3.2.13 Temporary operations such as soil stripping, bund formation and final restoration will typically be undertaken using an excavator, dump trucks and dozer. Operations should be undertaken with due regard to weather conditions and type of material being handled in order to reduce dust generation.



- 3.2.14 Peripheral screening bunds and site topography should reduce dust pick-up by wind and reduce fugitive emissions.
- 3.2.15 Tipping of overburden and mineral waste will be temporarily suspended during high northerly winds. This will minimise impact at sensitive receptors located to the south of the quarry. The cessation of these activities will be enacted when average wind speeds are forecast to exceed 15 metres per second (34 miles per hour) and encompass a northerly component. Meteorological information will be supplemented using the weather station installed on site. All wind speed and directional data is recorded and stored.
- 3.2.16 Screening bunds and any new landforms will be seeded as soon as possible.
- 3.2.17 Water sprays or surface binders will be utilised to maintain damp surfaces on exposed tip and stockpile faces and any exposed friable surfaces during dry and windy weather.
- 3.2.18 Outer tip or bund faces will be seeded as soon as possible. Tip faces and other exposed areas of the mineral site will undergo progressive restoration as soon as practicable after their construction.
- 3.2.19 Best practice will be used to minimise the impact of dust generated from blasting operations. These include the use of filtration equipment on the exhaust emissions from drill rigs and the removal of any loose material from the area of blast prior to detonation.
- 3.2.20 If conditions are such that the suppression measures above are found not to be sufficient to control dust from site operations, then the offending operation shall cease until additional mitigation measures are implemented to arrest the situation.
- 3.2.21 All site employees will receive appropriate training in order to ensure that they are conversant with the site dust control strategy.



3.2.22 In addition to the application of routine mitigation, the specific dust amelioration measures presented will be dependent upon the daily management of Cwm Nant Lleici Quarry.

3.3 Permissible Levels

3.3.1 The impact of fugitive emissions from mineral dusts can include: soiling of surfaces, especially with a high contrast material; the physical impact on sensitive industries and facilities; the physical and chemical impact on vegetation; the effect of adverse publicity influencing personal expectations; and individuals' experiences. Because of this wide range of interpretation, the perception of nuisance impact is problematic. This has resulted in no universal standards or guideline limits having been agreed or imposed. A frequently used maximum associated with the mean rate of soiling using dust deposition gauges is 200 milligram per square metre per day, based upon monthly sample collection (*'Good Practice Guide: Control and Measurement of Nuisance Dust and PM₁₀ from the Extractive Industries'*, MIRO 2011, and *Monitoring of particulate matter in ambient air around waste facilities: Technical Guidance M17, The Environment Agency, 2013*). Therefore, in accordance with these guidance documents a value of 200 milligram per square metre per day will be used to assess 'nuisance' outside the curtilage of the site.

3.3.2 Any complaints received by HA concerning the deposition of dust or mud outside of the site will be logged and the complaint procedure stated in Section 5 of this Scheme will be followed.

3.3.3 Data from any PM₁₀ monitoring will be considered against National Air Quality Strategy objectives. This presently sets an annual gravimetric mean of 40 micrograms per cubic metre ($\mu\text{g}/\text{m}^3$) with $50\mu\text{g}/\text{m}^3$ measured as a 24-hour mean, not to be exceeded more than 35 times per annum.



3.4 Monitoring

- 3.4.1 With reference to 5.4 below, the following dust monitoring arrangements will be implemented.
- 3.4.2 Monitoring will utilise frisbee-type dust deposit gauges with foam inserts and bird guards, located both within the curtilage of the quarry complex and at receptors in the vicinity of the quarry, dependent upon access and agreement from landowners. These gauges accord with the preferred method stipulated within Environment Agency guidance ‘Monitoring methods for ambient air – Technical Guidance note M8’, (The Environment Agency, 2011) and ‘Good Practice Guide: Control and Measurement of Nuisance Dust and PM₁₀ from the Extractive Industries’ (Minerals Industry Research Organisation, 2011) and are used to establish the mean rate of environmental dust deposition.
- 3.4.3 Samples will be collected on a monthly basis to establish the mean rates of dust deposition with monthly Certificates of Analysis produced, to be disseminated to the Regulatory Authorities. After an agreed monitoring period the results will be correlated with the production of a brief report, which shall review the performance of the dust mitigation and identify the need for extra mitigation and the continuation or cessation of monitoring as appropriate. In the event of receptor-based monitoring locations recording an exceedance of the dust deposition guidance value stated in Section 3.3.1, then an investigation will be instigated to identify the provenance of any fugitive dust emissions. This will permit appropriate amelioration.
- 3.4.4 The duration of any additional monitoring will be agreed between HA and the MPA. Any ambiguous dust samples may be analysed, if deemed necessary, in order to apportion the source of dust. Analysis will utilise particle characterisation established using ‘*Techniques for tracing fugitive mineral dusts for nuisance control and health risk*’, (J R Merefield, I Stone, J. Barron and J Jones Transactions of the Institution of Mining and Metallurgy, vol 108, A77-A8 pp 1, Jan-Apr 1999).



3.4.5 In the event that PM₁₀ monitoring is required, this will be undertaken for an agreed period in order to demonstrate compliance with permissible levels and the National Air Quality Strategy objectives for PM₁₀. Results will be correlated, compared with baseline data and a brief report will be produced. Monitoring equipment will accord with the requirements for the measurement of PM₁₀ specified within National Air Quality Strategy.



4. GROUNDBORNE VIBRATION AND AIR OVERPRESSURE

4.1 Background information

4.1.1 The permissible groundborne vibration and air overpressure levels which are contained in this scheme are in accordance with the extant Planning Permission.

4.1.2 Unless otherwise agreed in writing by MPA or in exceptional circumstances to maintain safe quarry working as required by quarry legislation, no blasting shall take place in the extraction area except between the times stated below:-

- Mondays to Fridays between 11:00 – 15:00 hours.
- At no time on Saturdays, Sundays or Bank or Public Holidays.

Note: In addition to the above, times of blasting are further restricted by Regulation 29(4)(a) of the *Quarries Regulations 1999* ‘*Quarries Regulations 1999 - Approved code of practice*’ (Health & Safety Commission), which states that no person shall charge or fire a shot or undertake preparatory work unless there is sufficient visibility.

4.1.3 Only designated and suitably trained site personnel will monitor groundborne vibration and air overpressure produced by production blasting at Cwm Nant Lleici Quarry.

4.1.4 The permissible levels of groundborne vibration and air overpressure are applied to any occupied building, not under the control of the developer, existing outside the site boundary prior to the date that the extant Planning Permission application was duly made and where the occupants of such buildings or the integrity of such buildings or structures are likely to be adversely affected by an increase in vibration levels.



4.2 Monitoring procedures

- 4.2.1 Monitoring of groundborne vibration and air overpressure may be undertaken at any building stated in 4.1.4 above with the owners / occupiers permission. The location selected will generally be whichever building is considered to be the closest to a specific blasting event and thus potentially the most sensitive.
- 4.2.2 In the event that access cannot be obtained to undertake groundborne vibration / air overpressure monitoring at the closest location as stated in 4.2.1 above, then monitoring will be carried out at a representative location. If required, calculations can then be made to assess the levels of groundborne vibration at any location.
- 4.2.3 Regression analysis will be undertaken as and when deemed necessary by the site management.
- 4.2.4 Monitoring will be carried out for all blasting events for the duration of working at the site.
- 4.2.5 The instrumentation to be used for monitoring blasting impacts will be capable of measuring the groundborne vibration as the maximum of 3 perpendicular axis and air overpressure in dB Linear.
- 4.2.6 All relevant records pertaining to the measurement and recording of groundborne vibration and air overpressure will be retained by the HA site management for a period of three years and will be available for inspection by authorised officers of MPA.
- 4.2.7 At the request of MPA, HA shall arrange for monitoring equipment to be made available for inspection by authorised officers.
- 4.2.8 Upon request, HA shall supply copies of all blast monitoring records held on site to MPA.



4.3 Impact reduction measures

4.3.1 All blasts will be designed with due consideration given to minimising the propagation of groundborne vibration and air overpressure outside of the site.

4.3.2 The following procedure shall be followed and information recorded:-

- Potentially sensitive properties shall be identified;
- The location of the quarry blast area shall be identified and a pre-survey undertaken;
- The distance to nearest sensitive property shall be accurately determined using the survey data;
- The measured distance and proposed maximum instantaneous explosive charge weight (MIC) shall be used to calculate a scaled distance (SD) value;
- The SD shall then be used predict from the regression line graph the expected peak particle velocity (PPV) (expressed @ 95% confidence) at the identified sensitive property;
- In the event that the predicted levels exceed the permissible levels, then the MIC shall be reduced accordingly and the SD re-calculated until the predicted PPV is below the permissible levels.

4.3.3 All blasts will be preceded by visible and audible warnings and following the blast an audible 'all clear' signal will be given, as dictated by the Health and Safety at Work etc. Act 1974 (Health & Safety Executive) and in full compliance with the Quarries Regulations 1999.

4.3.3 If requested by any of the occupiers of neighbouring properties, HA will provide notification by telephone before a blasting event takes place.



4.4 Permissible levels

- 4.4.1 To accord with the extant Planning Permission and unless otherwise agreed in writing by MPA or in exceptional circumstances to maintain safe quarry working as required by the quarries legislation, every effort shall be made to ensure that the levels of groundborne vibration resulting from production blasting at the site shall not exceed a peak particle velocity of 4 mms^{-1} (expressed at 95 % confidence over any 20 week period) and shall never exceed a maximum peak particle velocity of 8 mms^{-1} . The measurement to be the maximum peak particle velocity of three mutually perpendicular axis as measured at or near to the foundations of those locations stated in 4.2.1 above.
- 4.4.2 Best practice shall be adopted to minimise the propagation of air overpressure arising from production blasting operations.

4.5 Procedure to be followed in the event of the permissible levels being exceeded

- 4.5.1 In the event of the agreed permissible levels of groundborne vibration being exceeded by production blasting operations from the site, HA will inform MPA of the occurrence and of any mitigating measures proposed to reduce the impact. Any further action will be agreed between both parties.



5. COMPLAINTS PROCEDURE

- 5.1 In the event of a recorded complaint being received by HA or MPA concerning any of the environmental impacts detailed in the monitoring scheme, then the party receiving the complaint shall inform the other without undue delay.
- 5.2 Upon receipt of the complaint, HA will instigate an immediate investigation with MPA being kept fully informed of such investigation and subsequent remedial action taken.
- 5.3 All complaints will be investigated by the HA site management or other nominated site personnel, with a report back to the person making the complaint.
- 5.4 Where no obvious cause for complaint can be identified, then monitoring when applicable will none the less be undertaken as a matter of urgency in order to determine if a non compliance of the permissible levels has occurred.
- 5.5 In the event that the proposed permissible levels are exceeded, HA will inform MPA of the occurrence and of any mitigating measures taken to reduce the impact. Any further action required will be agreed between both parties.
- 5.6 Should it be found that the proposed permissible levels are not exceeded but a subjective assessment made by HA or MPA deems the complaint to be justified, then action as agreed between either parties shall be defined and implemented in order to arrest the situation.
- 5.7 All complaints received by HA concerning any of the environmental impacts detailed in the monitoring scheme will be recorded in the site complaint log, which will be available for inspection by authorised officers of MPA upon request.

